



PC-24
THE CRYSTAL CLASS

EASA Approved Airplane Flight Manual

MSN 101 and up – Report number 02371

VOLUME 1 (Including sections 0, 1, 2, 3, 3A, 3B, 4 and 4A)

Manufacturer's Serial Number: _____ Registration Number: _____

EASA Type Certification No: EASA.A.594

FAA Type Certification No: A00072CE

Pilatus Aircraft Ltd., CH-6370 Stans, Switzerland

APPROVED IN THE COMMUTER CATEGORY BASED ON CS-23 THROUGH AMENDMENT 3.

THIS DOCUMENT MUST BE CARRIED IN THE AIRPLANE AT ALL TIMES.

THE MATERIAL REQUIRED TO BE FURNISHED TO THE PILOT BY THE EASA TYPE CERTIFICATION BASIS AND ADDITIONAL INFORMATION PROVIDED BY THE MANUFACTURER AND CONSTITUTES THE EASA APPROVED AIRPLANE FLIGHT MANUAL (AFM).

This Manual is also FAA approved for U.S. registered aircraft in accordance with FAR 21.29.

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PC-24

THE CRYSTAL CLASS

Airplane Flight Manual (AFM)

Document number 02371

Issue 003 Revision 07: November 30, 2023

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



PILATUS



PC-24

THE CRYSTAL CLASS

Airplane Flight Manual (AFM)

Procedures

Emergency

Abnormal

Advisory

Normal

Additional Normal



Front Matter

Table of Contents

| Subject | Page |
|---|---------------|
| List of Effective Data Modules Issue 003 Revision 07 | FM-1-1 |
| Copyright Notice | FM-2-1 |
| 1 Copyright and Legal Statement | FM-2-1 |
| Change Highlights Issue 003 Revision 07 | FM-3-1 |
| Log of Revisions | FM-4-1 |
| 1 Issue 001 Revision 00 Dated 15 September 2017 | FM-4-1 |
| 2 Issue 001 Revision 01 Dated 30 October 2017 | FM-4-1 |
| 3 Issue 002 Revision 00 Dated 29 November 2017 | FM-4-1 |
| 4 Issue 003 Revision 00 Dated 24 January 2018 | FM-4-1 |
| 5 Issue 003 Revision 01 Dated 12 July 2018 | FM-4-2 |
| 6 Issue 003 Revision 02 Dated 29 April 2019 | FM-4-2 |
| 7 Issue 003 Revision 03 Dated 08 October 2020 | FM-4-3 |
| 8 Issue 003 Revision 04 Dated 15 January 2021 | FM-4-3 |
| 9 Issue 003 Revision 05 Dated 10 December 2021 | FM-4-4 |
| 10 Issue 003 Revision 06 Dated 01 December 2022 | FM-4-4 |
| 11 Issue 003 Revision 07 Dated 30 November 2023 | FM-4-5 |
| List of Temporary Revisions | FM-5-1 |
| List of Service Bulletins | FM-6-1 |
| List of Software | FM-7-1 |
| 1 List of UMS Software | FM-7-1 |
| 2 List of APEX Software | FM-7-2 |



Table of Contents

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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List of Effective Data Modules Issue 003 Revision 07

All DMC are preceded with PC-24-A but for clarity this has been left out

C = Changed data module

N = New data module

| Data module code (DMC) | Document title | N/C | Issue date |
|--------------------------|--|-----|------------|
| A15-00-0000-00A-00SA-A | List of Effective Data Modules Issue 003 Revision 07 | C | 30.11.2023 |
| A15-00-0000-00A-021A-A | Copyright Notice | | 07.10.2020 |
| A15-00-0000-00A-00UA-A | Change Highlights Issue 003 Revision 07 | C | 30.11.2023 |
| A15-00-0000-00A-003B-A | Log of Revisions | C | 30.11.2023 |
| A15-00-0000-00A-004A-A | List of Temporary Revisions | C | 30.11.2023 |
| A15-00-0000-00A-930A-A | List of Service Bulletins | | 10.12.2021 |
| A15-00-0000-00A-106A-A | List of Software | C | 30.11.2023 |
| A15-00-0010-00A-018A-A | Introduction | C | 30.11.2023 |
| A15-00-0107-00A-010A-A | General | | 01.12.2022 |
| A15-00-0104-00B-005A-A | List of Terms, Abbreviations and Conversions | | 01.12.2022 |
| * A15-10-0201-00A-043A-A | Limitations | C | 30.11.2023 |
| * A15-40-0301-00A-141A-A | General | | 11.07.2018 |
| * A15-40-0310-00A-014G-A | Non-annunciated Emergency Procedures List | | 15.01.2021 |
| * A15-40-0310-00A-141U-A | Non-annunciated Emergency Procedures | C | 01.11.2023 |
| * A15-40-0319-00A-141X-A | Fire, Smoke or Fumes in Cockpit / Cabin | | 15.01.2021 |
| * A15-40-0320-00A-141X-A | Emergency Evacuation | | 11.07.2018 |
| * A15-40-0318-00A-014B-A | Warning CAS List | | 15.01.2021 |
| * A15-40-0312-00A-141A-A | Advanced Cockpit Environment (ACE) | | 11.07.2018 |
| * A15-40-0315-00A-141A-A | Autopilot | | 11.07.2018 |
| * A15-40-0307-00A-141A-A | Brakes | | 11.07.2018 |
| * A15-40-0317-00A-141A-A | Doors | | 11.07.2018 |
| * A15-40-0309-00A-141A-A | ECS and Pneumatics | | 10.12.2021 |
| * A15-40-0302-00A-141A-A | Electrical | | 01.12.2022 |
| * A15-40-0303-00A-141A-A | Engines | | 10.12.2021 |
| * A15-40-0305-00A-141A-A | Flight Controls | | 15.01.2021 |
| * A15-40-0304-00A-141A-A | Fire/Overheat | | 15.01.2021 |
| * A15-40-0306-00A-141A-A | Fuel | | 15.01.2021 |
| * A15-40-0314-00A-141A-A | Ice and Rain | | 07.10.2020 |
| * A15-40-0316-00A-141A-A | Oxygen | | 10.12.2021 |
| * A15-48-0314-00A-141A-A | General | | 11.07.2018 |
| * A15-48-0309-00A-014F-A | Non-annunciated Abnormal Procedures List | C | 30.11.2023 |

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List of Effective Data Modules Issue 003 Revision 07

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| Data module code (DMC) | Document title | N/C | Issue date |
|-------------------------------|---|------------|-------------------|
| * A15-48-0309-00A-141V-A | Non-annunciated Abnormal Procedures | C | 30.11.2023 |
| * A15-48-0318-00A-014C-A | Caution CAS List | | 10.12.2021 |
| * A15-48-0311-00A-141A-A | Advanced Cockpit Environment (ACE) | | 10.12.2021 |
| * A15-48-0317-00A-141A-A | Autopilot | | 07.10.2020 |
| * A15-48-0306-00A-141A-A | Brakes | | 01.12.2022 |
| * A15-48-0308-00A-141A-A | ECS and Pneumatics | | 01.12.2022 |
| * A15-48-0301-00A-141A-A | Electrical | C | 01.11.2023 |
| * A15-48-0302-00A-141A-A | Engines | C | 01.11.2023 |
| * A15-48-0304-00A-141A-A | Flight Controls | C | 30.11.2023 |
| * A15-48-0303-00A-141A-A | Fire/Overheat/Smoke | | 15.01.2021 |
| * A15-48-0305-00A-141A-A | Fuel | | 01.12.2022 |
| * A15-48-0307-00A-141A-A | Landing Gear | | 15.01.2021 |
| * A15-48-0313-00A-141A-A | Ice and Rain | C | 30.11.2023 |
| * A15-48-0316-00A-141A-A | Navigation | | 15.01.2021 |
| * A15-48-0315-00A-141A-A | Oxygen | | 11.07.2018 |
| * A15-48-0312-00A-141A-A | UMS | | 01.12.2022 |
| * A15-48-0321-00A-141A-A | Miscellaneous Emergency / Abnormal Procedures | | 11.07.2018 |
| * A15-00-0907-00A-010A-A | General | | 11.07.2018 |
| * A15-00-0908-00A-014D-A | Advisory CAS List | C | 01.11.2023 |
| * A15-48-0324-00A-141A-A | Advanced Cockpit Environment (ACE) | N | 01.11.2023 |
| * A15-48-0320-00A-141A-A | Autopilot | | 07.10.2020 |
| * A15-48-0322-00A-141A-A | ECS and Pneumatics | | 01.12.2022 |
| * A15-48-0323-00A-141A-A | Flight Controls | | 15.01.2021 |
| * A15-00-0909-00A-014E-A | Status CAS List | | 01.12.2022 |
| * A15-48-0910-00A-014J-A | FAS Message List | | 01.12.2022 |
| * A15-48-0910-00A-141B-A | FAS Messages | C | 01.11.2023 |
| * A15-30-0407-00A-130A-A | General | | 11.07.2018 |
| * A15-30-0400-00A-014H-A | Normal Procedures List | | 01.12.2022 |
| * A15-30-0401-00A-131A-A | Preflight | C | 01.11.2023 |
| * A15-30-0402-00A-131A-A | Inflight | | 10.12.2021 |
| * A15-30-0403-00A-131A-A | After Landing | C | 01.11.2023 |
| * A15-30-0404-00A-131A-A | Securing | | 07.10.2020 |
| * A15-30-0416-00A-131A-A | Quick Start / QPM | C | 01.11.2023 |
| * A15-30-0408-00A-131A-A | General | | 01.12.2022 |
| * A15-30-0413-00A-014N-A | Additional Normal Procedures List | | 01.12.2022 |
| * A15-30-0412-00A-043A-A | Cold Weather Information | | 10.12.2021 |
| * A15-30-0410-00A-131A-A | Cold Weather Procedures | C | 30.11.2023 |
| * A15-30-0414-00A-131A-A | Crosswind Information | | 01.12.2022 |
| * A15-30-0411-00A-131A-A | Oxygen Planning Information | | 10.12.2021 |
| * A15-30-0415-00A-131A-A | Quiet Power Mode Procedures | | 18.04.2019 |
| * A15-60-0505-00A-018A-A | Introduction | C | 30.11.2023 |
| * A15-60-0571-00A-030A-A | Performance Information | C | 30.11.2023 |
| * A15-60-0502-00A-030A-A | Standard Conversions | C | 30.11.2023 |

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List of Effective Data Modules Issue 003 Revision 07

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| Data module code (DMC) | Document title | N/C | Issue date |
|--------------------------|--|-----|------------|
| * A15-60-0503-00A-030A-A | Stall Speeds And Buffet Margin | C | 30.11.2023 |
| * A15-60-0572-00A-030A-A | Aircraft Classification Number | C | 30.11.2023 |
| * A15-60-0506-00A-030A-A | Takeoff Thrust Settings | | 18.04.2019 |
| * A15-60-0510-00A-030A-A | Takeoff, Dry Runway, No Slope, Flaps 15, IPS OFF | C | 30.11.2023 |
| * A15-60-0511-00A-030A-A | Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON | C | 30.11.2023 |
| * A15-60-0546-00A-030A-A | Takeoff, Dry Runway, Slope Adjustment, Flaps 15 | | 07.10.2020 |
| * A15-60-0513-00A-030A-A | Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF | C | 30.11.2023 |
| * A15-60-0513-00B-030A-A | Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON | C | 30.11.2023 |
| * A15-60-0564-00A-030A-A | Takeoff, Dry Runway, Slope Adjustment, Flaps 8 | | 18.04.2019 |
| * A15-60-0508-00A-030A-A | Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF | C | 30.11.2023 |
| * A15-60-0554-00A-030A-A | Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON | C | 30.11.2023 |
| * A15-60-0555-00A-030A-A | Takeoff, Wet Runway, Slope Adjustment, Flaps 15 | | 18.04.2019 |
| * A15-60-0557-00A-030A-A | Takeoff, Wet Runway, No Slope, Flaps 8, IPS OFF | C | 30.11.2023 |
| * A15-60-0558-00A-030A-A | Takeoff, Wet Runway, No Slope, Flaps 8, IPS ON | C | 30.11.2023 |
| * A15-60-0565-00A-030A-A | Takeoff, Wet Runway, Slope Adjustment, Flaps 8 | | 18.04.2019 |
| * A15-60-0515-00A-030A-A | Maximum Continuous Thrust | | 18.04.2019 |
| * A15-60-0519-00A-030A-A | Obstacle Clearance - Takeoff Flight Path | C | 30.11.2023 |
| * A15-60-0562-00A-030A-A | First Segment Climb, Flaps 8 | C | 30.11.2023 |
| * A15-60-0516-00A-030A-A | First Segment Climb, Flaps 15 | C | 30.11.2023 |
| * A15-60-0563-00A-030A-A | Second Segment Climb, Flaps 8 | C | 30.11.2023 |
| * A15-60-0517-00A-030A-A | Second Segment Climb, Flaps 15 | C | 30.11.2023 |
| * A15-60-0520-00A-030A-A | Initial Climb, Climb Gradient | C | 30.11.2023 |
| * A15-60-0523-00A-030A-A | Enroute Climb Gradient, OEI | C | 30.11.2023 |
| * A15-60-0522-00A-030A-A | Enroute Rate of Climb, OEI | C | 30.11.2023 |
| * A15-60-0550-00A-030A-A | Cruise Climb, AEO, IPS OFF | C | 30.11.2023 |
| * A15-60-0524-00A-030A-A | Cruise Climb, AEO, IPS ON | C | 30.11.2023 |
| * A15-60-0547-00A-030A-A | Cruise Climb, AEO, NAI ON | C | 30.11.2023 |
| * A15-60-0532-00B-030A-A | Holding, IPS OFF / ON | | 18.04.2019 |
| * A15-60-0570-00A-030A-A | Approach Climb | C | 30.11.2023 |
| * A15-60-0539-00A-030A-A | Landing Information | C | 30.11.2023 |
| * A15-60-0545-00B-030A-A | Landing, Dry Runway, Flaps 33, Landing Field Length Required, Ice Mode 0 | C | 30.11.2023 |

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List of Effective Data Modules Issue 003 Revision 07

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| Data module code (DMC) | Document title | N/C | Issue date |
|-------------------------------|--|------------|-------------------|
| * A15-60-0545-00F-030A-A | Landing, Dry Runway, Flaps 33, Landing Field Length Required, Ice Mode 1 | C | 30.11.2023 |
| * A15-60-0540-00A-030A-A | Landing, Dry Runway, Flaps 33, Landing Distance, Ice Mode 0 | C | 30.11.2023 |
| * A15-60-0540-00H-030A-A | Landing, Dry Runway, Flaps 33, Landing Distance, Ice Mode 1 | C | 30.11.2023 |
| * A15-60-0537-00A-030A-A | Landing, Dry Runway, Flaps 15, Landing Field Length Required, Ice Mode 0 | C | 30.11.2023 |
| * A15-60-0537-00B-030A-A | Landing, Dry Runway, Flaps 15, Landing Field Length Required, Ice Mode 1 | C | 30.11.2023 |
| * A15-60-0553-00A-030A-A | Landing, Dry Runway, Flaps 15, Landing Distance, Ice Mode 0 | C | 30.11.2023 |
| * A15-60-0553-00C-030A-A | Landing, Dry Runway, Flaps 15, Landing Distance, Ice Mode 1 | C | 30.11.2023 |
| * A15-60-0532-00A-030A-A | Landing, Wet Runway, Flaps 33, Landing Field Length Required, Ice Mode 0 | C | 30.11.2023 |
| * A15-60-0532-00F-030A-A | Landing, Wet Runway, Flaps 33, Landing Field Length Required, Ice Mode 1 | C | 30.11.2023 |
| * A15-60-0540-00D-030A-A | Landing, Wet Runway, Flaps 33, Landing Distance, Ice Mode 0 | C | 30.11.2023 |
| * A15-60-0540-00J-030A-A | Landing, Wet Runway, Flaps 33, Landing Distance, Ice Mode 1 | C | 30.11.2023 |
| * A15-60-0545-00A-030A-A | Landing, Wet Runway, Flaps 15, Landing Field Length Required, Ice Mode 0 | C | 30.11.2023 |
| * A15-60-0545-00G-030A-A | Landing, Wet Runway, Flaps 15, Landing Field Length Required, Ice Mode 1 | C | 30.11.2023 |
| * A15-60-0561-00A-030A-A | Landing, Wet Runway, Flaps 15, Landing Distance, Ice Mode 0 | C | 30.11.2023 |
| * A15-60-0561-00D-030A-A | Landing, Wet Runway, Flaps 15, Landing Distance, Ice Mode 1 | C | 30.11.2023 |
| * A15-30-0600-00A-010A-A | General | | 10.12.2021 |
| * A15-30-0601-00A-169A-A | Loading Information | | 10.12.2021 |
| * A15-30-0602-00A-169A-A | Weight and Balance Determination for Flight | C | 30.11.2023 |
| * A15-30-0603-00A-169A-A | Weight and Balance Forms | | 15.01.2021 |
| * A15-30-0604-00A-169A-A | EX-6S-1 Interior Configuration | | 18.04.2019 |
| * A15-30-0605-00A-169A-A | EX-6S-COM-2S-1 Interior Configuration | | 18.04.2019 |
| * A15-30-0606-00A-169A-A | EX-8S-1 Interior Configuration | | 18.04.2019 |
| * A15-30-0607-00A-169A-A | EX-8S-2 Interior Configuration | | 18.04.2019 |

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List of Effective Data Modules Issue 003 Revision 07

| Data module code (DMC) | Document title | N/C | Issue date |
|--------------------------|----------------------------------|-----|------------|
| * A15-30-0620-00A-169A-A | No Cabin Interior Configuration | | 11.07.2018 |
| * A15-30-0621-00A-169A-A | COM-10S-1 Interior Configuration | | 06.11.2020 |
| A15-00-0000-00A-010A-A | List of Supplements | C | 30.11.2023 |

* Authority Approved

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



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Change Highlights Issue 003 Revision 07

This change highlights section shows all changes to PC-24 Airplane Flight Manual (No.02371) Issue 003 Revision 07 Dated: Nov 30, 2023.

All DMC are preceded with PC-24-A but for clarity this has been left out

C = Changed data module. Replace the data module in the relevant section of the Airplane Flight Manual.

N = New data module. Insert this data module in the relevant section of the Airplane Flight Manual.

PTS tasks numbers are for miscellaneous technical changes not affected by a Temporary Revision.

| Data module code Document title | Type | Reason for Update (RFU) |
|---|------|---|
| A15-00-0000-00A-00SA-A List of Effective Data Modules Issue 003 Revision 07 | C | 25693-1-1 - Updated for Issue 003 Revision 07 |
| A15-00-0000-00A-00UA-A Change Highlights Issue 003 Revision 07 | C | 25693-1-1 - Updated for Issue 003 Revision 07 |
| A15-00-0000-00A-003B-A Log of Revisions | C | 25693-1-1 - Updated for Issue 003 Revision 07 |
| A15-00-0000-00A-004A-A List of Temporary Revisions | C | 25693-1-1 - Updated for Issue 003 Revision 07 |
| A15-00-0000-00A-106A-A List of Software | C | 25693-1-1 - Incorporated TR 02371-056 (APEX Build 5.2) 25693-1-1 - Incorporated TR 02371-065 (APEX Build 5.3) |
| A15-00-0010-00A-018A-A Introduction | C | Editorial - Updated references to the former AFM Performance Handbook to FCOM |
| * A15-10-0201-00A-043A-A Limitations | C | 25018-2-1 - Updated external placards illustrations 25693-1-1 - Incorporated TR 02371-054 (Data Acquisition System) 25693-1-1 - Incorporated TR 02371-058 (TS-1 fuel limitation) 25693-1-1 - Incorporated TR 02371-059 (Fuel biological contamination) 25693-1-1 - Incorporated TR 02371-061 (Updated payload range improvements) Editorial - Deleted reference to AFM Performance Handbook in "Airplane Documentation" (replaced by FCOM) Editorial - Figure 2-1-14 updated - NO STEP marking of engine area corrected to show continuous line |

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| Data module code Document title | Type | Reason for Update (RFU) |
|--|------|--|
| * A15-40-0310-00A-141U-A Non-annunciated Emergency Procedures | C | Editorial - Updated incorrectly displayed references in "Engine Fire or Failure During Takeoff" (3-NAE-06), "Engine inflight Shutdown" (3-NAE-07) and "L/G Emergency Extension" (3-NAE-13) |
| * A15-48-0309-00A-014F-A Non-annunciated Abnormal Procedures List | C | 25693-1-1 - Incorporated TR 02371-055 (Electrical Burning Smell in Cabin) |
| * A15-48-0309-00A-141V-A Non-annunciated Abnormal Procedures | C | 25693-1-1 - Incorporated TR 02371-055 (Electrical Burning Smell in Cabin) |
| * A15-48-0301-00A-141A-A Electrical | C | Editorial - Correct typing errors in "L Bus Fail" (3A-ELEC-01) and "R Bus Fail" (3A-ELEC-02) |
| * A15-48-0302-00A-141A-A Engines | C | 25693-1-1 - Editorial update for Issue 003 Revision 07 (set reference to FCOM) |
| * A15-48-0304-00A-141A-A Flight Controls | C | 25693-1-1 - Incorporated TR 02371-061 (Updated payload range improvements) |
| * A15-48-0313-00A-141A-A Ice and Rain | C | 25693-1-1 - Incorporated TR 02371-061 (Updated payload range improvements) |
| * A15-00-0908-00A-014D-A Advisory CAS List | C | 25693-2-1 - Incorporated TR 02371-060 |
| * A15-48-0324-00A-141A-A Advanced Cockpit Environment (ACE) | N | Incorporation of new data module |
| * A15-48-0910-00A-141B-A FAS Messages | C | 25693-1-1 - Editorial update for Issue 003 Revision 07 (set reference to FCOM) |
| * A15-30-0401-00A-131A-A Preflight | C | 24176-2-1 - Corrected naming of FLAPS EMER PWR switch (editorial) 25693-2-1 - Incorporated TR 02371-063 24376-2-1 - Incorporated BAT switch sequence handling in "Before Engine Start" (4-PF-04) and "Transit Check" (4-PF-05) |
| * A15-30-0403-00A-131A-A After Landing | C | 24376-2-1 - Added condition and note to procedure "Shutdown" (4-AL-02) |
| * A15-30-0416-00A-131A-A Quick Start / QPM | C | 25693-2-1 - Added stowage instruction in "Engine Start (Quick Start)" (4-QS-02) related to TR 02371-063 24376-2-1 - Incorporated BAT switch sequence handling in "Before Engine Start (Quick Start)" (4-QS-01) |
| * A15-30-0410-00A-131A-A Cold Weather Procedures | C | 25693-1-1 - Editorial update for Issue 003 Revision 07 (set reference to FCOM) |
| * A15-60-0505-00A-018A-A Introduction | C | Editorial - Updated references to FCOM |
| * A15-60-0571-00A-030A-A Performance Information | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) Editorial - Updated reference to FCOM |

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| Data module code Document title | Type | Reason for Update (RFU) |
|--|------|---|
| * A15-60-0502-00A-030A-A Standard Conversions | C | Editorial - Removed typo on figure |
| * A15-60-0503-00A-030A-A Stall Speeds And Buffet Margin | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0572-00A-030A-A Aircraft Classification Number | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0510-00A-030A-A Takeoff, Dry Runway, No Slope, Flaps 15, IPS OFF | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) Editorial - Changed table layout |
| * A15-60-0511-00A-030A-A Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) Editorial - Changed table layout |
| * A15-60-0513-00A-030A-A Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) Editorial - Changed table layout |
| * A15-60-0513-00B-030A-A Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) Editorial - Changed table layout |
| * A15-60-0508-00A-030A-A Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) Editorial - Changed table layout |
| * A15-60-0554-00A-030A-A Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) Editorial - Changed table layout |
| * A15-60-0557-00A-030A-A Takeoff, Wet Runway, No Slope, Flaps 8, IPS OFF | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) Editorial - Changed table layout |
| * A15-60-0558-00A-030A-A Takeoff, Wet Runway, No Slope, Flaps 8, IPS ON | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) Editorial - Changed table layout |
| * A15-60-0519-00A-030A-A Obstacle Clearance - Takeoff Flight Path | C | Editorial - Updated reference to FCOM |
| * A15-60-0562-00A-030A-A First Segment Climb, Flaps 8 | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0516-00A-030A-A First Segment Climb, Flaps 15 | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0563-00A-030A-A Second Segment Climb, Flaps 8 | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0517-00A-030A-A Second Segment Climb, Flaps 15 | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0520-00A-030A-A Initial Climb, Climb Gradient | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0523-00A-030A-A Enroute Climb Gradient, OEI | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0522-00A-030A-A Enroute Rate of Climb, OEI | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * Authority Approved | | |



| Data module code Document title | Type | Reason for Update (RFU) |
|--|------|---|
| * A15-60-0550-00A-030A-A <i>Cruise Climb, AEO, IPS OFF</i> | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0524-00A-030A-A <i>Cruise Climb, AEO, IPS ON</i> | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0547-00A-030A-A <i>Cruise Climb, AEO, NAI ON</i> | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0528-00A-030A-A PC24-A-A15-60-0528-00A-030A-A | D | DM removed |
| * A15-60-0529-00A-030A-A PC24-A-A15-60-0529-00A-030A-A | D | DM removed |
| * A15-60-0530-00A-030A-A PC24-A-A15-60-0530-00A-030A-A | D | DM removed |
| * A15-60-0533-00A-030A-A PC24-A-A15-60-0533-00A-030A-A | D | DM removed |
| * A15-60-0543-00A-030A-A PC24-A-A15-60-0543-00A-030A-A | D | DM removed |
| * A15-60-0544-00A-030A-A PC24-A-A15-60-0544-00A-030A-A | D | DM removed |
| * A15-60-0531-00A-030A-A PC24-A-A15-60-0531-00A-030A-A | D | DM removed |
| * A15-60-0542-00A-030A-A PC24-A-A15-60-0542-00A-030A-A | D | DM removed |
| * A15-60-0551-00A-030A-A PC24-A-A15-60-0551-00A-030A-A | D | DM removed |
| * A15-60-0549-00A-030A-A PC24-A-A15-60-0549-00A-030A-A | D | DM removed |
| * A15-60-0552-00A-030A-A PC24-A-A15-60-0552-00A-030A-A | D | DM removed |
| * A15-60-0548-00A-030A-A PC24-A-A15-60-0548-00A-030A-A | D | DM removed |
| * A15-60-0551-00D-030A-A PC24-A-A15-60-0551-00D-030A-A | D | DM removed |
| * A15-60-0549-00D-030A-A PC24-A-A15-60-0549-00D-030A-A | D | DM removed |
| * A15-60-0552-00D-030A-A PC24-A-A15-60-0552-00D-030A-A | D | DM removed |
| * A15-60-0548-00D-030A-A PC24-A-A15-60-0548-00D-030A-A | D | DM removed |
| * A15-60-0535-00A-030A-A PC24-A-A15-60-0535-00A-030A-A | D | DM removed |
| * A15-60-0535-00B-030A-A PC24-A-A15-60-0535-00B-030A-A | D | DM removed |
| * A15-60-0570-00A-030A-A <i>Approach Climb</i> | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0539-00A-030A-A <i>Landing Information</i> | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |

* Authority Approved



| Data module code Document title | Type | Reason for Update (RFU) |
|--|------|---|
| * A15-60-0545-00B-030A-A Landing, Dry Runway, Flaps 33, Landing Field Length Required, Ice Mode 0 | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0545-00F-030A-A Landing, Dry Runway, Flaps 33, Landing Field Length Required, Ice Mode 1 | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0540-00A-030A-A Landing, Dry Runway, Flaps 33, Landing Distance, Ice Mode 0 | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0540-00H-030A-A Landing, Dry Runway, Flaps 33, Landing Distance, Ice Mode 1 | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0537-00A-030A-A Landing, Dry Runway, Flaps 15, Landing Field Length Required, Ice Mode 0 | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0537-00B-030A-A Landing, Dry Runway, Flaps 15, Landing Field Length Required, Ice Mode 1 | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0553-00A-030A-A Landing, Dry Runway, Flaps 15, Landing Distance, Ice Mode 0 | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0553-00C-030A-A Landing, Dry Runway, Flaps 15, Landing Distance, Ice Mode 1 | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0532-00A-030A-A Landing, Wet Runway, Flaps 33, Landing Field Length Required, Ice Mode 0 | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0532-00F-030A-A Landing, Wet Runway, Flaps 33, Landing Field Length Required, Ice Mode 1 | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0540-00D-030A-A Landing, Wet Runway, Flaps 33, Landing Distance, Ice Mode 0 | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0540-00J-030A-A Landing, Wet Runway, Flaps 33, Landing Distance, Ice Mode 1 | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0545-00A-030A-A Landing, Wet Runway, Flaps 15, Landing Field Length Required, Ice Mode 0 | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |

* Authority Approved



| Data module code Document title | Type | Reason for Update (RFU) |
|---|------|---|
| * A15-60-0545-00G-030A-A <i>Landing, Wet Runway, Flaps 15, Landing Field Length Required, Ice Mode 1</i> | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0561-00A-030A-A <i>Landing, Wet Runway, Flaps 15, Landing Distance, Ice Mode 0</i> | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-60-0561-00D-030A-A <i>Landing, Wet Runway, Flaps 15, Landing Distance, Ice Mode 1</i> | C | 25693-1-1 - Incorporated TR 02371-062 (Added payload range improvements) |
| * A15-30-0602-00A-169A-A <i>Weight and Balance Determination for Flight</i> | C | 25693-1-1 - Incorporated TR 02371-061 (Updated payload range improvements) |
| A15-00-0000-00A-010A-A <i>List of Supplements</i> | C | 24573-1-1 - Updated List of Supplements |

* Authority Approved



Log of Revisions

All DMC are preceded with PC-24-A but for clarity this has been left out

C = Information has been changed

N = Information has been inserted

R = Information has been removed

1 Issue 001 Revision 00 Dated 15 September 2017

Initial Issue of PC-24 Airplane Flight Manual.

Table 1-4-1: List of changes

| Data Module Code | Change Type | Description of Change |
|------------------|-------------|--|
| All | New Issue | Change: PC-24 Airplane Flight Manual Initial Issue. Section: All |

2 Issue 001 Revision 01 Dated 30 October 2017

Revision of PC-24 Airplane Flight Manual to include initial authority and technical changes.

Table 1-4-2: List of changes

| Data Module Code | Change Type | Description of Change |
|------------------|-------------|---|
| All | Revision | Change: Updated to include initial authority and Pilatus input. Section: All |

3 Issue 002 Revision 00 Dated 29 November 2017

Up-issue of PC-24 Airplane Flight Manual to include changes applicable to certification configuration.

Approved by EASA on 7 December 2017 under approval number 00 10017609.

Table 1-4-3: List of changes

| Data Module Code | Change Type | Description of Change |
|------------------|-------------|---|
| All | Up-Issue | Change: Up-issue to include final certification data. Section: All |

4 Issue 003 Revision 00 Dated 24 January 2018

Up-issue of PC-24 Airplane Flight Manual to include changes for Entry Into Service and all approved hold items.

Approved by EASA on 26 January 2018 under approval number 00 10064493.



Table 1-4-4: List of changes

| Data Module Code | Change Type | Description of Change |
|------------------|-------------|--|
| All | Up-Issue | Change: Up-issue to include Hold Items and changes for Entry Into Service. Section: All |

5 Issue 003 Revision 01 Dated 12 July 2018

Revision of PC-24 Airplane Flight Manual to include incorporation of Temporary Revisions, Complete rework of Section 6, technical and editorial changes.

Approved by EASA on 3 August 2018 under approval number 00 10066353 .

Table 1-4-5: List of changes

| Data Module Code | Change Type | Description of Change |
|------------------|-------------|---|
| All | Revision | Change: Updated to include items as listed in the Change Highlights and complete format update. Section: All |

6 Issue 003 Revision 02 Dated 29 April 2019

Revision of PC-24 Airplane Flight Manual to include incorporation of Temporary Revisions.

Approved under the authority of DOA ref. EASA.21J.357.

Table 1-4-6: List of changes

| Data Module Code | Change Type | Description of Change |
|------------------|-------------|--|
| All | Revision | Change: Updated to include items as listed in the Change Highlights and complete format update. Section: All Temporary Revisions: The following Temporary Revisions have been incorporated in this revision, and can be removed: TR-003-01-01 TR-003-01-15 TR-003-01-02 TR-003-01-16 ¹⁾ TR-003-01-03 TR-003-01-17 TR-003-01-04 TR-003-01-18 TR-003-01-05 TR-003-01-19 TR-003-01-06 TR-003-01-20 ¹⁾ TR-003-01-07 TR-003-01-21 TR-003-01-08 TR-003-01-22 TR-003-01-09 TR-003-01-23 TR-003-01-10 TR-003-01-24 TR-003-01-11 TR-003-01-25 TR-003-01-12 TR-003-01-26 TR-003-01-13 TR-003-01-27 ¹⁾ TR-003-01-14 TR-003-01-28 ¹⁾ |



Table 1-4-6: List of changes (continued from previous page)

| Data Module Code | Change Type | Description of Change |
|--|-------------|-----------------------|
| Footnote: | | |
| 1) TR was created only for certification of the AFM Issue 003 Revision 02, and was never issued. | | |

7 Issue 003 Revision 03 Dated 08 October 2020

Revision of PC-24 Airplane Flight Manual to include incorporation of Temporary Revisions.

Approved on 4 November 2020 under the authority of DOA ref. EASA.21J.357.

Table 1-4-7: List of changes

| Data Module Code | Change Type | Description of Change | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--------------|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--|--|--|--------------|--------------|--------------|--|
| All | Revision | <p>Change: Updated to include items as listed in the Change Highlights and complete format update.</p> <p>Section: All</p> <p>Temporary Revisions:</p> <p>The following Temporary Revisions have been incorporated in this revision, and can be removed:</p> <table> <tbody> <tr><td>TR 02371-004</td><td>TR 02371-016</td></tr> <tr><td>TR 02371-005</td><td>TR 02371-017</td></tr> <tr><td>TR 02371-006</td><td>TR 02371-019</td></tr> <tr><td>TR 02371-007</td><td>TR 02371-020</td></tr> <tr><td>TR 02371-008</td><td>TR 02371-022</td></tr> <tr><td>TR 02371-009</td><td>TR 02371-023</td></tr> <tr><td>TR 02371-010</td><td>TR 02371-024</td></tr> <tr><td>TR 02371-011</td><td>TR 02371-025</td></tr> <tr><td>TR 02371-012</td><td>TR 02371-026</td></tr> <tr><td>TR 02371-013</td><td>TR 02371-028</td></tr> <tr><td>TR 02371-014</td><td></td></tr> <tr><td colspan="2">The following Temporary Revisions were canceled, and can be removed:</td></tr> <tr><td>TR 02371-002</td><td>TR 02371-015</td></tr> <tr><td>TR 02371-003</td><td></td></tr> </tbody> </table> | TR 02371-004 | TR 02371-016 | TR 02371-005 | TR 02371-017 | TR 02371-006 | TR 02371-019 | TR 02371-007 | TR 02371-020 | TR 02371-008 | TR 02371-022 | TR 02371-009 | TR 02371-023 | TR 02371-010 | TR 02371-024 | TR 02371-011 | TR 02371-025 | TR 02371-012 | TR 02371-026 | TR 02371-013 | TR 02371-028 | TR 02371-014 | | The following Temporary Revisions were canceled, and can be removed: | | TR 02371-002 | TR 02371-015 | TR 02371-003 | |
| TR 02371-004 | TR 02371-016 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TR 02371-005 | TR 02371-017 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TR 02371-006 | TR 02371-019 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TR 02371-007 | TR 02371-020 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TR 02371-008 | TR 02371-022 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TR 02371-009 | TR 02371-023 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TR 02371-010 | TR 02371-024 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TR 02371-011 | TR 02371-025 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TR 02371-012 | TR 02371-026 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TR 02371-013 | TR 02371-028 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TR 02371-014 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| The following Temporary Revisions were canceled, and can be removed: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TR 02371-002 | TR 02371-015 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TR 02371-003 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

8 Issue 003 Revision 04 Dated 15 January 2021

Revision of PC-24 Airplane Flight Manual to include incorporation of Temporary Revisions.

Approved on 21 January 2021 under the authority of DOA ref. EASA.21J.357.



Table 1-4-8: List of changes

| Data Module Code | Change Type | Description of Change | | | | |
|------------------|--------------|---|--------------|--------------|--------------|--------------|
| All | Revision | <p>Change: Updated to include items as listed in the Change Highlights.</p> <p>Section: All</p> <p>Temporary Revisions:</p> <p>The following Temporary Revisions have been incorporated in this revision, and can be removed:</p> <table> <tr> <td>TR 02371-030</td> <td>TR 02371-033</td> </tr> <tr> <td>TR 02371-031</td> <td>TR 02371-034</td> </tr> </table> | TR 02371-030 | TR 02371-033 | TR 02371-031 | TR 02371-034 |
| TR 02371-030 | TR 02371-033 | | | | | |
| TR 02371-031 | TR 02371-034 | | | | | |

9 Issue 003 Revision 05 Dated 10 December 2021

Revision of PC-24 Airplane Flight Manual to include incorporation of Temporary Revisions. Update of content to UMS 8.1 and APEX 5.1.

Approved on 10 December 2021 under the authority of DOA ref. EASA.21J.357.

Table 1-4-9: List of changes

| Data Module Code | Change Type | Description of Change | | | | | | |
|------------------|--------------|--|--------------|--------------|--------------|--------------|--------------|--|
| All | Revision | <p>Change: Updated to include items as listed in the Change Highlights.</p> <p>Section: All</p> <p>Temporary Revisions:</p> <p>The following Temporary Revisions have been incorporated in this revision, and can be removed:</p> <table> <tr> <td>TR 02371-036</td> <td>TR 02371-040</td> </tr> <tr> <td>TR 02371-037</td> <td>TR 02371-041</td> </tr> <tr> <td>TR 02371-038</td> <td></td> </tr> </table> | TR 02371-036 | TR 02371-040 | TR 02371-037 | TR 02371-041 | TR 02371-038 | |
| TR 02371-036 | TR 02371-040 | | | | | | | |
| TR 02371-037 | TR 02371-041 | | | | | | | |
| TR 02371-038 | | | | | | | | |

10 Issue 003 Revision 06 Dated 01 December 2022

Revision of PC-24 Airplane Flight Manual to include incorporation of Temporary Revisions and regular changes. Update of content to UMS 9.0.

The technical content of this document is approved under the authority of the DOA ref. EASA.21J.357.

Table 1-4-10: List of changes

| Data Module Code | Change Type | Description of Change | | | | | | | | |
|-----------------------|--------------|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--|
| See Change Highlights | Revision | <p>Change: Updated to include items as listed in the Change Highlights.</p> <p>Temporary Revisions:</p> <p>The following Temporary Revisions have been incorporated in this revision, and can be removed:</p> <table> <tr> <td>TR 02371-045</td> <td>TR 02371-051</td> </tr> <tr> <td>TR 02371-047</td> <td>TR 02371-052</td> </tr> <tr> <td>TR 02371-049</td> <td>TR 02371-053</td> </tr> <tr> <td>TR 02371-050</td> <td></td> </tr> </table> | TR 02371-045 | TR 02371-051 | TR 02371-047 | TR 02371-052 | TR 02371-049 | TR 02371-053 | TR 02371-050 | |
| TR 02371-045 | TR 02371-051 | | | | | | | | | |
| TR 02371-047 | TR 02371-052 | | | | | | | | | |
| TR 02371-049 | TR 02371-053 | | | | | | | | | |
| TR 02371-050 | | | | | | | | | | |



11 Issue 003 Revision 07 Dated 30 November 2023

Revision of PC-24 Airplane Flight Manual to include incorporation of Temporary Revisions and regular changes. Addition of extended performance data for MSN 501 - up.

The technical content of this document is approved under the authority of the DOA ref. EASA.21J.357.

Table 1-4-11: List of changes

| Data Module Code | Change Type | Description of Change | | | | | | | | | | | |
|-----------------------|--------------|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--|
| See Change Highlights | Revision | <p>Change: Updated to include items as listed in the Change Highlights.</p> <p>Temporary Revisions:</p> <p>The following Temporary Revisions have been incorporated in this revision, and can be removed:</p> <table><tbody><tr><td>TR 02371-054</td><td>TR 02371-059</td></tr><tr><td>TR 02371-055</td><td>TR 02371-060</td></tr><tr><td>TR 02371-056</td><td>TR 02371-064</td></tr><tr><td>TR 02371-058</td><td>TR 02371-065</td></tr></tbody></table> <p>The following Temporary Revisions were canceled, and can be removed:</p> <p>TR 02371-057</p> <p>The following Temporary Revisions were incorporated without having been issued:</p> <table><tbody><tr><td>TR 02371-061</td><td>TR 02371-062</td></tr></tbody></table> | TR 02371-054 | TR 02371-059 | TR 02371-055 | TR 02371-060 | TR 02371-056 | TR 02371-064 | TR 02371-058 | TR 02371-065 | TR 02371-061 | TR 02371-062 | |
| TR 02371-054 | TR 02371-059 | | | | | | | | | | | | |
| TR 02371-055 | TR 02371-060 | | | | | | | | | | | | |
| TR 02371-056 | TR 02371-064 | | | | | | | | | | | | |
| TR 02371-058 | TR 02371-065 | | | | | | | | | | | | |
| TR 02371-061 | TR 02371-062 | | | | | | | | | | | | |



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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List of Temporary Revisions

Table 1-5-1: List of Temporary Revisions

| NUMBER | TEMPORARY REVISION TITLE | DATE OF ISSUE | CANCELED BY |
|-----------|--|---------------|---------------------------|
| 002-00-01 | Engine operation at zero and/or negative G | 01.12.2017 | AFM Issue 003 Revision 00 |
| 002-00-02 | ICE - Amber ICE Mode 2 procedure amendment | 01.12.2017 | AFM Issue 003 Revision 00 |
| 002-00-03 | Issue of Data Module - Landing Information for Performance, Cockpit Handbook | 01.12.2017 | AFM Issue 003 Revision 00 |
| 002-00-04 | Issue of Data Module - Landing Information for Performance Handbook | 01.12.2017 | AFM Issue 003 Revision 00 |
| 002-00-05 | Compliance with Limitations in icing conditions | 01.12.2017 | AFM Issue 003 Revision 00 |
| 002-00-06 | Exterior Preflight Inspection procedure amendment | 01.12.2017 | AFM Issue 003 Revision 00 |
| 002-00-07 | Minimum airspeed in icing conditions | 01.12.2017 | AFM Issue 003 Revision 00 |
| 002-00-08 | Ice Shedding Procedure amendment | 04.12.2017 | AFM Issue 003 Revision 00 |
| 003-00-01 | Use of Portable Electronic Devices, wireless and cellular systems | 25.01.2018 | AFM Issue 003 Revision 01 |
| 003-00-02 | Additional Temporary Revision Amendment Pages | 25.01.2018 | AFM Issue 003 Revision 01 |
| 003-00-03 | Section 6, Weight and Balance Change | 25.01.2018 | AFM Issue 003 Revision 01 |
| 003-00-04 | Flaps 0 Performance Data Amendment (For AFM Cockpit Handbook Volume 2) | 26.01.2018 | AFM Issue 003 Revision 01 |
| 003-00-05 | Flaps 0 Performance Data Amendment (For Performance Handbook) | 26.01.2018 | AFM Issue 003 Revision 01 |
| 003-00-06 | Use of Water Waste System | 09.02.2018 | AFM Issue 003 Revision 01 |
| 003-00-07 | Safety Services SATCOM Amendment | 13.02.2018 | AFM Issue 003 Revision 01 |
| 003-00-08 | Aircell Air to Ground System Amendment | 17.02.2018 | AFM Issue 003 Revision 01 |
| 003-00-09 | Equipment List Section Amendment | 06.03.2018 | AFM Issue 003 Revision 01 |
| 003-00-10 | Weight and Balance Terminology List | 27.02.2018 | AFM Issue 003 Revision 01 |
| 003-00-11 | Jacking Datum Point Amendment | 01.03.2018 | AFM Issue 003 Revision 01 |



Table 1-5-1: List of Temporary Revisions (continued from previous page)

| NUMBER | TEMPORARY REVISION TITLE | DATE OF ISSUE | CANCELED BY |
|-----------|---|---------------|---------------------------|
| 003-00-12 | Passenger and Monument Moment Tables Amendment | 07.03.2018 | AFM Issue 003 Revision 01 |
| 003-00-13 | Weight and Balance Forms and Determination for Flight | 15.03.2018 | AFM Issue 003 Revision 01 |
| 003-00-14 | RSVM Group Approval | 19.07.2018 | AFM Issue 003 Revision 01 |
| 003-01-01 | Change in RVSM Limitations | 16.11.2018 | AFM Issue 003 Revision 02 |
| 003-01-02 | Addition of RVSM Pre-Flight Checks | 16.11.2018 | AFM Issue 003 Revision 02 |
| 003-01-03 | Changes in Limitations for Design Weights Increase | 01.10.2018 | AFM Issue 003 Revision 02 |
| 003-01-04 | Changes in Performance Cockpit Handbook for Design Weights Increase | 01.10.2018 | AFM Issue 003 Revision 02 |
| 003-01-05 | Changes in Weight and Balance for Design Weights Increase | 01.10.2018 | AFM Issue 003 Revision 02 |
| 003-01-06 | GEN 1+2 OFFLINE procedure amendment | 01.02.2019 | AFM Issue 003 Revision 02 |
| 003-01-07 | Change in Limitations for Center Storage Cabinets Placards | 12.02.2019 | AFM Issue 003 Revision 02 |
| 003-01-08 | Electrical Power System updates for UMS B6.1 | 05.09.2018 | AFM Issue 003 Revision 02 |
| 003-01-09 | Right Bus Fail procedure amendment for UMS B6.1 | 05.09.2018 | AFM Issue 003 Revision 02 |
| 003-01-10 | Changes in Performance Handbook for Design Weights Increase | 01.10.2018 | AFM Issue 003 Revision 02 |
| 003-01-11 | Changed Cockpit Placard for Design Weights Increase | 01.10.2018 | AFM Issue 003 Revision 02 |
| 003-01-12 | WAI Fail procedure amendment for Design Weights Increase | 01.10.2018 | AFM Issue 003 Revision 02 |
| 003-01-13 | Changes in Outside Air Temperature Limitations | 03.12.2018 | AFM Issue 003 Revision 02 |
| 003-01-14 | Changes in Sections 3A and 3B for APEX Build 3.10 | 10.12.2018 | AFM Issue 003 Revision 02 |
| 003-01-15 | Changes in Normal Procedures for APEX Build 3.10 | 10.12.2018 | AFM Issue 003 Revision 02 |
| 003-01-16 | Changes for Steep Approach | Not issued | Not issued |
| 003-01-17 | Changes for Deicing and Anti-Icing Fluid Type II - IV | 19.12.2018 | AFM Issue 003 Revision 02 |
| 003-01-18 | Changes for UMS Build 7 | 17.01.2019 | AFM Issue 003 Revision 02 |
| 003-01-19 | Change in Airport Limitations for Contaminated Runway | 22.11.2018 | AFM Issue 003 Revision 02 |
| 003-01-20 | Change in Airport Limitations for Unpaved Runway | Not issued | Not issued |



List of Temporary Revisions

Table 1-5-1: List of Temporary Revisions (continued from previous page)

| NUMBER | TEMPORARY REVISION TITLE | DATE OF ISSUE | CANCELED BY |
|-----------|---|---------------|---------------------------------------|
| 003-01-21 | Changes in Limitations for Cargo Tie Down Kit | 05.12.2018 | AFM Issue 003 Revision 02 |
| 003-01-22 | Changes in Exterior Preflight Inspection for Cargo Tie Down Kit | 05.12.2018 | AFM Issue 003 Revision 02 |
| 003-01-23 | Changes in Weights and Balance for Cargo Tie Down Kit | 05.12.2018 | AFM Issue 003 Revision 02 |
| 003-01-24 | Changes in AFM for Flaps 8 | 25.01.2019 | AFM Issue 003 Revision 02 |
| 003-01-25 | Changes in Performance Handbook for Flaps 8 | 25.01.2019 | AFM Issue 003 Revision 02 |
| 003-01-26 | Change of PAX Emergency Brief in Normal Procedures | 12.02.2019 | AFM Issue 003 Revision 02 |
| 003-01-27 | Changes in Limitations for Steep Approach | Not issued | AFM Issue 003 Revision 02 |
| 003-01-28 | Changed Ice Mode Override Functionality | Not issued | AFM Issue 003 Revision 02 |
| 02371-001 | Changes for UMS Build 6.1 | 29.04.2019 | AFM TR 02371-015 |
| 02371-002 | Changes for UMS Type Certified Software | 29.04.2019 | SB 42-001 and SB 42-005 incorporation |
| 02371-003 | Changes for APEX Type Certified Software | 29.04.2019 | SB 42-001 and SB 42-005 incorporation |
| 02371-004 | Changes for Water Waste System | 02.05.2019 | AFM Issue 003 Revision 03 |
| 02371-005 | Changes for Pressure Defueling | 01.05.2019 | AFM TR 02371-012 |
| 02371-006 | Change in FADEC TLD Status CAS Message | 02.05.2019 | AFM Issue 003 Revision 03 |
| 02371-007 | Changes for Cold Weather and Other Improvements | 17.06.2019 | AFM Issue 003 Revision 03 |
| 02371-008 | CAS Message Designation | 17.06.2019 | AFM Issue 003 Revision 03 |
| 02371-009 | Change of Copyright and Legal Statement | 19.06.2019 | AFM Issue 003 Revision 03 |
| 02371-010 | Addition of Fasten Seat Belt Placard | 19.06.2019 | AFM Issue 003 Revision 03 |
| 02371-011 | Change in High Latitude Limitation | 19.06.2019 | AFM Issue 003 Revision 03 |
| 02371-012 | Refuel / Defuel Placard Amendments | 25.07.2019 | AFM Issue 003 Revision 03 |
| 02371-013 | Additional Interior Placards | 14.06.2019 | AFM Issue 003 Revision 03 |
| 02371-014 | Changes in Section 5 | 15.10.2019 | AFM Issue 003 Revision 03 |
| 02371-015 | Changes for UMS Build 6.1 | 01.11.2019 | SB 42-005 incorporation |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Table 1-5-1: List of Temporary Revisions (continued from previous page)

| NUMBER | TEMPORARY REVISION TITLE | DATE OF ISSUE | CANCELED BY |
|-----------|---|---------------|---------------------------|
| 02371-016 | Changes to ECB checks in Normal Procedures | 01.11.2019 | AFM Issue 003 Revision 03 |
| 02371-017 | Wind Related Changes | 01.11.2019 | AFM Issue 003 Revision 03 |
| 02371-018 | Not issued | Not issued | Not issued |
| 02371-019 | Changes for APEX Build 3.10.1 | 18.05.2020 | AFM Issue 003 Revision 03 |
| 02371-020 | Changes for Fuel Drain Mast | 19.11.2019 | AFM Issue 003 Revision 03 |
| 02371-021 | Not issued | Not issued | Not issued |
| 02371-022 | Change in Airport Limitations for Dirt-Sand-Gravel Runway | 04.12.2019 | AFM Issue 003 Revision 03 |
| 02371-023 | Changes for UMS Build 7.3 | 22.01.2020 | AFM Issue 003 Revision 03 |
| 02371-024 | Changes for Emergency Gear Extension | 19.12.2019 | AFM Issue 003 Revision 03 |
| 02371-025 | Changes to Stencil Markings | 21.01.2020 | AFM Issue 003 Revision 03 |
| 02371-026 | Changes for Low Oil Pressure and Fuel Warm-up | 25.05.2020 | AFM Issue 003 Revision 03 |
| 02371-027 | Introduction of the FADEC System Software CP496.04.05 | Not issued | Not issued |
| 02371-028 | Changes for Intermediate Cruise Performance | 20.07.2020 | AFM Issue 003 Revision 03 |
| 02371-029 | Not issued | Not issued | Not issued |
| 02371-030 | 10 Seat Commuter Configuration | 06.11.2020 | AFM Issue 003 Revision 04 |
| 02371-031 | Forward Galley | 02.10.2020 | AFM Issue 003 Revision 04 |
| 02371-032 | Not issued | Not issued | Not issued |
| 02371-033 | Changes in Performance Handbook for OEI Drift Down (Performance Handbook) | 09.11.2020 | AFM Issue 003 Revision 04 |
| 02371-034 | Update Drawings Section 2 | 16.11.2020 | AFM Issue 003 Revision 04 |
| 02371-035 | Not issued | Not issued | Not issued |
| 02371-036 | Improved Mark-Up of Optional Equipment | 10.02.2021 | AFM Issue 003 Revision 05 |
| 02371-037 | Introduction of Optional Fuel Temperature Sensor | 01.05.2021 | AFM Issue 003 Revision 05 |
| 02371-038 | Introduction of UMS Build 8.1 Software | 09.07.2021 | AFM Issue 003 Revision 05 |
| 02371-039 | Aircraft configured with UMS 7.3 and APEX 3.10.1 | 11.06.2021 | AFM TR 02371-043 |



Table 1-5-1: List of Temporary Revisions (continued from previous page)

| NUMBER | TEMPORARY REVISION TITLE | DATE OF ISSUE | CANCELED BY |
|-----------|---|---------------|--------------------------------------|
| 02371-040 | Introduction of APEX Build 5.1 Software | 13.07.2021 | AFM Issue 003 Revision 05 |
| 02371-041 | Color contrast placards and markings | 05.08.2021 | AFM Issue 003 Revision 05 |
| 02371-042 | Not issued | Not issued | Not issued |
| 02371-043 | Aircraft configured with UMS 7.3 and APEX 3.10.1 | 10.12.2021 | AFM TR 02371-057 |
| 02371-044 | Not issued | Not issued | Not issued |
| 02371-045 | Crosswind Values Increase | 09.02.2022 | AFM Issue 003 Revision 06 |
| 02371-046 | Not issued | Not issued | Not issued |
| 02371-047 | PC-24 AFM change to CAS procedure "WAI FAIL" | 16.02.2022 | AFM Issue 003 Revision 06 |
| 02371-048 | Not issued | Not issued | Not issued |
| 02371-049 | PC-24 Forward Galley Inverter Option | 28.02.2022 | AFM Issue 003 Revision 06 |
| 02371-050 | PC-24 Enhanced operational availability (Ni-Cd battery) | 30.03.2022 | AFM Issue 003 Revision 06 |
| 02371-051 | Introduction of UMS Build 9.0 Software | 13.09.2022 | AFM Issue 003 Revision 06 |
| 02371-052 | Revised Bus Tie Handling | 15.09.2022 | AFM Issue 003 Revision 06 |
| 02371-053 | Optional Fire Extinguisher on the Aft Divider Wall | 19.09.2022 | AFM Issue 003 Revision 06 |
| 02371-054 | Storage Box - Data Acquisition System (SB-DAS) | Nov 29, 2022 | AFM Issue 003 Revision 07 |
| 02371-055 | Electrical Burning Smell in Cabin | Nov 28, 2022 | AFM Issue 003 Revision 07 |
| 02371-056 | Introduction of APEX Build 5.2 Software | Feb 15, 2023 | AFM Issue 003 Revision 07 |
| 02371-057 | Aircraft configured with UMS 7.3 and APEX 3.10.1. | Jan 10, 2023 | SB 42-012 or SB 42-016 incorporation |
| 02371-058 | Removal of TS-1 fuel limitation | Apr 24, 2023 | AFM Issue 003 Revision 07 |
| 02371-059 | Prevention of fuel biological contamination with anti-icing additives | Aug 22, 2023 | AFM Issue 003 Revision 07 |
| 02371-060 | Update of AIOP 1B Fail and AIOP 2B Fail Advisories | May 01, 2023 | AFM Issue 003 Revision 07 |
| 02371-061 | Payload Range Improvement Annex (AFM Cockpit Handbook) | Not issued | AFM Issue 003 Revision 07 |
| 02371-062 | Payload Range Improvement Data (AFM Cockpit Handbook) | Not issued | AFM Issue 003 Revision 07 |



Table 1-5-1: List of Temporary Revisions (continued from previous page)



List of Service Bulletins

This list of Service Bulletins provides the owner a means of recording the applicable SBs that are mentioned in the various Sections of the AFM. It is not a complete list of SBs. The purpose is to show the modification status of the aircraft to assist the pilot in the correct understanding of the procedures and the system description.

Table 1-6-1: List of Incorporated Service Bulletins



Table 1-6-1: List of Incorporated Service Bulletins (continued from previous page)



Table 1-6-1: List of Incorporated Service Bulletins (continued from previous page)



Table 1-6-1: List of Incorporated Service Bulletins (continued from previous page)



Table 1-6-1: List of Incorporated Service Bulletins (continued from previous page)



Table 1-6-1: List of Incorporated Service Bulletins (continued from previous page)



List of Software

1 List of UMS Software

Table 1-7-1: List of UMS Software

| Build (SB-number) | Description | Supplier P/N | Pilatus P/N |
|------------------------------|--|--|---------------------------------|
| UMS Build 7.3 (SB 42-010) | DCPUxA OFP PN (x is: 1 - 4) | 7H-09299-CN | 542.04.24.039 |
| | DCPUxB P1 OFP PN (x is: 1 - 4) | 7H-09301-CX0009 | |
| | DCPUxB P2 OFP PN (x is: 1 - 4) | 7H-09303-CX0009 | |
| | DCPUxy CTP PN (x is: 1 - 4) (y is: A or B) | 7H-09338-1D00 | |
| | DCPUxy SET PN (x is: 1 - 4) (y is: A or B) | 7H-10550-0Fxx (xx is: 04-07) | 542.04.24.0xx (xx is: 25-28) |
| UMS Build 8.0 (SB 42-012) | DCPU HW PN | 9B-84134-3 REL 6 | 985.99.12.379 |
| | DCPUxA OFP PN (x is: 1 - 4) | 7H-09299-CQ | 542.04.24.070 |
| | DCPUxB P1 OFP PN (x is: 1 - 4) | 7H-09301-DA | |
| | DCPUxB P2 OFP PN (x is: 1 - 4) | 7H-09303-DA | |
| | DCPUxy CTP PN (x is: 1 - 4) (y is: A or B) | 7H-09338-1G04 | 542.04.24.071 |
| | DCPUxy SET PN (x is: 1 - 4) (y is: A or B) | 7H-10550-0Fxx (xx is: 00-07) | 542.04.24.0xx (xx is: 21-28) |
| UMS Build 8.1 (SB 42-016) | DCPU HW PN | 9B-84134-3 REL 06 | 985.99.12.379 |
| | DCPUxA OFP PN (x is: 1 - 4) | 7H-09299-CS | 542.04.24.100 |
| | DCPUxB P1 OFP PN (x is: 1 - 4) | 7H-09301-DC0009 | |
| | DCPUxB P2 OFP PN (x is: 1 - 4) | 7H-09303-DC0009 | |
| | DCPUxy CTP PN (x is: 1 - 4) (y is: A or B) | 7H-09338-1I00 | 542.04.24.101 |
| | DCPUxy SET PN (x is: 1 - 4) (y is: A or B) | 7H-10550-0Fxx (xx is: 00-07) | 542.04.24.0xx (xx is: 21-28) |
| | DCPU HW PN | 9B-84134-3 REL 06 9B-84134-3 REL 07 | 985.99.12.379 985.99.12.426 |



Table 1-7-1: List of UMS Software (continued from previous page)

| Build (SB-number) | Description | Supplier P/N | Pilatus P/N |
|------------------------------|--|--|---|
| UMS Build 9.0 (SB 42-020) | DCPUxA OFP PN (x is: 1 - 4) | 7H-09299-CV | 542.04.24.276 |
| | DCPUxB P1 OFP PN (x is: 1 - 4) | 7H-09301-DF0011 | |
| | DCPUxB P2 OFP PN (x is: 1 - 4) | 7H-09303-DF0011 | |
| | DCPUxy CTP PN (x is: 1 - 4) (y is: A or B) | 7H-09338-1K00 | 542.04.24.279 |
| | DCPUxy SET PN (x is: 1 - 4) (y is: A or B) | 7H-10550-0Fxx (xx is: 00-07) | 542.04.24.xxxx (xxx is 264, 265, 266, 267, 272, 326, 327, 328) |
| | DCPU HW PN | 9B-84134-3 REL 06 9B-84134-3 REL 07 | 985.99.12.379 985.99.12.426 |

2 List of APEX Software

Table 1-7-2: List of APEX Software

| Build (SB-number) | Description | Supplier P/N | Pilatus P/N |
|---|----------------------------|-----------------------------------|---------------|
| APEX Build 3.10 (SB 42-004) | Apex DFZ Software | EB60000491-0102 | 985.99.12.394 |
| | Apex DFZ Option File | TT60005429-xxxxx (x is: 0 - 9) | 985.99.12.395 |
| | Apex DFZ LDI | PC24_LDI_3_10_01_DLS | 545.10.24.025 |
| | Apex DFZ Aircraft Database | ACDB_60000461-007 | 985.99.12.392 |
| APEX Build 3.10.1 (SB 42-007) | Apex DFZ Software | EB60000491-0103 | 985.99.12.405 |
| | Apex DFZ Option File | TT60005559-xxxxx (x is: 0 - 9) | 985.99.12.404 |
| | Apex DFZ LDI | PC24_LDI_3_10_08_DLS | 545.10.24.026 |
| | Apex DFZ Aircraft Database | ACDB_60000461-007 | 985.99.12.392 |
| APEX Build 5 (SB 42-011) | Apex DFZ Software | EB60000491-0104 | 985.99.12.416 |
| | Apex DFZ Option File | TT60006530-xxxxx (x is: 0 - 9) | 985.99.12.422 |
| | Apex DFZ LDI | PC24_LDI_4_3_1_0_7_D_LS | 545.10.24.033 |
| | Apex DFZ Aircraft Database | ACDB_60000461-009 | 985.99.12.413 |
| APEX Build 5 - UMS B8.0 LDI (SB 45-004) | Apex DFZ Software | EB60000491-0104 | 985.99.12.416 |
| | Apex DFZ Option File | TT60006530-xxxxx (x is: 0 - 9) | 985.99.12.422 |
| | Apex DFZ LDI | PC_24_LDI_5_0_01_DLS | 545.10.24.034 |



Table 1-7-2: List of APEX Software (continued from previous page)

| Build (SB-number) | Description | Supplier P/N | Pilatus P/N |
|--|--|------------------------------------|---------------|
| | Apex DFZ Aircraft Database | ACDB_60000461-009 | 985.99.12.413 |
| APEX Build 5.1 (SB 42-015) | Apex DFZ Software | EB60000491-0105 | 985.99.12.427 |
| | Apex DFZ Option File | TT60007950-XXXXXX (x is: 0 - 9) | 985.99.12.428 |
| | Apex DFZ LDI | PC24_LDI_5_1_01_DLS | 545.10.24.035 |
| | Apex DFZ Aircraft Database | ACDB_60000461-009 | 985.99.12.413 |
| APEX Build 5.2 (SB 42-019) | Apex DFZ Software | EB60000491-0106 | 985.99.12.508 |
| | Apex DFZ Option File | TT60007950-XXXXXX (x is: 0 - 9) | 985.99.12.428 |
| | Apex DFZ LDI | PC24_LDI_5_1_02A ⁽¹⁾ | 545.10.24.046 |
| | Apex DFZ Aircraft Database | ACDB_60000461-009 | 985.99.12.413 |
| Footnote: ⁽¹⁾ This Apex DFI LDI is valid for aircraft MSN 291 - 300 configured with UMS 8.1 and aircraft MSN 301 - UP configured with UMS 9.0. | | | |
| APEX Build 5.3 (SB 42-023) | Apex DFZ Software | EB60000491-0107 | 985.99.12.525 |
| | Apex DFZ Option File | TT60007950-XXXXXX (x is: 0 - 9) | 985.99.12.428 |
| | Apex DFZ LDI | PC24_LDI_5_1_02A ⁽¹⁾ | 545.10.24.046 |
| | Apex DFZ Aircraft Database | ACDB_60000461-009 | 985.99.12.413 |
| | Footnote: ⁽¹⁾ This Apex DFZ LDI is valid for aircraft MSN 291 - 300 configured with UMS 8.1 and aircraft MSN 301 - UP configured with UMS 9.0. | | |



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

SECTION 0

Introduction

Table of Contents

| Subject | | Page |
|---------------------|--|--------------|
| Introduction | | 0-1-1 |
| 1 | Introduction | 0-1-1 |
| 2 | Flight Crew Manual System Organization | 0-1-1 |
| 3 | Airplane Flight Manual Cockpit Handbook Organization | 0-1-2 |
| 4 | Procedures | 0-1-3 |
| 5 | Advisory and Status CAS Messages | 0-1-3 |
| 6 | Data Modules | 0-1-3 |
| 7 | Page Control Information | 0-1-4 |
| 8 | Warnings, Cautions and Notes | 0-1-4 |
| 9 | Revisions to the Airplane Flight Manual | 0-1-4 |



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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Introduction

1 Introduction

This AFM (Airplane Flight Manual) contains the limitations, operating instructions, performance data and weight and balance instructions and information required to safely and efficiently operate the Pilatus PC-24 airplane.

It is the responsibility of pilots who operate the PC-24 to be appropriately qualified and to be sufficiently familiar with the information and instructions contained in this Airplane Flight Manual to ensure that the airplane is operated within the limitations and flight envelope contained herein.

2 Flight Crew Manual System Organization

Flight crew documentation for the PC-24 is contained in a manual system consisting of the publications listed in [Table 0-1-1](#).

Table 0-1-1: PC-24 Flight Crew Manual System - Publication Listing

| Publication / Title | | Contents | |
|---------------------|---------------------|---|---|
| AFM | Report No: 02371 | AFM Cockpit Handbook Volume 1 | The printed AFM Volume 1 contains introductory information applicable to the PC-24 aircraft, limitations and operating instructions. |
| | | AFM Cockpit Handbook Volume 2 | The printed AFM Volume 2 contains simplified performance data extracted from the FCOM, Weight and Balance information and Supplements. |
| | | Electronic AFM | The AFM is also available in electronic format and has the same content as the AFM Cockpit Handbook Volumes 1 and 2. Dedicated tabs and hyperlinks are provided for quick and easy navigation. |
| FCOM | Report No: 02383 | Flight Crew Operating Manual | The FCOM is an electronic (digital) publication only and contains systems information, expanded operating instructions for single pilot and multi-crew operation and handling and servicing information. The FCOM Performance Data (Section 19) contains the finest granularity of PC-24 performance data. |
| QRH | Report No: 02382 | Quick Reference Handbook | The QRH is provided as both a printed and electronic (digital) publication and contains operating instructions and performance data derived from the AFM. The QRH is optimized to work with the aircraft Electronic Checklists. |
| Pilot's Guide | | Pilatus PC-24 Avionics System Pilot's Guide | Advanced Cockpit Environment (powered by Honeywell) for the Pilatus PC-24 Avionics System Pilot's Guide is provided as both a printed and electronic (digital) publication. It is applicable to the software and hardware configuration of the specific aircraft serial number. |



3 Airplane Flight Manual Cockpit Handbook Organization

The contents of each AFM section is listed in [Table 0-1-2](#) following.

Table 0-1-2: AFM Contents By Section

| Section | Contents |
|--|--|
| Volume 1 | |
| Section 0 Introduction | This section contains an introduction to the PC-24 AFM. |
| Section 1 General | This section contains basic data and information of general interest to the pilot. |
| *Section 2 Limitations | <p>This section contains the operating limitations, instrument markings, and placards necessary for the operation of the airplane, engines, systems, and equipment.</p> <div style="border: 1px solid #0070C0; padding: 5px; margin-top: 10px;"> Note Compliance with limitations is mandatory. </div> |
| *Section 3 Emergency Procedures | This section contains information and instructions for use in annunciated and non-annunciated emergency situations. |
| *Section 3A Abnormal Procedures | This section contains information and instructions for use in annunciated and non-annunciated abnormal operating situations. |
| *Section 3B Advisory Status and FAS Messages | This section contains information and instructions for use in annunciated normal operations. |
| *Section 4 Normal Procedures | This section contains information and instructions for use in normal operations. |
| *Section 4A Additional Normal Procedures | This section contains information and instructions for use in special normal operations. |
| Volume 2 | |
| *Section 5 Performance | This section contains simplified performance information extracted directly from the data contained in the FCOM Performance Data. In cases where greater detail is required in order to demonstrate compliance with performance requirements the FCOM Performance Data must be consulted. |
| *Section 6 Weight And Balance | <p>This section contains the information and instructions necessary to determine the Basic Empty Weight and center of gravity of the PC-24.</p> <p>Also contained in this section is the means to calculate the weight and CG of the aircraft for flight.</p> |
| Section 7 Supplements | This section contains the appropriate Supplements necessary to safely and efficiently operate the airplane when equipped with optional systems and equipment not provided with the standard airplane. |
| * Authority Approved | |
| <div style="background-color: #0070C0; color: white; padding: 2px;"> Note </div> System descriptions are provided in the Flight Crew Operating Manual (FCOM). | |



4 Procedures

A procedure is a step-by-step method used to accomplish a specific task. There are four types of procedures contained in this manual.

- **Emergency Procedure:** A procedure requiring immediate flight crew action to protect the airplane and occupants from serious harm.
Emergency Procedures are contained in Section 3.
- **Abnormal Procedure:** A procedure requiring flight crew action, due to failure of a system or component, to maintain an acceptable level of airworthiness for continued safe flight and landing.
Abnormal Procedures are contained in Section 3A.
- **Normal Procedure:** A procedure associated with systems that are functioning in their usual manner.
Normal Procedures are contained in Section 4.
- **Additional Normal Procedure:** A procedure associated with a special operation or flight condition.
Additional Normal Procedures are contained in Section 4A.

5 Advisory and Status CAS Messages

An advisory CAS or status CAS message is not associated to a procedure. The necessary information and instructions to be followed during annunciation of an advisory or status CAS message is given next to the CAS.

Advisory or status CAS messages are contained in Section 3B.

6 Data Modules

To facilitate the most accurate and effective distribution of the latest information contained in this AFM, Pilatus Aircraft Limited publishes the content of the AFM from a collection of electronically stored publication components called data modules. Data modules contain various amounts of information depending on the subject they address. However, when any of the content inside a data module changes, the entire data module is up-issued and distributed as the sum total of, or as a portion of an AFM revision.

6.1 Data Module Code

Each data module is identified by a unique 22 character, hyphen de-limited DMC. When a data module is published in printed form, each page is marked with the DMC oriented vertically along the outer margin of the bottom of each page.

6.2 List of Effective Data Modules

An LOEDM is contained in the front matter of this AFM and serves the same function as a List of Effective Pages. When a new numbered AFM revision is released, it is issued with a replacement LOEDM which lists each data module used to publish the AFM along with its issue date. The list of data modules combined with the issue dates of each module defines the currency and revision status of the AFM.



7 Page Control Information

When printed, each page of this AFM marked with the DMC to identify the source of the page contents, the issue date of the page content, and the page number as described in the [Page Numbering](#) discussion.

7.1 Issue Date

The date shown on each page is the data module issue date. When correlated to the DMC contained in the LOEDM this date defines the currency of the contents of the page.

7.2 Page Numbering

The pages contained in this AFM are numbered sequentially by section. Each page number reference contains a prefix that indicates the AFM section number followed by the page number in serial order. For example, Page 79 of Section 3A is shown as "3A-79".

8 Warnings, Cautions and Notes

The following definitions apply to the warnings, cautions, and notes as used in this manual:

WARNING

AN OPERATING PROCEDURE OR TECHNIQUE THAT MAY RESULT IN PERSONAL INJURY OR LOSS OF LIFE IF NOT FOLLOWED.

CAUTION

An operating procedure or technique that may result in damage to equipment if not followed.

Note

Any operating procedure, practice, or condition that requires emphasis.

9 Revisions to the Airplane Flight Manual

9.1 General

The content of this AFM meets the certification requirements of EASA CS-23 and represents the most current information and instructions necessary to safely and efficiently operate the PC-24 available at the time of the original publication of this document.



9.2 Revision Contents and Scope

Revisions to this AFM will consist of the following materials:

- Transmittal Letter
- Log of Revisions
- Change Record
- List of Effective Data Modules

9.2.1 Transmittal Letter

The Transmittal Letter will show the revision number and date. All AFM data modules affected by the Transmittal Letter will be listed along with instructions for incorporating the revision into the AFM.

9.2.2 Log of Revisions

The Log of Revisions indicates the number and date of each revision and provides a brief description of each change incorporated into the AFM.

9.2.3 Revision Highlights

The Revision Highlights provide a compilation of the reason(s) for change for each data module.

9.2.4 List of Effective Data Modules

Each revision is delivered with a new LOEDM that contains the DMCs and issue date of each of all data modules used to used to publish the AFM.

9.2.5 New or Revised Data Modules

New or revised data modules are to be incorporated into the AFM and superseded data modules destroyed.

9.3 Identification of Revised Material

Revised content in this AFM is identified by a vertical revision bar (black line) adjacent to the revised content on the outside margin of the applicable page. A revised or new illustration is indicated by a change bar long the entire outboard margin of the illustration. A revision bar will only indicate the most recent change(s) on each page. Physical relocation of material or the correction of typographical or grammatical errors, outside of the material revised, will not be identified by a revision bar, however, when content has been removed a description of the deleted content is contained in the revisions highlights.

9.4 Revision Schedule

From time to time, as new information becomes available for the PC-24 airplane, Pilatus Aircraft Ltd. will issue revised information and instructions to the latest registered owner or operator of the airplane to keep the contents of the AFM current. This information may relate to but is not limited to approved aircraft modifications or improved knowledge, operating techniques, or other guidance acquired through in-service experience.



9.5 Revision Service

9.5.1 Obtaining Revision Services

For information on obtaining revision services for publications applicable to the Pilatus PC-24 airplane, contact Pilatus Aircraft Ltd. using the following contact information:

Mailing Address:

Pilatus Aircraft Ltd.

Dept. EZD

P.O. Box 992, CH 6371

Stans, Switzerland

Email Address:

publications@pilatus-aircraft.com

Fax Number:

+41 41 619 73 30



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

SECTION 1

General

Table of Contents

| Subject | | Page |
|---|--------------------------------|-------------|
| General | | |
| 1 | Introduction | 1-1-1 |
| 2 | Cabin and Entry Dimensions | 1-1-1 |
| 3 | Cargo Area and Door Dimensions | 1-1-1 |
| 4 | Fuel | 1-1-1 |
| 5 | Maximum Weights | 1-1-1 |
| 6 | Powerplant | 1-1-2 |
| 7 | Top Level Illustrations | 1-1-3 |
| List of Terms, Abbreviations and Conversions | | |
| 1 | Abbreviations and Acronyms | 1-2-1 |
| 2 | Terminology | 1-2-7 |
| 3 | Conversion Information | 1-2-15 |



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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General

1 Introduction

This PC-24 AFM constitutes the EASA Approved Airplane Flight Manual. This AFM must be read and its contents thoroughly understood by all pilots in order to safely and efficiently operate the PC-24 airplane.

This section contains basic data and information of general interest to the pilot. It also contains definitions and explanations of symbols, abbreviations, and terminology that are used throughout this AFM.

2 Cabin and Entry Dimensions

The cabin entry door and cabin dimensions are given in [Table 1-1-1](#).

Table 1-1-1: Cabin Entry and Cabin Dimensions

| Dimension Description | Dimension Value |
|-----------------------|--|
| Door Width | 2 ft 0.4 in (0.62 m) |
| Door Height | 4 ft 5.2 in (1.35 m) |
| Cabin Height | 5 ft 0.9 in (1.55 m) |
| Cabin Length | 23 ft 0.5 in (7.02 m) |
| Cabin Width | 5 ft 6.7 in (1.69 m) |
| Cabin Volume | 498 ft ³ (14.1 m ³) |

3 Cargo Area and Door Dimensions

The cargo door and cargo area dimensions are given in [Table 1-1-2](#).

Table 1-1-2: Cargo Area - Door Dimensions and Compartment Volume

| Dimension Description | Dimension Value |
|-----------------------|---|
| Door Width | 4 ft 1 in (1.24 m) |
| Door Height | 4 ft 3 in (1.30 m) |
| Cargo Area Volume | Large Configuration: 89.6 ft ³ (2.5 m ³) Small Configuration: 50.5 ft ³ (1.43 m ³) |

4 Fuel

Refer to the [Fuel System](#) Limitations in this AFM Section 2, Limitations for approved fuel grades and allowed fuel quantities.

5 Maximum Weights

Refer to the [Weight Limitations](#) Limitations in this AFM Section 2, Limitations for maximum airplane weights.



6 Powerplant

6.1 General Description

The FJ44-4A is a two-spool co-rotating, axial flow turbofan engine with medium bypass ratio, mixed exhaust and high cycle pressure ratio. The engine has three compressors: a LP axial compressor, an IP axial compressor and a HP centrifugal compressor. The LP compressor (fan) and IP compressor are driven by two LP turbines. The HP compressor is driven by a single HP turbine.

6.2 Basic Description

Basic engine description elements are given in [Table 1-1-3](#).

Table 1-1-3: FJ44-4A-QPM Basic Description

| Engine Data | Description |
|---------------------|------------------------------|
| Number of Engines | 2 |
| Engine Manufacturer | Williams International |
| Engine Model Number | FJ44-4A-QPM |
| Engine Type | Medium Bypass Ratio Turbofan |

6.3 Thrust Rating

The thrust settings available and the associated rated thrust with each are given in [Table 1-1-4](#).

Table 1-1-4: Engine Thrust Settings

| Thrust Setting | Throttle Quadrant Marking | Thrust in Pounds |
|--------------------------|---------------------------|------------------|
| Normal Takeoff Thrust | T/O | 3,420 |
| Automatic Thrust Reserve | ATR | 3,600 |

Note

Thrust vector parallel with the engine centre line, installed, at sea level, static pressure at an ambient temperature of 73 °F (23 °C).

6.4 Engine Speeds

The maximum engine shaft speeds are given in [Table 1-1-5](#).

Table 1-1-5: Maximum Engine Shaft Speeds

| Engine Shaft | Maximum Speed - % | Maximum Speed - RPM |
|---------------|-------------------|---------------------|
| Low Pressure | 104.7 | 17,139 |
| High Pressure | 100.8 | 37,773 |



7 Top Level Illustrations

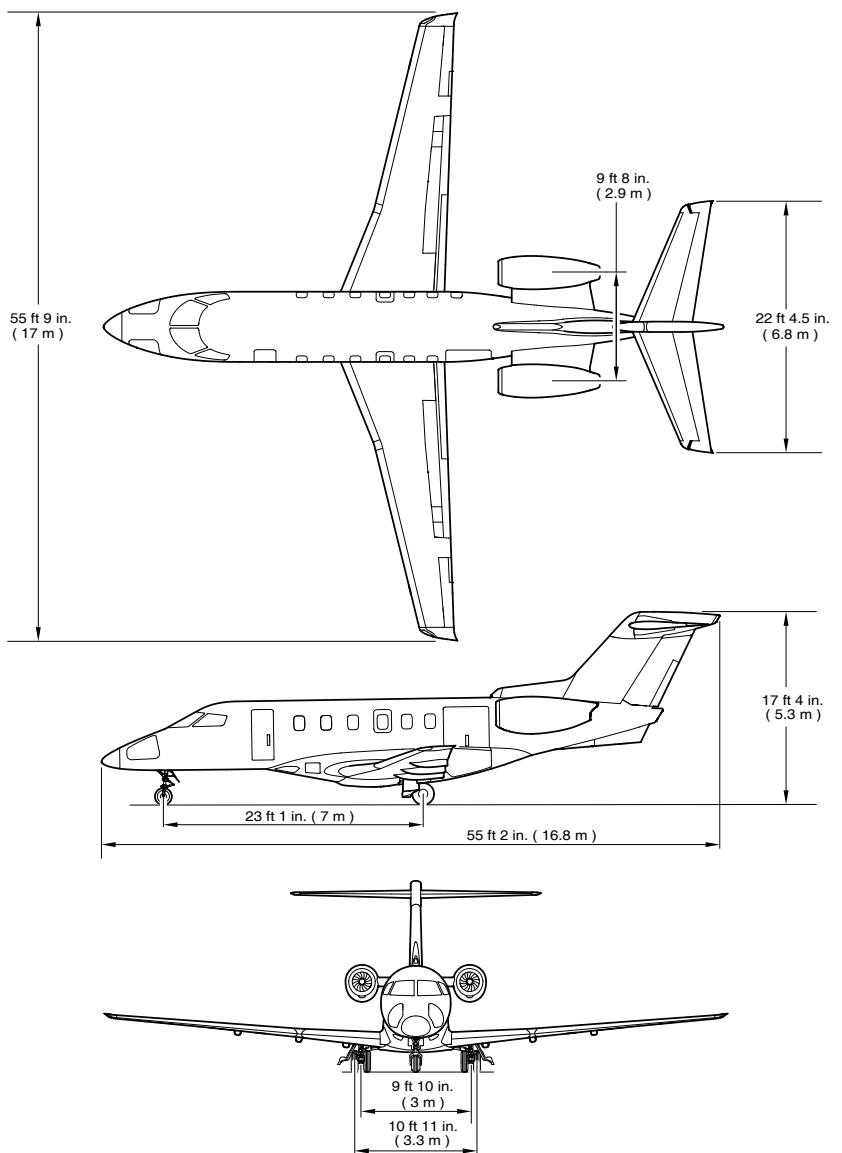
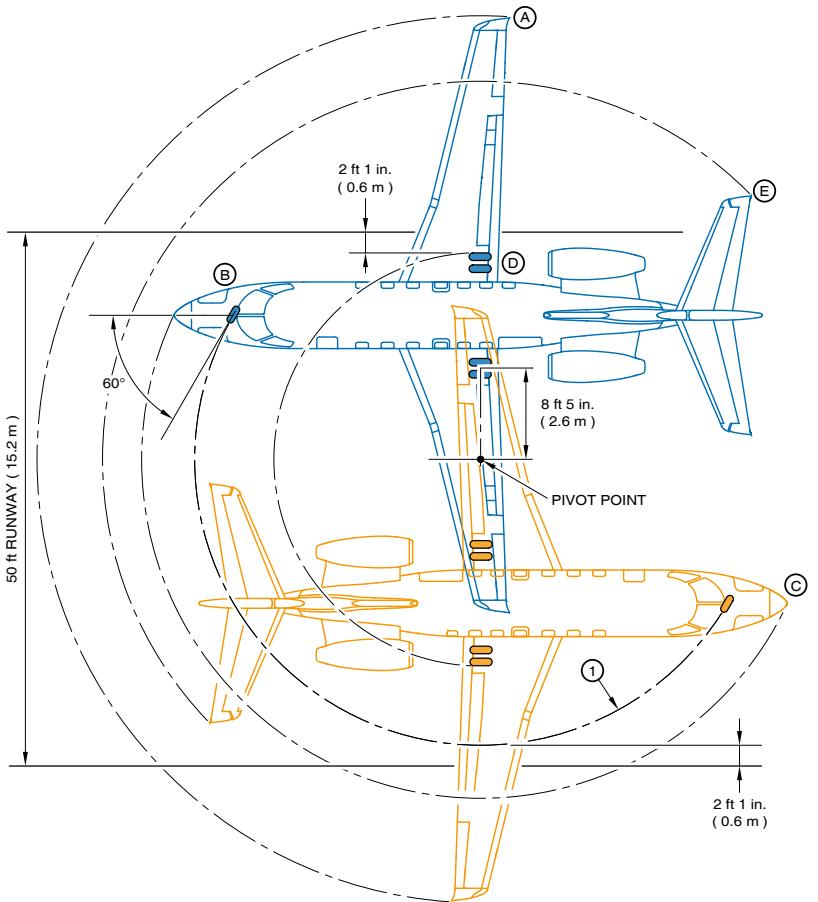


Figure 1-1-1: Airplane Three View and Dimensions



- ① A MINIMUM TAXIING SURFACE WIDTH OF 50 ft (15.2 m)
AND DIFFERENTIAL BRAKING ARE REQUIRED TO
COMPLETE A MINIMUM RADIUS 180 DEGREE TURN AS SHOWN
- (A) WING TIP RADIUS = 41 ft 4 in. (12.6 m)
- (B) NOSEWHEEL RADIUS = 26 ft 7 in. (8.1 m)
- (C) NOSE RADOME RADIUS 31 ft 6 in. (9.6 m)
- (D) OUTSIDE MAIN GEAR RADIUS = 19 ft 5 in. (5.9 m)
- (E) HORIZONTAL STABILIZER RADIUS = 35 ft 5 in. (10.8 m)

Figure 1-1-2: Airplane Ground Turning Clearance - NWS With Differential Braking

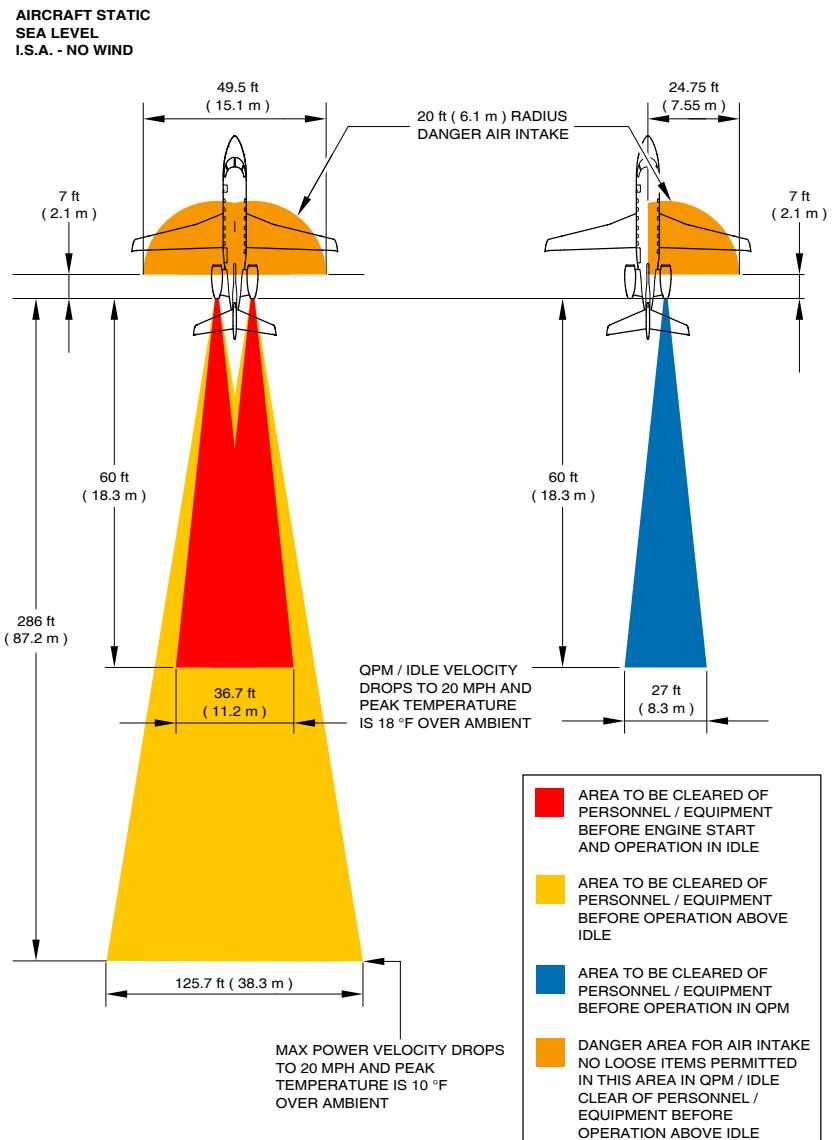


Figure 1-1-3: PC-24 Danger Areas



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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List of Terms, Abbreviations and Conversions

1 Abbreviations and Acronyms

| Abbreviation | Definition |
|---------------|--|
| A | Ampere |
| AAE | Above Aerodrome Elevation |
| ACE | Advanced Cockpit Environment |
| ACN | Aircraft Classification Number |
| ACP | Audio Control Panel |
| ADC | Air Data Computer |
| ADF | Automatic Direction Finding |
| ADHRS | Air Data Heading Reference System |
| ADS | Air Data System |
| AEO | All Engines Operating |
| AEW | Aircraft Empty Weight |
| AFCS | Automatic Flight Control System |
| AFM | Airplane Flight Manual |
| AGL | Above Ground Level |
| AGM | Advanced Graphic Module |
| AHRS | Attitude Heading Reference System |
| AIOP | Actuator Input / Output Processor |
| ALT | Altitude |
| AMSL | Above Mean Sea Level |
| AOA | Angle of Attack |
| AOD | Aft of Datum |
| AP | Autopilot |
| APP | Approach |
| APV BARO-VNAV | Approach Procedures with Vertical Guidance based on Barometric Vertical Navigation |
| AR | Authorization Required |
| AR | Automatic Realignment |
| ARINC | Aeronautical Radio, Incorporated |
| ASCB | Avionics Standard Communication Bus |
| AT | Autothrottle |
| ATC | Air Traffic Control |
| ATIS | Automatic Terminal Information Service |
| ATR | Automatic Thrust Reserve |
| ATT | Attitude |
| B-RNAV | Basic Area Navigation |
| BARO | Barometric Altitude |
| BAT | Battery |
| BEW | Basic Empty Weight |
| BIT | Built-In Test |
| BL | Butt Line |



| Abbreviation | Definition |
|--------------|--|
| CAB ALT | Cabin Altitude |
| CAS | Crew Alerting System |
| CAT | Category |
| CB | Circuit breaker |
| CCD | Cursor Control Device |
| CDTI | Cockpit Display of Traffic Information |
| CFR | Code of Federal Regulations |
| CG | Center of Gravity |
| CKPT | Cockpit |
| CMC | Central Maintenance Computer |
| COM | Communications |
| CPCS | Cabin Pressure Control System |
| CPDLC | Controller-Pilot Data Link Communications |
| CSIO | Custom Input / Output |
| CVR | Cockpit Voice Recorder |
| DA | Decision Altitude |
| DCPU | Data Concentration and Processing Unit |
| DG | Directional Gyro |
| DMC | Data Module Code |
| DME | Distance Measurement Equipment |
| DSB | Dynamic Speed Bug |
| DSB | Double Sideband |
| DU | Display Unit |
| EAR | Export Administration Regulations |
| EASA | European Aviation Safety Agency |
| ECB | Electronic Circuit Breaker |
| ECL | Electronic Checklist |
| ECMU | Electronic Control and Monitoring Unit |
| ECS | Environmental Control System |
| ECU | Engine Control Unit |
| EDM | Emergency Descent Mode |
| EFB | Electronic Flight Bag |
| EFOB | Estimated Fuel on Board |
| EGPWF | Enhanced Ground Proximity Warning Function |
| EGPWS | Enhanced Ground Proximity Warning System |
| ELEC | Electrical |
| ELT | Emergency Locator Transmitter |
| EMER | Emergency |
| ENG | Engine |
| EPDU | Electrical Power Distribution Unit |
| ESIS | Electronic Standby Instrument System |
| ESS | Essential |
| EU-OPS | European Union Air Operations |
| EVI | Electronic Valve Instrument |
| FAA | Federal Aviation Administration |



| Abbreviation | Definition |
|------------------|---|
| FADEC | Full-Authority Digital Engine Control |
| FAR | Federal Aviation regulation |
| FAS | Flight Alert System |
| FCOM | Flight Crew Operating Manual |
| FCS | Flight Control System |
| FD | Flight Director |
| FDR | Flight Data Recorder |
| FF | Fuel Flow |
| FGP | Flight Guidance Panel |
| FIKI | Flight Into Known Icing |
| FL | Flight Level |
| FLC | Flight Level Change |
| FMA | Flight Mode Annunciator |
| FMS | Flight Management System |
| FMW | Flight Management Window |
| FOB | Fuel on Board |
| FOD | Foreign Object Debris |
| FPA | Flight Path Angle |
| FPM | Feet Per Minute |
| ft | Foot |
| g | Gram |
| g/m ³ | Gram per cubic meter |
| GA | Go-Around |
| gal/hr | Gallon per hour |
| GEN | Generator |
| GIO | Generic Input / Output |
| GPS | Global Positioning System |
| GPU | Ground Power Unit |
| GRD | Gradient |
| GS | Ground Spoiler |
| HDG | Heading |
| HF | High Frequency |
| HIL | Hold Item List |
| HP | High Pressure |
| hPa | Hectopascal |
| HSIDI | Horizontal Stabilizer De-Ice |
| HSI | Horizontal Situation Indicator |
| Hz | Hertz |
| IAS | Indicated Airspeed |
| IB | Inboard |
| ICAO | International Civil Aviation Organization |
| IFR | Instrument Flight Rules |
| ID | Ice Detector |
| ILS | Instrument Landing System |
| IMC | Instrument Metrological Conditions |



Section 1 - General Abbreviations and Acronyms

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| Abbreviation | Definition |
|--------------------|---|
| in | Inch |
| in Hg | Inches of mercury |
| INAV | Interactive Navigation |
| IP | Intermediate Pressure |
| IPS | Ice Protection System |
| IRS | Inertial Reference System |
| ISA | International Standard Atmosphere |
| ISA DEV | International Standard Atmosphere Deviation |
| ISOL | Isolated |
| ITT | Inter-turbine Temperature |
| kg | Kilogram |
| kg/cm ² | Kilogram per square centimeter |
| kg/l | Kilogram per liter |
| kg/m ² | Kilogram per square meter |
| KIAS | Knots Indicated Airspeed |
| kt | Knot |
| l | Liter |
| l/min | Liter per minute |
| lb | Pound |
| lb/ft ² | Pound per square foot |
| lb/hr | Pound per hour |
| lb/gal | Pound per gallon |
| LDA | Localizer-Type Directional Aid |
| LED | Light Emitting Diode |
| LEMAC | Leading Edge Mean Aerodynamic Chord |
| LG | Landing Gear |
| LMC | Last Minute Changes |
| LNAV | Lateral Navigation |
| LOA | Letter of Acceptance |
| LOC-BC | Localizer Back-Course |
| LOEDM | List of Effective Data Modules |
| LP | Low Pressure |
| LSA | Low Speed Awareness |
| LW | Landing Weight |
| M | Mach |
| m | Meter |
| MAC | Mean Aerodynamic Chord |
| MAU | Modular Avionics Unit |
| MAX | Maximum |
| mb | Millibar |
| MCT | Maximum Continuous Thrust |
| MDA | Minimum Descent Altitude |
| MEA | Minimum En Route Altitude |
| MEL | Minimum Equipment List |



Section 1 - General Abbreviations and Acronyms

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| Abbreviation | Definition |
|--------------|---|
| MEW | Manufacturer's Empty Weight |
| MFC | Multi-Function Controller |
| MFD | Multi-Function Display |
| MFS | Multi-Function Spoiler |
| MHz | Megahertz |
| MIC | Microphone |
| min | Minute |
| MIN | Minimum |
| MLG | Main Landing Gear |
| MLS | Microwave Landing System |
| MLW | Maximum Landing Weight |
| mm | Millimeter |
| MMDR | Multi-Mode Digital Radio |
| MORA | Minimum Off-Route Altitude |
| MRW | Maximum Ramp Weight |
| MSA | Minimum Safe Altitude |
| MSL | Mean Sea Level |
| MTOW | Maximum Takeoff Weight |
| MW | Monitor Warning |
| MWF | Monitor Warning Function |
| MZFW | Maximum Zero Fuel Weight |
| NACA | National Advisory Committee for Aeronautics |
| NAI | Nacelle Anti-Ice |
| NAV | Navigation |
| NLG | Nose Landing gear |
| nm | Nautical mile |
| NTO | Normal Takeoff |
| NWS | Nose Wheel Steering |
| OAT | Outside Air Temperature |
| OB | Outboard |
| OEI | One Engine Inoperative |
| OFP | Operational Flight Plan |
| OFV | Outflow Valve |
| OWE | Operating Weight Empty |
| OWL | Overweight Landing |
| P-RNAV | Precision Area Navigation |
| PA | Public Address |
| PAX | Passenger |
| PBE | Protective Breathing Equipment |
| PCN | Pavement Classification Number |
| PCU | Power Conversion Unit |
| PDC | Pre-Departure Condition |
| PF | Pilot Flying |
| PFD | Primary Flight Display |
| PFID | Primary Flight Ice Detection |



| Abbreviation | Definition |
|--------------|--|
| PIC | Pilot In Command |
| POB | Persons on Board |
| POCV | Passenger Oxygen Control Valve |
| ppm | Parts Per Million |
| PRSOV | Pressure Regulating Shutoff Valve |
| psi | Pound per square inch |
| psid | Pound per square inch differential |
| psig | Pound per square inch gauge |
| PTT | Push To Transmit |
| PWR | Power |
| QPM | Quiet Power Mode |
| QRH | Quick Reference Handbook |
| qt | Quart |
| qt/hr | Quart per hour |
| RA | Resolution Advisory |
| RAAS | Runway Awareness and Advisory System |
| RAIM | Receiver Autonomous Integrity Monitoring |
| RECOG | Recognition |
| RNAV | Area Navigation |
| RNP | Required Navigation Performance |
| RNP APCH | Required Navigation Performance Approach |
| RNP AR | Required Navigation Performance Authorisation Required |
| ROC | Rate of Climb |
| rpm | Revolution per Minute |
| RVSM | Reduced Vertical Separation Minimum |
| RW | Ramp Weight |
| RWY | Runway |
| SAT | Static Air Temperature |
| SATCOM | Satellite Communication |
| SDF | Simplified Directional Facility |
| sec | Second |
| SID | Standard Instrument Departure |
| SOV | Shutoff Valve |
| SPKR | Speaker |
| STBY | Standby |
| STC | Supplemental Type Certificate |
| SVS | Synthetic Vision System |
| SW | Switch |
| SWPS | Stall Warning and Protection System |
| TA | Traffic Advisory |
| TAT | Total Air Temperature |
| TAWS | Terrain Awareness and Warning System |
| TCAS | Traffic Alert and Collision Avoidance System |
| TLA | Thrust Lever Angle |
| TO | Takeoff |



| Abbreviation | Definition |
|-----------------|------------------------------------|
| TOD | Top of Descent |
| TOSA | Takeoff Safety Altitude |
| TOW | Takeoff Weight |
| UMS | Utility Management System |
| V | Volt |
| V _{dc} | Volt Direct Current |
| VFR | Visual Flight Rules |
| VGP | Vertical Glidepath |
| VHF | Very High Frequency |
| VHF COM | Very High Frequency Communications |
| VMC | Visual Meteorological Conditions |
| VNAV | Vertical Navigation |
| VOR | VHF Omnidirectional Range |
| VSA | Visual Separation on Approach |
| WAI | Wing Anti-Ice |
| WGS-84 | World Geodetic System 1984 |
| WOW | Weight on Wheels |
| WSHLD | Windshield |
| WX | Weather |
| X-FEED | Cross-Feed |
| XFR | Transfer |
| XM | External Master |
| XPDR | Transponder |
| YD | Yaw Damper |
| ZFW | Zero Fuel Weight |

2 Terminology

2.1 Airspeed Terminology

| Term | Definition |
|------|--|
| CAS | Calibrated airspeed means the indicated airspeed of an aircraft, corrected for position and instrument error. Calibrated airspeed is equal to true airspeed in standard atmosphere at sea level. |
| GS | Ground speed is the speed of an airplane relative to the ground. |
| IAS | Indicated airspeed means the speed of an aircraft as shown on its airspeed indicator. |
| KCAS | Calibrated airspeed expressed in knots. |
| KEAS | Equivalent airspeed expressed in knots. |
| KIAS | Indicated airspeed expressed in knots. In ACE™ KIAS is corrected for position error. |
| KTAS | True airspeed expressed in knots. |
| M | Means Mach number. Mach number is the ratio of true airspeed to the speed of sound. |



| Term | Definition |
|-------------------|--|
| M _{MO} | Maximum operating limit speed is the speed limit that may not be deliberately exceeded in normal flight operations. M is expressed in Mach number. |
| TAS | True airspeed means the airspeed of an airplane relative to undisturbed air which is the CAS corrected for altitude, temperature, and compressibility. |
| V ₁ | <p>1 The maximum speed in the Takeoff at which the pilot must take the first action (e.g. apply brakes, reduce thrust, deploy airbrakes) to stop the airplane within the accelerate-stop distance, or</p> <p>2 The minimum speed in the Takeoff, following a failure of the engine at V_{EF}, at which the pilot can continue the Takeoff and achieve the required height above the Takeoff surface within the Takeoff distance.</p> |
| V ₂ | A referenced airspeed obtained after liftoff at which the required one engine-inoperative climb performance can be achieved. |
| V _{APP} | Landing approach speed. |
| V _{EF} | The speed at which the critical engine is assumed to fail during Takeoff. |
| V _{ENR} | OEI enroute climb speed. |
| V _{FE} | Maximum flap extended speed is the highest speed permissible with wing flaps in a prescribed extended position. |
| V _{LÉ} | Maximum landing gear extended speed is the maximum speed at which an airplane can be safely flown with the landing gear extended. |
| V _{L0} | Maximum landing gear operating speed is the maximum speed at which the landing gear can be safely extended or retracted. |
| V _{L0F} | Lift off speed. |
| V _{MC} | Air minimum control airspeed is the minimum speed the aircraft is directionally controllable with the critical engine inoperative. |
| V _{MC} G | The minimum speed that directional control can be maintained on the ground using only aerodynamic controls, with the most critical engine inoperative, and Takeoff power applied on the other engine. |
| V _{MC} L | The minimum control airspeed when the aircraft is in the landing configuration with the critical engine inoperative. |
| V _{MO} | Maximum operating speed is the speed limit that may not be exceeded at any time. |
| V _o | Maximum operating maneuvering airspeed is the maximum speed at which application of full aerodynamic control will not overstress the airplane. |
| V _R | Rotation speed. |
| V _{REF} | Approach reference speed. |
| V _s | Stalling speed or the minimum steady flight speed at which the airplane is controllable. |
| V _{s1} | Stalling speed or the minimum steady flight speed at which the airplane is controllable in the specified configuration at the specified weight. |



| Term | Definition |
|-----------------|---|
| V _{so} | Stalling speed or the minimum steady flight speed at which the airplane is controllable in the landing configuration at maximum landing weight. |
| V _x | Best angle of climb speed is the airspeed which delivers the greatest gain of altitude in the shortest possible horizontal distance. |
| V _y | Best rate of climb speed is the airspeed which delivers the greatest gain of altitude in the shortest possible time. |

2.2 Meteorological Terminology

| Term | Definition |
|--------------------|--|
| ELEV | Geographical altitude of an airport. |
| Icing Conditions | Can exist when: <ul style="list-style-type: none"> - The outside air temperature (OAT) on the ground and for Takeoff, or total air temperature (TAT) in-flight, is +10 °C or colder, and visible moisture in any form is present (such as clouds, fog or mist with visibility of one mile or less, rain, snow, sleet and ice crystals) - The OAT on the ground and for Takeoff is 10 °C or colder when operating on ramps, taxiways or runways, where surface snow, ice, standing water, or slush may be ingested by the engine, or freeze on the engine, or the engine nacelle - There are visible signs of ice accreting on the aircraft. |
| Indicated Altitude | The number actually read from an altimeter when the barometric subscale has been set to 29.92 in hg (1013.2 mbar). |
| ISA | International Standard Atmosphere in which <ul style="list-style-type: none"> - The air is a dry, perfect gas - The temperature at sea level is 59 °F (15 °C) - The pressure at sea level is 29.92 in hg (1013.2 mbar) - The temperature gradient from sea level to the tropopause is 2 °C per 1,000 ft to an altitude of 36,000 ft and a temperature of -56.5 °C, and zero above that altitude up to 65,000 ft. |
| OAT | Outside Air Temperature is the temperature of the air outside the aircraft. This temperature is also referred to as ambient temperature. |
| Pressure Altitude | Pressure Altitude measured from standard sea level pressure (29.92 in hg (1013.2 mbar)) by a pressure or barometric altimeter. It is the indicated pressure altitude corrected for position and instrument error. In this AFM, altimeter instrument errors are assumed to be zero. |
| QFE | The pressure set on the subscale of the altimeter so that the instrument shows its height above the reference elevation being used. |
| QNE | The actual height of an aircraft above a reference surface when the subscale of the altimeter is set to the pressure of the reference surface. |



| Term | Definition |
|-------------------------|---|
| QNH | The pressure set on the subscale of the altimeter so that the instrument shows its height above sea level. The altimeter will read runway elevation when the aircraft is on the runway. |
| SAT | Static Air Temperature is the air temperature as would be measured by a temperature sensor not in motion with respect to that air. SAT indication on the ground may not be accurate. |
| Severe Icing Conditions | Severe icing may result from environmental conditions during flight in freezing rain, freezing drizzle, or mixed icing conditions (supercooled liquid water and ice crystals) which may result in ice build-up on protected surfaces exceeding the capability of the ice protection system, or may result in ice forming aft of the protected surfaces. |
| Station Pressure | Actual atmospheric pressure at field elevation. |
| TAT | Total Air Temperature. |
| Wind | The wind velocities recorded as variables on the charts of this AFM are to be understood as the headwind or tailwind components of the reported winds. |

2.3 Engine Control and Power Terminology

| Term | Definition |
|---------------------------------|---|
| Autothrottle (AT) | Autothrottle is a function which provides automatic control of engine thrust output based on commands from the autoflight system. |
| Automatic Thrust Reserve (ATR) | Automatic Thrust Reserve (ATR) is a feature in the FADEC software which automatically increases the healthy engine to maximum rated Takeoff thrust from the reduced, normal Takeoff setting in the event it detects a failure of the opposite engine during Takeoff when its thrust lever is selected to the Takeoff (TO) detent. |
| Cruise Thrust | The recommended thrust for cruise. |
| FADEC | Full-Authority Digital Engine Control (FADEC) is a single electronic box, containing two identical engine control units (Channel A and Channel B) of dual channel electronic fuel control for one engine. It also provides N1, N2, and ITT engine data for primary engine displays. |
| Flight Idle Thrust | The thrust produced by the engine when the minimum steady-state fuel flow for ambient conditions and accessory / bleed load in flight is scheduled by the FADEC with the thrust lever at the idle stop. |
| Ground Idle Thrust | The thrust produced by the engine when the minimum steady-state fuel flow for ambient conditions and accessory / bleed load on the ground is scheduled by the FADEC with the thrust lever at the idle stop. Air ground sensing is controlled by WoW sensing. |
| ITT | Inter-turbine Temperature is the temperature of gases exiting the combustion chamber taken at a point between the HP and LP. Expressed in Degrees Celsius (°C) |
| Maximum Continuous Thrust (MCT) | The maximum thrust that the engine may produce without any restriction. |
| Normal Takeoff Thrust (NTO) | The thrust produced by the engine when the thrust lever is in the Takeoff (TO) detent. |



| Term | Definition |
|--------------------------|--|
| N1 | The speed of the first stage fan/low and intermediate pressure compressor and LP turbine rotating group expressed as percentage of the maximum speed. |
| N2 | The speed of the high pressure compressor and HP turbine rotating group expressed as percentage of the maximum speed. |
| RVDT | Rotary Variable Differential Transformer is a device that converts the mechanical position of the thrust lever set by the pilot into an electronic thrust lever angle for use by the FADEC in scheduling fuel flow to meet the selected power. |
| Takeoff Thrust | The thrust produced by each engine when the thrust levers are selected to the Takeoff (TO) detent in the aircraft. |
| Thrust Lever | Cockpit lever used by the pilot to transmit the desired thrust command to the FADEC. |
| Thrust Lever Angle (TLA) | Thrust Lever Angle is an electronic input to the FADEC that represents the requested power output of the engine. The TLA correlates to the position of the thrust lever and is adjusted by moving the thrust lever. |

2.4 Airplane Performance and Flight Planning Terminology

| Term | Definition |
|--------------------------------------|---|
| Aircraft Classification Number (ACN) | A number expressing the relative effect of an aircraft on a pavement for a specific standard subgrade strength. |
| Climb Gradient | The ratio of the change in height during a portion of a climb, to the horizontal distance traversed in the same time interval. |
| Demonstrated Crosswind Velocity | The demonstrated crosswind velocity is the velocity of the crosswind component for which adequate control of the airplane during Takeoff and landing was actually demonstrated during certification tests. The value shown may or may not be limiting. Whether or not the value shown is limiting will be stated. |
| MEA | Minimum Enroute IFR Altitude. |
| Pavement Classification Number (PCN) | A number expressing the bearing strength of a pavement for unrestricted operation. The PCN reported shows that any aircraft with an ACN less than or equal to the reported PCN can operate on the pavement subject to any limitation of tire pressure. |
| Route Segment | A part of a route. Each end of that part is identified by: (1) a geographical location; or (2) a point at which a definite radio fix can be established. |



2.5 Weight and Balance Terminology

| Term | Definition |
|-----------------------------|--|
| Aircraft Empty Weight (AEW) | The weight of the aircraft, by model designation, dry, clean and empty except for fluids in closed systems such as the Landing Gear or Vapour Cooling System. AEW is calculated as MEW + Engine Oil. Full Engine Oil Volume (per Engine): 5.65 Quarts (1.41 US Gallons). Full Engine Oil Weight (per Engine): 11.01 lb (5 kg). Full Engine Oil Arm: 480.3 in (12,200 mm) |
| Aircraft Weighing Record | The form used to record data obtained from actual aircraft weighing. |
| Arm | Refers to the distance between the CG of an item or object and the datum. Note Arms ahead of, or to the left of the datum are negative (-), and those behind, or to the right of the datum are positive (+). |
| Ballast | A weight installed for balancing the aircraft so that it remains within allowed center of gravity limits. Note Ballast installation may be temporary, permanent, or a combination of both. |
| Basic Empty Weight (BEW) | The starting point for all Weight and Balance Determination For Flight is the aircraft BEW. Basic Empty Weight per configuration is the Aircraft Empty Weight and Unusable Fuel. The Basic Empty Weight is displayed as BOW in the APEX FMS INIT page. BEW is calculated as AEW + Unusable Fuel. |
| Butt Line (BL) | Reference locations in the lateral direction from the aircraft lateral reference datum or aircraft centerline. |
| Center of Gravity (CG) | The singular point through which the weight of the aircraft appears to act: <ul style="list-style-type: none">- That point about which the aircraft would balance if suspended- For field weight and balance control, the center of gravity is normally calculated only along its longitudinal axis, disregarding both lateral and vertical location. |
| Center of Gravity Arm | The arm obtained by adding the airplane's individual moments and dividing the sum by the total weight. |
| Center of Gravity Limits | The extreme center of gravity locations within which the airplane must be operated at a given weight. |
| Datum | An imaginary vertical plane from which all horizontal distances are measured for balance purposes. |
| Drainable Fuel | That portion of fuel that can be drained from the aircraft tanks through normal drain ports after defueling. |
| Fuselage Station | A location along the airplane longitudinal axis given in terms of distance from the reference datum. |



| Term | Definition |
|-----------------------------------|---|
| Lateral Arm | The distance parallel to the lateral axis between the center of gravity of a load item and the reference plane for lateral load arms. |
| Levelling Locations | Fixtures or locations whose purpose is supporting a spirit level, inclinometer, or suspended plumb bob with target plate when levelling the aircraft. |
| Longitudinal Arm | <p>The distance, parallel to the longitudinal axis, between the center of gravity of a load item and the reference plane for longitudinal load arms.</p> <div style="background-color: #e0f2ff; padding: 5px;"> <p style="text-align: center;">Note</p> <p>By convention, the longitudinal arm is negative (-) when forward, positive (+) when aft of the designated fuselage station reference datum.</p> </div> |
| Longitudinal Balance | Balance around the pitch or lateral axis. |
| Manufacturer's Empty Weight (MEW) | <div style="background-color: #e0f2ff; padding: 5px;"> <p style="text-align: center;">Note</p> <p>Fluids in closed systems does not include engine oil.</p> </div> <p>The weight of the aircraft, by model designation, dry, clean and empty, as built including:</p> <ul style="list-style-type: none"> - Customer Options - Fluids in closed systems (Landing Gear, VCS) - Furnishings - Operation Documentation (AFM, QRH) - Standard Aircraft Systems - Structure - Powerplant - Other equipment that are an integral part of an aircraft before additional items are added for operation. |
| Maximum Landing Weight (MLW) | The maximum weight approved for landing. |
| Maximum Ramp Weight (MRW) | Maximum weight approved for ground maneuver. It includes weight of start, taxi, and run-up fuel. Ramp weight is calculated as ZFW + Usable Fuel. |
| Maximum Takeoff Weight (MTOW) | Maximum weight approved for the start of the Takeoff run. |
| Maximum Zero Fuel Weight (MZFW) | Maximum weight excluding usable fuel. Maximum Zero Fuel Weight is calculated as OWE + Maximum Payload. |
| Mean Aerodynamic Chord (MAC) | The chord which passes through the centroid of an aerodynamic surface. |



| Term | Definition |
|------------------------------|---|
| Moment | <p>The product of the weight of an item and its arm. Moment divided by a constant is used to simplify balance calculations by reducing the number of digits.</p> <div style="background-color: #e0f2ff; padding: 5px;"> <p style="margin: 0;">Note</p> <p>Along the longitudinal axis, positive moments cause an airplane to nose up, while negative moments cause it to nose down.</p> </div> |
| Net Weight | The weight of the aircraft less the weight of any pads, fittings or other devices used to hold the aircraft on the scales. |
| Operating Empty Weight (OWE) | The Operating Empty Weight is also known as Dry operating Weight. OWE is calculated as BEW + crew + crew baggage + catering + GSE + servicing and potable water. |
| Payload | Weight of occupants, cargo, and baggage. |
| Ramp Weight (RW) | <p>Weight for ground maneuver. It includes weight of start, taxi, and run-up fuel.</p> <p>Ramp weight is calculated as ZFW + Usable Fuel.</p> |
| Reference Datum | The zero reference position from which all distances are measured for balance purposes. |
| Residual Fuel | Fuel that remains in the system after defueling the aircraft. |
| Station | A location along the airplane fuselage usually given in terms of distance from the reference datum. |
| Takeoff Weight (TOW) | Weight for the start of the Takeoff run. |
| Tare Weight | <p>The weight of any pads, fittings or devices that are used to hold an aircraft on the scales when it is weighed.</p> <p>The net weight of the aircraft is obtained by subtracting the tare weight from the scale reading to obtain the gross weight.</p> |
| Undrainable Fuel | <p>Fuel which remains in the aircraft after defueling and draining.</p> <p>Undrainable Fuel Weight: 8.8 lb (4 kg).</p> |
| Unusable Fuel | <p>Fuel which remains in the aircraft at fuel starvation</p> <div style="background-color: #e0f2ff; padding: 5px;"> <p style="margin: 0;">Note</p> <p>The Unusable Fuel weight includes the Undrainable Fuel weight (8.8 lb (4 kg)).</p> </div> <p>Unusable Fuel Weight: 35.3 lb (16 kg).</p> <p>Unusable Fuel Arm: 318.46 in (8,089 mm).</p> |
| Usable Fuel | Fuel available for flight planning. |
| Useful Load | Difference between Takeoff weight, or ramp weight if applicable, and basic empty weight. |
| Vertical Arm | The distance parallel to the vertical axis between the center of gravity of a load item and the reference plane for vertical load arms. |
| Waterline | Distance in the vertical direction measured from a reference below the aircraft. |
| Weighing Officer | The individual directing the weighing of the aircraft. |
| Weight | The gravitational force exerted on an object equal to the product of the objects mass and the local value of the earth's gravitational acceleration. |



| Term | Definition |
|------------------------------|--|
| Weight & Balance Maintenance | The Weight & Balance manual contains a Change Record which describes changes to the aircraft that affects the MEW since the latest weighing and records the updated MEW. |
| Wing Chord | A straight-line distance across a wing from leading edge to trailing edge. |
| Zero Fuel Weight (ZFW) | Weight excluding usable fuel. Zero Fuel Weight is calculated as OWE + Payload. |

3 Conversion Information

All numerical data contained in this AFM is shown in standard format with the metric equivalent immediately following in parenthesis, for example 7 ft (2.135 m). The following formulas can be used to make required conversions.

3.1 General

| Multiply this unit | By factor | To obtain this unit |
|--------------------|-------------------|---------------------|
| Celsius (°C) | (°C x 1.8) + 32 | Fahrenheit (°F) |
| Fahrenheit (°F) | (°F - 32) x 0.556 | Celsius (°C) |
| Nautical Mile (nm) | 1.151 | Statute Mile (mi) |
| Statute Mile (mi) | 0.869 | Nautical Mile (nm) |

3.2 Jet Fuel

Note

Jet Fuel (JET A) Standard weights at 15 °C (Relative Density 0.803)

| Multiply this unit | By factor | To obtain this unit |
|--------------------|-----------|-----------------------|
| Pound (lb) | 1.777 | Liter (l) |
| Pound (lb) | 6.73 | US Gallon (gal) |
| Pound (lb) | 1.151 | Imperial Gallon (gal) |

3.3 Standard To Metric

| Multiply this standard unit | By factor | To obtain this metric unit |
|-----------------------------|-----------|----------------------------|
| Inch (in) | 25.4 | Millimeter (mm) |
| Inch (in) | 2.54 | Centimeter (cm) |
| Feet (ft) | 0.305 | Meter (m) |
| Yard (yd) | 0.914 | Meter (m) |
| Statute Mile (mi) | 1.61 | Kilometer (km) |
| Nautical Mile (nm) | 1.852 | Kilometer (km) |
| US Gallon (gal) | 3.785 | Liter (l) |
| Imperial Gallon (gal) | 4.546 | Liter (l) |
| Pound (lb) | 0.453592 | Kilogram (kg) |
| Pound per square inch (psi) | 0.069 | Bar (bar) |



3.4 Metric To Standard

| Multiply this metric unit | By factor | To obtain this standard unit |
|---------------------------|-----------|------------------------------|
| Millimeter (mm) | 0.0393701 | Inch (in) |
| Centimeter (cm) | 0.393701 | Inch (in) |
| Meter (m) | 3.281 | Feet (ft) |
| Meter (m) | 1.094 | Yard (yd) |
| Kilometer (km) | 0.621 | Statute Mile (mi) |
| Kilometer (km) | 0.54 | Nautical Mile (nm) |
| Liter (l) | 0.264 | US Gallon (gal) |
| Liter (l) | 0.22 | Imperial Gallon (gal) |
| Kilogram (kg) | 2.20462 | Pound (lb) |
| Bar (bar) | 14.504 | Pound per square inch (psi) |

3.5 Total Air Temperature To Static Air Temperature

| True Air Speed (Kt) | Static Air Temperature (°C) |
|-------------------------------------|-----------------------------|
| Total Air Temperature (TAT) = 10 °C | |
| 0 | 10 |
| 75 | 9 |
| 100 | 8 |
| 125 | 8 |
| 150 | 7 |
| 175 | 6 |
| 200 | 4 |
| 225 | 3 |
| 250 | 1 |
| 275 | 0 |
| 300 | -2 |
| 325 | -4 |
| 350 | -7 |
| 375 | -9 |
| 400 | -11 |
| 425 | -14 |
| 450 | -17 |
| 475 | -20 |



SECTION 2

Limitations (Authority approved)

Table of Contents

| Subject | | Page |
|--------------------|---|--------------|
| Limitations | | 2-1-1 |
| 1 | Introduction | 2-1-1 |
| 2 | Airplane Documentation | 2-1-1 |
| 3 | Airport Limitations | 2-1-1 |
| 4 | Advanced Cockpit Environment (ACE) (powered by Honeywell) | 2-1-2 |
| 5 | Airspeed Limitations | 2-1-9 |
| 6 | Baggage / Cargo Area | 2-1-12 |
| 7 | Brakes and Tires | 2-1-15 |
| 8 | Cabin Pressurization | 2-1-15 |
| 9 | Circuit Breakers | 2-1-15 |
| 10 | Door and Emergency Exit | 2-1-16 |
| 11 | Electrical System | 2-1-16 |
| 12 | Flight Crew | 2-1-17 |
| 13 | Fuel System | 2-1-17 |
| 14 | Hazardous Materials | 2-1-18 |
| 15 | Ice Protection System | 2-1-19 |
| 16 | Icing Limitations | 2-1-19 |
| 17 | Kinds of Operation | 2-1-21 |
| 18 | Landing Gear | 2-1-21 |
| 19 | Loading Limitations | 2-1-21 |
| 20 | Oil | 2-1-24 |
| 21 | Operating Altitude | 2-1-24 |
| 22 | Outside Air Temperature | 2-1-25 |
| 23 | Oxygen System | 2-1-27 |
| 24 | Power Plant | 2-1-27 |
| 25 | Reduced Vertical Separation Minimum (RVSM) Limitations | 2-1-36 |
| 26 | Secondary Flight Control System | 2-1-38 |
| 27 | System and Equipment Limitations | 2-1-39 |
| 28 | Water Waste System | 2-1-40 |

Section 2 - Limitations (Authority approved)
Table of Contents

| Subject | Page |
|--------------------------|-------------|
| 29 Placards and Markings | 2-1-40 |



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Limitations

1 Introduction

This section contains the approved operating limitations, instrument markings, color coding and basic placards necessary for the operation of the PC-24 aircraft, its engine, systems and equipment.

Compliance with limitations is mandatory.

2 Airplane Documentation

Operation is authorized only with the publications identified in Section 1 "Flight Crew Manual System Organization".

The following documents must be aboard the aircraft in paper (hard copy) format, readily accessible to the pilot:

- The PC-24 Airplane Flight Manual (AFM) Report No: 02371, Cockpit Handbook Volumes 1 and 2.

The following documents must be aboard the aircraft for reference by the pilot, in either electronic (digital) or paper format:

- The PC-24 Quick Reference Handbook (QRH) Report No: 02382
- The Advanced Cockpit Environment (powered by Honeywell) for the Pilatus PC-24 Avionics System Pilot's Guide applicable to the software and hardware configuration of the specific aircraft serial number. This guide is published by Honeywell International Inc. and distributed by Pilatus.
- The PC-24 Flight Crew Operating Manual (Document No. 02383).

3 Airport Limitations

Note

A wet runway is defined as a runway from which the surface is covered with a layer of water less than 1/8 in. (3 mm) in depth or the equivalent amount of a related substance or by a sufficient level of moisture to give a reflective appearance, but without any significant area of standing water.

Table 2-1-1: Airport Limitations

| Description | Limitation |
|--------------------------------------|---|
| Approved takeoff and landing surface | Dry and wet paved runways. Contaminated paved runways in accordance with AFM Supplement 02442 "Contaminated Runway Operation". |



Section 2 - Limitations (Authority approved)
Advanced Cockpit Environment (ACE) (powered by Honeywell)

Table 2-1-1: Airport Limitations (continued from previous page)

| Description | Limitation |
|--|---|
| | With gravel kit factory option installed: <ul style="list-style-type: none">- Dry and wet prepared dirt-sand-gravel runways (or any combination of it) in accordance with AFM Supplement 02444 "Dirt-Sand-Gravel Runway Operation"- Dry and wet prepared grass runways in accordance with AFM Supplement 02473 "Grass Runway Operation". |
| Minimum Pressure Altitude | -1,000 ft MSL |
| Maximum Pressure Altitude | 10,000 ft MSL |
| Landing Field Elevation | |
| Maximum runway slope | ±2% |
| Maximum tailwind component for takeoff and landing | 10 kt |

4 Advanced Cockpit Environment (ACE) (powered by Honeywell)

4.1 ACE - General

The Dynamic Speed Bug, low speed awareness and stall warning systems are for advisory use only. Maintain a safe stall margin based on the Stall Speed charts contained within Section 5, the performance section of the AFM.

4.2 ACE - Automatic Flight Control System

4.2.1 General

Note

The use of "PITCH ATTITUDE HOLD" mode is recommended during operation in severe turbulence.



- During autopilot operation, an appropriately qualified pilot must be seated in a pilot position with seat belt fastened.
- Do not override the autopilot or yaw damper.
- Do not engage the autopilot while the tactile feedback system is active.
- The pilot side quick disconnect button must be operable before departure.
- The autopilot servos may be temporarily disengaged without disengaging the autopilot to allow manual flight path control. The TCS switch on the control wheel must be pushed and held for the desired duration.
- Flight operation above 30,000 ft Mean Sea Level (MSL) with the yaw damper disengaged is prohibited.
- The autothrottle may be intentionally overridden at any time by repositioning and holding the Thrust Lever for a minimum of 3 seconds. This will result in an AT disconnect and associated aural warning which can be cancelled using the AT quick disconnect button on the power control lever.
- The autothrottle can be used for take off, climb, cruise, descent and approach.

4.2.2 Take Off

- The minimum engagement height of the autopilot after take-off is 400 feet AGL.
- The minimum engagement height of the yaw damper after take-off is 50 feet AGL.
- The landing gear must be selected up prior YD engagement.

4.2.3 Approach / Landing

- The system is approved for IFR Category I operation (Approach mode selected). Autopilot coupled go-arounds are permitted provided the go-around is initiated at or above Decision Height or Minimum Descent Altitude.
- The autopilot, yaw damper and autothrottle must be disengaged below 1,000 ft AGL, except under the conditions defined in [Table 2-1-2](#).

Table 2-1-2: AFCS Minimum Usage Height

| Approach Type | Limitation |
|---|--|
| Approach with Vertical Guidance in VGP | The autopilot, yaw damper and autothrottle must be disengaged below 200 ft AGL |
| Coupled ILS Approach | The autopilot, yaw damper and autothrottle must be disengaged below 200 ft AGL. AND Glide slope must be less than 4.5 degrees |
| Non-Precision Approach, Circling Approach and Visual Approach | Airspeed must be <150 KIAS AND Vertical speed must be <1,500 ft/min AND The autopilot, yaw damper and autothrottle must be disengaged below 400 ft AGL |



4.3 ACE - Flight Management System

4.3.1 General

Note

It is the responsibility of the pilot in command to verify that any speeds managed by the FMS do not violate IFR published procedural speeds.

Use of the Flight Management System (FMS) for IFR operation is permitted provided the FMS incorporates the most current database update cycle.

4.3.2 Conduct of Instrument Approaches Using Flight Management System

Use of the FMS to conduct instrument approaches is permitted provided:

- The reference coordinate datum system for the instrument approach to be flown is WGS-84, and
- The approach to be flown is an approved instrument approach procedure, and
- The approach to be flown is retrieved from the FMS database, and
- APP (approach active) mode is annunciated at the Final Approach Fix, and
- The approach to be flown is not any of the following prohibited approach types: ILS, LOC, LOC-BC, LDA, SDF and MLS.

4.3.3 Use of Lateral Navigation and Vertical Navigation for Approaches

CAUTION

Due to the large tolerances of the Vertical Navigation system the deviation indicator must not be relied on when operating below the applicable published minimum prescribed in the approved approach procedure.

Operation using the VNAV system is permitted provided the barometric altimeter is used as the primary altitude reference at all times.

Operations using the VNAV path deviation indicator during approach are permitted provided:

- The published LNAV / VNAV minimums published on the approach charts are controlling.
- All operations below the published LNAV / VNAV minimums published on the approach charts are conducted by outside visual reference.

If flying on LNAV approach using the vertical guidance provided by the FMS, the crew must at no point allow the aircraft to descend below the published LNAV MDA, unless required visibility of the runway is provided.

4.3.4 Use of Flight Management System to Conduct Area Navigation Operations in European Airspace

Use of the FMS to conduct RNAV operations in the designated European airspace is permitted. When a GPS constellation of 23 satellites or less (22 or less when the FMS incorporates automatic pressure altitude aiding) is projected to be operational, the availability of RAIM must be confirmed for the intended flight (route and time). Dispatch for RNAV must not be made in the event of predicted continuous loss of RAIM of more than five min for any part of the intended flight.



4.3.5 Approved Flight Management System Navigation

Operation of the FMS is permitted in accordance with the provisions contained in [Table 2-1-3](#).

Installation of relevant equipment and aircraft certification does not guarantee operational approval. It is the responsibility of the operator to apply for operational approval at the local authorities.

Table 2-1-3: Approved Flight Management System Navigation

| Navigation Type | Supporting Documents |
|---|---|
| Use of GNSS | AC 20-138D - Airworthiness Approval of Positioning and Navigation Systems AMC 20-5 - Airworthiness Approval and Operational Criteria for the use of the Navstar Global Positioning System (GPS) |
| A-RNP | CS-ACNS Issue 2 - Certification Specifications and Acceptable Means of Compliance for Airborne Communications, Navigation and Surveillance (Issue 2) |
| B-RNAV | AC 20-138D - Airworthiness Approval of Positioning and Navigation Systems AMC 20-4A - Airworthiness Approval and Operational Criteria For the Use of Navigation Systems in European Airspace Designated For Basic RNAV Operations AC 90-96A - Approval of U.S. Operators and Aircraft to Operate Under Instrument Flight Rules (IFR) in European Airspace Designated for Basic Area Navigation (B-RNAV) and Precision Area Navigation (P-RNAV) |
| P-RNAV RNP 2 RNP 1 | AC 20-138D - Airworthiness Approval of Positioning and Navigation Systems AC 90-105A - Approval Guidance for RNP Operations and Barometric Vertical Navigation in the U.S. National Airspace System and in Oceanic and Remote Continental Airspace AC 90-108 - Use of suitable Area Navigation (RNAV) system on Conventional Routes and Procedures JAA TGL 10 Rev 1 - Airworthiness and operational approval for precision RNAV operations in designated European airspace |
| RNP 4 RNP 10 Oceanic / Remote areas | AC 20-138D - Airworthiness Approval of Positioning and Navigation Systems AC 90-105A - Approval Guidance for RNP Operations and Barometric Vertical Navigation in the U.S. National Airspace System and in Oceanic and Remote Continental Airspace |



Table 2-1-3: Approved Flight Management System Navigation (continued from previous page)

| Navigation Type | Supporting Documents |
|------------------------|---|
| RNP APCH | AMC 20-27A - Airworthiness Approval and Operational Criteria for RNP APPROACH (RNP APCH) Operations including APV BARO-VNAV Operations |
| | AMC 20-28 - Airworthiness Approval and Operational Criteria related to Area Navigation for Global Navigation Satellite System approach operation to Localizer Performance with Vertical guidance minima using Satellite Based Augmentation System |
| | AC 90-107 - Guidance for Localizer Performance with Vertical Guidance and Localizer Performance without Vertical Guidance Approach Operations in the U.S. National Airspace System |
| RNP AR | Refer to AFM Supplement 02503 "RNP AR Operation" |

4.4 ACE - Take-off and Landing Data (TOLD)

4.4.1 General Limitations

TOLD provides data within the regular operating limits of the aircraft and prevents entering a variable out of the allowable envelope. The use of the TOLD function for Take-off and Landing calculations is for advisory purposes only and always must be cross-referenced against the AFM or other certified Performance calculation software.

The TOLD calculation does not consider terrain data for climb performance. It is the responsibility of the operator to determine the most limiting obstacle for the climb.

4.4.2 Limitations for Normal Operations – Section 5 of the AFM

The TOLD function provides performance information in accordance with the AFM Section 5 with the following exceptions:

- 1 Acceleration and Final Segment for OEI climb procedure
- 2 Consideration of turns in the OEI climb procedure (for Obstacle Clearance calculations)
- 3 Cold temperature compensation below standard temperatures
- 4 Abnormal landing scenarios (i.e. system failures, emergency landings).

4.4.3 Limitations for Normal Operations – Supplements of the AFM

The TOLD function does not support the performance data provided in the following AFM supplements:

- AFM Supplement No. 02442 (Contaminated Runway Operation)
- AFM Supplement No. 02444 (Dirt-Sand-Gravel Runway Operation)
- AFM Supplement No. 02451 (Steep Approach Operation)
- AFM Supplement No. 02457 (Narrow Runway Operation)
- AFM Supplement No. 02473 (Grass Runway Operation).



4.5 ACE - TCAS II

All RA and TA aural messages are inhibited at a radio altitude <1,100 ft during ascent and <900 ft during descent.

4.5.1 Clearance

The pilot is authorized to deviate from ATC to the extent necessary to comply with a RA.

4.5.2 Traffic Advisories

The pilot must not initiate evasive maneuvers based solely on information from a TA. TA information should be used only as an aid to visual acquisition of traffic.

4.5.3 Resolution Advisories

When an RA occurs, the pilot flying shall respond immediately to RA displays and aural alerts, manoeuvring as indicated, unless doing so would jeopardize the safe operation of the aircraft.

Note

Visually acquired traffic may not be the same traffic causing an RA. The visual perception of an encounter may be misleading, particularly at night.

4.5.4 Clear of Conflict

Prompt return to the ATC cleared altitude must be accomplished when 'CLEAR OF CONFLICT' is announced.

4.5.5 Single Engine Inoperative and TCAS

With one engine inoperative, select TA only as the TCAS operating mode.

4.6 ACE - Electronic Checklist

Implementation of an Electronic Checklist Database is the responsibility of the aircraft owner / operator, use and operational approval is dependent on the rules of operation.

Implementation of Electronic Checklist functionality does not constitute operational approval.

4.7 ACE - Electronic Charts / 2-D AMM

At any time the pilot shall remain responsible for taxiing by external visual references and for flying by airborne navigation by the use of primary navigation instruments.

The position accuracy of the aircraft symbol on the charts can decrease in the case of insufficient GPS signal reception or GPS sensor failure. The aircraft symbol is not in-scale with the ACE system Electronic Charts.

The ACE system Electronic Charts do not replace approved published papers or approved electronic systems for aeronautical charts. It is the responsibility of the operator to provide a backup reference for chart data.

Note

It is the responsibility of the operator to apply for specific operational approval at the local authority for the use of external electronic charts (e.g. Electronic Flight Bags Class 1 and Class 2) instead of paper charts. Class 3 EFBs require a Supplemental Type Certificate (STC) or certification design approval as part of the aircraft equipment.



4.8 ACE - Databases

Approval of the ACE System is based on databases being provided from a database provider who has obtained a Type 2 LOA, or an equivalent means of compliance as defined by airworthiness authorities, for the processing of the following databases:

- EGPWF Threat Database, Part number: DO69002412-XXXX
- EPIC/APEX Terrain Server Database, Part number: 996-0146-XXX

This approval also requires that the operator / end user will comply with the requirements of FAA AC 20-153B, paragraph 13, for the databases listed. Databases which satisfy the same data quality requirements as the databases listed may be used as an alternate if these compliance requirements have been satisfied.

4.9 ACE - Weather Radar

Do not operate the Weather Radar if:

- The aircraft is located within a hangar or other enclosure
- The aircraft is being refueled or defueled
- Personnel are positioned within the acceptable safe distance and ±60° from the aircraft nose.

Refer to [Table 2-1-19](#) for all WX Radar models safe distances.

4.10 ACE - INAV Map

Do not use the INAV map for flight operations if:

- The INAV topographical map is the primary source of navigation reference, or
- The display of airspace areas is the sole airspace reference.

4.11 ACE - Smart View

Do not use Smart View for flight operations if:

- It is the primary source of navigation reference, or
- It is the primary reference for obstacle clearance.

4.12 ACE - Vertical Situation Display

Do not use the Vertical Situation Display as a primary source of navigation.

The Vertical Situation Display provides situational awareness only.



5 Airspeed Limitations

5.1 General Airspeed Limitations

Do not exceed the limitations in the tables listed in this section:

Table 2-1-4: Maximum Operating Speed

| Airspeed | KIAS |
|--|--------|
| Refer to M_{MO} schedule for maximum speed above 28,230 ft. See Fig. 2-1-1 | |
| V_{MO} | 290 |
| M_{MO} | 0.74 M |

Table 2-1-5: Maximum Operating Maneuvering Speed

| Airspeed | Weight lb (kg) | KIAS |
|--|-------------------------------|------|
| Do not make full or abrupt control movements above this speed. | | |
| V_O | 18,740 (8,500) ⁽²⁾ | 170 |
| | 18,300 (8,300) ⁽¹⁾ | 170 |
| | 17,650 (8,005) | 165 |
| | 17,000 (7,711) | 160 |
| | 16,000 (7,258) | 155 |
| | 15,000 (6,804) | 150 |
| | 14,000 (6,350) | 145 |
| | 13,000 (5,897) | 140 |
| | 12,000 (5,443) | 135 |
| | 11,440 (5,190) | 120 |
| Footnotes: | | |
| (1) MTOW for MSN 101 - 500 | | |
| (2) MTOW for MSN 501 - up, not applicable for MSN 101 - 500 | | |

Table 2-1-6: Maximum Operating Maneuvering Speed (Rudder)

| Airspeed | Altitude ft (m) | KIAS | SIGNIFICANCE |
|-----------------|--------------------------------------|------|--|
| V_O RUDDER | up to 20,000 (6,096) | 130 | Do not make full or abrupt control movements above this speed. |
| | above 20,000 (6,096) | 125 | |
| | from sea level up to 45,000 (13,716) | 185 | Do not exceed 1/3 of pedal travel. |
| | from sea level up to 45,000 (13,716) | 290 | Do not exceed 1/10 of pedal travel. |

Table 2-1-7: Maximum Flap Extended Speed

| Airspeed | Flap Setting | KIAS |
|---|--------------|------|
| Do not exceed the following speed with the respective flap setting. | | |
| V_{FE} | 8° | 200 |
| | 15° | 200 |
| | 33° | 175 |



Section 2 - Limitations (Authority approved) Airspeed Limitations

Table 2-1-8: Maximum Landing Gear Extended Speed

| Airspeed | KIAS |
|--|-----------------------------|
| Do not exceed this speed with the landing gear extended. | |
| V_{LE} | The lower of: 250 or 0.74 M |

Table 2-1-9: Maximum Landing Gear Operating Speed

| Airspeed | KIAS | Significance |
|--------------------------------|--------------------------------|--|
| V_{LO} (EXTEND) | The lower of: 250 or 0.74 M | Do not extend the landing gear above this speed. |
| V_{LO} (RETRACT) | 200 | Do not retract the landing gear above this speed. |
| V_{LO} (EXTEND - EGES) | 180 | Do not extend the emergency landing gear above this speed. |

Table 2-1-10: Minimum Control Speed on Ground

| Airspeed | KIAS | Flap Setting at Takeoff |
|-----------|------|-------------------------|
| V_{MCG} | 87 | 8° / 15° |

Table 2-1-11: Minimum Control Speed for Takeoff

| Airspeed | Weight lb (kg) | KIAS | Flap Setting at Takeoff |
|---|-----------------|------|-------------------------|
| Based on flight testing, it has been determined that the PC-24 aircraft does not have a critical engine for the purpose of V_{MC} | | | |
| V_{MC} | ≥13,228 (6,000) | 77 | 15° |
| | >12,125 (5,500) | 81 | |
| | >11,023 (5,000) | 84 | |
| | ≥13,669 (6,200) | 82 | 8° |
| | >12,125 (5,500) | 87 | |
| | >11,023 (5,000) | 90 | |

Table 2-1-12: Minimum Control Speed for Landing

| Airspeed | Weight lb (kg) | KIAS | Flap Setting for Landing |
|---|-----------------|------|--------------------------|
| Based on flight testing, it has been determined that the PC-24 aircraft does not have a critical engine for the purpose of V_{MC} | | | |
| V_{MCL} | ≥13,007 (5,900) | 78 | 15° |
| | >12,125 (5,500) | 81 | |
| | >11,023 (5,000) | 84 | |
| | ≥13,228 (6,000) | 73 | 33° |
| | >12,125 (5,500) | 77 | |
| | >11,023 (5,000) | 80 | |



5.2 Airspeed Indication Markings

Table 2-1-13: Airspeed Indication Markings (PFD and ESIS Combined)

| Indication | KIAS Value or Range | Remarks |
|--|--------------------------------|--|
| Red / White Barber Pole across and upwards on right side of tape | The lower of: 290 or 0.74 M | Maximum operating limit (V_{MO} / M_{MO}) |
| Red (high speed) strip on right side of tape | 250 V_{LO} Extend | Extends downwards from V_{MO} / M_{MO} to the valid V_{LO} or V_{FE} as applicable. |
| | 200 V_{LO} Retract | Not shown in clean config or with gear extended only. |
| | 200 V_{FE} 8° / 15° | |
| | 175 V_{FE} 33° | |
| Labeled Placards on right side of tape | 250 V_{LO} Extend | Maximum landing gear operating speed V_{LO} Extend is shown as G |
| | 200 V_{LO} Retract | Maximum landing gear operating speed V_{LO} Retract is shown as Gr |
| | 200 V_{FE} 8° / 15° | Maximum flap operating and extended speed V_{FE} <ul style="list-style-type: none"> - With flaps at 8° displayed as 08 - With flaps at 15° displayed as 15 |
| | 175 V_{FE} 33° | Maximum flap operating and extended speed V_{FE} with flaps at 33° is displayed as 33 |
| Red low speed awareness tape overlaid on right side of tape | Shaker speed | Extends upwards from bottom of tape to the shaker speed. |



5.3 V_{MO} / M_{MO} Envelope

Operations are permitted within the envelope shown in [Fig. 2-1-1](#).

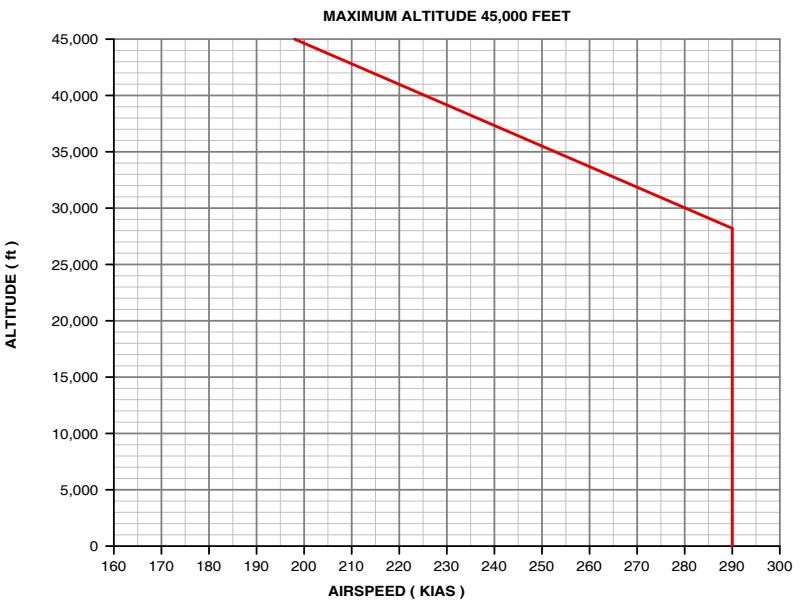


Figure 2-1-1: VMO / MMO Envelope

6 Baggage / Cargo Area

Baggage is any item that has a mass ≤ 66 lb (30 kg). All baggage must be stowed in the restraint system (baggage net).

Cargo is any item that has a mass > 66 lb (30 kg). All cargo must be tied down to the seat rails and must be secured individually with an approved cargo tie down. All the cargo inside the cabin must be secured following the cargo tie down kit installation instructions provided in section 18 Handling and Service in the FCOM.

Refer to [Weight Limitations](#) for Baggage and Cargo weight and loading limitations.

The capacity of the baggage must not exceed the allowed mass as defined on the baggage restraint system placard.

The capacity of the baggage must not exceed the mass and Center of Gravity envelope.

Do not open / close the cargo door, or perform cargo loading operations in crosswinds exceeding 60 kt.

When a life raft is carried in the baggage area it must be properly secured and when required by operating regulations, it must be accessible In Flight.



6.1 Baggage Limitations

The baggage area maximum load is given in [Table 2-1-15](#).

There must be a clear area of at least:

- 9.1 in (250 mm) forward of the large baggage restraint system
- 7.5 in (190 mm) forward of the small baggage restraint system
- 4 in (100 mm) in front of the cargo in the cabin.

Refer to the cargo / baggage clearance shown in [Fig. 2-1-2](#).



Section 2 - Limitations (Authority approved) Baggage / Cargo Area

Contents

Front Matter

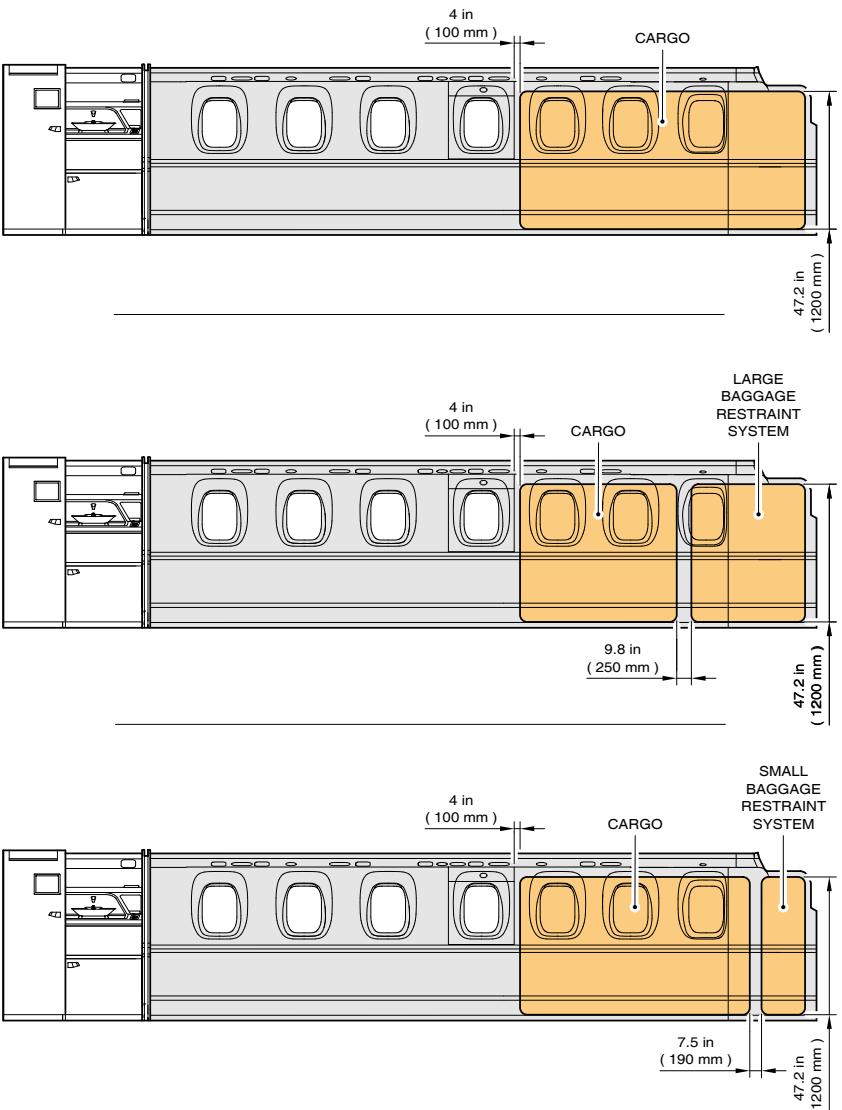
Introduction

Limitations

Procedures

Performance

W & B



aICN-PC24-A-A15000000-A-S4080-05865-003-A-001

Figure 2-1-2: Cargo / Baggage Clearance



6.2 Cargo Limitations

■ **MSN 101 - 500:** Maximum Freight Load is 2500 lb (1134 kg).

■ **MSN 501 - up:** Maximum Freight Load is 2940 lb (1334 kg).

Cargo must be arranged to permit free access to the passenger door and the emergency overwing exits. No cargo must be placed on the seats.

All cargo must be secured by approved cargo restraints as described in Section 18 in the FCOM. Tie Down Straps with a breaking strength of at least 1800 lb per strap must be used.

All Cargo/Containers must be located against a retaining bar secured laterally to the seat rails.

Items up to a total weight of 66 lb (30 kg) can be stowed in the cabin area without being strapped down providing a cargo net is installed in front of the items.

7 Brakes and Tires

7.1 Brakes

To allow adequate cooling of the wheels and brakes the aircraft must remain on the ground for at least 120 min following these two events:

- Rejected takeoff with brake on speed greater than V_R -20 kt and heavy brake usage
- 0° flap full stop landing and heavy brake usage.

7.2 Tires

The maximum permissible tire speed is 165 kt groundspeed.

The nose tire must be a "Dual Chine" tire.

8 Cabin Pressurization

| Description | psid |
|---|------|
| Maximum cabin positive pressure differential | 9.27 |
| Maximum cabin negative pressure differential | -0.3 |
| Maximum pressure differential for takeoff and landing | 0.7 |

Note

The warning for maximum cabin negative pressure differential exceedance will occur between -0.3 and -0.6 psid.

9 Circuit Breakers

A CB tripped by an unknown cause is a signal that something may be wrong in the related circuit. It is therefore essential that pilots be aware that until the cause of the trip is determined, they usually have no way of knowing the consequences of resetting a tripped CB.

Pilots must exercise extreme caution where fuel pumps and / or fuel quantity indication systems are involved, because of the possibility that arcing might lead to ignition of fuel or fuel vapors.



Do not reset CBs In Flight, except when required by a procedural step of an operating instruction or procedure contained in Section 3, 3A or 4 of this AFM or if the pilot in command can judge that resetting the CB is necessary for the safe completion of the flight.

10 Door and Emergency Exit

10.1 Forward Airstair Limitation

Do not allow more than one person on the forward airstair at any given time.

10.2 Emergency Exit Security Pins

Each internal emergency exit overnight security pin, if installed, must be removed and stowed before flight.

11 Electrical System

11.1 Generator Limitations

| Description | Limitation |
|-----------------------|------------|
| Quiet Power Mode | 250 A |
| Ground idle and above | 400 A |
| Flight | 400 A |
| Maximum Voltage | 29.5 Vdc |

11.2 Battery Limitations

The voltage for charging the batteries must not exceed 32 V.

| Description | Limitation |
|--|---|
| Minimum battery temperature for flight | 0 °C |
| Minimum battery volts for start | For Ni-Cd: 22.0 VDC (Battery 1) 23.5 VDC (Battery 2) For Li-Ion: State Of Charge (SOC) indicators of both batteries are green |
| Maximum battery charge rate before takeoff | Battery 1 + 2 must be <50 A and decreasing |
| Minimum Ni-Cd battery temperature for battery engine starts | -20 °C |
| Minimum Li-Ion battery temperature for battery engine starts | -5 °C |

11.3 Ground Power Unit Limitations

| Description | Limitation |
|-------------------------|---|
| Voltage | 25.0 - 29.5 Vdc |
| Load capacity | 1,200 A Initial Start Surge 450 A Continuous |
| Minimum volts for start | 24.0 Vdc |



| Description | Limitation |
|-------------------------------------|------------|
| Minimum voltage to charge batteries | 28.0 Vdc |
| Maximum voltage to charge batteries | 29.5 Vdc |
| Minimum OAT for GPU start | -54 °C |

Connection of a GPU is permitted only when GPU voltage is greater than the battery voltage.

12 Flight Crew

The minimum required flight crew is one pilot in the left hand seat.

13 Fuel System

13.1 General

The electric fuel booster pumps must be operative.

The fuel crossfeed valve must be operative.

The maximum permissible fuel temperature is 80 °C.

The minimum permissible fuel temperature is -40 °C.

13.2 Approved Fuel Grades

Note

Fuel meeting the requirements of ASTM D7566 Standard Specification for Aviation Turbine Fuel Containing Synthesized Hydrocarbons, redesignated as ASTM D1655, is acceptable for use.

The following fuel grades are approved:

- Jet A (ASTM D1655)
- Jet A-1 (ASTM D1655)
- JP-8 (MIL-DTL-83133)
- TS-1 (GOST 10227)

13.3 Fuel Quantity

Table 2-1-14: Fuel Quantity

| Quantity Description | gal (l) | lb (kg) |
|-------------------------------|-------------|-----------------|
| Total quantity | 895 (3,389) | 5,999.8 (2,721) |
| Usable quantity | 890 (3,369) | 5,964 (2,705) |
| Maximum permissible imbalance | 49 (189) | 330 (150) |
| Unusable fuel quantity | 5.3 (20) | 35 (16) |

The figures shown in [Table 2-1-14](#) are based on a fuel temperature of 59 °F (15 °C) and a fuel density of 6.7 lb/gal (0.803 kg/l). The fuel weight values listed in [Table 2-1-14](#) are not considered to be limiting. Higher fuel weights are permitted provided the aircraft is operated in accordance with the weight limitations listed in [Table 2-1-15](#).



13.4 Anti-Icing Additives

The use of Fuel Anti Icing Additive is not required; however addition of the additive is not detrimental to fuel system operation (refer to [Biocide Additives](#)).

| Fuel | Anti-Icing Additive |
|--------------------|---|
| Jet A/Jet A-1/JP-8 | MIL-DTL-27686 or MIL-DTL-85470 in a concentration of 0.10 to 0.15 % by volume |
| TS-1 | GOST 8313 (Fluid I) in a concentration of 0.10 to 0.30 % by volume |

13.5 Anti-Static Additive

DuPont Stadis 450 at concentration required to bring fuel up to 300 conductive units, but not to exceed 1 ppm.

Anti-Static additive is to be added per engine operating manual.

13.6 Biocide Additives

Note

If no permitted biocide is available, it is recommended to use anti-icing additives for their properties of reducing free water content in the Fuel System and inhibiting biological contamination. The use of anti-icing additives prevents the formation and development of contamination in the fuel tanks. If these additives are used, make sure the maximum concentration levels defined in Section 13.4 above are not exceeded.

Permitted biocide: Biobor JF at concentration not to exceed 270 ppm (weight) total additive.

Example: The quantity of biocide required to treat a fuel tank filled to maximum capacity (5999 lb / 2721 kg) is 0.81 lb (0.367 kg) per wing tank or 1.62 lb (0.734 kg) in total.

Biocide additives are optional and are not required at each refueling.

13.7 Corrosion Additive

HI-TECH 580 at a concentration of 15 to 22.5 g/m³.

Corrosion additives are optional and are not required at each refueling.

13.8 Pressure Refueling Limitations

The maximum refueling pressure is 60 psi.

The maximum defueling suction pressure is 10 psi.

The power switch (PWR - REFUEL / DEFUEL) must be off and guarded prior to departure.

14 Hazardous Materials

The transport of hazardous materials is not permitted in the cabin of the aircraft, unless the operator obtains specific approval by the local authority. Information and regulations pertaining to the air transportation of hazardous materials is outlined in the CFR Title 49 and in the ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air. The list of material designated as hazardous for the purpose of transportation are listed in 49 CFR 172.101. The especial requirements for hazardous materials cargo described in 49 CFR 175 are applicable to all cargo transported in the aircraft.



15 Ice Protection System

15.1 Pneumatic Deice Boots

The HSDI is a part of the IPS and consists of pneumatic boots which must be installed for operation.

The inflation of the deicer pneumatic boots is not recommended when TAT <-40 °C unless it is required due to the presence of icing conditions.

If the HSDI is operated at TAT ≤-40 °C, a visual inspection of the pneumatic boots must be performed and a system functional test carried out before takeoff.

15.2 Wing Anti-Ice System

The WAI is inhibited in these conditions:

- TAT > 15 °C
- Aircraft on ground.

Do not operate the WAI system with a TAT of more than 10 °C, unless required by the presence of icing conditions.

15.3 Windshield Heating System

Do not operate the Windshield Emergency heating on ground or when TAT is >10 °C

15.4 Ice Detection

PFID system is not operative on ground as ice detectors signals are not available on ground. Ice detectors signals become available as soon as the aircraft is in the air.

15.5 Wing Inspection Light

The wing inspection light must be operational if flying into known icing conditions at night or if known icing conditions are forecasted at night.

15.6 Cockpit Windows

Cockpit windows must be cleaned with approved cleaning fluids.

Note

Un-approved fluids on the external cockpit windows surfaces can result in a degradation of the pilot view in rain.

16 Icing Limitations

WARNING

THE PILOT SHALL PERIODICALLY CHECK THE LEFT WING UPPER SURFACE ON A REGULAR BASIS WHILE FLYING IN ICING CONDITIONS TO ENSURE THERE IS NO UNUSUAL ICE ACCUMULATION.

In icing conditions the airplane must be operated, and its ice protection systems used as described in the operating procedures section of this manual. Where specific operational speeds and performance information have been established for such conditions, this information must be used.



Do not takeoff if there are signs of ice, snow or frost on the lifting surfaces. A visual and tactile inspection of the wing leading edge and upper wing surface must be conducted.

If the airplane encounters conditions that are determined to contain freezing rain or freezing drizzle, the pilot must immediately exit the freezing rain or freezing drizzle conditions by changing altitude or course.

Do not operate into airports reporting freezing rain or freezing drizzle.

16.1 Approved Deicing and Anti-icing Fluids

The PC-24 is approved for operations with deicing fluids AMS 1424 / 1 Type I and AMS 1428 / 1 Type II, III and IV.

16.2 Extended Holding

Extended holding in icing conditions in single bleed source is not allowed.

16.3 Use of flaps in Icing Conditions

Do not extend the flaps beyond 15° if in icing conditions.

For approach and landing in current icing conditions as indicated by the ice detectors detecting ICE or pilot assessment, use Flaps 15 . Do not use Flaps 33 for landing in current, active icing conditions.

Do not retract the flaps below 8°, if signs of ice are present on the lifting surfaces.

The minimum airspeed with flaps retracted in icing conditions is 150 KIAS.

16.4 Severe Icing Conditions

Do not engage the autopilot in severe icing conditions.

Severe icing may result from environmental conditions outside of those for which the airplane is certificated. Flight in freezing rain, freezing drizzle or mixed icing conditions (supercooled liquid water and ice crystals) may result in ice build-up on protected surfaces exceeding the capability of the ice protection system or may result in ice forming aft of the protected surfaces. This ice may not be shed using the ice protection systems and may seriously degrade the performance and controllability of the airplane.

If one or more visual cues exist then immediately exit icing conditions. Visual cues are defined as:

- Unusual extensive ice accumulation on the airframe or on the cockpit side windows
- Excessive accumulation of ice beyond the wing protected leading edge.

16.5 Use of Autopilot in Icing Conditions

Do not engage the autopilot in severe icing conditions.

Care must be taken when using the autopilot that tactile cues, such as increased aileron forces, could potentially be masked by the autopilot function. Periodically disengage the autopilot to check for abnormal forces.

16.6 Use of SWPS Ice Mode Override

Do not operate the SWPS ICE OVRD push button / SWPS ICE MODE rotary selector if there are signs of ice on the wings.



17 Kinds of Operation

The PC-24 is certified in the Commuter Category and is approved for the following types of operation when the required equipment is installed and operational:

- VFR Day
- VFR Night
- IFR Day including automatic approaches to CAT 1 weather minimums, single pilot
- IFR Night including automatic approaches to CAT 1 weather minimums, single pilot
- Flight Into Known Icing conditions (FIKI).

Kinds of Operation Equipment List

The following applies to the PC-24:

- The aircraft is certified for the operations listed in [Kinds of Operation](#)
- All equipment installed, including any optional equipment required by national operating rules, shall be operative at dispatch (as normally indicated by the absence of CAS messages)
- National regulations for minimum performance requirements must always be observed
- An appropriately authorized and approved (M)MEL may be used to operate the aircraft with inoperative equipment.

18 Landing Gear

Do not operate the landing gear if the temperature is less than -85 °F (-65 °C).

Towing Limitations

The weight of a towbar-less tug must not exceed:

- 5,379 lb (2,440 kg).

Note

The weight of the towbar-less tug influences the force on the nose landing gear in case the towbar-less tug needs to brake.

19 Loading Limitations

19.1 Weight Limitations

It is the responsibility of the pilot to ensure that the airplane is loaded in accordance with the limitations contained in [Table 2-1-15](#), and within the center of gravity limitations contained in [Table 2-1-16](#).

MSN 101 - 500: Do not attempt to takeoff if the Maximum Takeoff Weight exceeds 18,300 lb (8,300 kg).

MSN 501 - up: Do not attempt to takeoff if the Maximum Takeoff Weight exceeds 18,740 lb (8,500 kg).



Section 2 - Limitations (Authority approved) Loading Limitations

Table 2-1-15: Weight Limits

| Description | Weight lb (kg) for MSN 101 - 500 | Weight lb (kg) for MSN 501 - up |
|---|---|------------------------------------|
| Maximum Ramp Weight | 18,400 lb (8,345 kg) | 18,840 lb (8,545 kg) |
| Maximum Takeoff Weight | 18,300 lb (8,300 kg) | 18,740 lb (8,500 kg) |
| Maximum Landing Weight | 16,900 lb (7,665 kg) | 17,340 lb (7,865 kg) |
| Maximum Zero Fuel Weight | 14,220 lb (6,450 kg) | 14,660 lb (6,650 kg) |
| Maximum Cargo Weight | 2,500 lb (1,134 kg) | 2,940 lb (1,334kg) |
| Maximum Baggage Weight (large restraint net) | 530 lb (240 kg) | |
| Maximum Baggage Weight (small restraint net) | 400 lb (180 kg) | |
| Maximum Floor Loading (on seat rails) | 670 lb/ft (1,000 kg/m) | |
| Maximum Floor Loading (over floor panels) | 100 lb/ft ² (500 kg/m ²) | |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



19.2 Center of Gravity Limitations

Table 2-1-16: Center of Gravity Limitations

| Weight | Forward Limit AOD: % MAC | Aft Limit AOD: % MAC |
|-------------------------------------|-----------------------------|-------------------------|
| 18,840 lb (8,545 kg) ⁽⁴⁾ | 25.0 | 39.8 |
| 18,740 lb (8,500 kg) ⁽³⁾ | 25.0 | 40.0 |
| 18,400 lb (8,345 kg) ⁽²⁾ | 25.0 | 39.8 |
| 18,300 lb (8,300 kg) ⁽¹⁾ | 25.0 | 40.0 |
| 13,560 lb (6,150 kg) | - | 47.6 |
| 12,895 lb (5,850 kg) | 25.0 | - |
| 11,510 lb (5,221 kg) | 37.0 | - |
| 10,995 lb (4,988 kg) | - | 47.6 |

Footnotes:

- (1) MTOW for MSN 101 - 500
- (2) MRW for MSN 101 - 500
- (3) MTOW for MSN 501 - up, not applicable for MSN 101 - 500
- (4) MRW for MSN 501 - up, not applicable for MSN 101 - 500

Note

- 1 Straight line variation between points given.
- 2 The datum is 146.1 in (3711 mm) forward of forward jacking point.
- 3 See Section 6, Weight and Balance for loading instructions.

19.3 Maneuver Limits

No acrobatic maneuvers, including spins, are authorized.

Avoid rapid and large alternating control inputs, especially in combination with large changes in pitch, roll or yaw (e.g. large side slip angles) as they may result in structural failures at any speed, including below the applicable V_O .

19.4 Flight Maneuver Load Factor Limits

Operation is limited to any manoeuvre incident to normal flying, stalls (except whip stalls) and steep turns in which the angle of bank is not more than 60 degrees.

Pull-up and push-over maneuvers are limited by the accelerations given in the table below:

| Flap Position | Load Limitations |
|---------------|------------------|
| Up | +3.0 g, -1.2 g |
| Down | +2.0 g, -0.0 g |



19.5 Passenger Seating

Maximum number of occupants:

- **Executive interiors**

8 passengers (one per seat) in the cabin.

An optional fit allows two additional infants to be carried at the first seating row on the left and right sides.

- **Commuter interior**

10 passengers (one per seat) in the cabin.

During single pilot operation, the pilot occupies the left hand cockpit seat and an additional passenger may occupy the right hand cockpit seat.

20 Oil

20.1 Oil Grades Permitted

| Approved Brand ⁽²⁾ | Specification |
|-------------------------------|---------------|
| Mobil Jet II ⁽¹⁾ | MIL-L-23699 |
| Mobil 254 | MIL-L-23699 |

Footnotes:

(1) Mobil Jet II is the preferred oil.

(2) Mixing of approved oils is permissible when replenishing (topping off) oil due to normal consumption.

20.2 Oil Quantity Limitations

| Quantity Description | Quantity (qt) |
|------------------------|---------------|
| Oil Tank Total Volume | 5.85 |
| Oil Tank Fill Volume | 5.65 |
| Oil Tank Usable Volume | 4.32 |

Oil level must not be below the ADD indicator mark on the oil tank sight glass prior to flight.

The maximum permissible oil consumption rate is 0.032 gal/hr (0.128 qt/hr).

21 Operating Altitude

The maximum operating altitude is 45,000 ft (13,716 m).



22 Outside Air Temperature

For limits at alternative altitudes refer to the temperature envelope shown in [Fig. 2-1-3](#).

22.1 Sea Level Outside Air Temperature Limitations

Table 2-1-17: Sea Level Outside Air Temperature Limitations

| Description | Limit |
|-------------------------|-----------------|
| Minimum OAT (Sea Level) | -54 °C (-65 °F) |
| Maximum OAT (Sea Level) | +50 °C (122 °F) |



22.2 Operating Temperature Envelope Limitations

The Operating temperature envelope limitations are shown in Fig. 2-1-3.

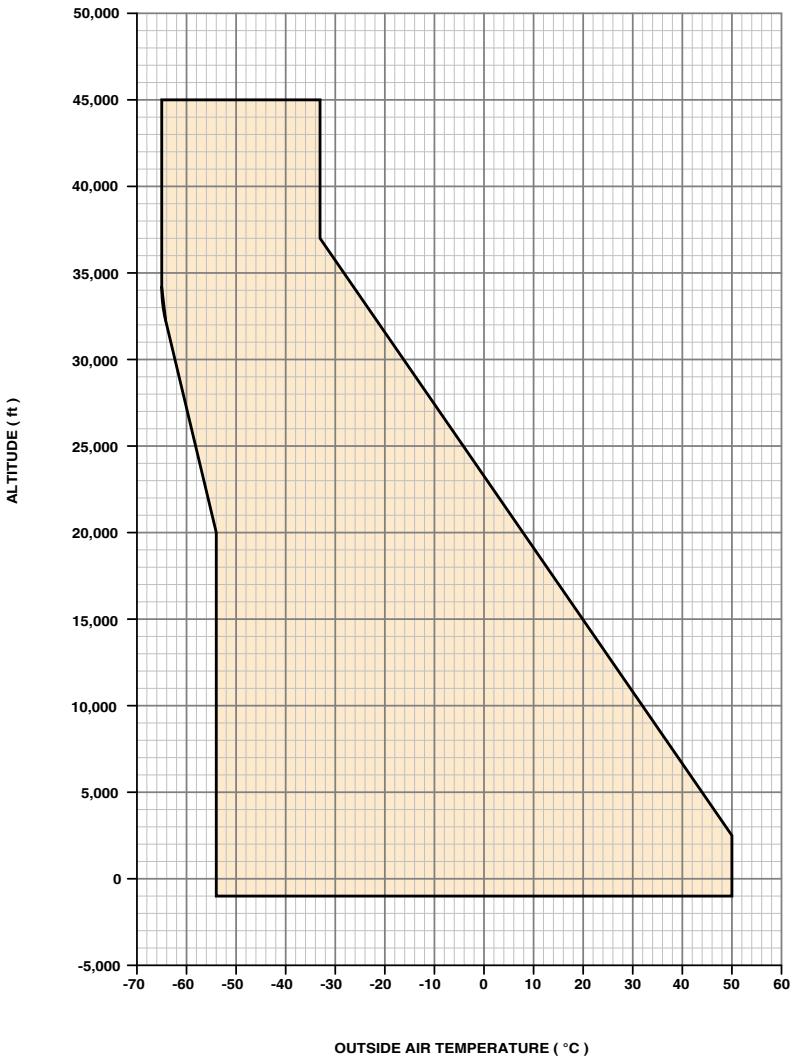


Figure 2-1-3: Operating Temperature Envelope



23 Oxygen System

23.1 General

Minimum oxygen quantity for dispatch is 680 liters.

The oxygen cylinder must be filled with Aviators Oxygen as per MIL-PRF-27210.

Do not use the oxygen saver function below an altitude of 25,000 ft.

The passenger oxygen masks are limited to a maximum cabin altitude of 40,000 ft.

If installed, do not operate the PBE when the cockpit temperature is $\leq -29^{\circ}\text{C}$ ($\leq -20^{\circ}\text{F}$).

For pressurized flight above 25,000 ft MSL, a minimum oxygen supply of 10 min duration for flight crew and passengers is required.

After ground cold soak, do not operate the Crew Oxygen Masks press to test / reset button when the cockpit temperature is $\leq -12^{\circ}\text{C}$ ($\leq 10^{\circ}\text{F}$).

23.2 High Field Mode

For single pilot operations, the pilot is required to use oxygen continuously when the High Field Mode is active.

For multi pilot operations, at least one pilot is required to use oxygen continuously when the High Field Mode is active.

24 Power Plant

24.1 Engine Operating Limitations

CAUTION

When the tailwind component is greater than 10 kt, do not exceed 60% N1 engine speed until the aircraft rolling speed is greater than the tailwind component.

The engine is limited to 10 seconds of continuous flight at zero and/or negative G. During this time it is acceptable for engine oil pressure to indicate zero. If the time limit is exceeded, engine damage may occur due to oil starvation. Compliance with this requirement is recorded under Appendix B, noting that negative G test carried out falls within defined negative acceleration envelope for this engine.

Except in an emergency, selection of engine thrust settings greater than NTO is prohibited.

The limits presented in each column shall be observed. The limits presented do not necessarily occur simultaneously. Refer to the Williams International Maintenance documentation for specific action if limits are exceeded.

If the **ATR Disarm** CAS is shown, do not attempt takeoff if performance is calculated with ATR being available.



Table 2-1-18: Engine Operating Limitations

| Operating Condition | Thrust (lb) | N1 (%) | N2 (%) | ITT (°C) | Oil PRESS (psi) | Oil TEMP (°C) |
|-------------------------------------|-------------|---------------|---------------|----------------|---|--------------------|
| Normal Takeoff ⁽¹⁾ | 3,420 | 104.7 | 100.8 | 855 | 40 - 120 ⁽⁴⁾ | 10 - 135 |
| ATR ⁽²⁾ | 3,600 | 104.7 | 100.8 | 855 | 40 - 120 ⁽⁴⁾ | 10 - 135 |
| Maximum Cont / Climb ⁽³⁾ | | 104.7 | 100.8 | 835 | 40 - 120 ⁽⁴⁾ | 10 - 135 |
| Ground or Flight Idle (Cont) | | | | | 30 Min ⁽⁴⁾ 120 Max ⁽⁵⁾ | -40 - 135 |
| QPM | | | 45.4 | | 30 - 120 | 10 - 135 |
| Starting | | | | See Fig. 2-1-4 | | -40 - 135 |
| Transient High | | 105.7 (2 Min) | 101.5 (2 Min) | 855 (0 Sec) | 130 ^(6 and 7) | 149 ⁽⁵⁾ |
| Transient Low | | | | | 23 ⁽⁵⁾ | |

Footnotes:

- (1) Maximum 5 min.
- (2) Maximum 10 min (with OEI, otherwise 5 min).
- (3) Maximum Continuous and maximum climb thrust is obtained when the Thrust Lever Angle (TLA) is in the Max Continuous / Climb thrust position. Cruise thrust is obtained when the TLA is in the MCT position. Continuous operation is acceptable provided engine limits are not exceeded.
- (4) Minimum oil pressure is 40 psig when operating at or above 80% N2; 30 psig when operating below 80% N2.
- (5) When operating below 80% N2 for up to 5 min.
- (6) When operating above 80% N2 for up to 5 min.
- (7) Maximum allowable oil pressure is 130 psig for 5 min maximum.
- (8) Elevated oil pressure values are typically observed when oil temperature is cold.



OVERTEMPERATURE LIMITS (STARTING)

| | |
|--------|--|
| ZONE 1 | Determine and correct the cause of overtemperature |
| ZONE 2 | 1. Perform borescope inspection on HP turbine area (Ref. Williams International Line Maintenance Manual 71 - 00 - 40, P.B. 601) 2. Perform a performance check ground run test (Ref. Williams International Line Maintenance Manual 71 - 00 - 00, P.B. 501) 3. Download FADEC files and submit them to Williams International further disposition. |
| ZONE 3 | Perform visual inspection of hot section including NDI of HP turbine rotor assembly (Ref. Williams International Line Maintenance Manual 70 - 42 - 15, P.B. 601). If visual inspection reveals indications of overtemperature, disassemble LP turbine module and perform NDI inspection on LP turbine rotor assembly. |

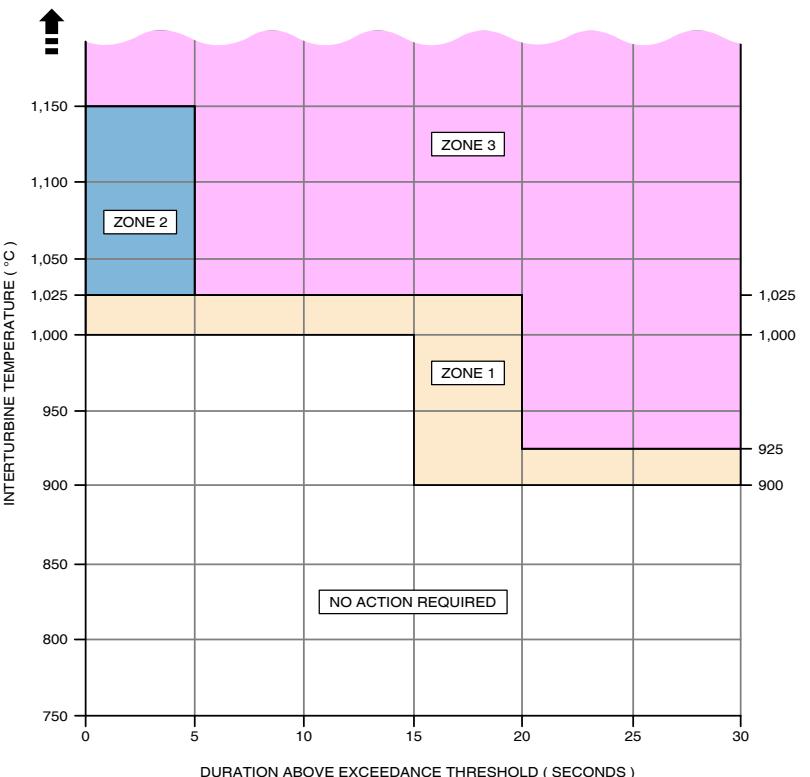


Figure 2-1-4: Overtemperature Limits (Starting)

**24.2 Engine Starting Limitations****24.2.1 Wind and Time Limitations****CAUTION**

For engine starting, point the nose of the aircraft into the wind. If this is not possible, adhere to the engine start wind limits mentioned below.

The engine starting limits listed in the table below must be adhered to:

| Condition | Limits |
|---|--|
| Maximum tailwind component for engine start | 20 kt (estimated steady wind conditions) |
| Maximum crosswind component for engine start | 25 kt tower wind |
| Maximum time to Light-Off for engine start ⁽¹⁾ | 12 sec ⁽²⁾ |
| Minimum oil temperature for battery engine start | -40 °C ^(3 and 4) |
| Before left engine start | Main passenger door and cargo door must be closed and secured. |

Footnotes:

(1) Higher minimum throttle up speeds up to 60% N1 may be required if tailwind component exceeds 10 kt.

(2) Time to light-off is defined as the time after signal to the igniter is indicated and increase in ITT is seen.

(3) For ground start only. For In Flight starter assisted and windmill starts, refer to AFM Section 3 Non-annunciated Procedures.

(4) For limitations of "Minimum Ni-Cd / Li-Ion battery temperature for battery engine start", refer to [Battery Limitations](#).

24.2.2 Starter Duty Cycle Limitations**CAUTION**

If any engine related emergency or abnormal procedure requires a Dry Motor Run, the 1 min OFF cycle does not apply and a Dry Motor Run may be performed according to the procedure without delay.

Abort engine start where N1 fails to increase by 25% N2.

Two start attempts with a motoring run for combustion chamber clearing are permissible according to the following table:

| Start Attempt 1 |
|---------------------|
| On (Start) - 50 sec |
| Off - 1 min |
| Dry Motor Run |
| On - 50 sec |
| Off - 1 min |
| Start Attempt 2 |
| On (Start) - 50 sec |
| Off - 30 min |



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

24.2.3 Post-Start Oil Temperature Limitations

The minimum oil temperature for N2 >80% or QPM operation is +10 °C.



24.3 Engine Overspeed Limitations

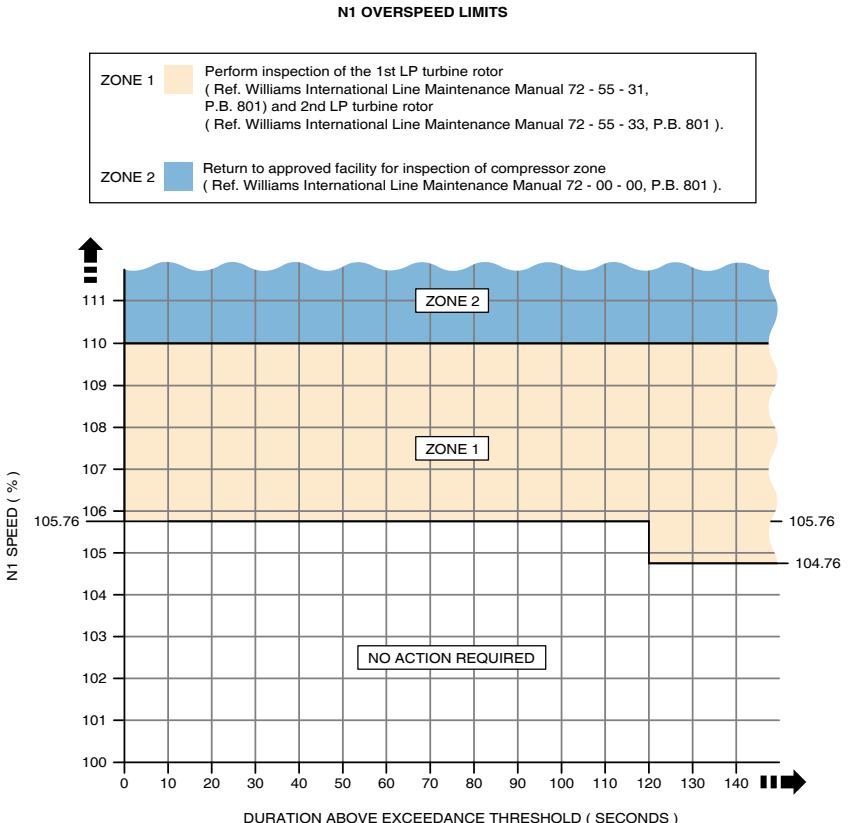


Figure 2-1-5: N1 Overspeed Limits



N2 OVERSPEED LIMITS

- ZONE 1 Perform visual inspection of hot section including NDI of HP turbine rotor assembly
(Ref. Williams International Line Maintenance Manual 70 - 42 - 15. P.B. 601).
If visual inspection reveals indications of overtemperature, disassemble LP turbine module
and perform NDI inspection on LP turbine rotor assembly.
- ZONE 2 Return to approved facility for inspection of compressor zone
(Ref. Williams International Line Maintenance Manual 72 - 00 - 00 P.B. 801).

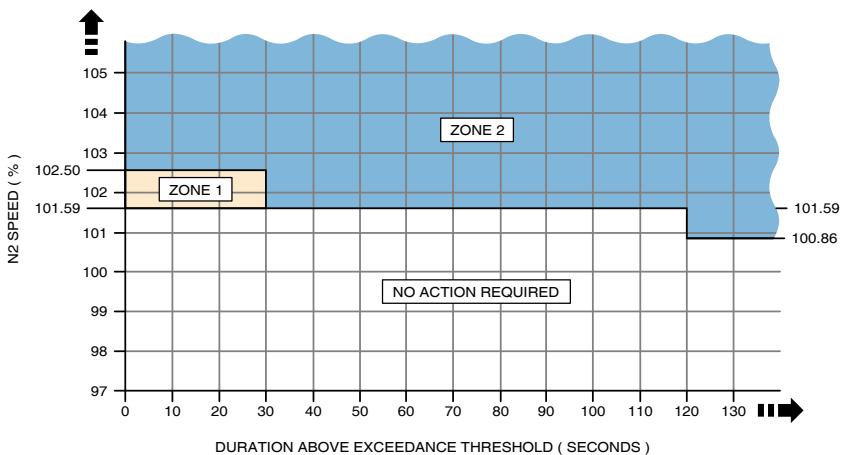


Figure 2-1-6: N2 Overspeed Limits



OVERTEMPERATURE LIMITS (CONTINUOUS OPERATION)

| | |
|--------|--|
| ZONE 1 | Determine and correct the cause of overtemperature |
| ZONE 2 | Perform visual inspection of hot section including NDI of HP turbine rotor assembly (Ref. Williams International Line Maintenance Manual 70 - 42 - 15, P.B. 601). If visual inspection reveals indications of overtemperature, disassemble LP turbine module and perform NDI inspection on LP turbine rotor assembly. |

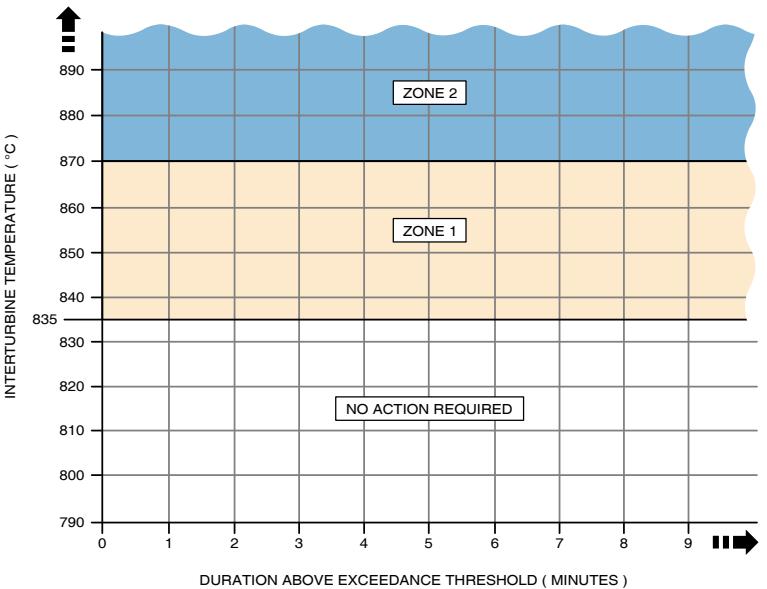


Figure 2-1-7: Overtemperature Limits (Continuous Operation)



24.4 Engine Fire Protection

Do not operate the aircraft system if the left or right fire protection system is inoperative.

24.5 Engine Cooldown

Engine shut-down is permitted when the engine has been run at idle thrust for more than 2 min. It is recommended that the engine bleed valve is closed during the cool-down period.

24.6 Quiet Power Mode

Do not operate the NAI during QPM operation.

QPM operation is permitted only if all the requirements listed below are fulfilled:

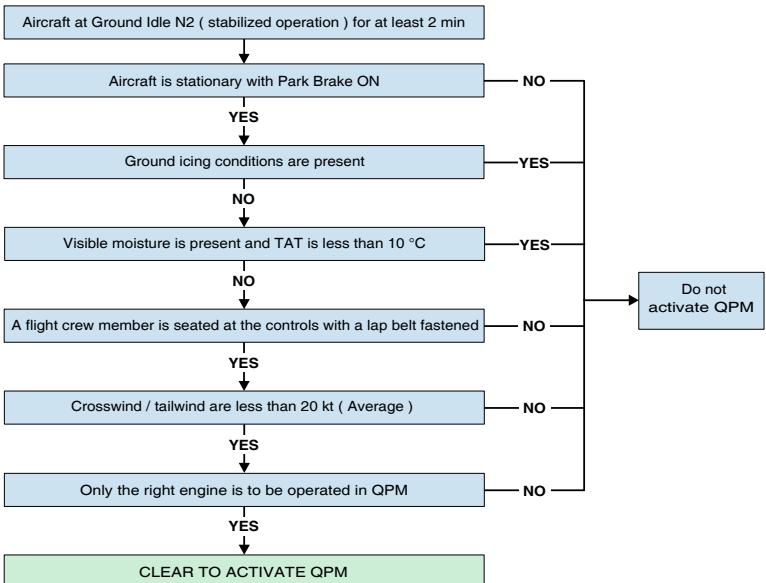


Figure 2-1-8: Before QPM operation

During QPM operation:

- The thrust lever must remain at IDLE
- The generator load must not exceed 250 A
- The right engine must exit QPM and set to Ground Idle before left engine start.

After QPM termination, engine acceleration or engine shutdown is authorized only after the engine has run at Ground Idle for at least 2 min.



24.7 Engine Limitations in Icing Conditions

24.7.1 Use of Nacelle Anti-ice

The NAI must be switched on for all ground operations and for takeoff and landing when any of the following conditions are present:

- Visible moisture (including standing water, slush, snow on taxiways / runway) and indicated SAT or reported OAT $<10^{\circ}\text{C}$, or
- Ice or other frozen precipitation is observed adhering to any part of the engine inlet.

The NAI must be switched on for climb, cruise and descent under the following conditions:

- Visible moisture with TAT $<10^{\circ}\text{C}$, or
- Flight through ice crystals, or
- Any time ice accumulation is observed on the airframe.

When operating in the vicinity of unstable cumuliform (convective) and high altitude stratiform clouds, ice crystal icing conditions are possible. Anticipate ice crystal icing by operating the NAI.

Do not operate the NAI when TAT is $>10^{\circ}\text{C}$.

When required for takeoff, NAI must be switched on prior to setting takeoff power.

Note

Turning NAI on and off in quick succession in flight may cause a "No Dispatch" annunciation. Therefore, it is recommended that NAI remains on for a minimum of 2 minutes when activated, to allow the Tt2 sensor heat to stabilize and all moisture to be cleared from the probe.

24.7.2 Operating in Freezing Fog

Do not operate the engines in freezing fog conditions below -15°C .

25 Reduced Vertical Separation Minimum (RVSM) Limitations

This aircraft has been evaluated in accordance with EASA CS-ACNS Section 2 and FAA document No. 91-85A RVSM, and is qualified for RVSM operations as a group aircraft.

The following equipment must be operational to enter RVSM airspace:

- Two primary Air Data Systems (ADS)
- One flight controller KMC 9200A with altitude pre-selector
- One automatic flight control system
- One altitude reporting transponder KXP 2290A.



Section 2 - Limitations (Authority approved) Reduced Vertical Separation Minimum (RVSM) Limitations

The RVSM critical area (an area of 24 in FWD (0.6 m), 12 in (0.3 m) above, below and AFT of the pitot-static tube) must be clear of defects to enter RVSM airspace:

- Paint ridges / Paint flaking
- Dents / Skin deformation / delamination
- Loose or missing rivets and fasteners
- Nicks
- Scoring / Scratches
- Signs of corrosion.

Additionally make sure that:

- Nose doors are closed and latched properly with panel edges flush with the adjacent panels.

The Electronic Standby Instrument System (ESIS) has not been demonstrated to meet RVSM performance requirements and shall only be used for emergency procedures.

Note

Airworthiness approval alone does not constitute an authorization to operate in an RVSM airspace area for which an RVSM operational approval is required.

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



26 Secondary Flight Control System

26.1 Airbrake

Do not attempt to land with the airbrake extended.

Use of the airbrake is permitted when during an approach, provided that the aircraft is on a stable approach and the airbrake is stowed no later than 50 ft AGL.

26.2 Flaps

Do not operate the flaps in flight if the aircraft altitude is >20,000 ft.

Landing with Flaps 0° or 8° is prohibited unless flaps have failed.

26.3 Stab Trim

Do not use secondary stab trim unless the primary stab trim has failed.



27 System and Equipment Limitations

27.1 Personal Electronic Devices

Use of Portable Electronic Devices is permitted during all phases of flight. There are no limitations on the use of wireless systems, including Wi-Fi, Bluetooth and cellular systems including GSM, UMTS (3G), or LTE (4G).

27.2 Safety Services SATCOM

The following statement is applicable only to aircraft with the Safety Services SATCOM installed. The Safety Services SATCOM voice equipment has been evaluated in accordance with Advisory Circular (AC) 20-150B and found that it meets the criteria of that Advisory Circular for a required Long Range Communication System. This does not constitute operational approval.

27.3 Radio Frequency Minimum Safe Distances

CAUTION

For all WX RADAR models, all restriction defined in the associated Installation Manual or Line Maintenance Manual shall take precedence.

Do not operate the following avionic systems while on ground and within minimum safe distances:

Table 2-1-19: Radio Frequency Minimum Safe Distances

| Equipment | Safe Distance | | |
|--------------------|---------------|--------------|--------------|
| Aircell | 1 m (3.2 ft) | | |
| DME (KN63) | 1 m (3.2 ft) | | |
| DME (KN62A) | 1 m (3.2 ft) | | |
| HF Radio | | | 3 m (9.8 ft) |
| Radar Altimeter | 1 m (3.2 ft) | | |
| SATCOM | 1 m (3.2 ft) | | |
| TCAS | 1 m (3.2 ft) | | |
| TCAS I / II | 1 m (3.2 ft) | | |
| VHF (KTR2280) | 1 m (3.2 ft) | | |
| VHF (GNS430W) | 1 m (3.2 ft) | | |
| VHF (GIA63W) | 1 m (3.2 ft) | | |
| XPDR(GTX33) | 1 m (3.2 ft) | | |
| XPDR (GTX330) | 1 m (3.2 ft) | | |
| XPDR (KXP2290A) | 1 m (3.2 ft) | | |
| WX RADAR (GWX68) | | 2 m (6.5 ft) | |
| WX RADAR (RDR2000) | 1 m (3.2 ft) | | |
| WX RADAR (RDR2060) | 1 m (3.2 ft) | | |
| WX RADAR (RDR2100) | | 2 m (6.5 ft) | |

27.4 Controller-Pilot Data Link Communications

For aircraft with the PM-CPDLC factory option installed, the system is approved for operation on the Eurocontrol ATN B1 Network (Eurocontrol White List Approval is required).



27.5 Transponders

The PC-24 is equipped with two transponders that comply with:

- EASA - CS-ACNS Subpart D - Surveillance
- FAA - Advisory Circular AC 20-165B - Airworthiness Approval of Automatic Dependent Surveillance - Broadcast OUT Systems (TSO-C112b and TSO-C166b).

28 Water Waste System

If installed, do not operate the Water Waste System in flight or on ground if the cabin temperature is $\leq 2^{\circ}\text{C}$ ($\leq 36^{\circ}\text{F}$).

If installed, do not service the Water Waste System in freezing conditions. If servicing is required, the Water Waste System must be serviced in a heated hangar.

29 Placards and Markings

Visual representations of all placards and markings within the Limitations section resemble the default layout and color scheme of the individual placard or marking. Depending on an aircraft's base color and / or decoration, layout and color of individual placards or markings can change to improve legibility.

This does not apply to number, position or factual content of a placard or marking.



29.1 Placards - Exterior

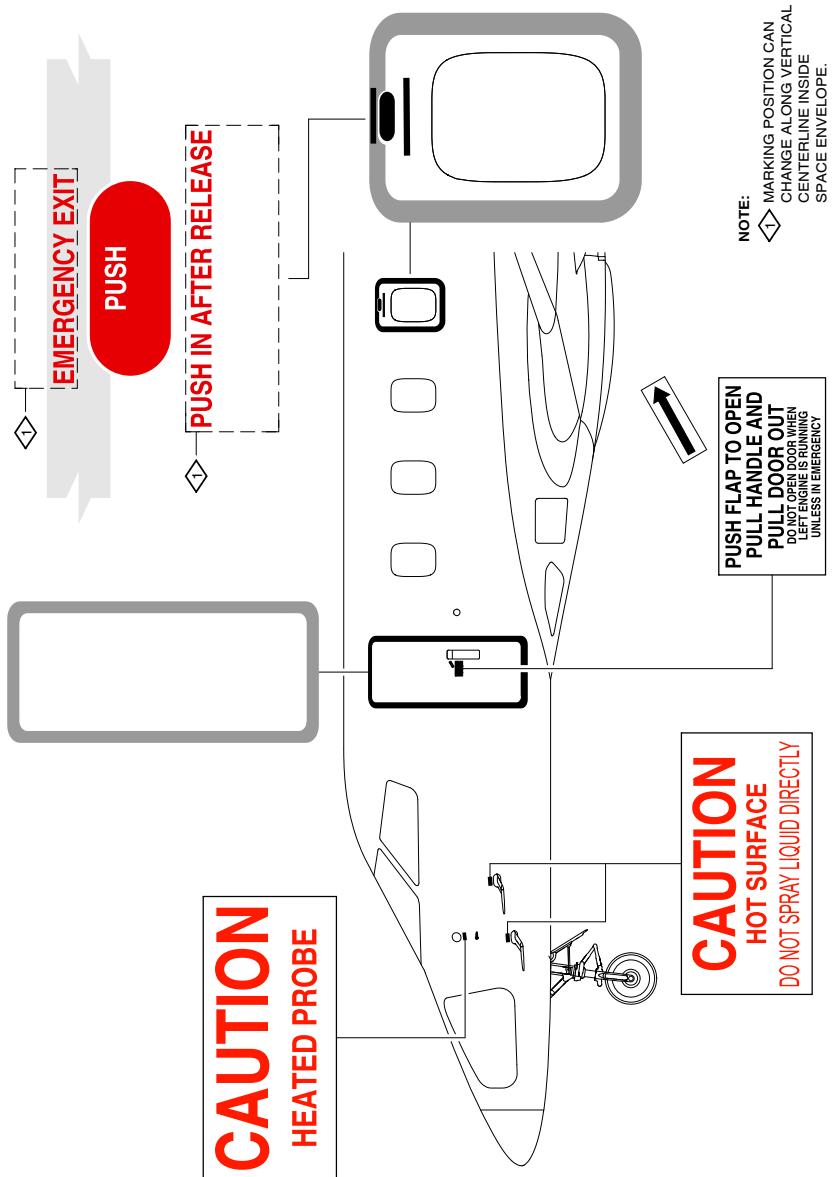


Figure 2-1-9: Left Forward Fuselage

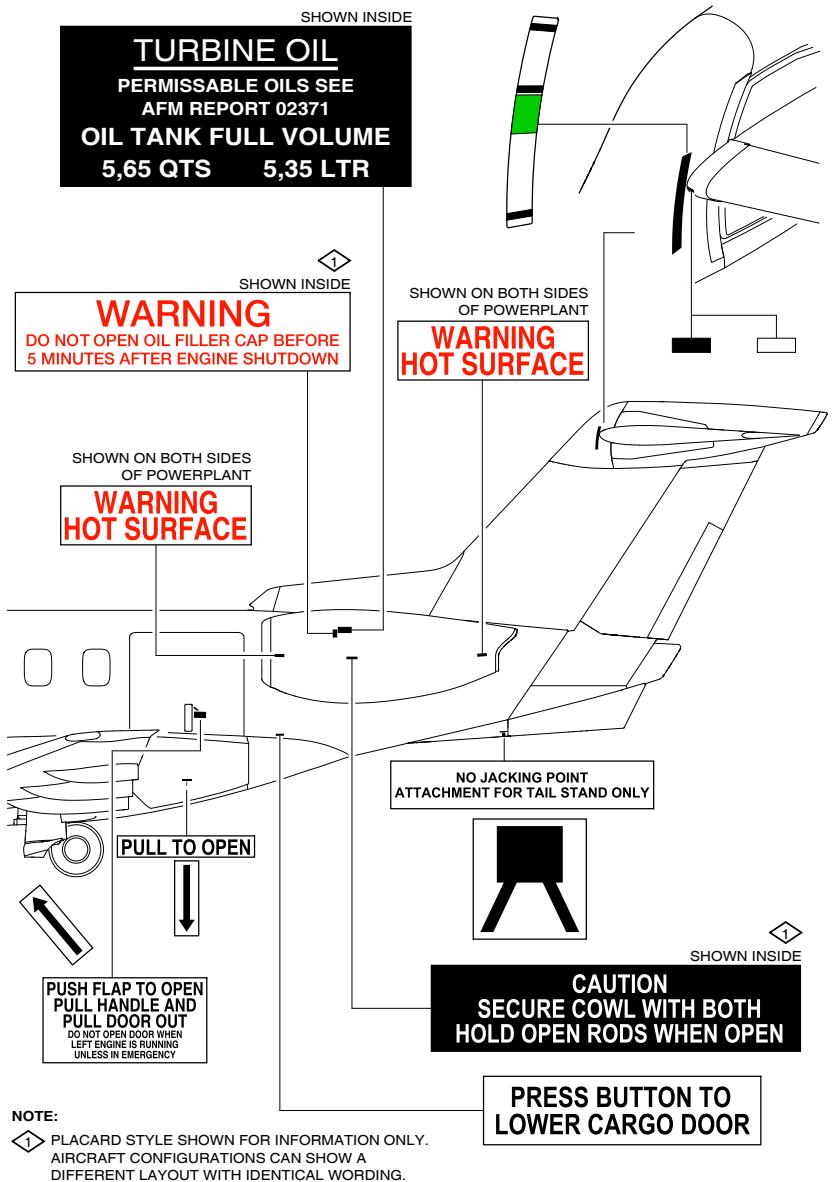


Figure 2-1-10: Left Aft Fuselage



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

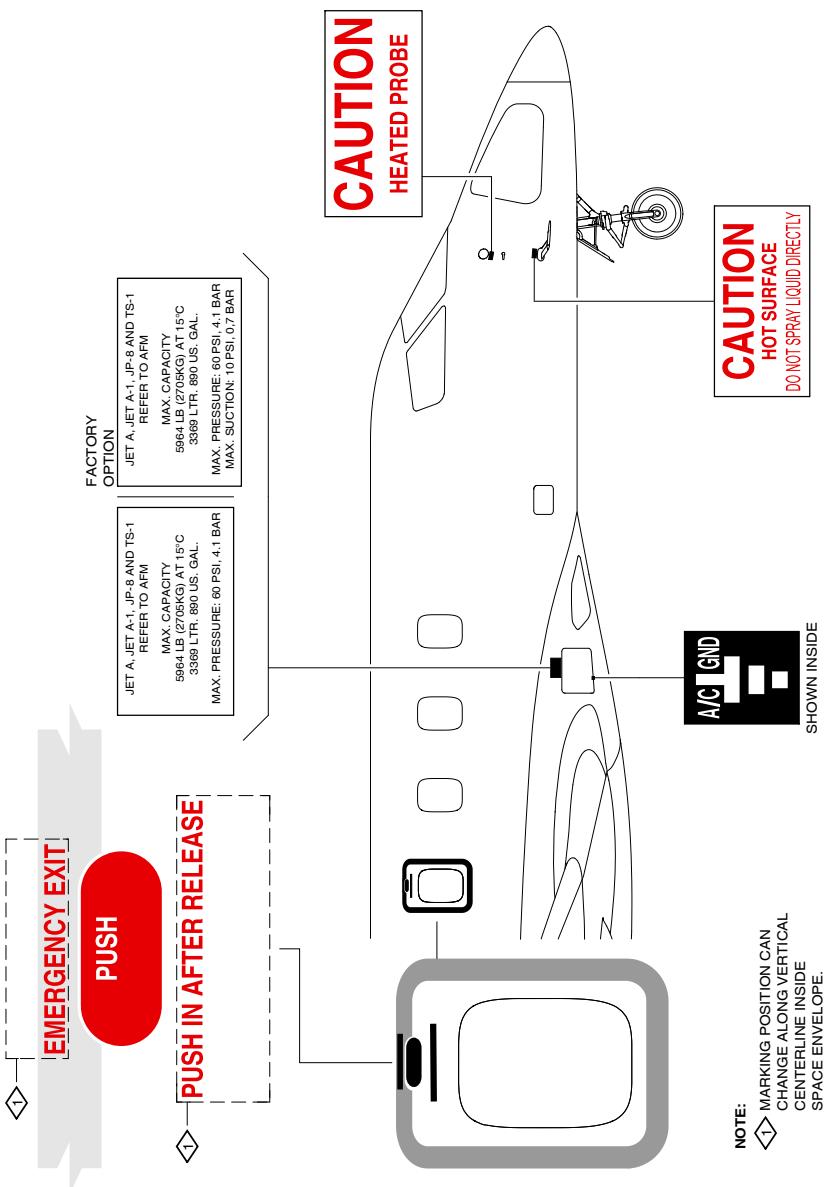


Figure 2-1-11: Right Forward Fuselage



Section 2 - Limitations (Authority approved) Placards and Markings

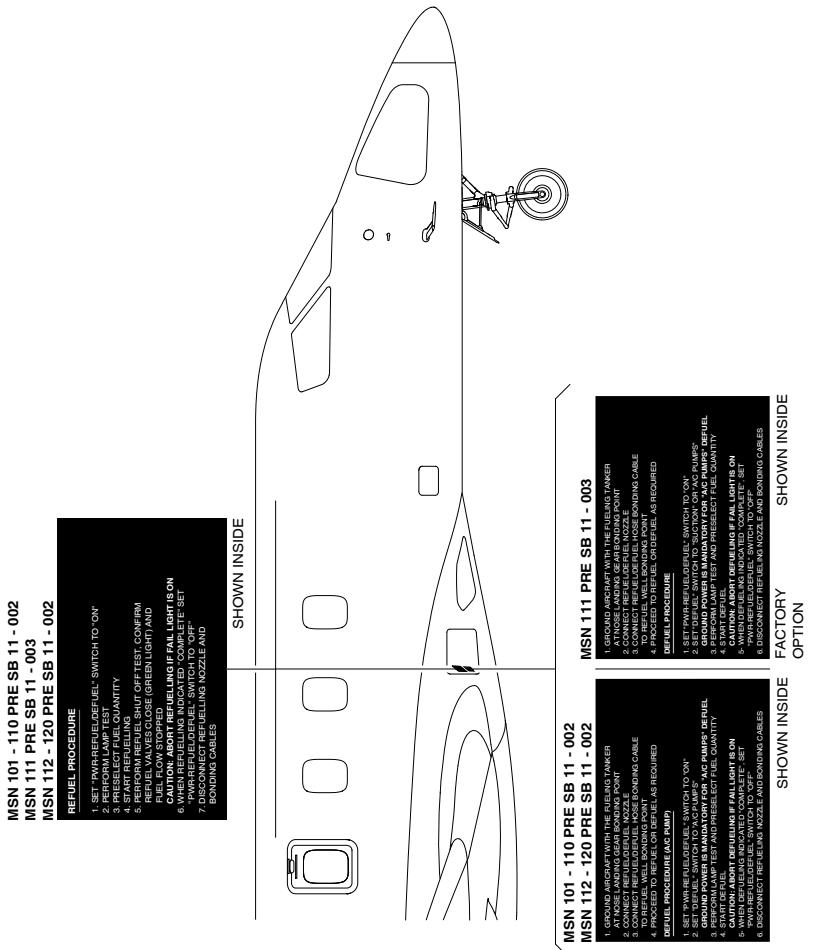


Figure 2-1-12: Refuel / Defuel Access Door (Sheet 1 of 3)



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

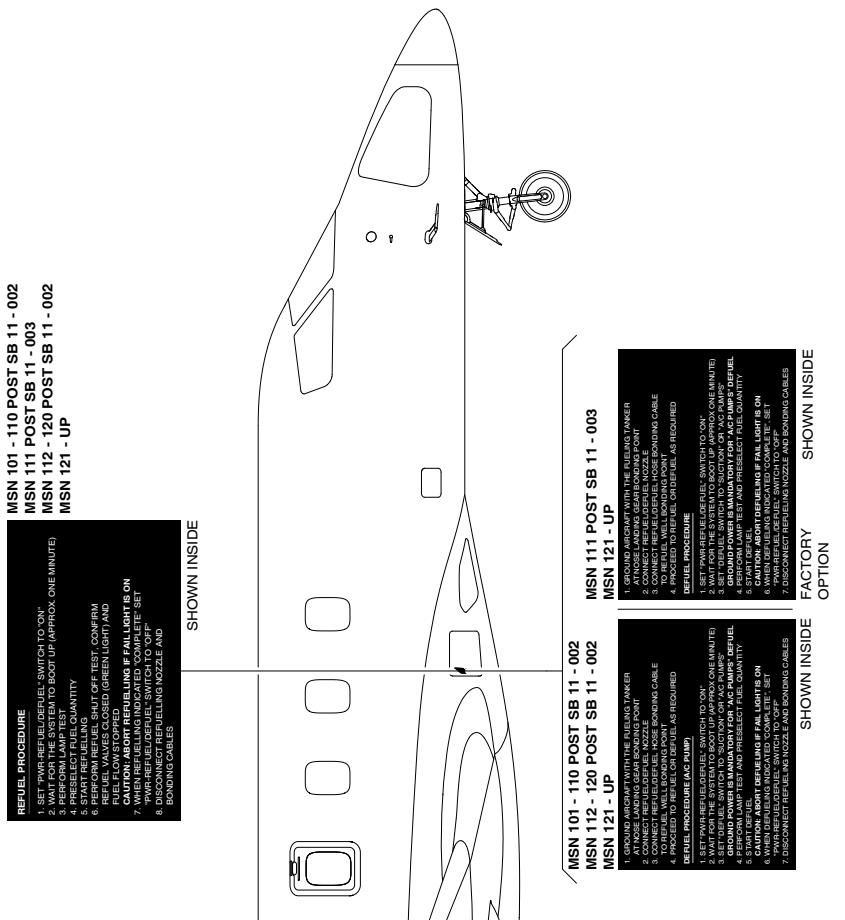


Figure 2-1-12: Refuel / Defuel Access Door (Sheet 2 of 3)



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

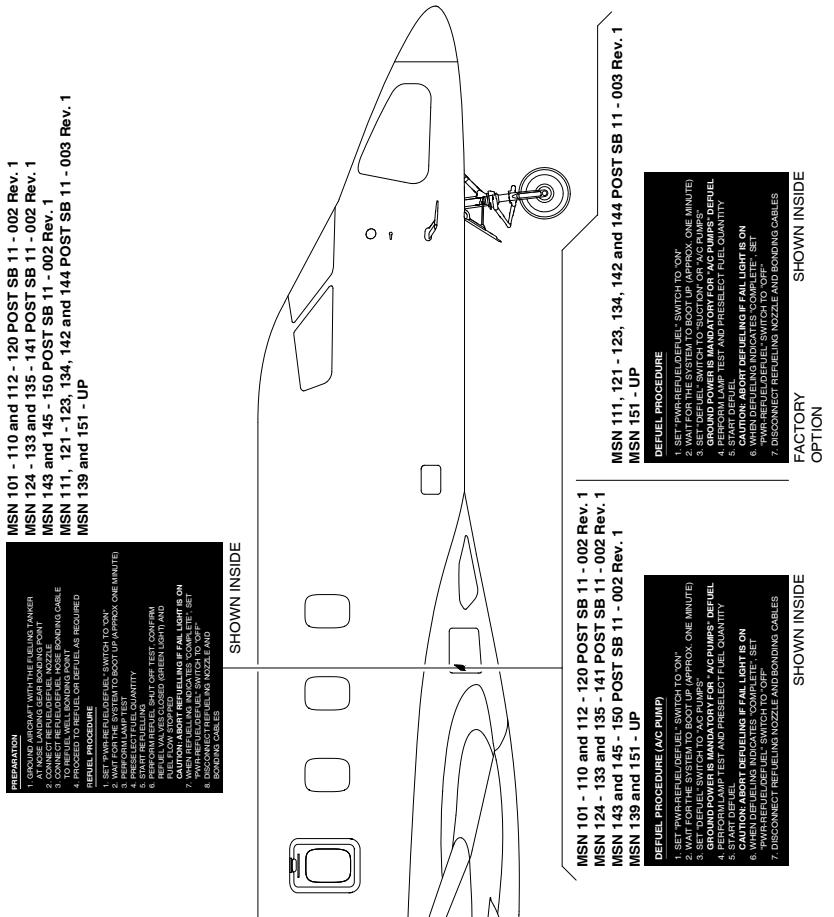
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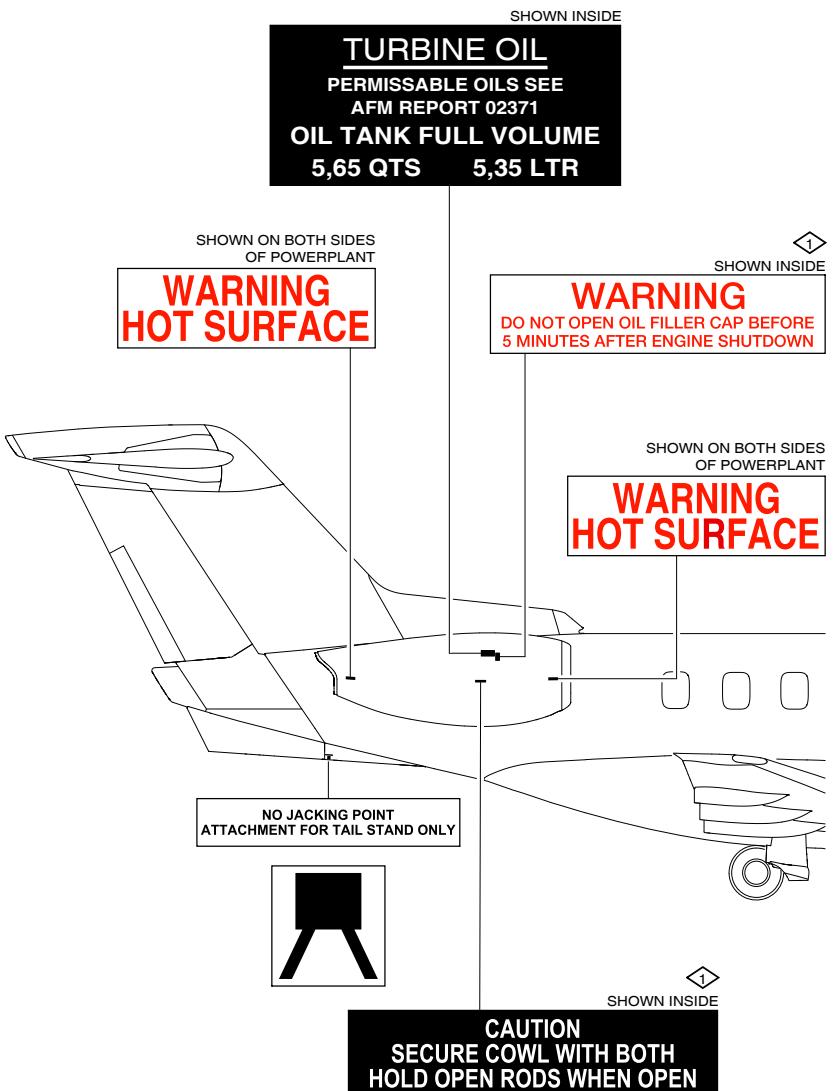
Limitations

Procedures

Performance

W & B





NOTE:

① PLACARD STYLE SHOWN FOR INFORMATION ONLY.
AIRCRAFT CONFIGURATIONS CAN SHOW A
DIFFERENT LAYOUT WITH IDENTICAL WORDING.

Figure 2-1-13: Right Aft Fuselage

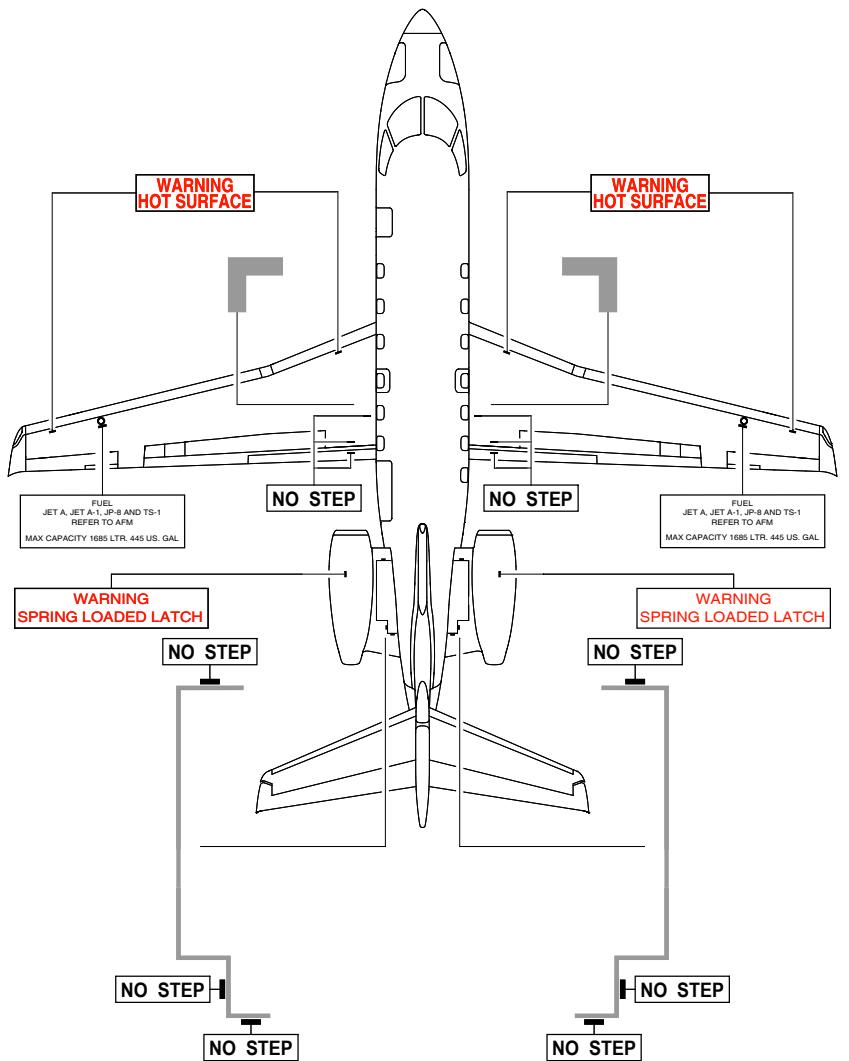


Figure 2-1-14: Aircraft - Top (plan view)



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

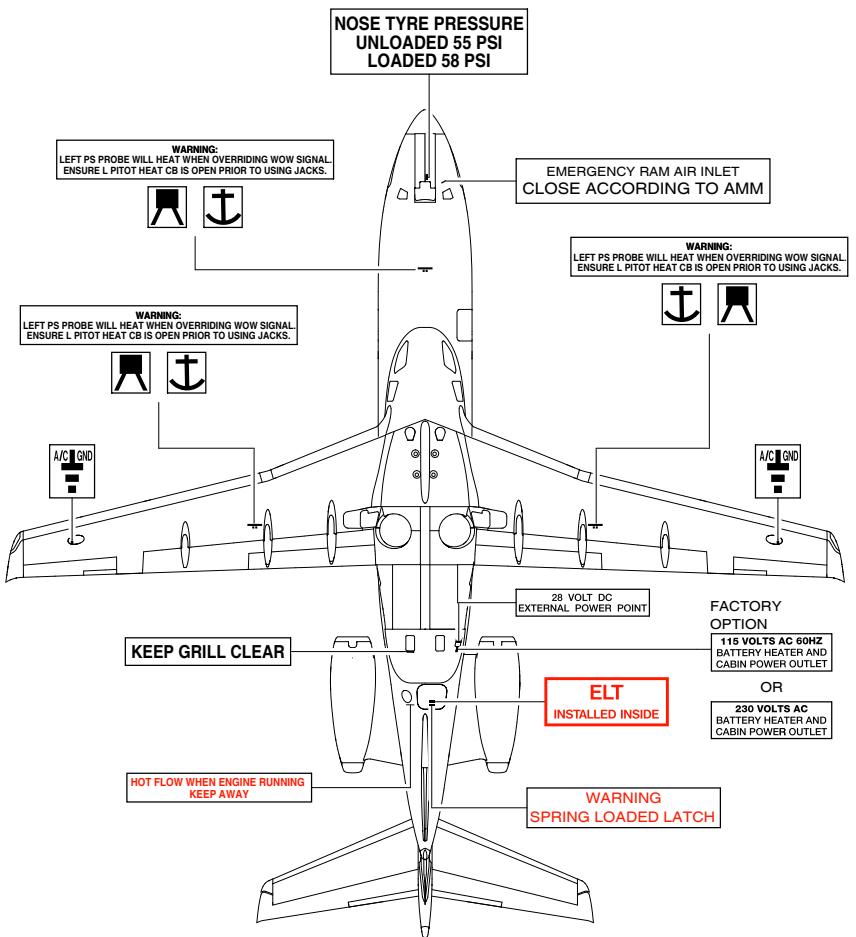
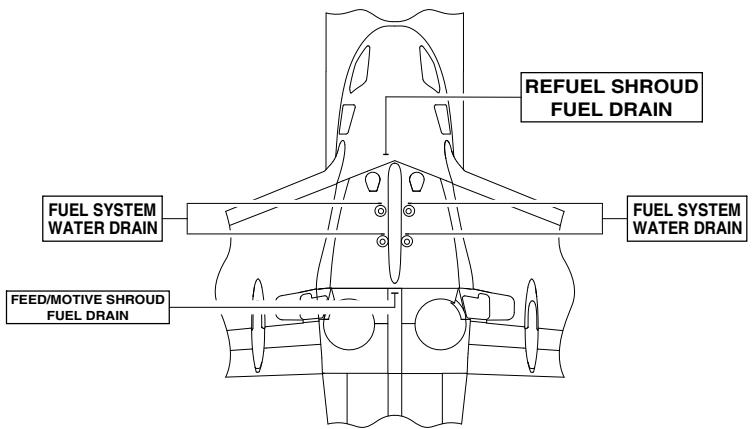
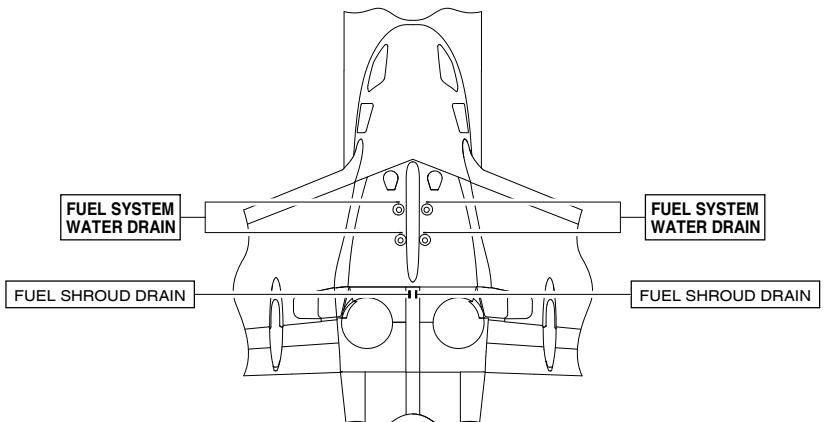


Figure 2-1-15: Aircraft - Bottom (plan view)



MSN 101-184 PRE SB 28-003



MSN 101-184 POST SB 28-003, AND MSN 185-UP

Figure 2-1-16: Aircraft - Belly Fairing (plan view)



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

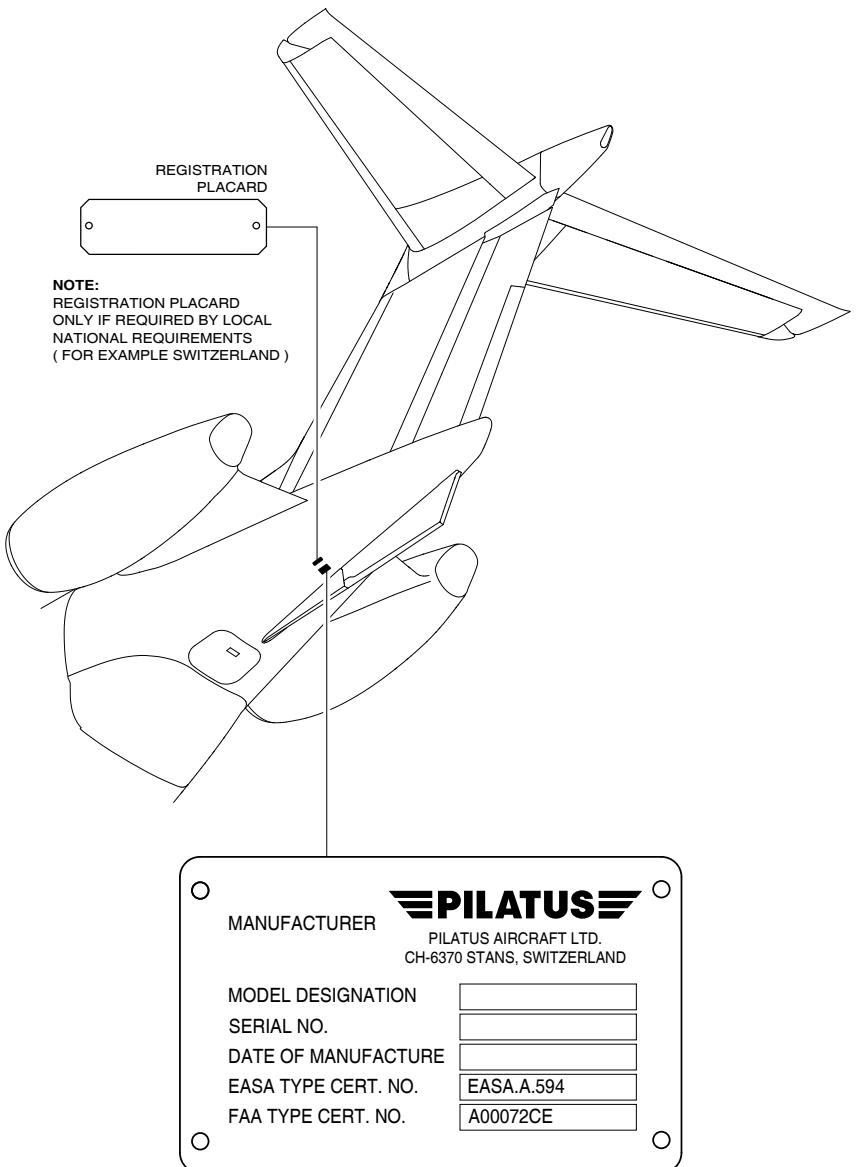


Figure 2-1-17: Tail Cone

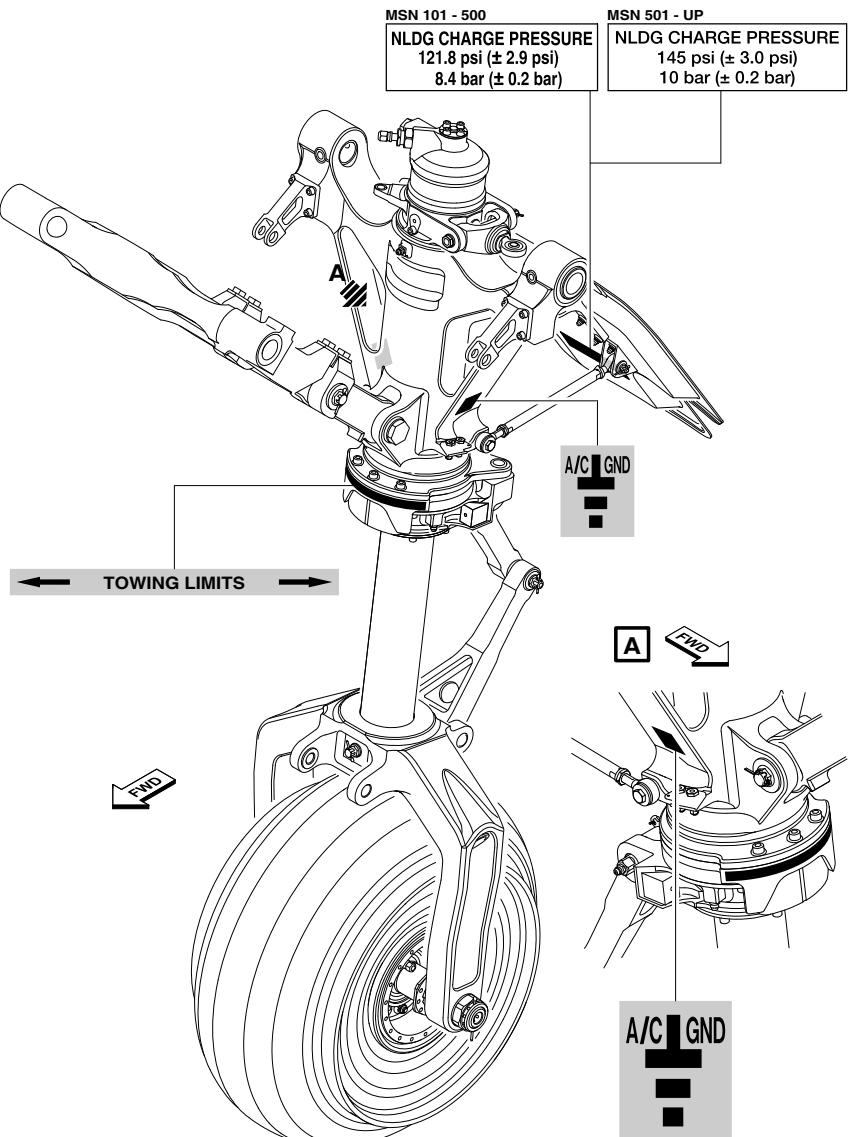


Figure 2-1-18: Nose Landing Gear

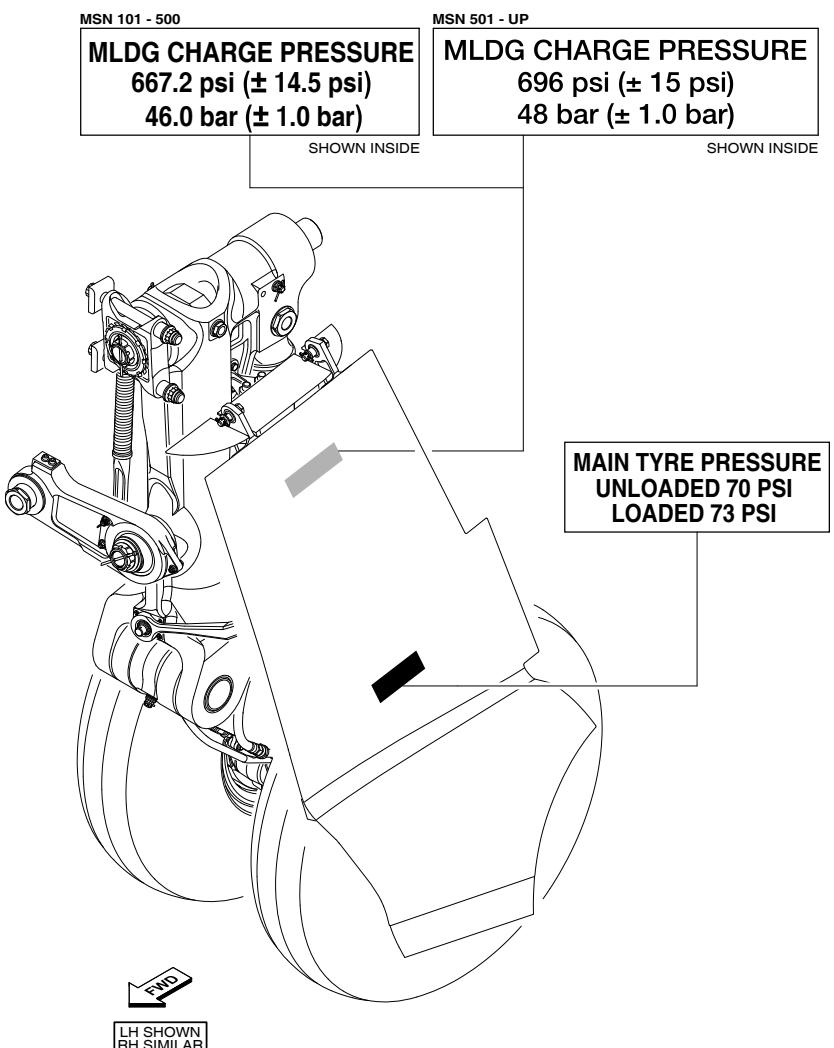


Figure 2-1-19: Main Landing Gear (each leg)



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

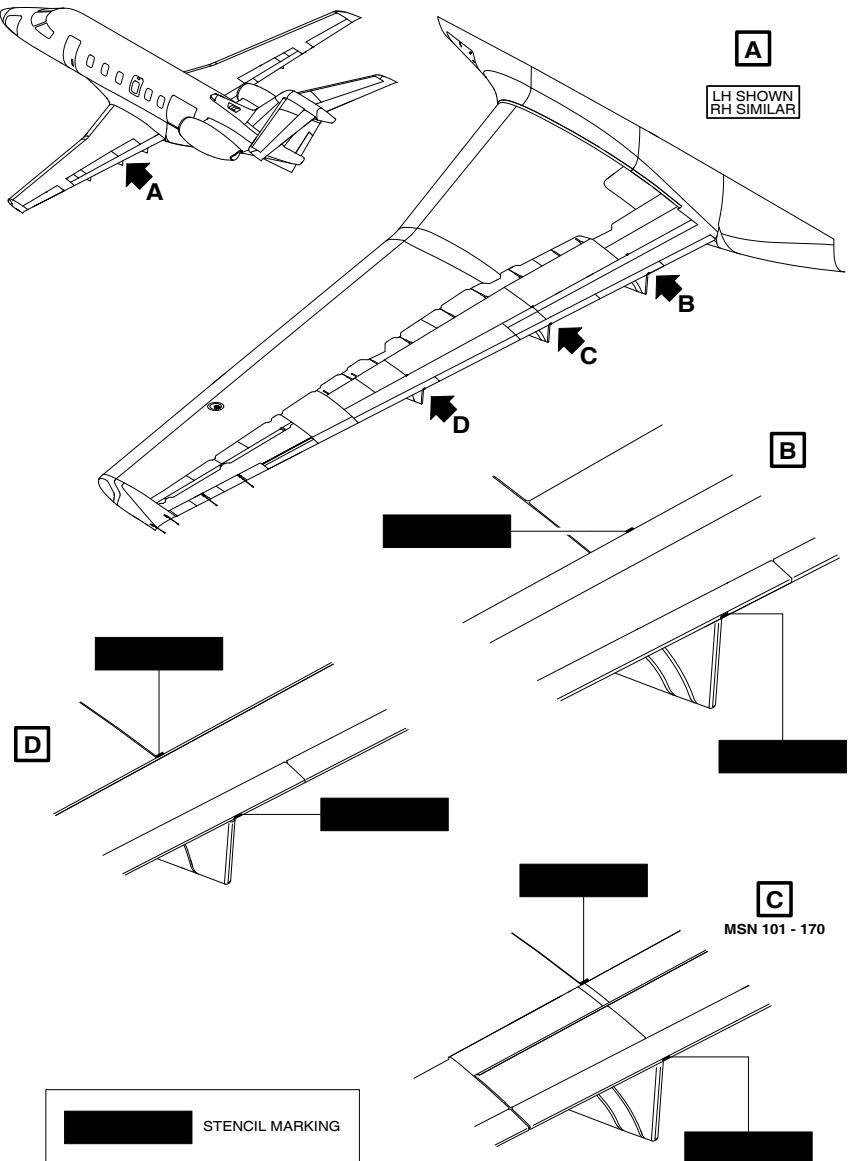


Figure 2-1-20: Wing, Flaps



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

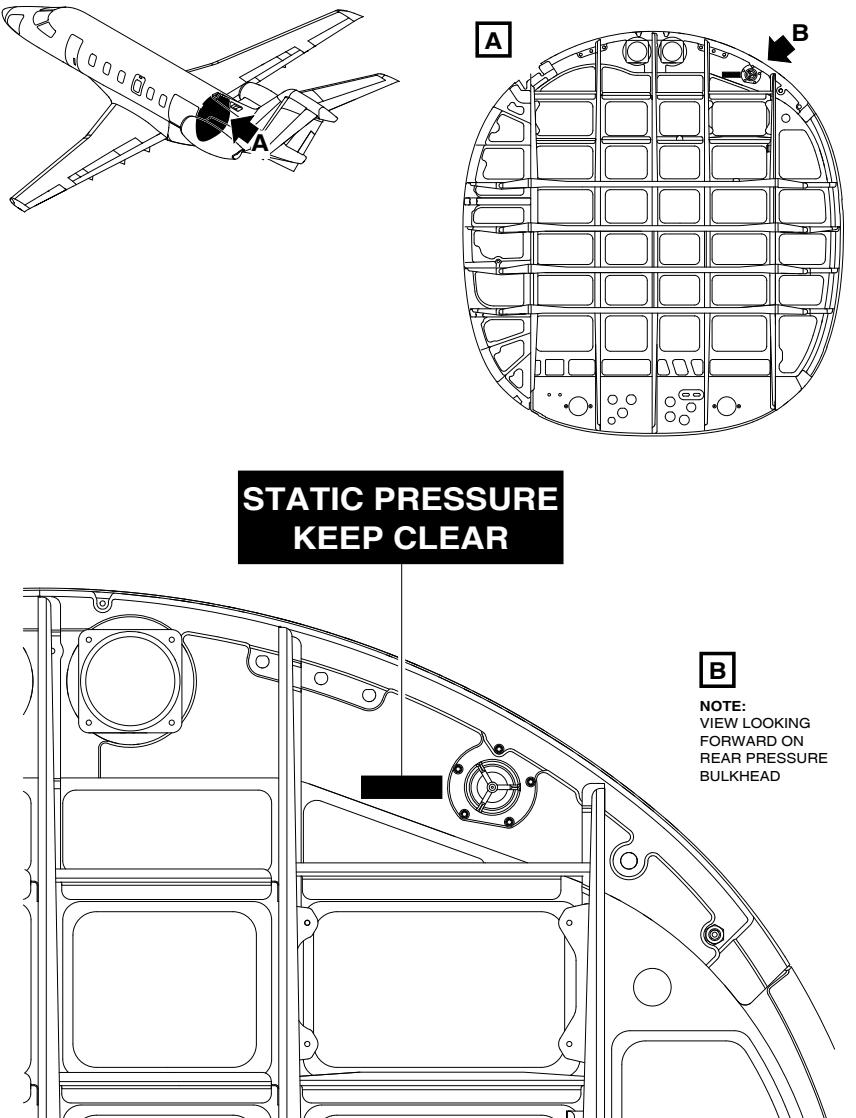


Figure 2-1-21: Placards - Pressure Relief Valve

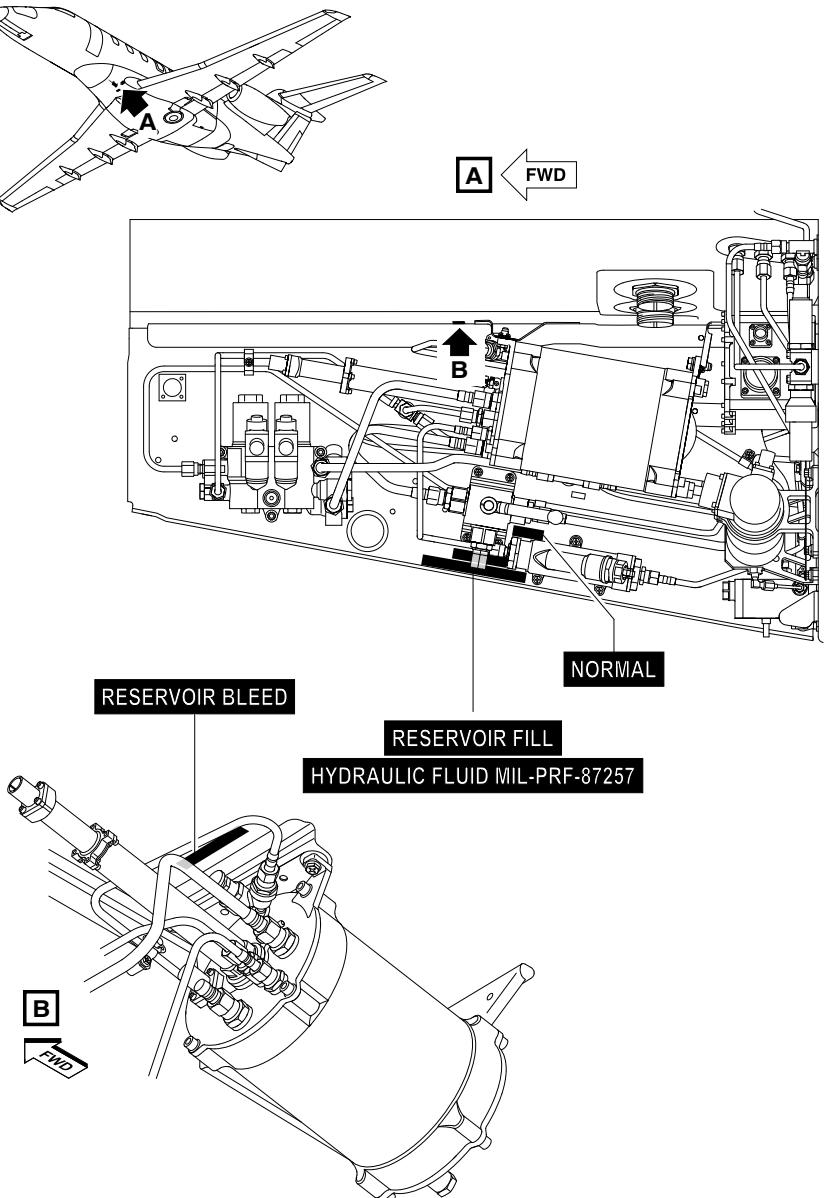


Figure 2-1-22: Placards - Main Brakes System

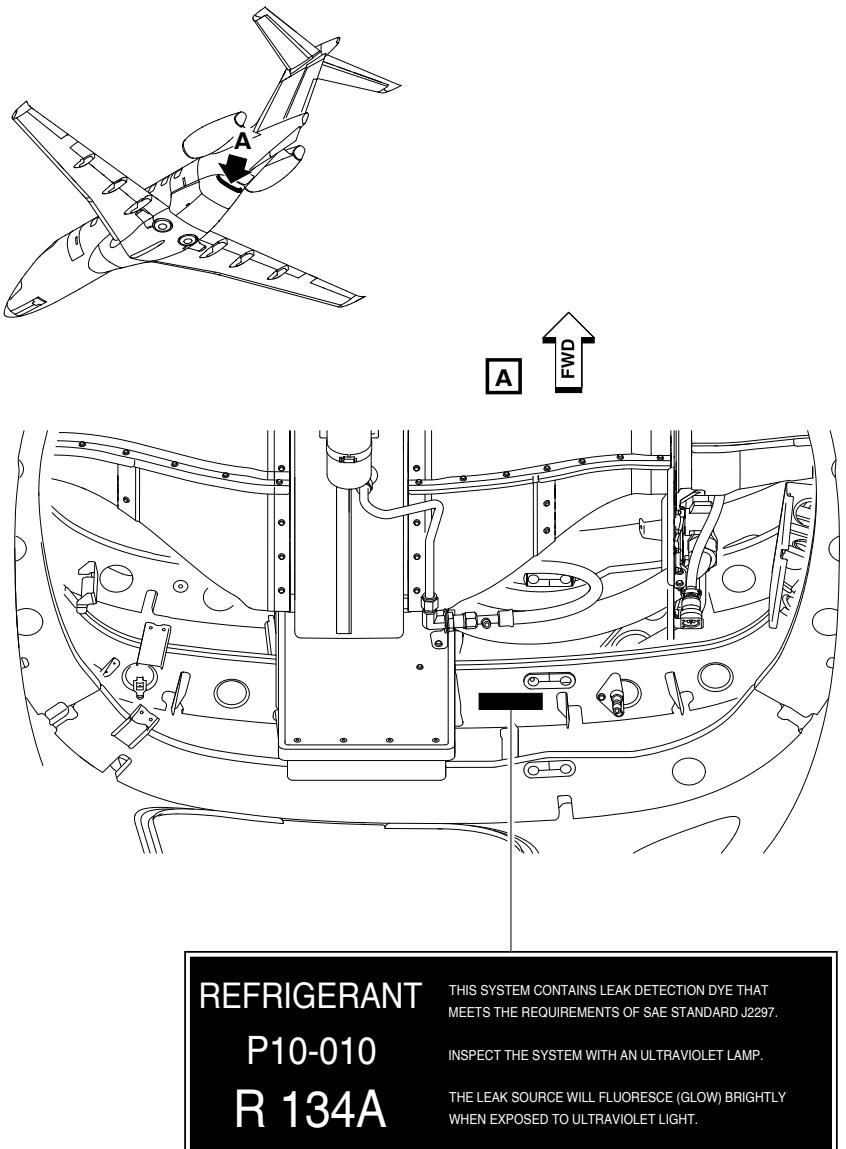


Figure 2-1-23: Placards - Air Conditioning

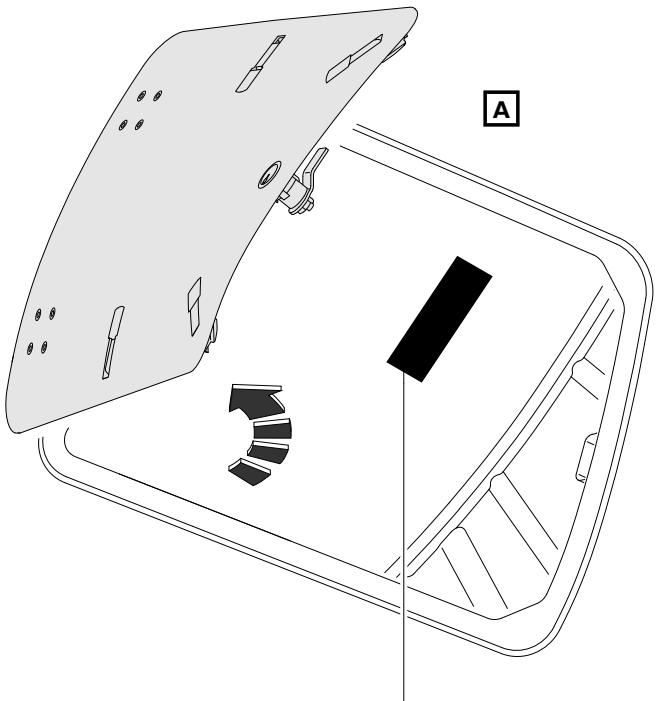
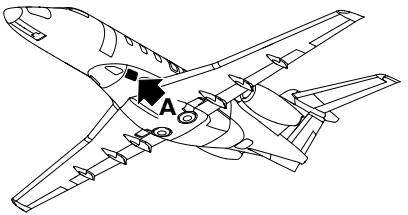


Figure 2-1-24: Placards - Ground Support Equipment Compartment

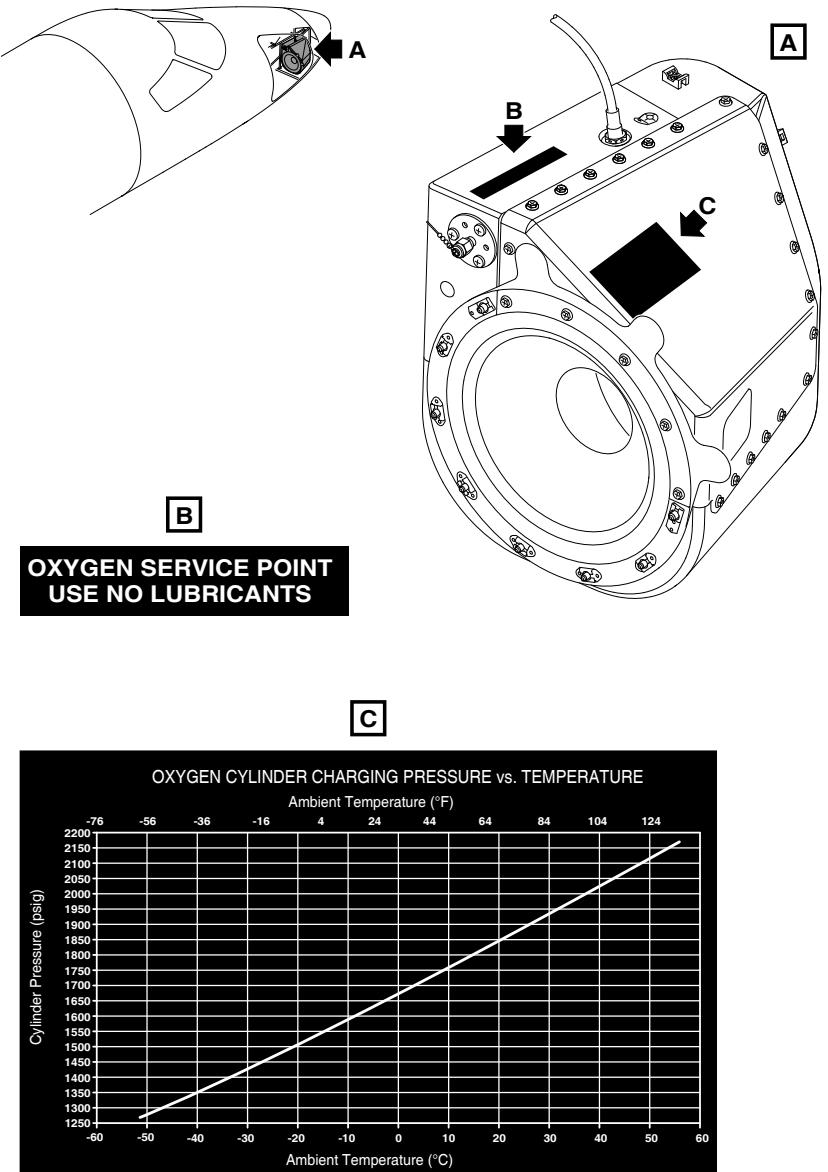


Figure 2-1-25: Right Nose - Oxygen Service Access



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

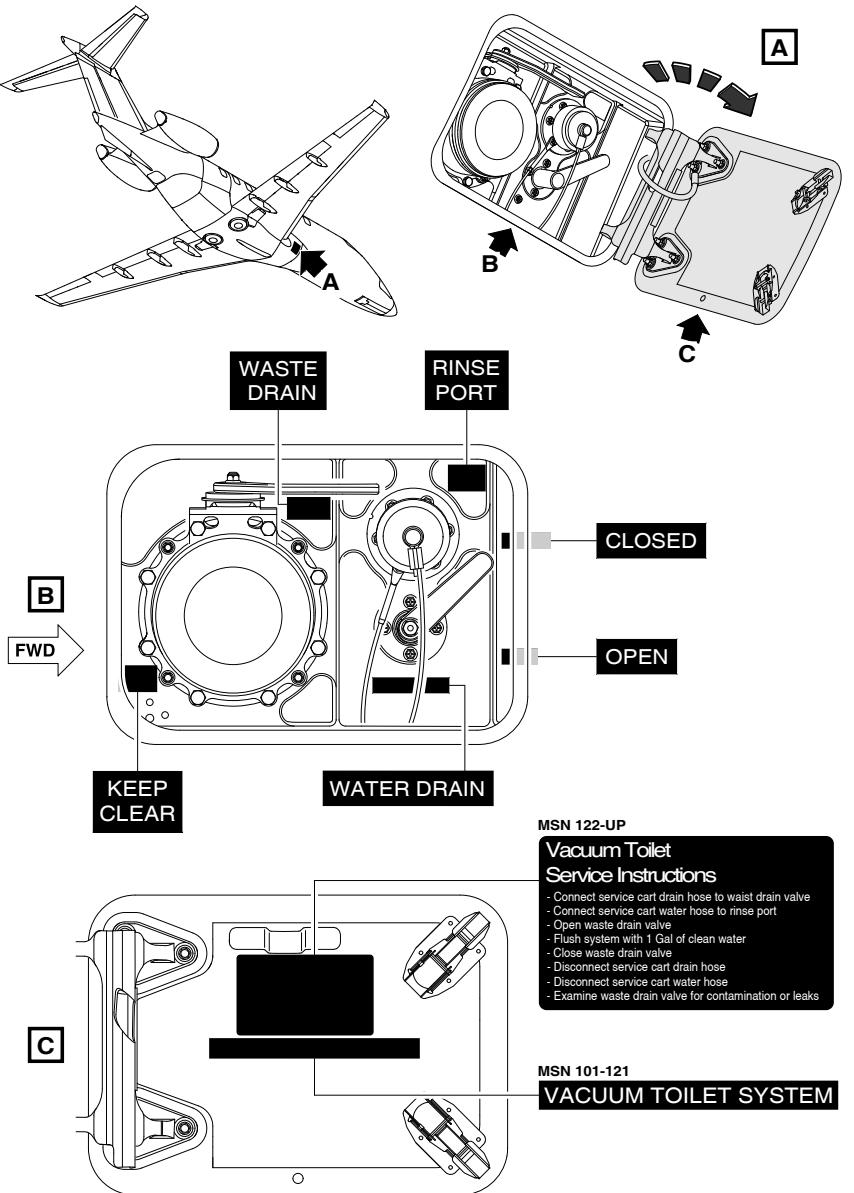


Figure 2-1-26: Placards - Ground Service Panel



Section 2 - Limitations (Authority approved) Placards and Markings

29.2 Placards - Interior

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

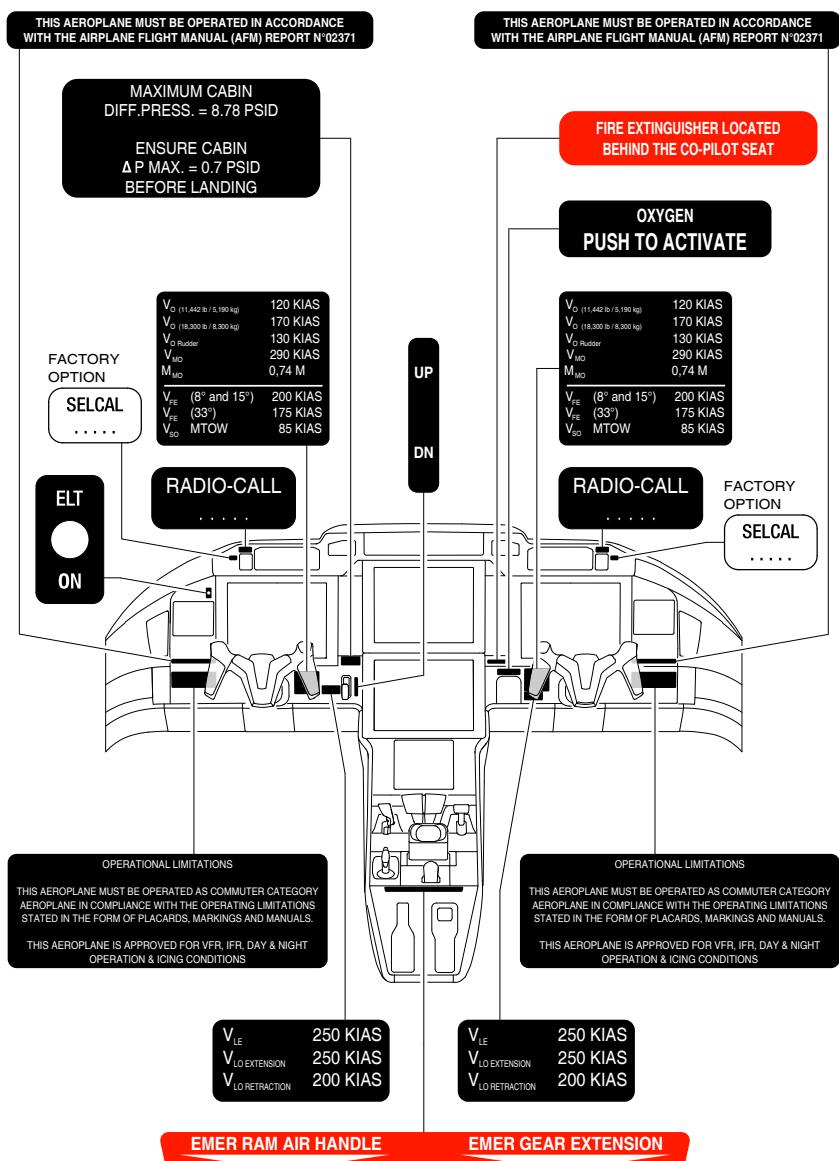


Figure 2-1-27: Cockpit - Various - For Aircraft MSN 101 - 184



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

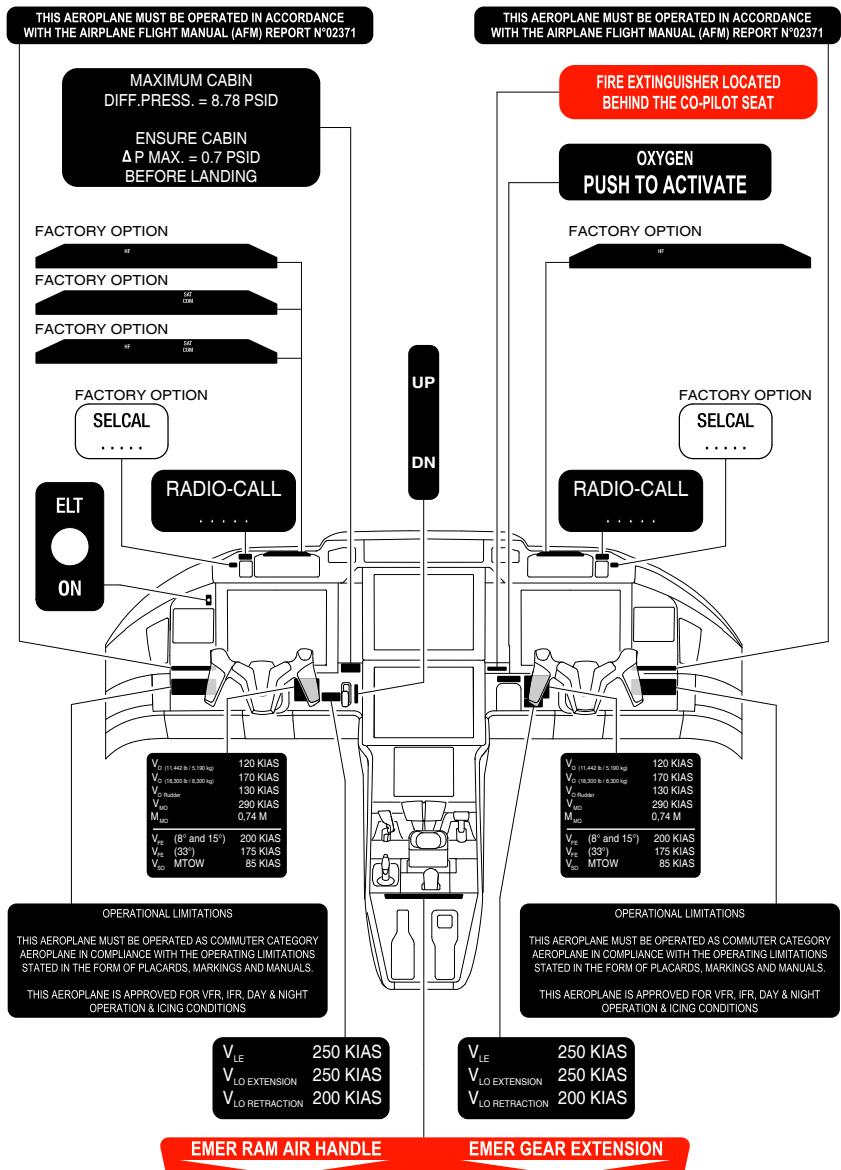


Figure 2-1-28: Cockpit - Various - For Aircraft MSN 185 - 500 (Factory Option HF and SAT-COM)



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

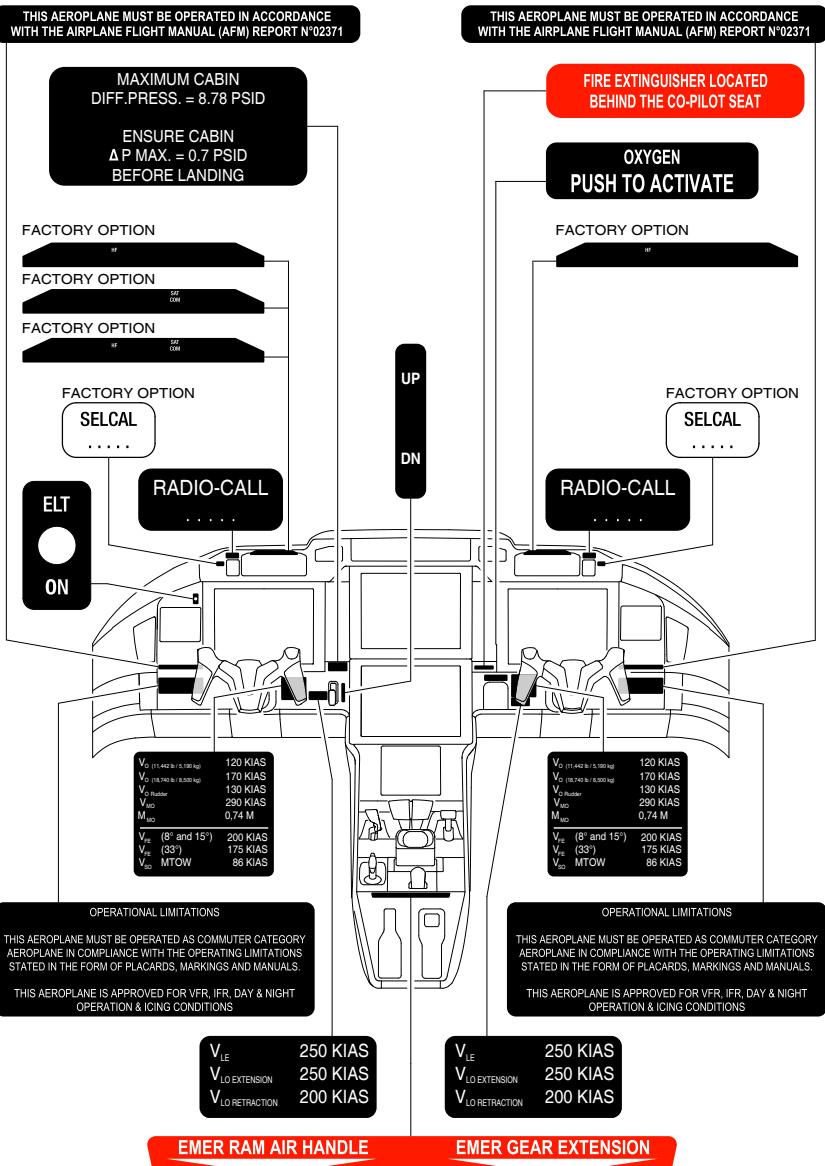


Figure 2-1-29: Cockpit - Various - For Aircraft MSN 501 - UP (Payload Range Improvement, HF and SATCOM factory option)

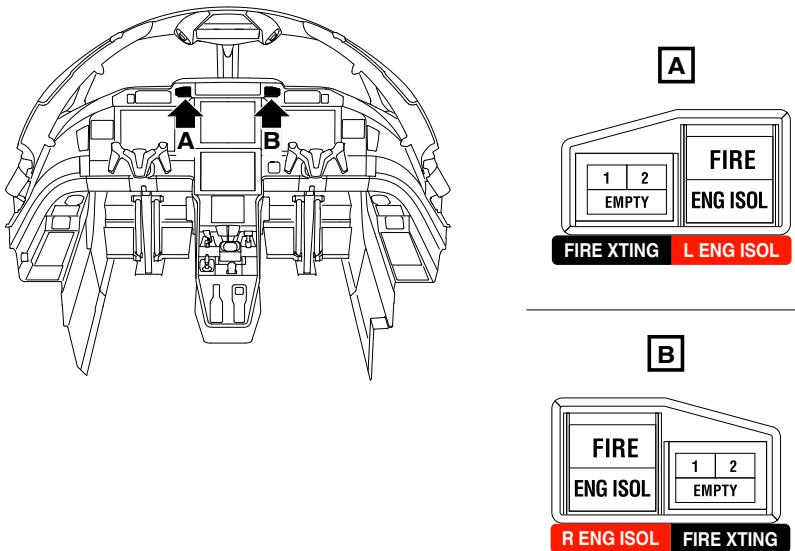


Figure 2-1-30: Cockpit - Engine Isolation Switches



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

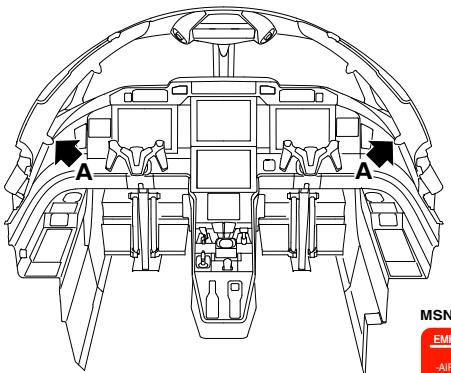
Introduction

Limitations

Procedures

Performance

W & B



MSN 101 - 157, 159, AND 160

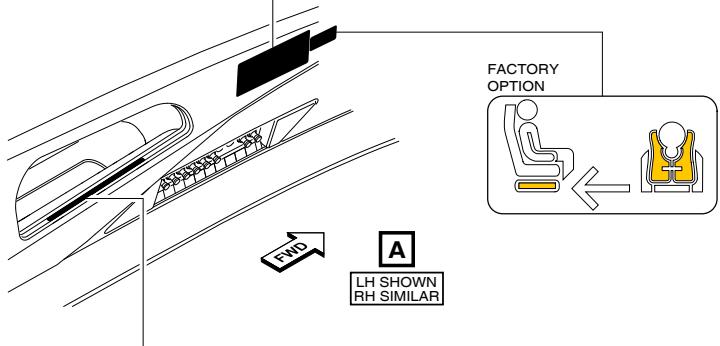
EMERGENCY GEAR EXTENSION

- AIRSPEED 160 KIAS OR BELOW
- ENSURE LANDING GEAR HANDLE DOWN
- IF 3 GREENS NOT ILLUMINATED AFTER 30 SECONDS
- EMERGENCY GEAR EXTENSION SYSTEM (AFT END OF CENTRE PEDESTAL)
- OPEN COVER
- PULL EMERGENCY GEAR EXTENSION HANDLE. CHECK 3 GREENS ARE OBTAINED IF 3 GREENS STILL NOT ILLUMINATED
- TO LOCK LH AND RH GEAR: CONDUCT WING LEVEL SKIDS (0° BANK) RIGHT AND LEFT AT SIDESLIP ANGLES NOT LARGER THAN 5.0° AT 200 KIAS OR 3.5° AT 250 KIAS
- TO LOCK NOSE LG: INCREASE SPEED UP TO 250 KIAS
- KEEP HANDLE IN PULLED POSITION

MSN 158, AND MSN 161 - UP

EMERGENCY GEAR EXTENSION

- AIRSPEED 160 KIAS OR BELOW
- ENSURE LANDING GEAR LEVER DOWN
- IF 3 GREENS NOT ILLUMINATED AFTER 30 SECONDS
- EMERGENCY GEAR EXTENSION SYSTEM (AFT END OF CENTRE PEDESTAL)
- OPEN COVER
- PULL EMERGENCY GEAR EXTENSION HANDLE FIRMLY TO HARD STOP
- CHECK 3 GREENS ARE OBTAINED IF 3 GREENS STILL NOT ILLUMINATED
- TO LOCK LH AND RH GEAR: CONDUCT WING LEVEL SKIDS (0° BANK) RIGHT AND LEFT AT SIDESLIP ANGLES NOT LARGER THAN 5.0° AT 200 KIAS OR 3.5° AT 250 KIAS
- TO LOCK NOSE LG: INCREASE SPEED UP TO 250 KIAS
- KEEP HANDLE IN PULLED POSITION



WEIGHT LIMIT 1 kg / 2 lb FOR TAXI / TAKEOFF AND LANDING STORE ITEMS IN CLOSED STORAGE AREA

Figure 2-1-31: Cockpit - Upper Sidewalls



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

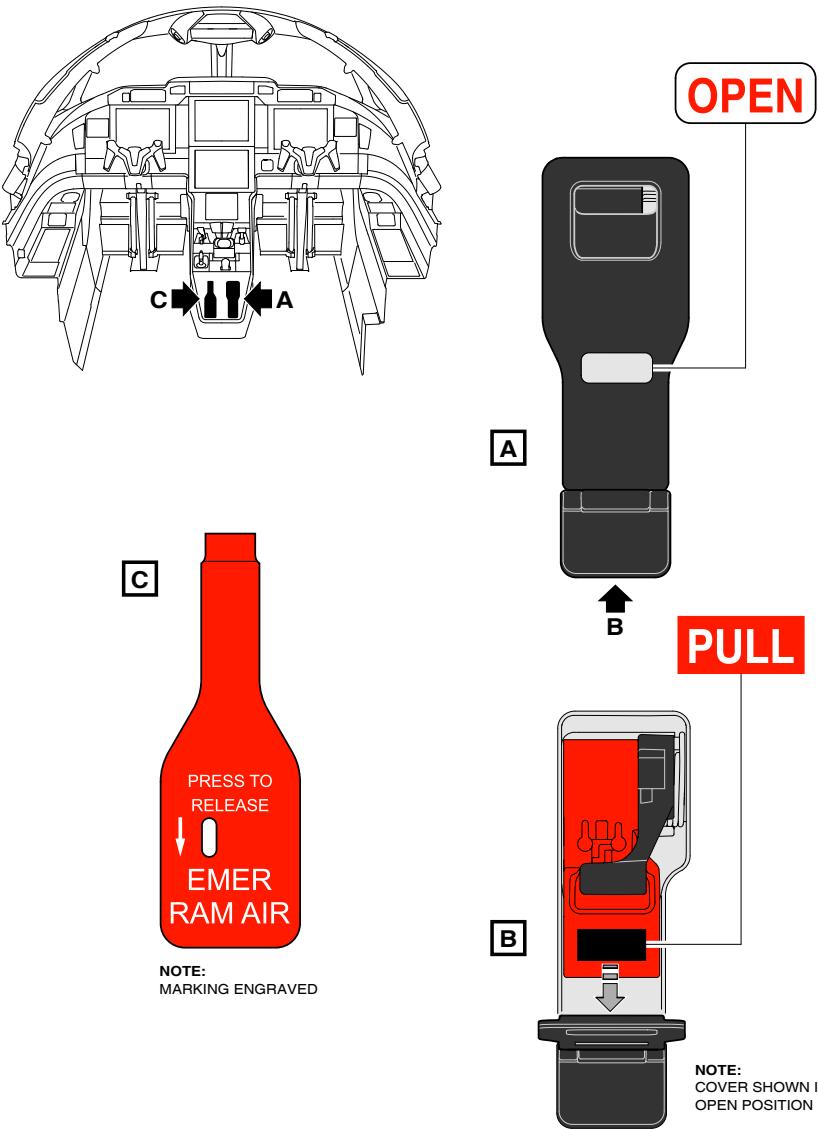


Figure 2-1-32: Emergency RAM Air System and Emergency Gear Extension System



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

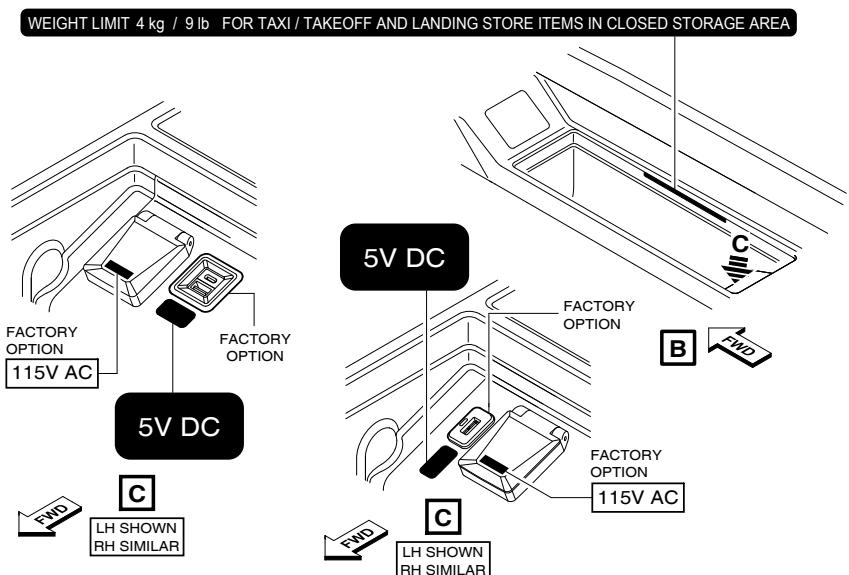
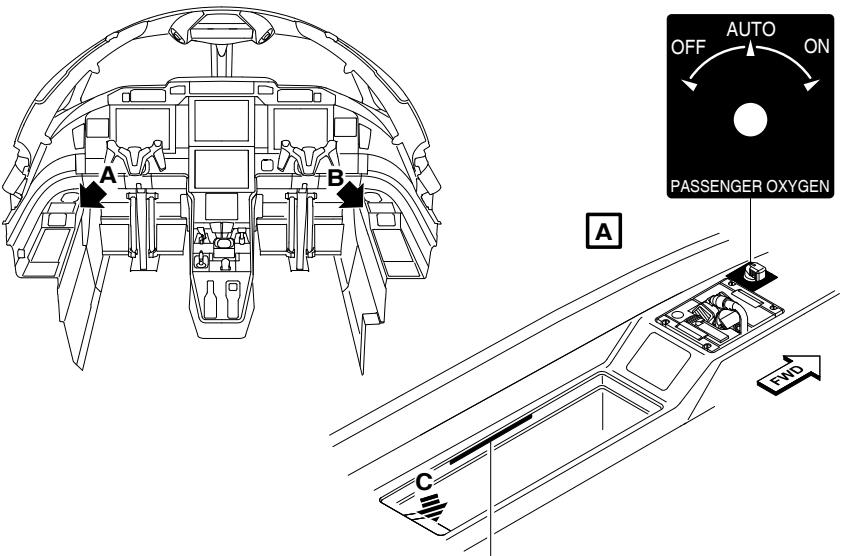


Figure 2-1-33: Cockpit - Side Consoles



PC24-AA15-10-0201-00A-043A-A

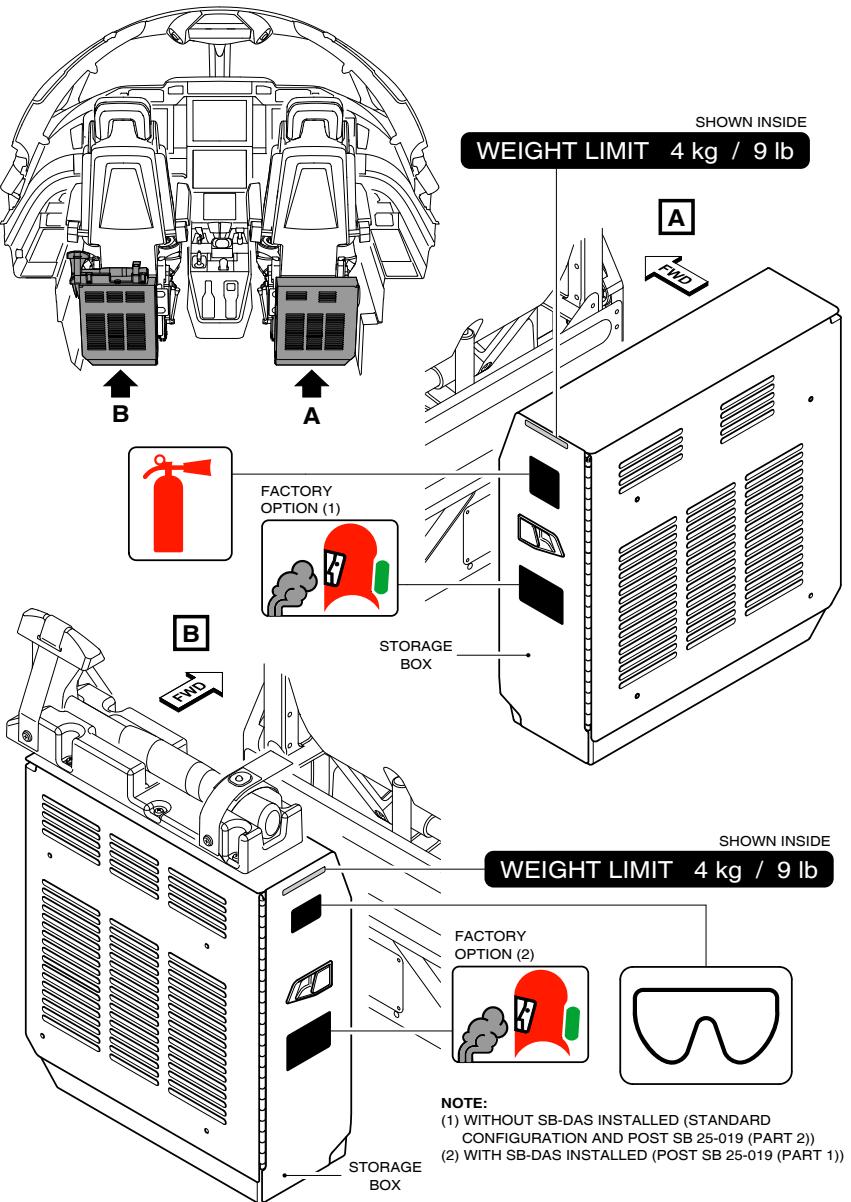


Figure 2-1-34: Cockpit - Fire Extinguisher, Smoke Goggles

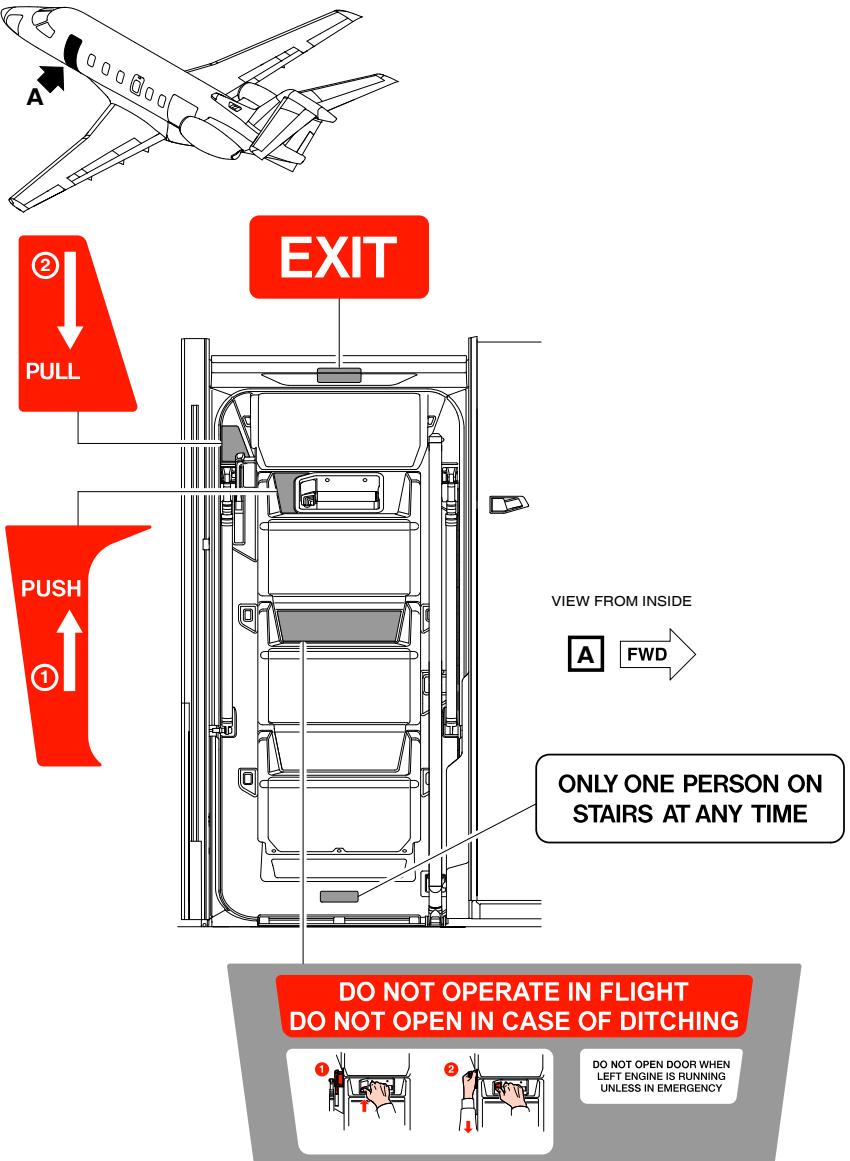


Figure 2-1-35: Placards - Cabin - Main Entry Door



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

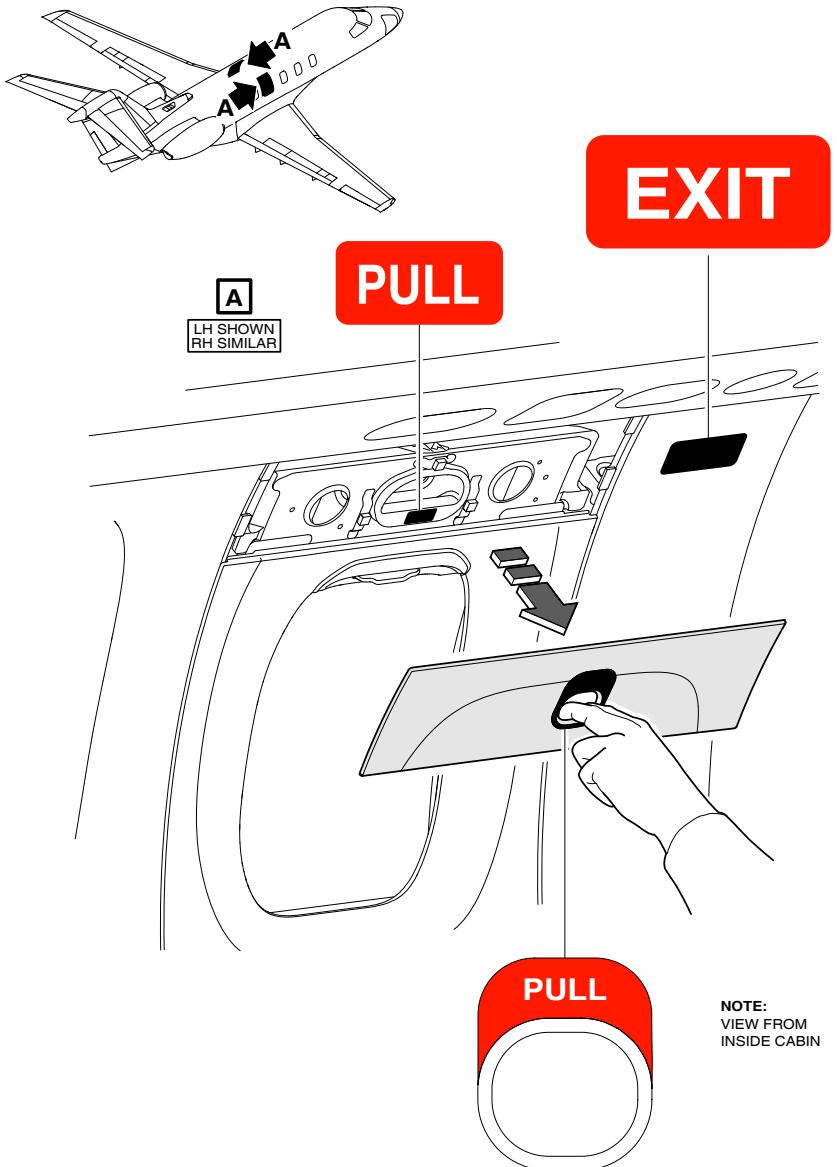


Figure 2-1-36: Placards - Overwing Exit



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

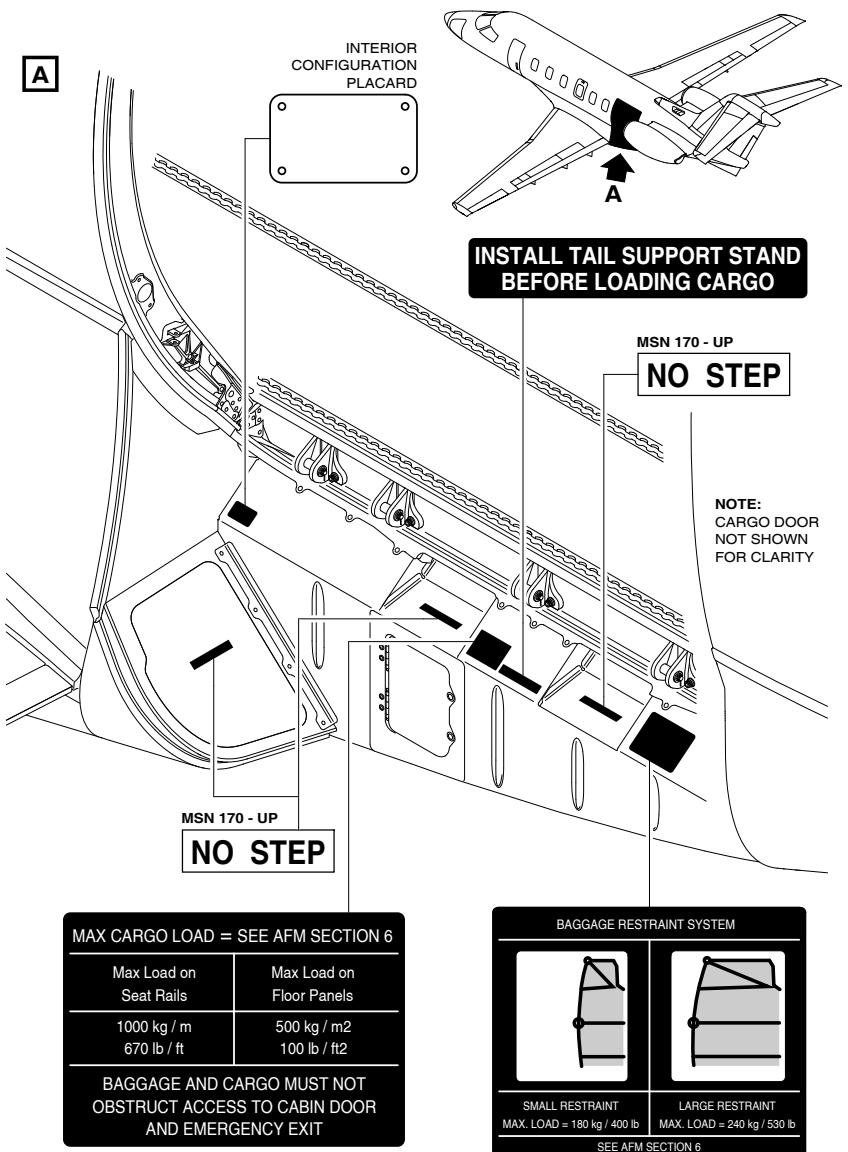


Figure 2-1-37: Placards - Cargo Door Area

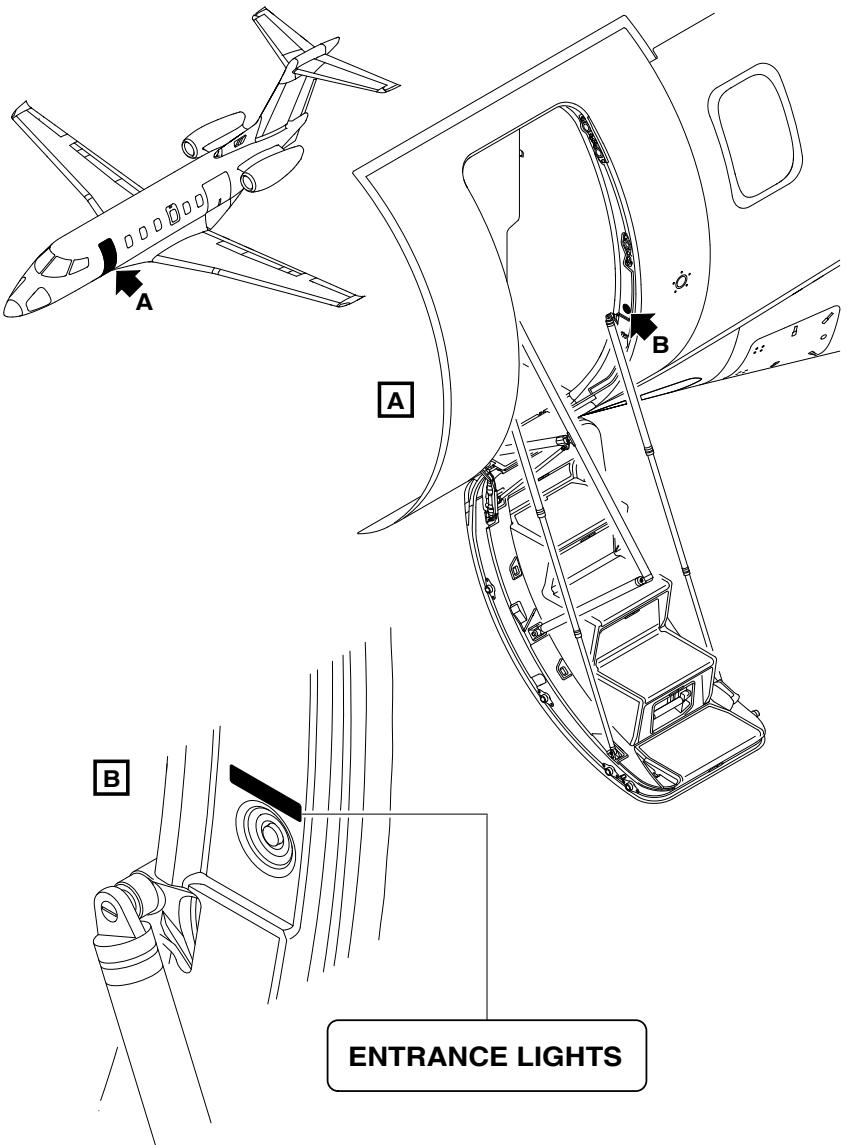


Figure 2-1-38: Placards - Entrance Lights Switch

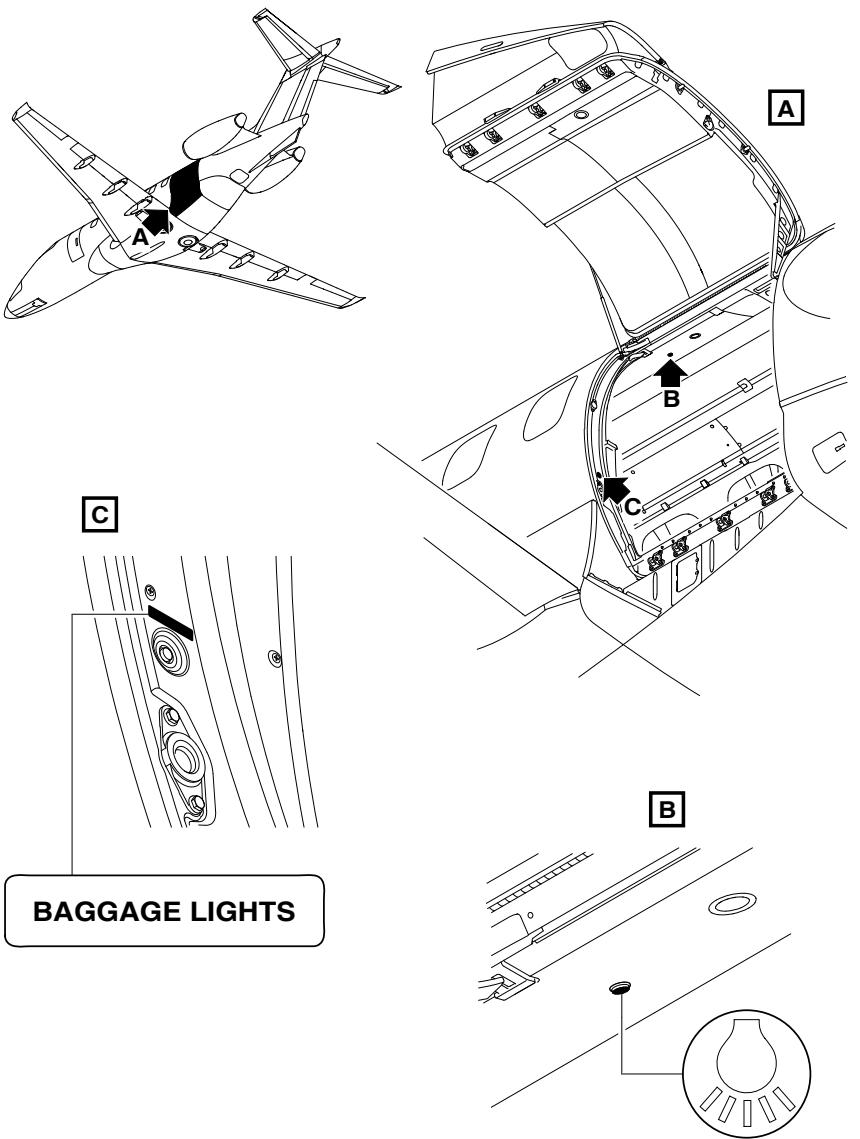


Figure 2-1-39: Placards - Baggage Compartment Light Switch

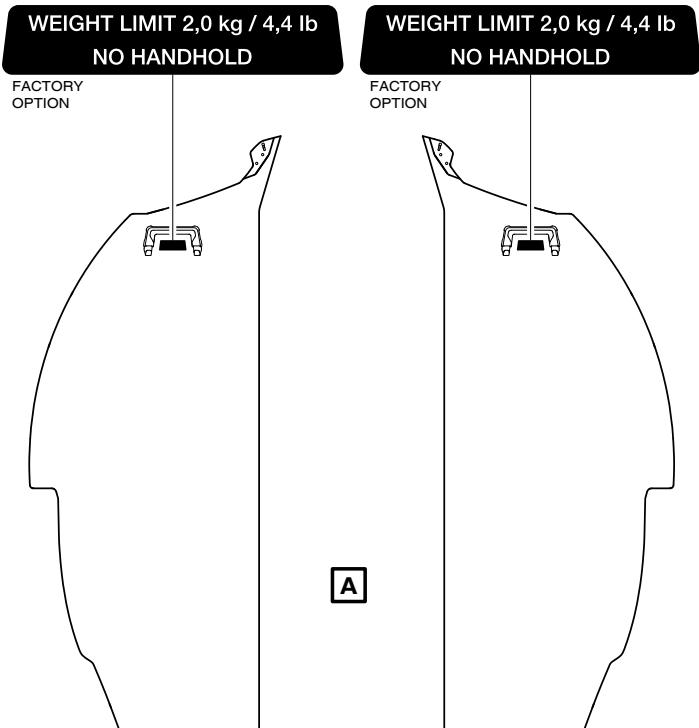
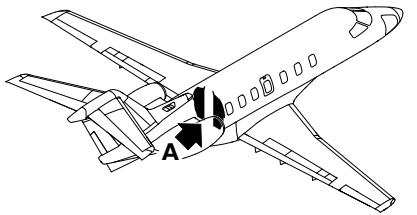


Figure 2-1-40: Placards - Baggage Compartment - Coat Hanger Weight Limit

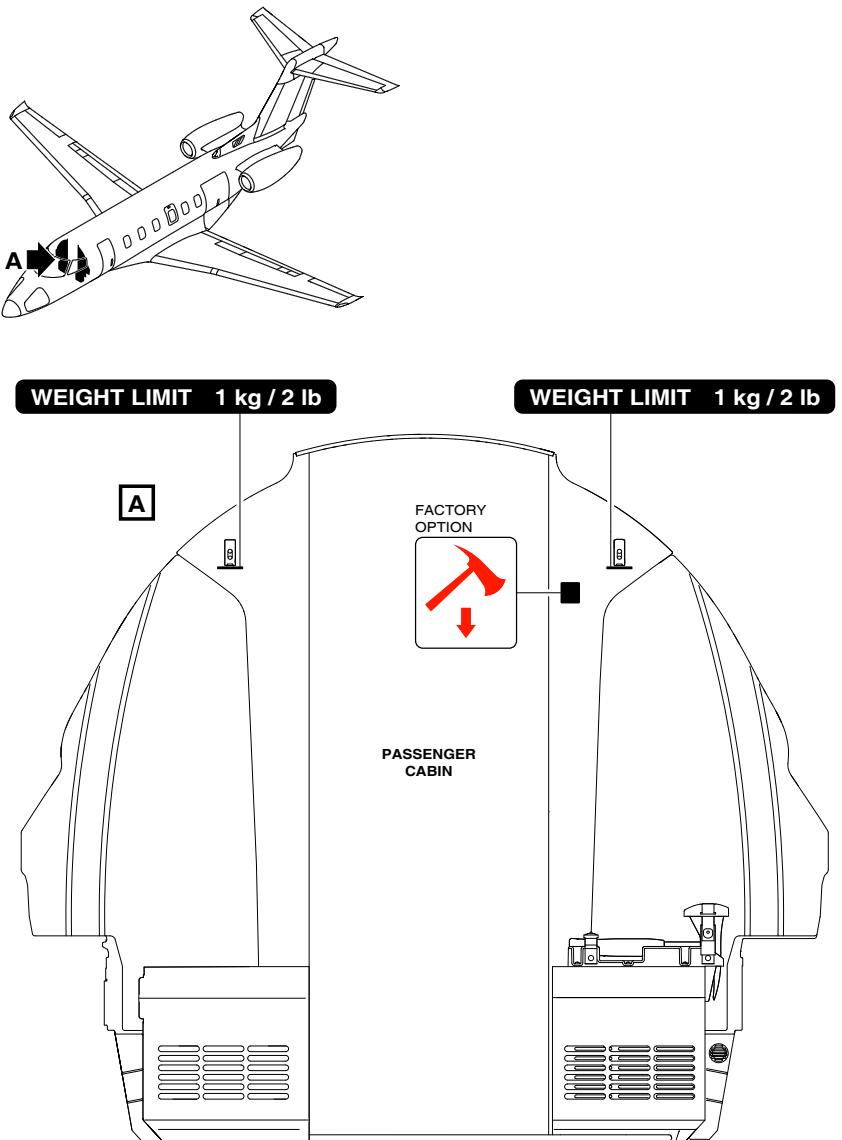


Figure 2-1-41: Placards - Coat Hook Weight Limit

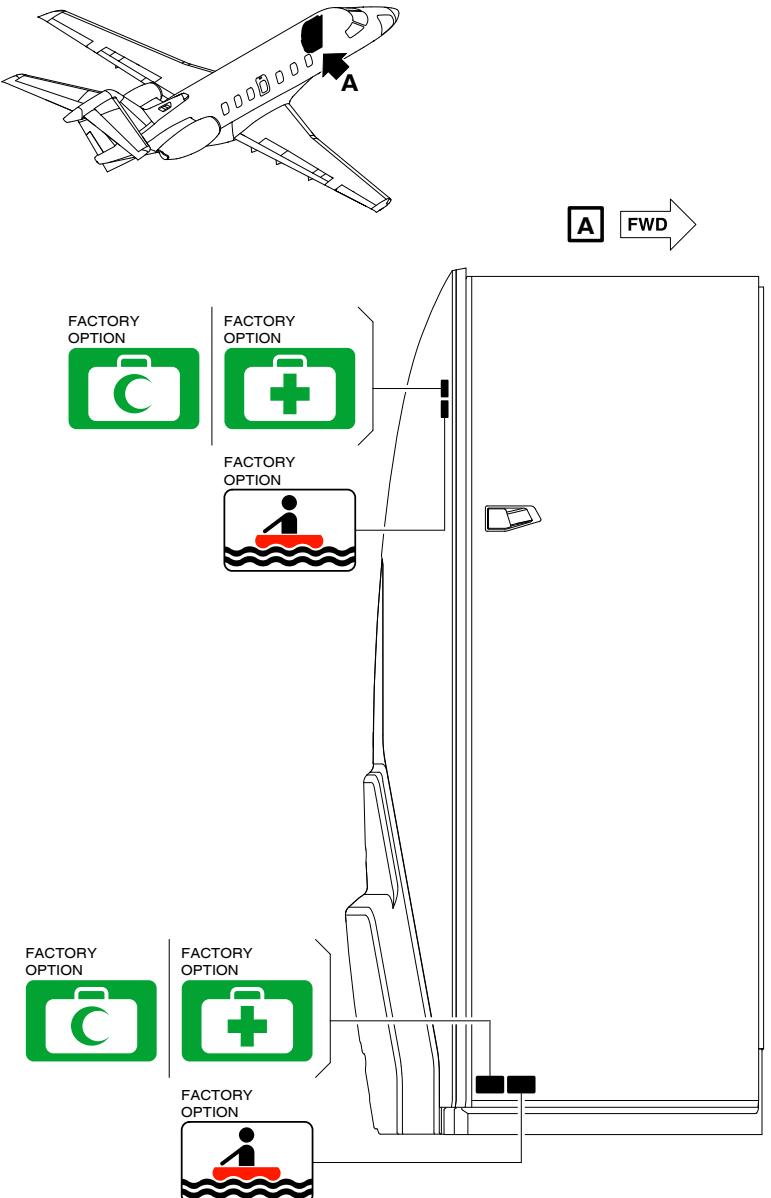


Figure 2-1-42: Placards - First Aid Kit (Sheet 1 of 2)

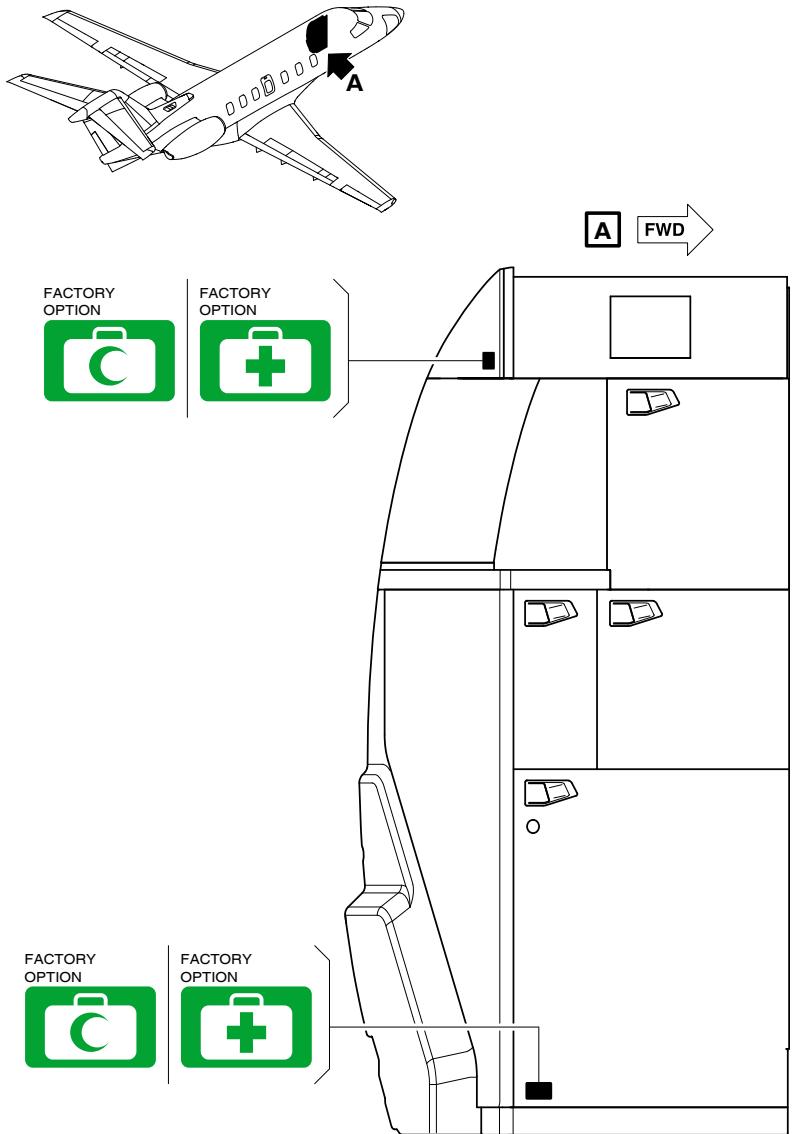


Figure 2-1-42: Placards - First Aid Kit (Sheet 2 of 2)

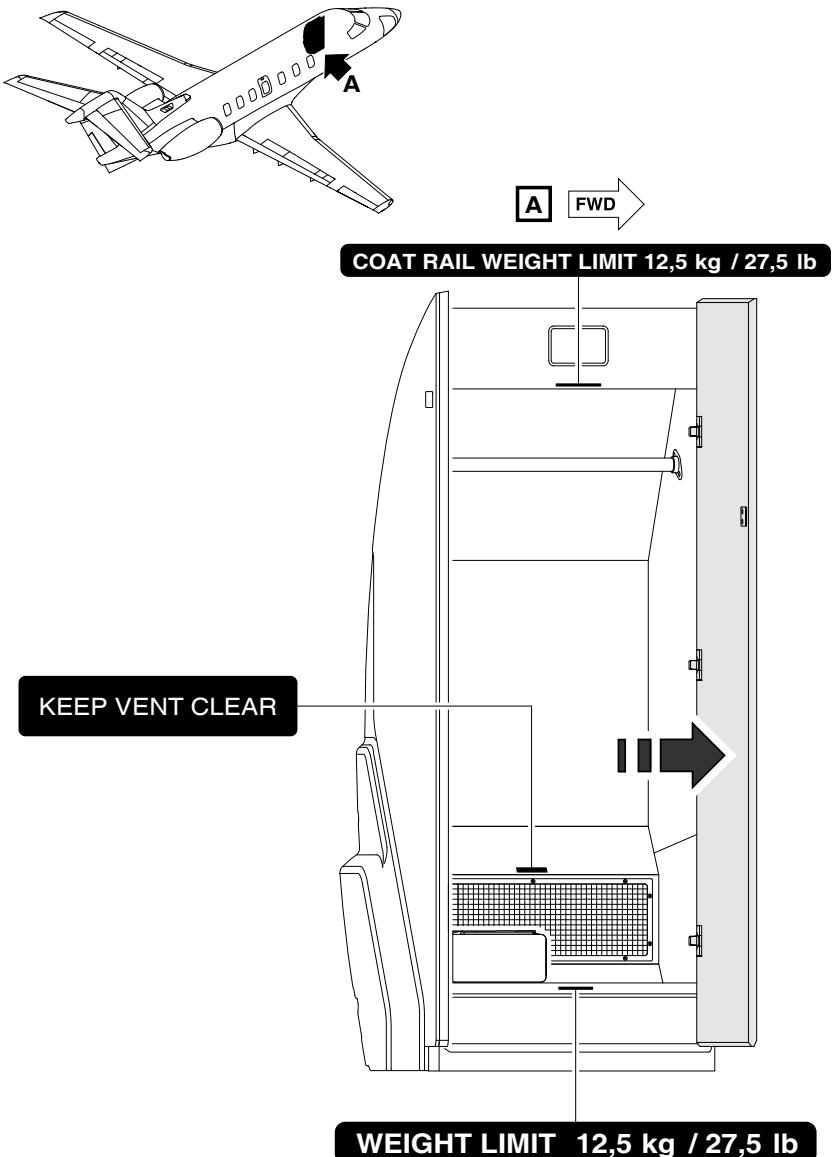


Figure 2-1-43: Placards - Wardrobe



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

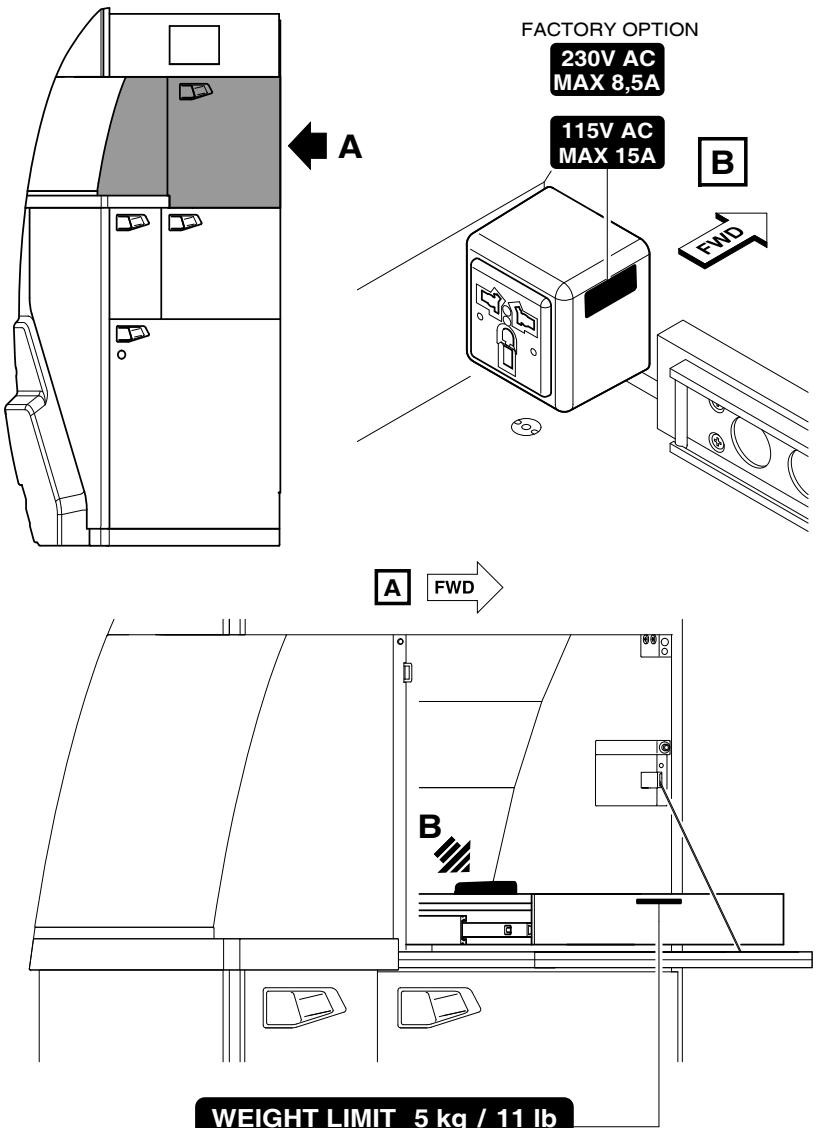


Figure 2-1-44: Placards - Forward Galley (factory option) (Sheet 1 of 4)

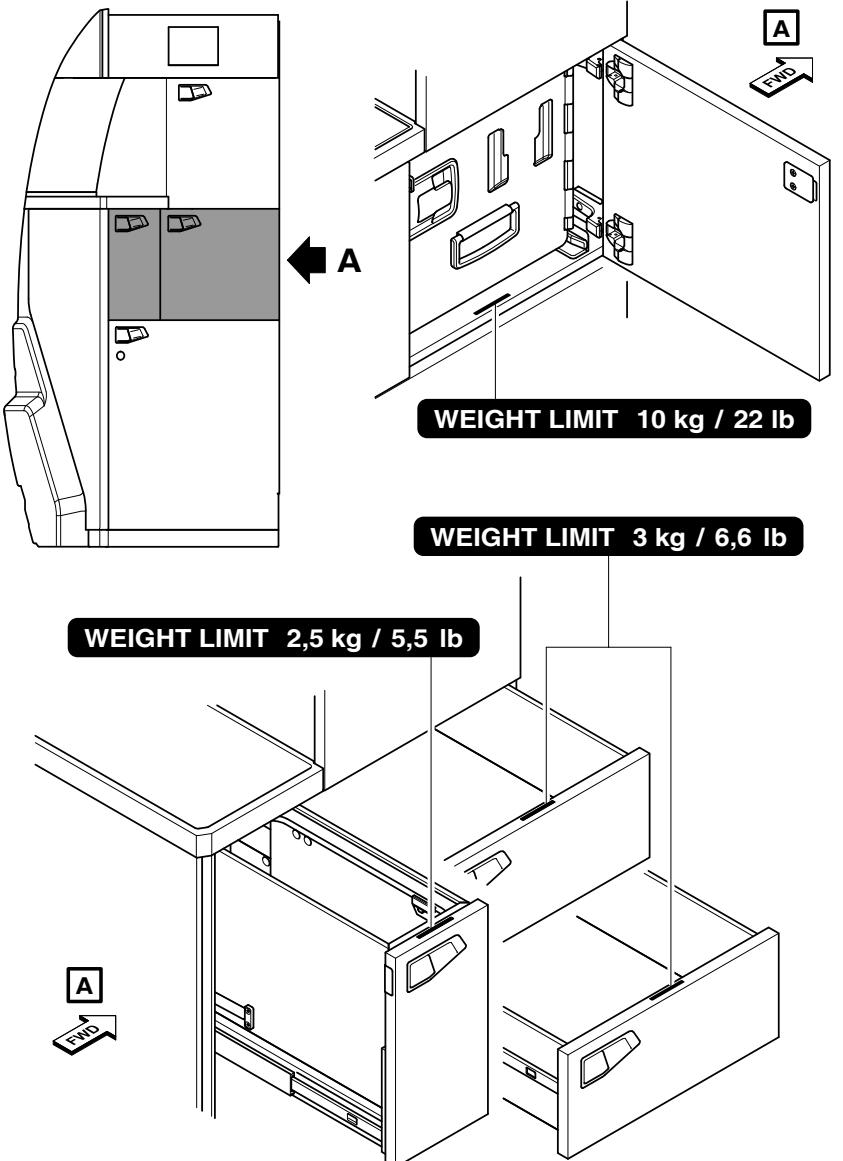


Figure 2-1-44: Placards - Forward Galley (factory option) (Sheet 2 of 4)

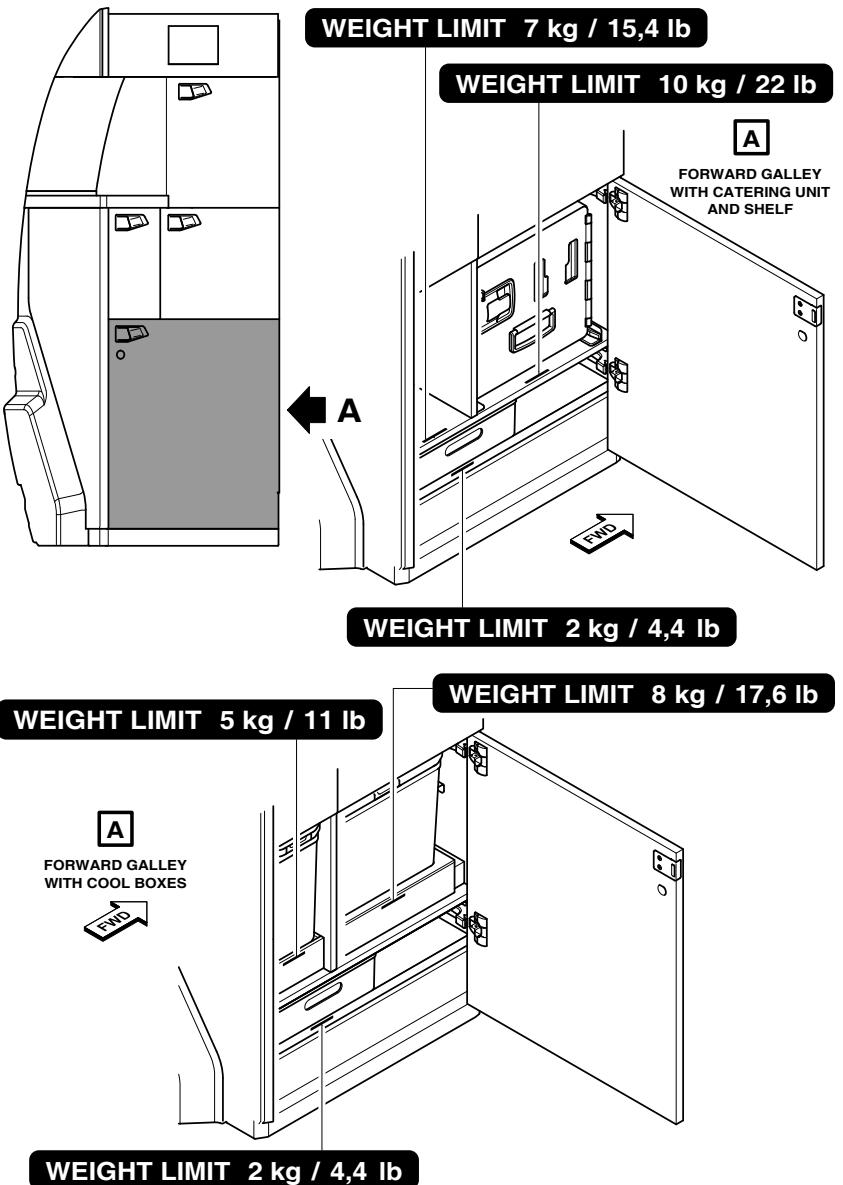
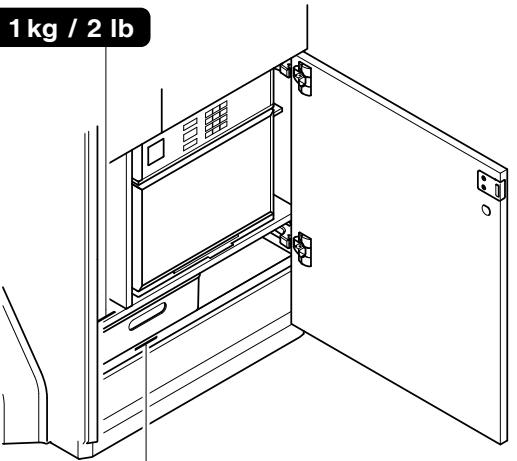


Figure 2-1-44: Placards - Forward Galley (factory option) (Sheet 3 of 4)



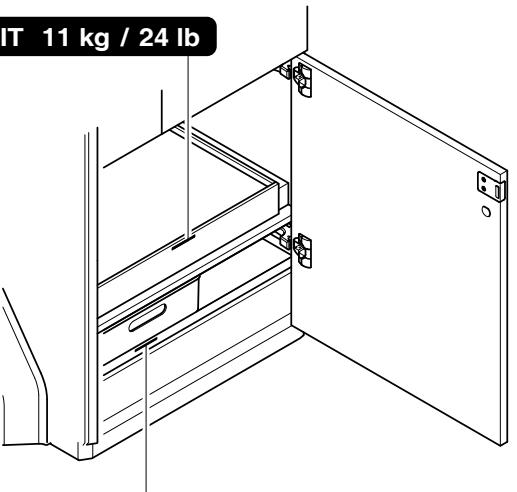
WEIGHT LIMIT 1 kg / 2 lb

A
FORWARD GALLEY
WITH OVEN AND SHELF



WEIGHT LIMIT 2 kg / 4,4 lb

A
FORWARD GALLEY
WITH EXTENDABLE SHELF



WEIGHT LIMIT 2 kg / 4,4 lb

Figure 2-1-44: Placards - Forward Galley (factory option) (Sheet 4 of 4)



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

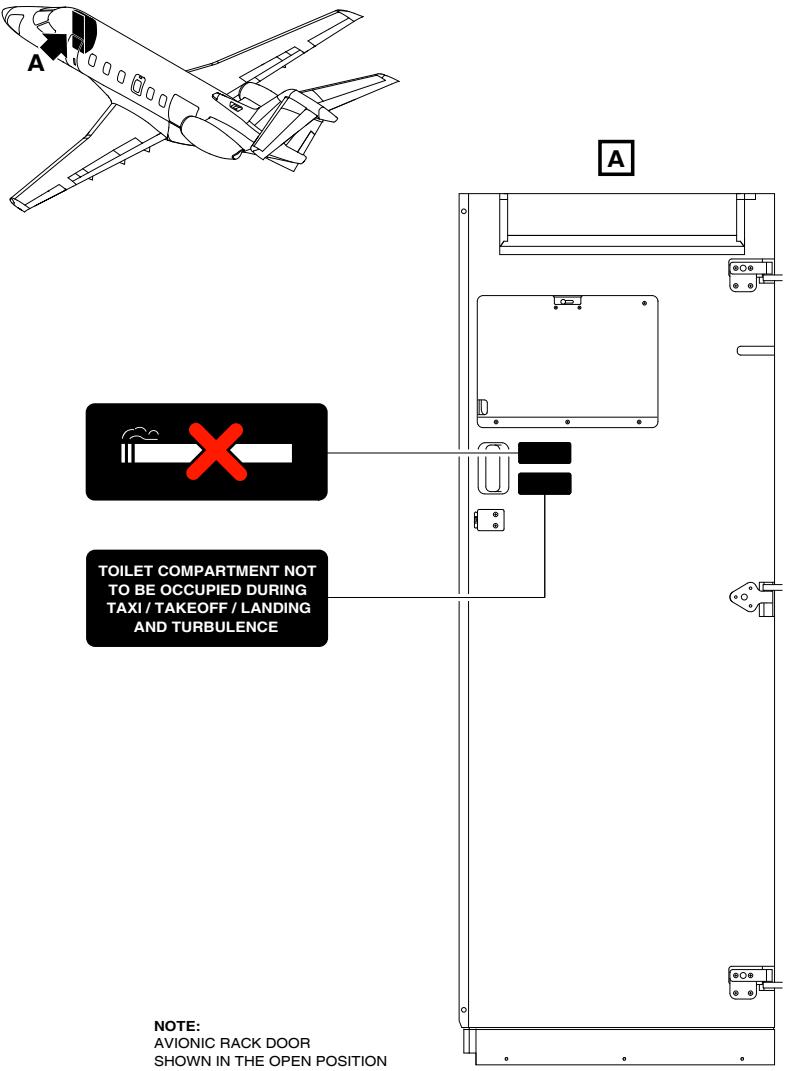


Figure 2-1-45: Placards - Avionics Rack

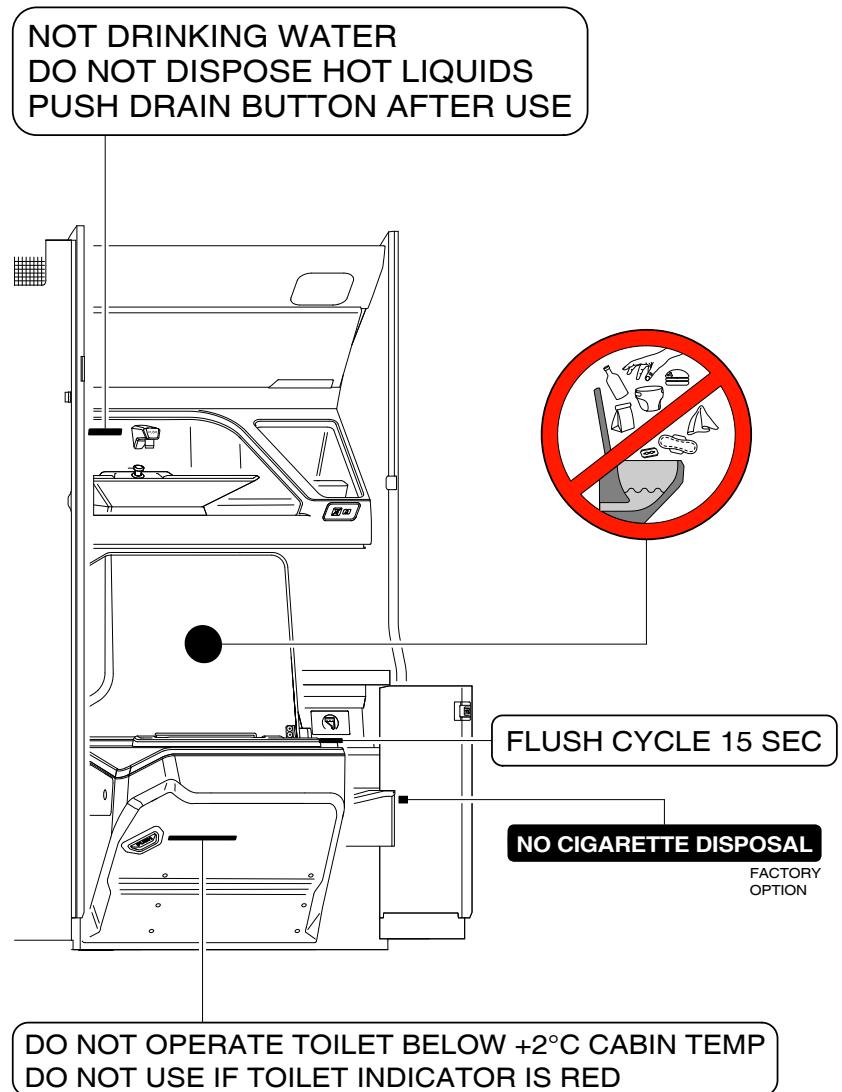


Figure 2-1-46: Placards - Toilet



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

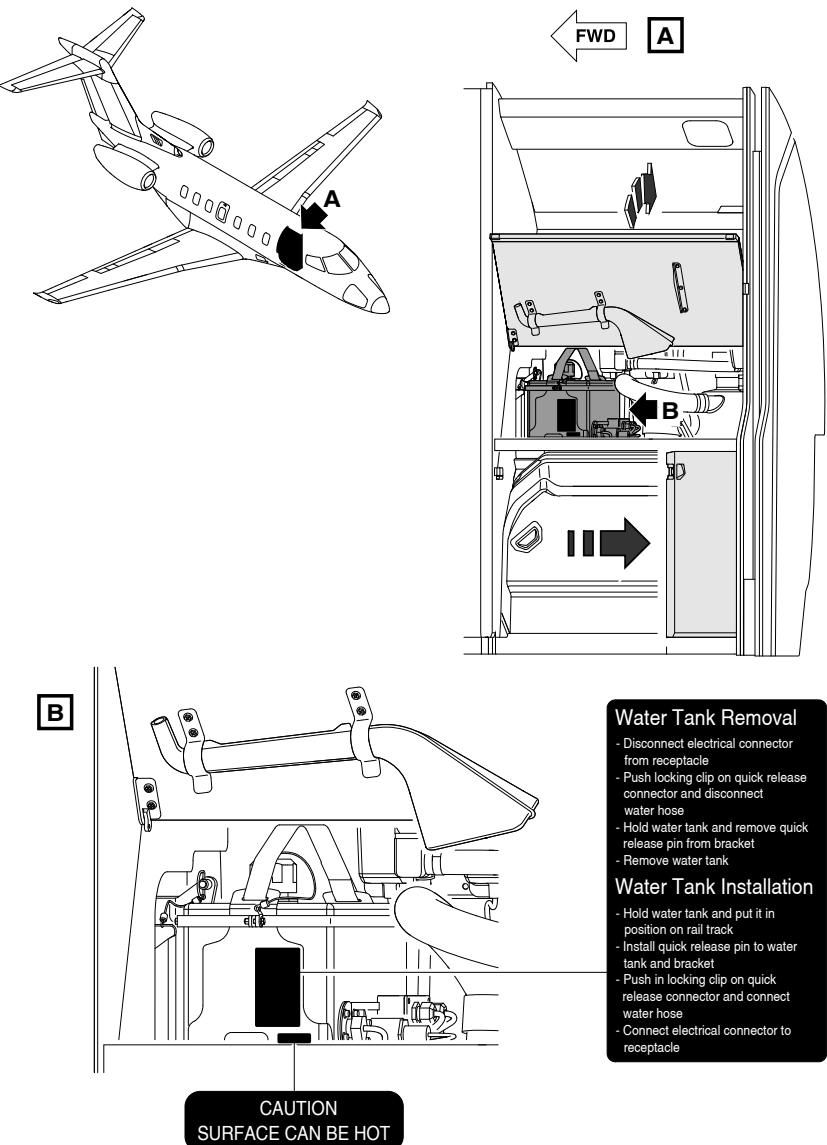


Figure 2-1-47: Placards - Water Tank - Valid for Aircraft MSN 161 - Up



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

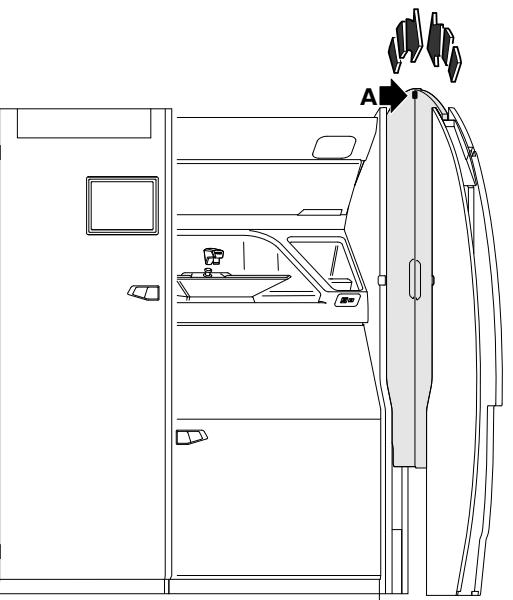
Introduction

Limitations

Procedures

Performance

W & B



NOTE:
FIGURE SHOWS LAVATORY CONFIGURATION OF MSN 101-500.
OPERATION OF THE SLIDING DOORS AND LOCATION OF THE
PLACARDS ARE NOT CHANGED.

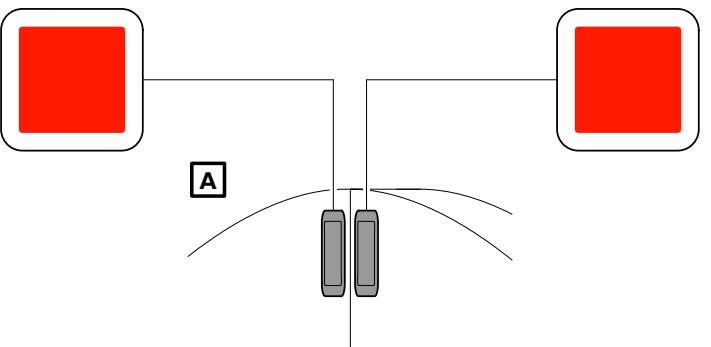


Figure 2-1-48: Placards - Sliding Door



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

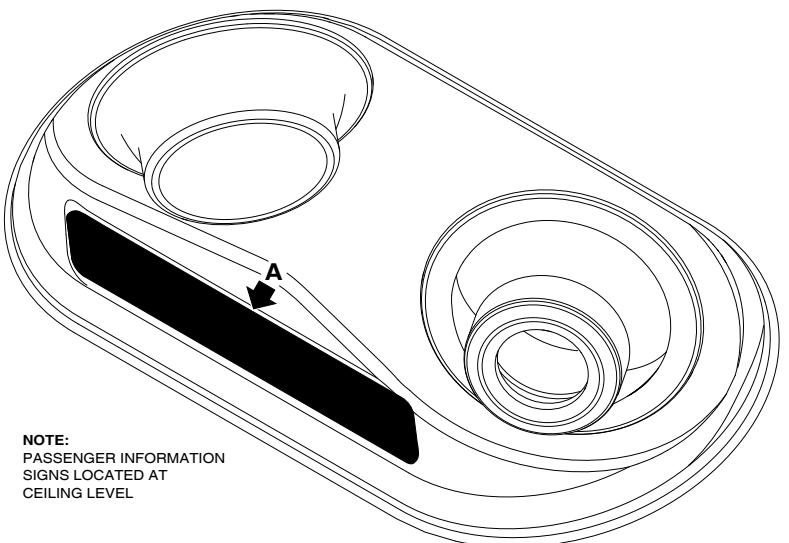
Introduction

Limitations

Procedures

Performance

W & B



[A]

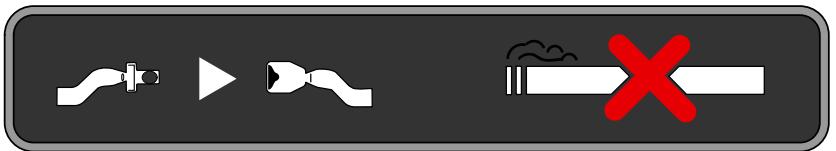


Figure 2-1-49: Placards - Passenger Signs - No Smoking



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

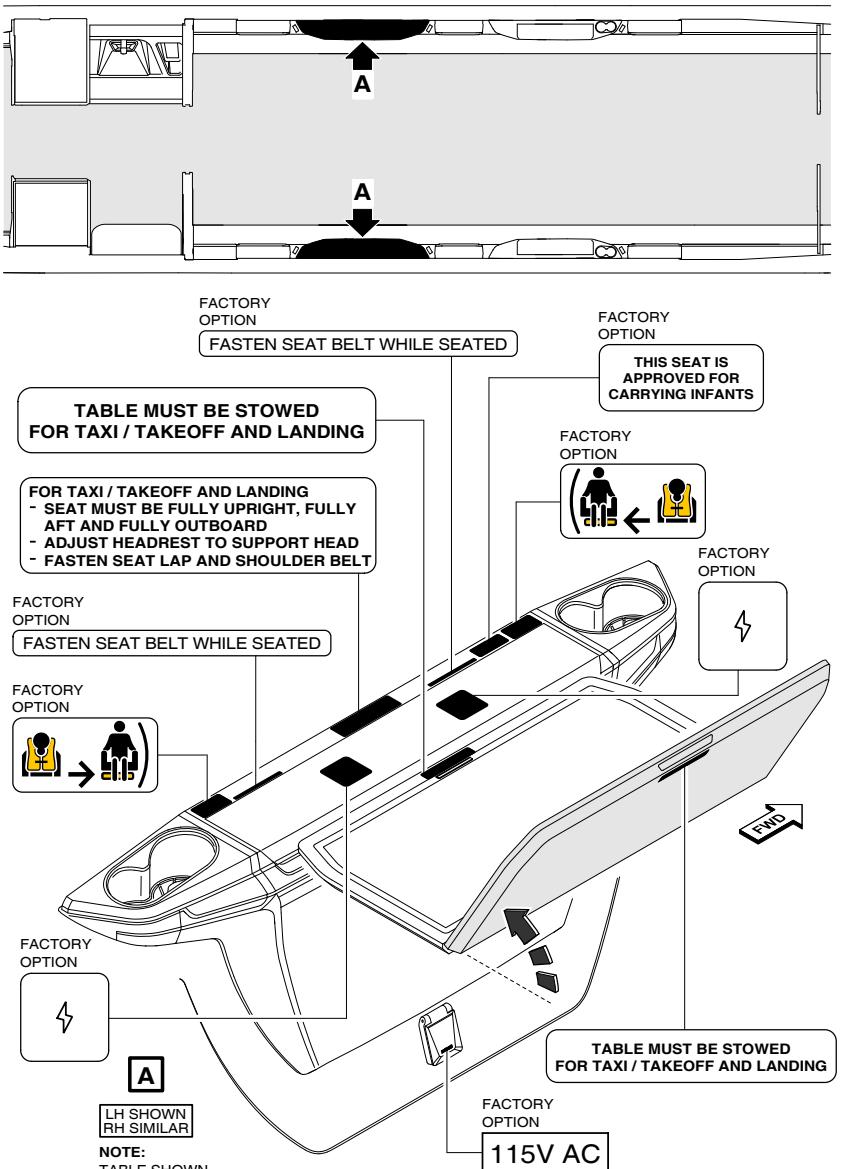


Figure 2-1-50: Placards - Cabin Table (Fwd) – Club seating installed in rows 1 and 2

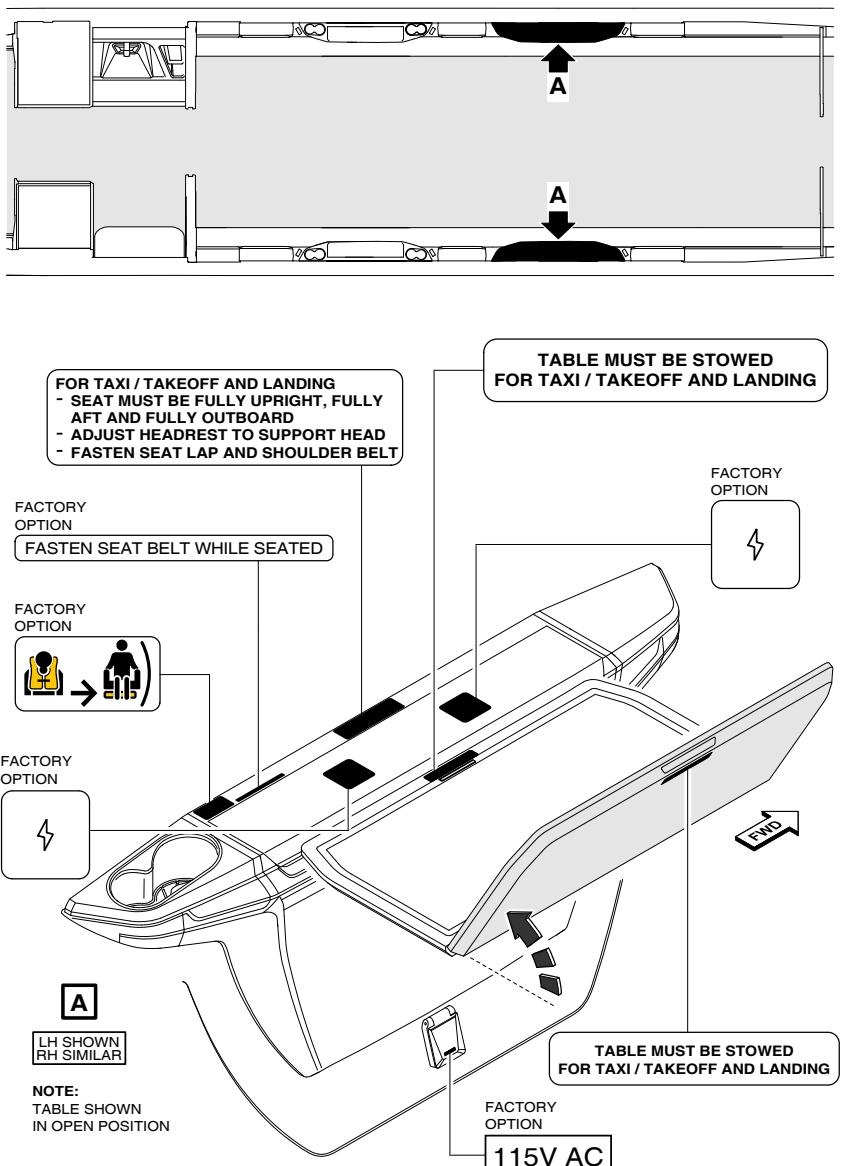


Figure 2-1-51: Placards - Cabin Table (Aft) – Seats facing forward in row 3



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

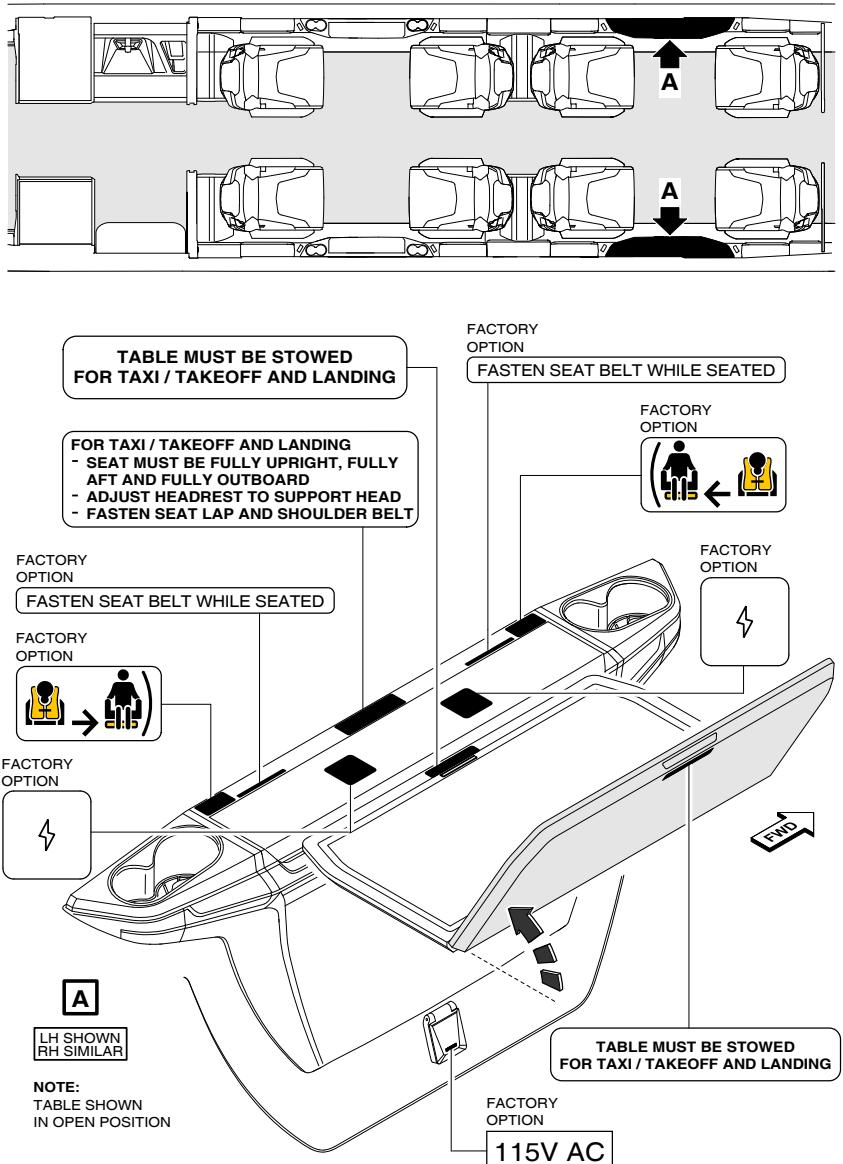


Figure 2-1-52: Placards - Cabin Table (Aft) - Club seating installed in rows 3 and 4

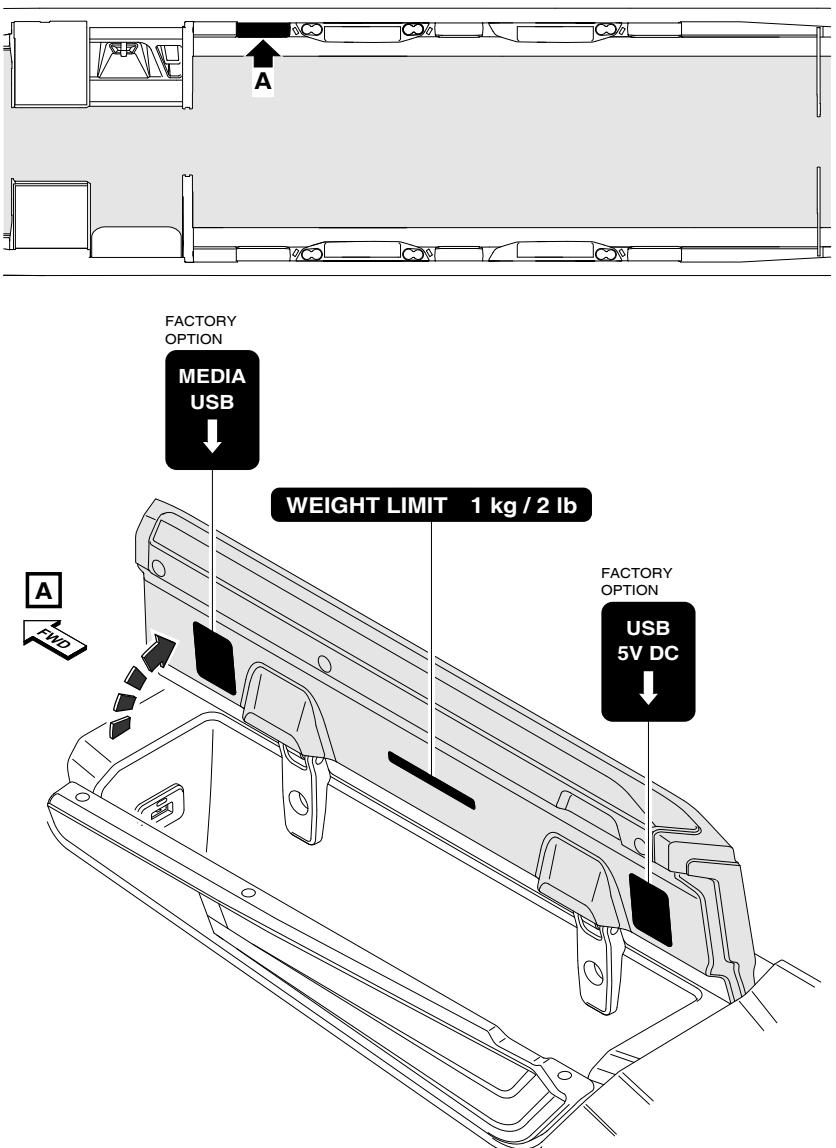


Figure 2-1-53: Placards - Cabin Storage Box (Fwd Right)

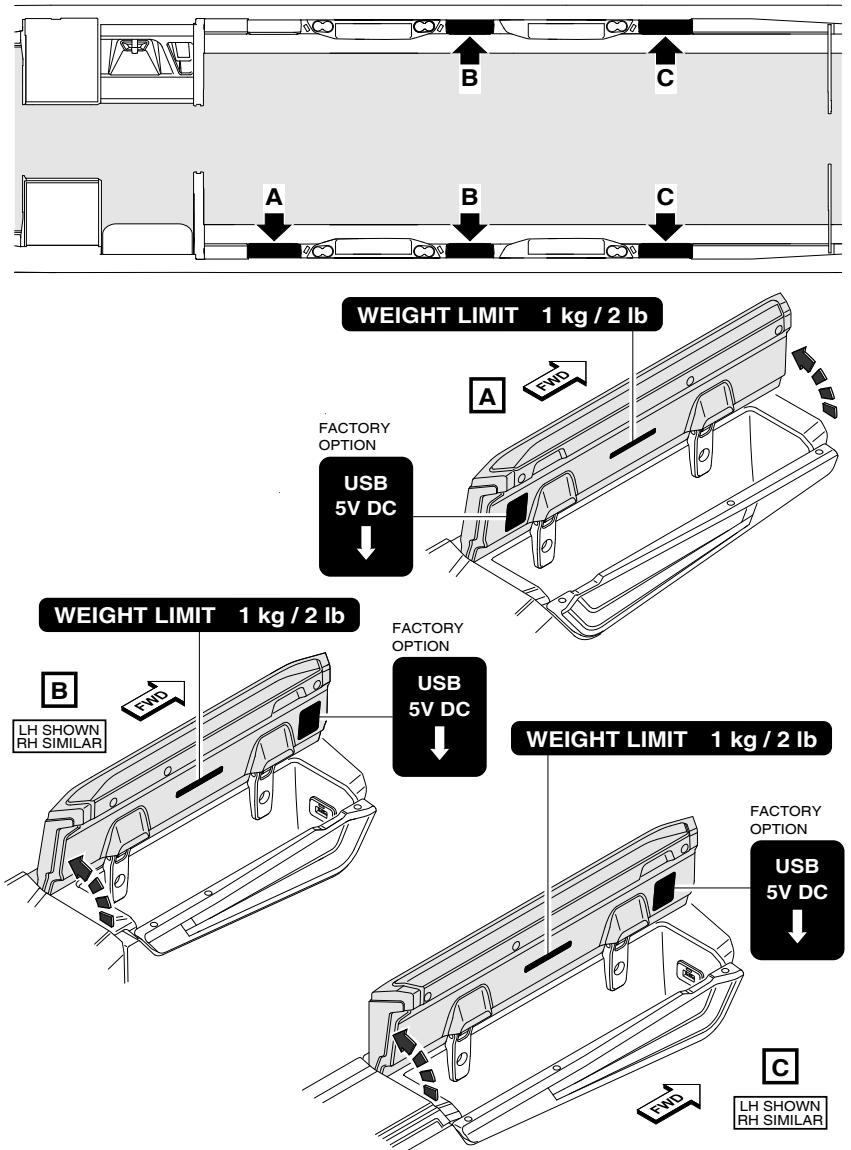


Figure 2-1-54: Placards - Cabin Storage Box (Rear)



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

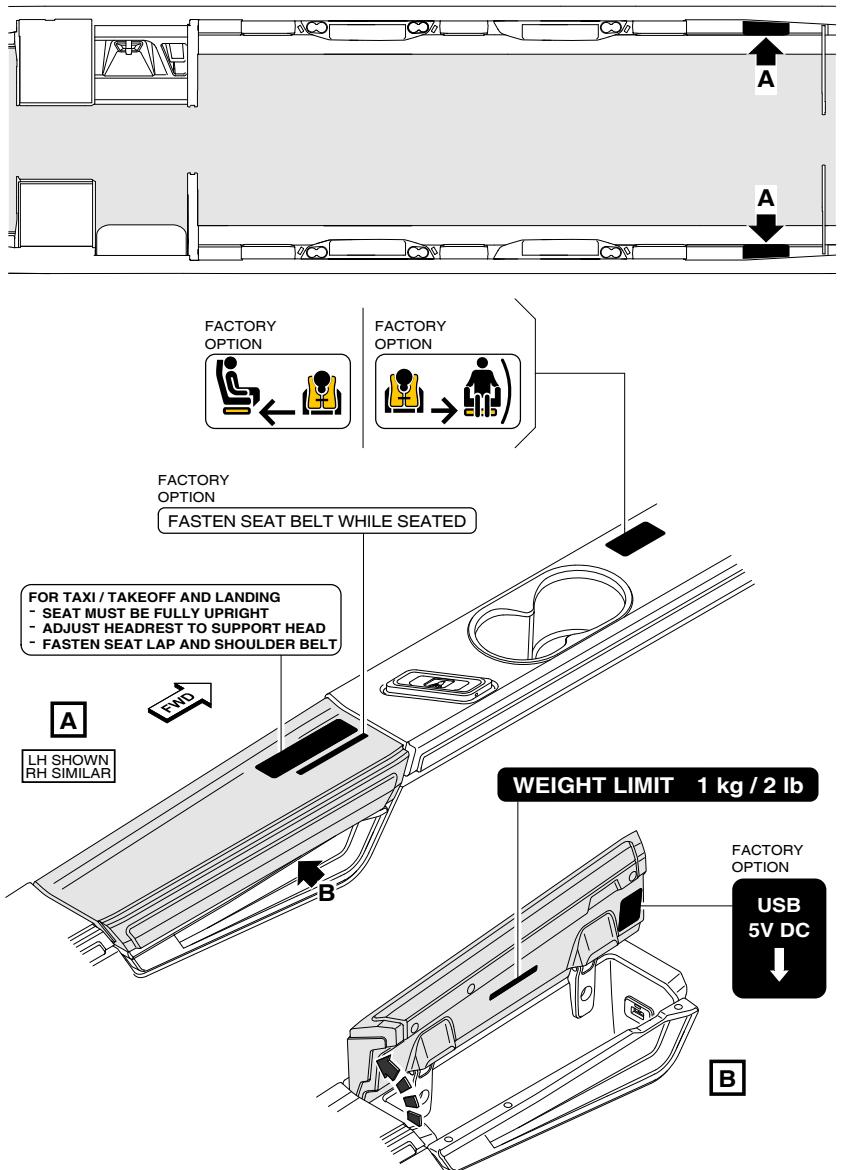


Figure 2-1-55: Placards - Cabin Storage Box (Aft)

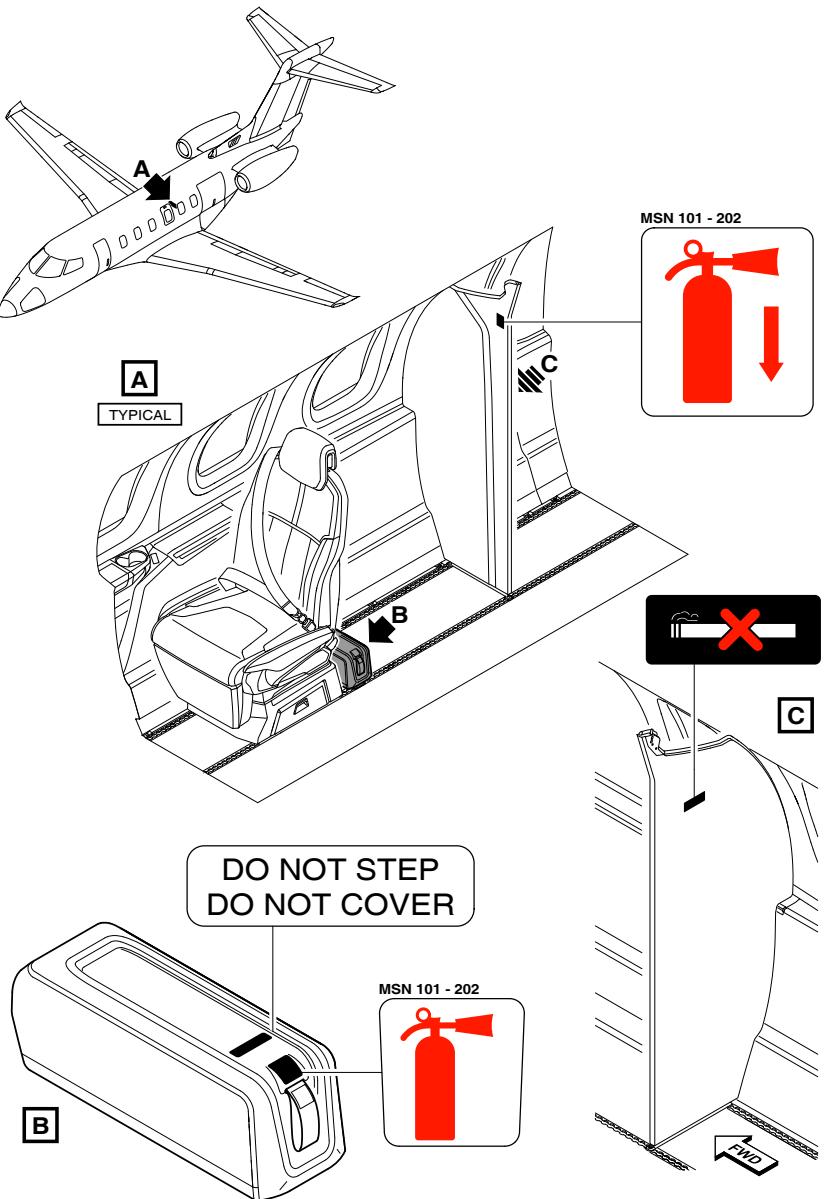


Figure 2-1-56: Placards - Cabin Fire Extinguisher



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

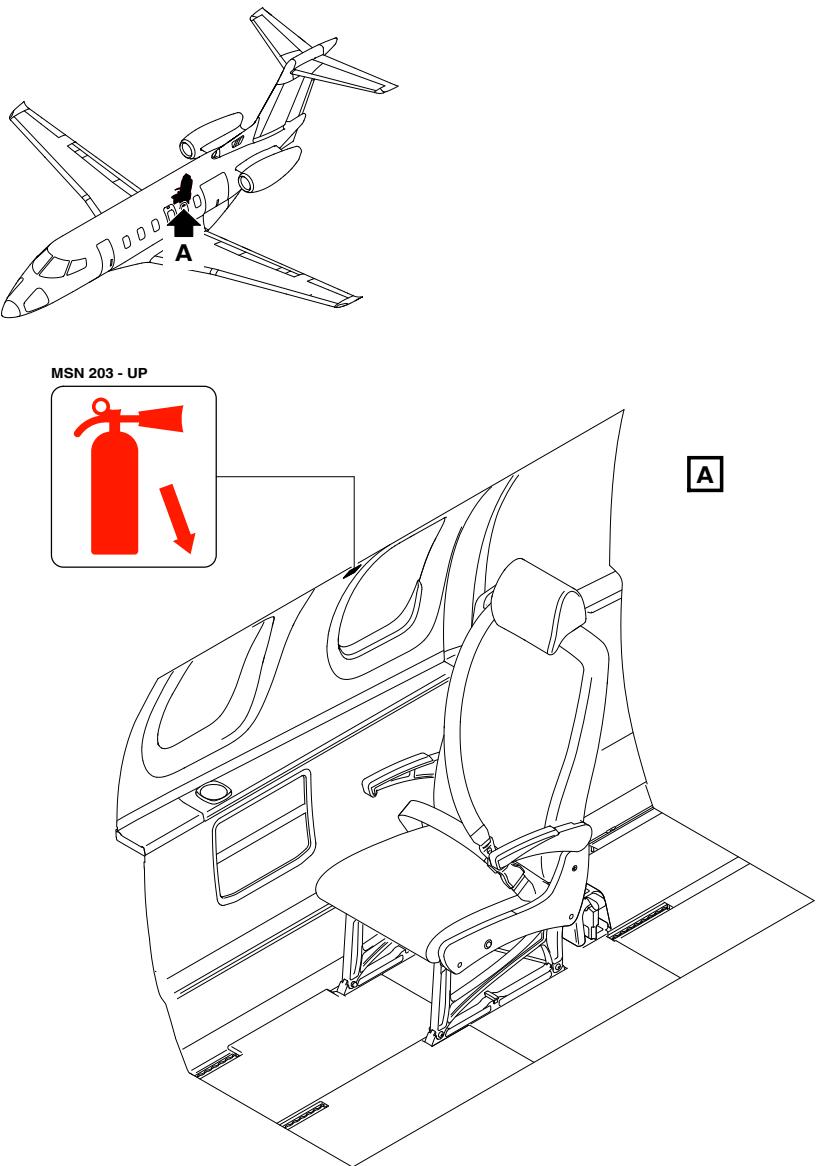


Figure 2-1-57: Placards - Cabin Fire Extinguisher - COM-10S-1 Interior Configuration



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

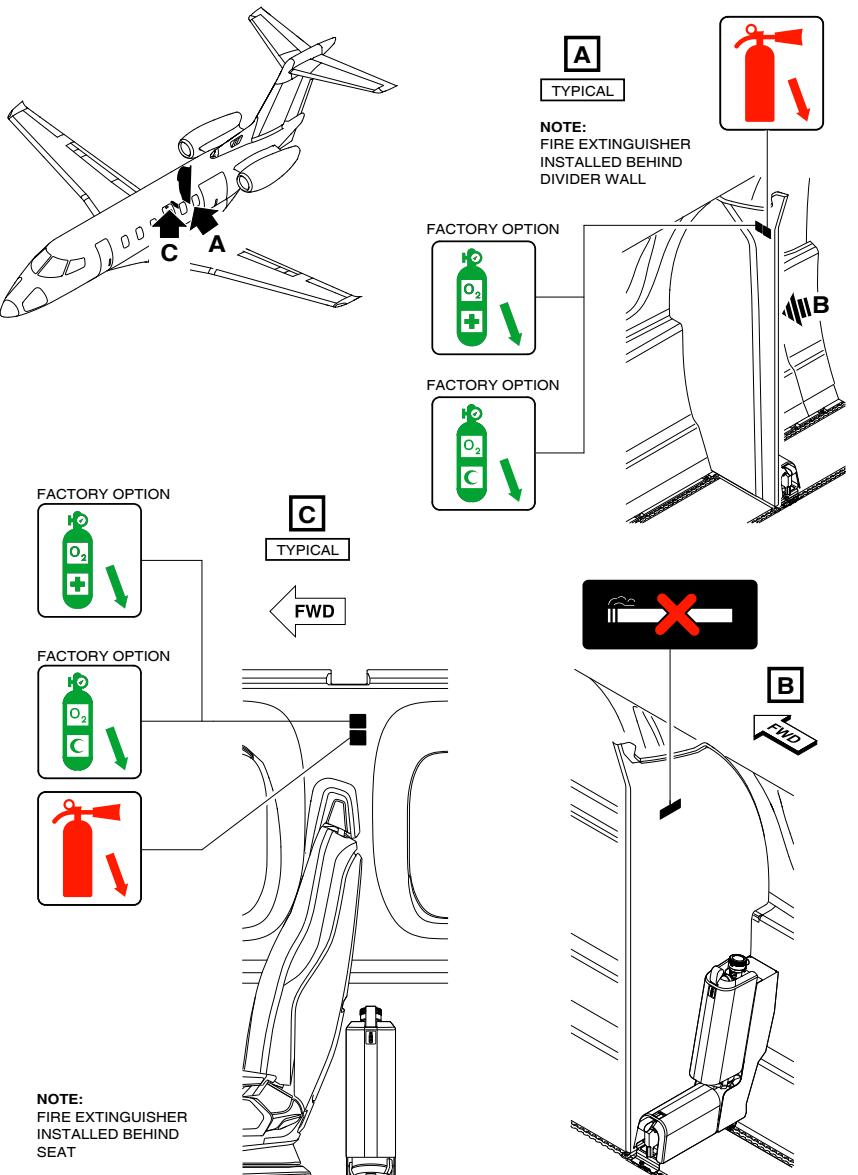
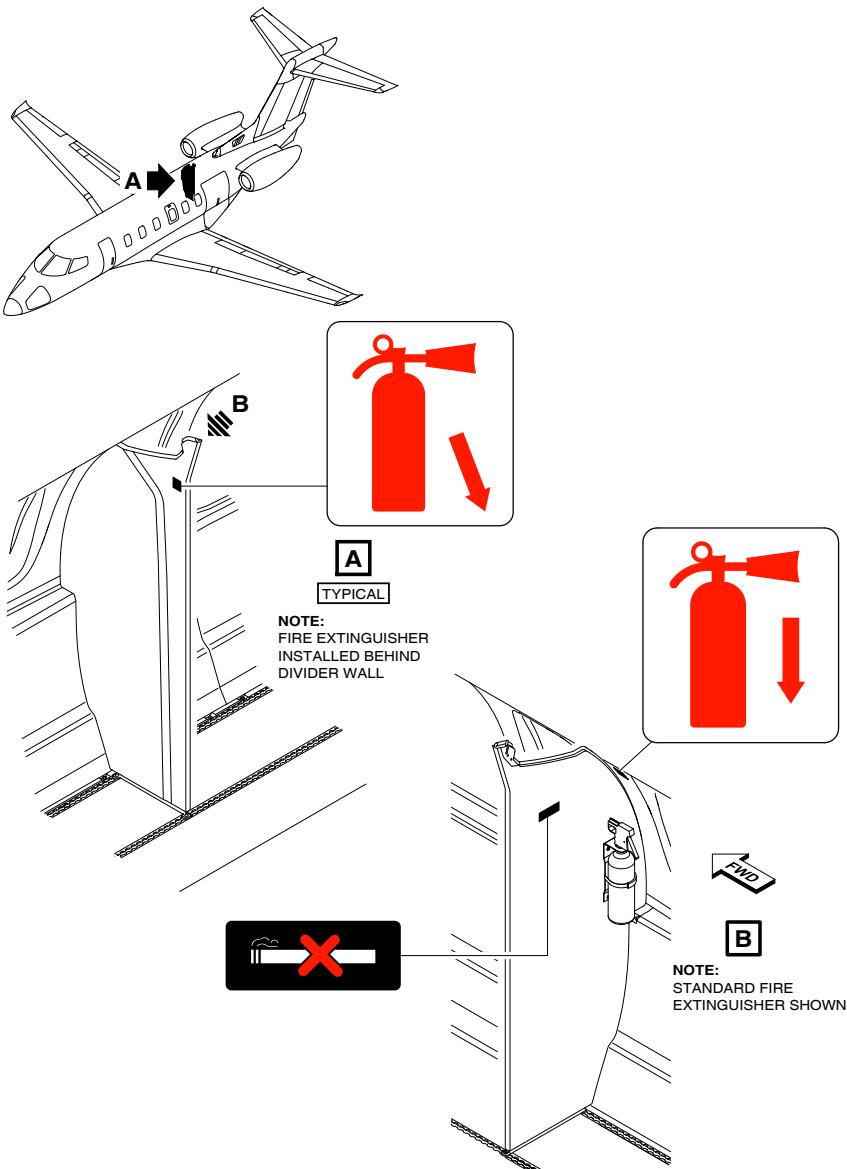


Figure 2-1-58: Placards - Portable Oxygen Cylinder Assembly



ICN-PC24-A-A1500000-A-S4080-10432-A-001-01

Figure 2-1-59: Placards - Cabin Fire Extinguisher - Optional Aft Divider Wall Installation



Contents

Front Matter

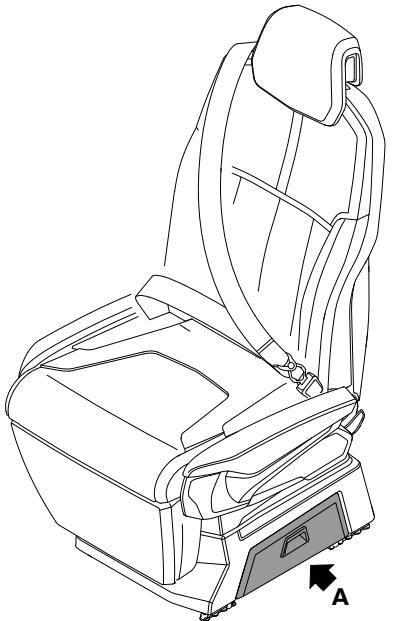
Introduction

Limitations

Procedures

Performance

W & B



WEIGHT LIMIT 1,3 kg / 3 lb

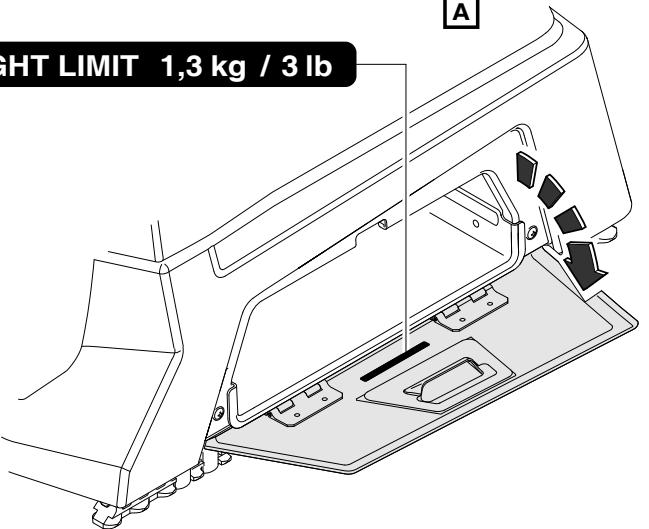


Figure 2-1-60: Placards - Executive Seat Storage



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

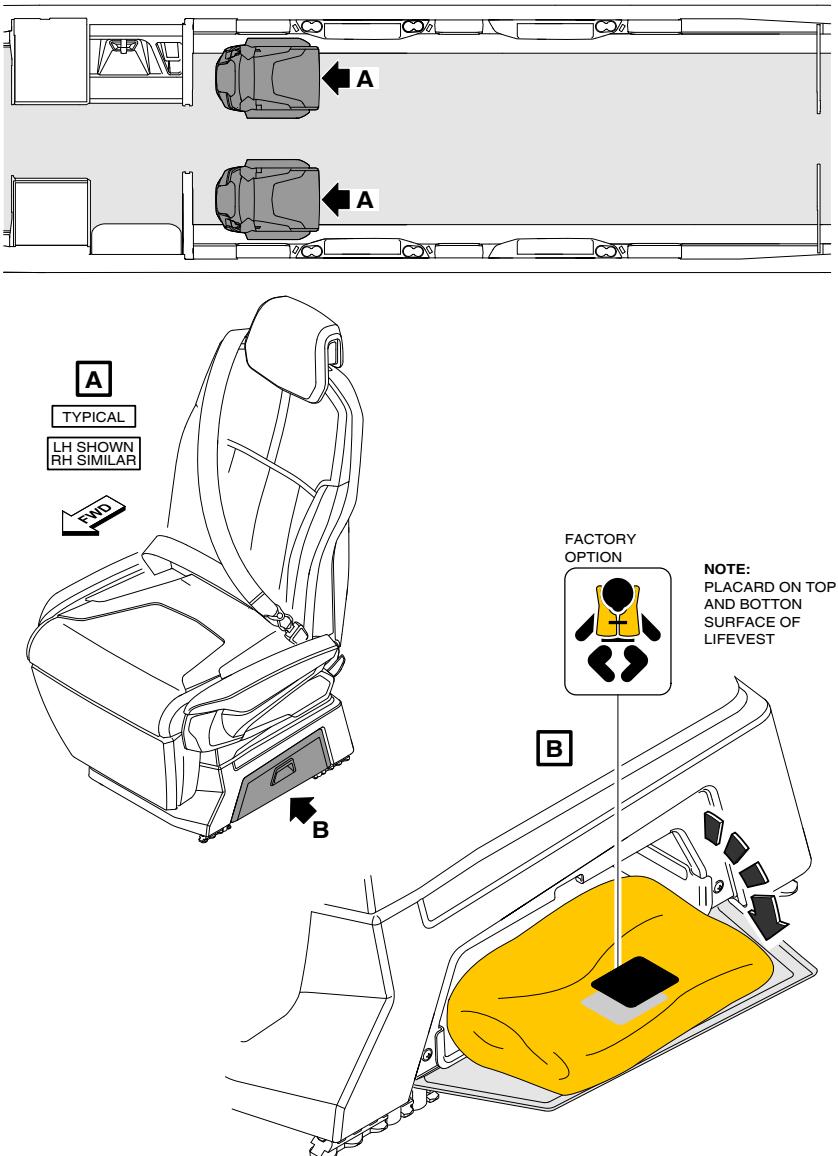
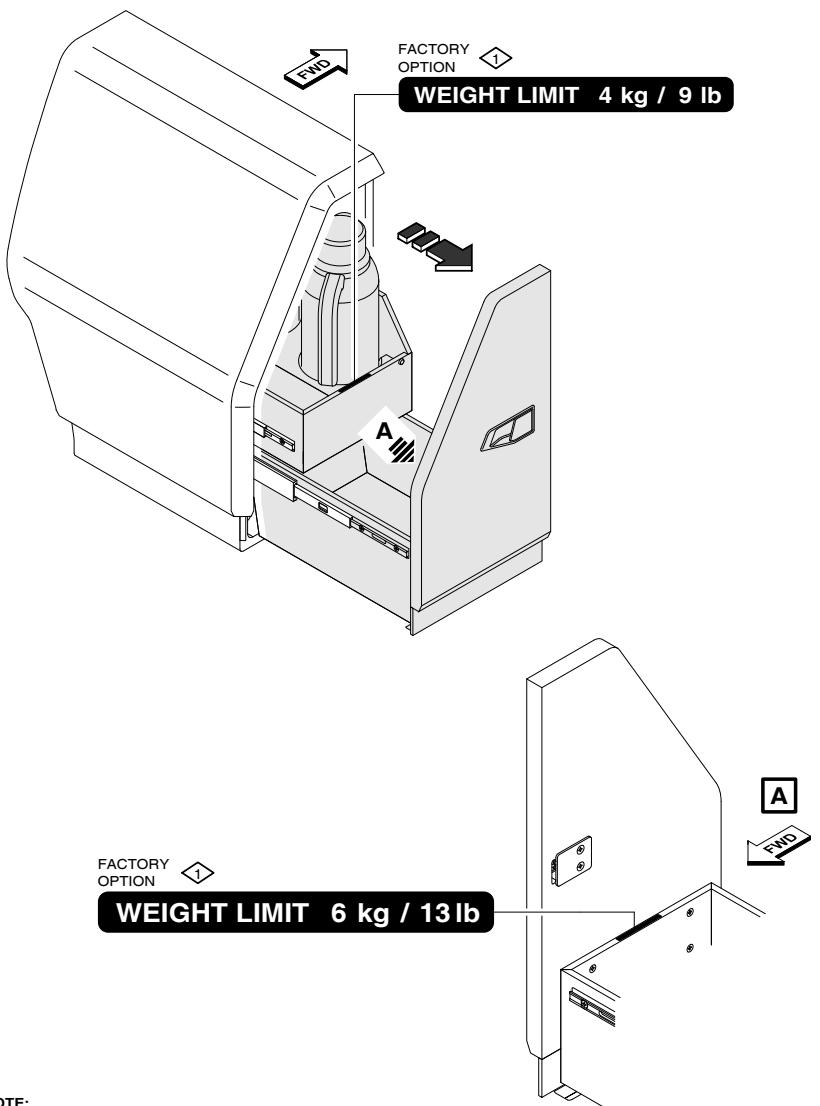


Figure 2-1-61: Placards - Infant Lifevest Storage



NOTE:
① POSITION OF PLACARDS AND WEIGHT LIMITS ARE IDENTICAL,
CONTENT OF CABINET CAN CHANGE ACCORDING TO
CUSTOMER CONFIGURATION

Figure 2-1-62: Placards - Storage Cabinet (Fwd Left)



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

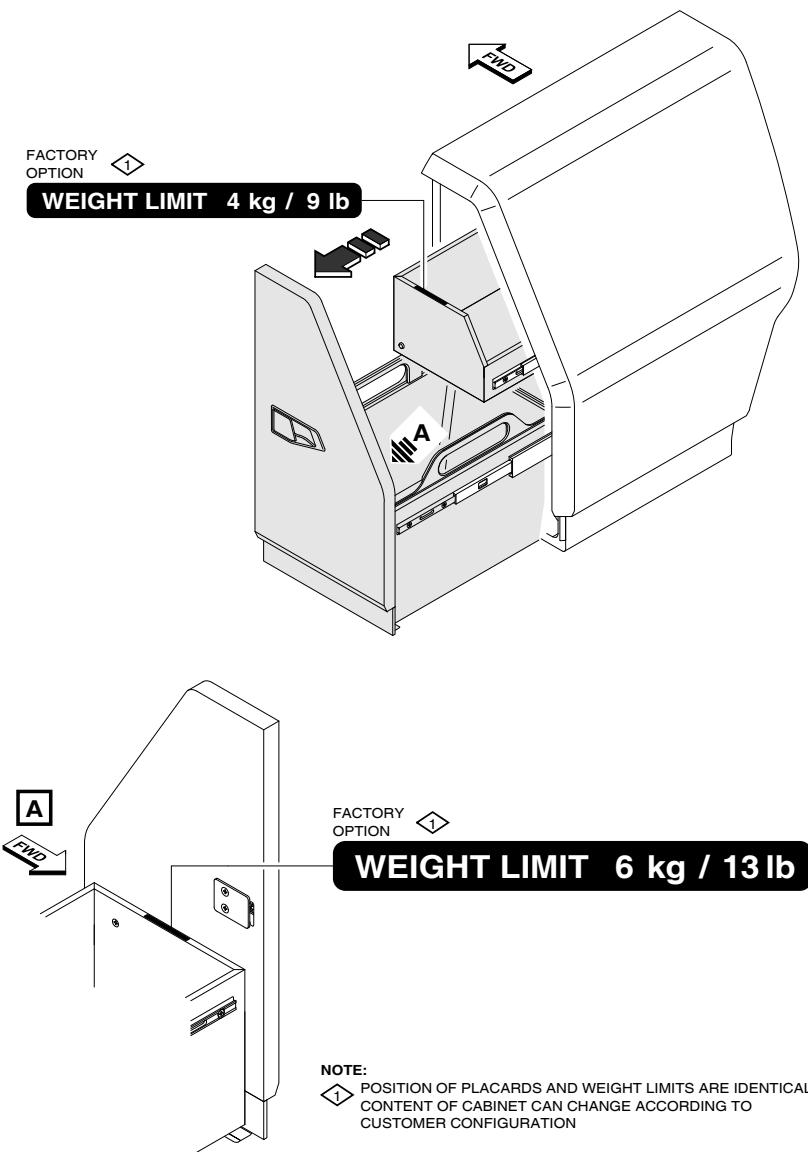


Figure 2-1-63: Placards - Storage cabinet (Fwd Right)

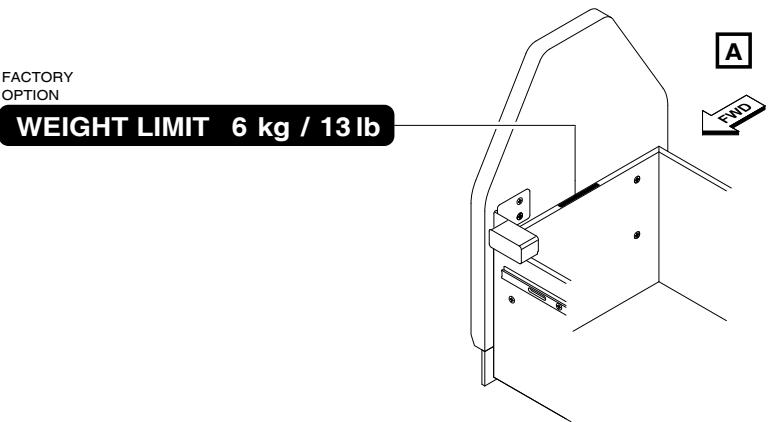
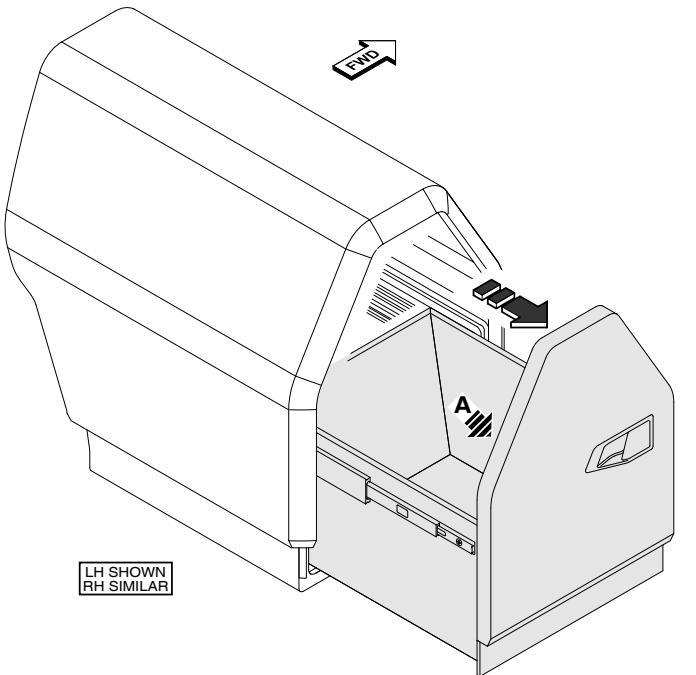


Figure 2-1-64: Placards - Storage Cabinets (Center Left and Center Right)



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

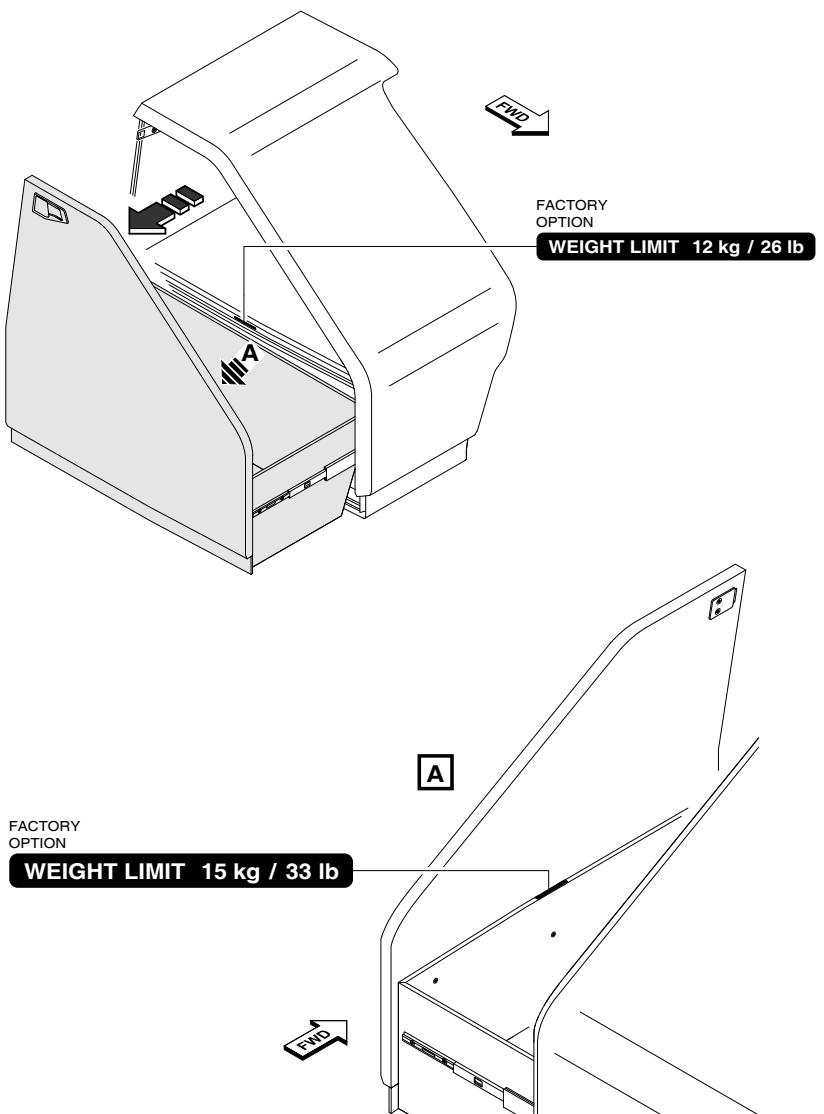


Figure 2-1-65: Placards - Storage Cabinet (Aft Left)

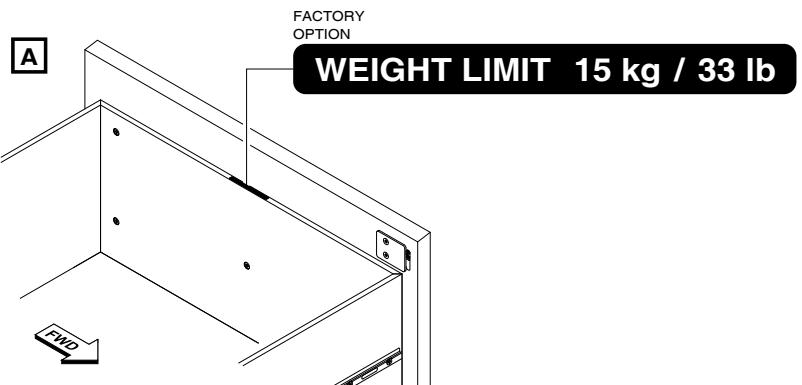
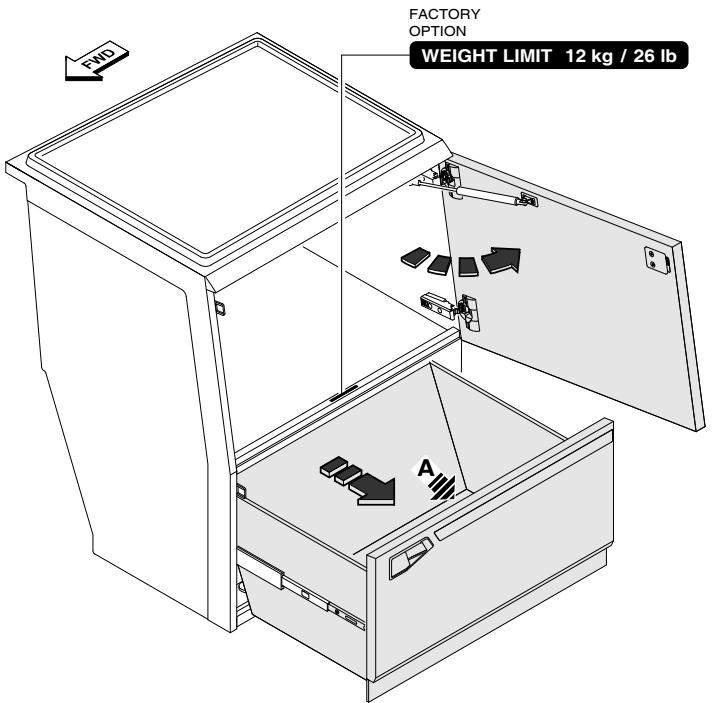


Figure 2-1-66: Placards - Storage Cabinet (Drawer)



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

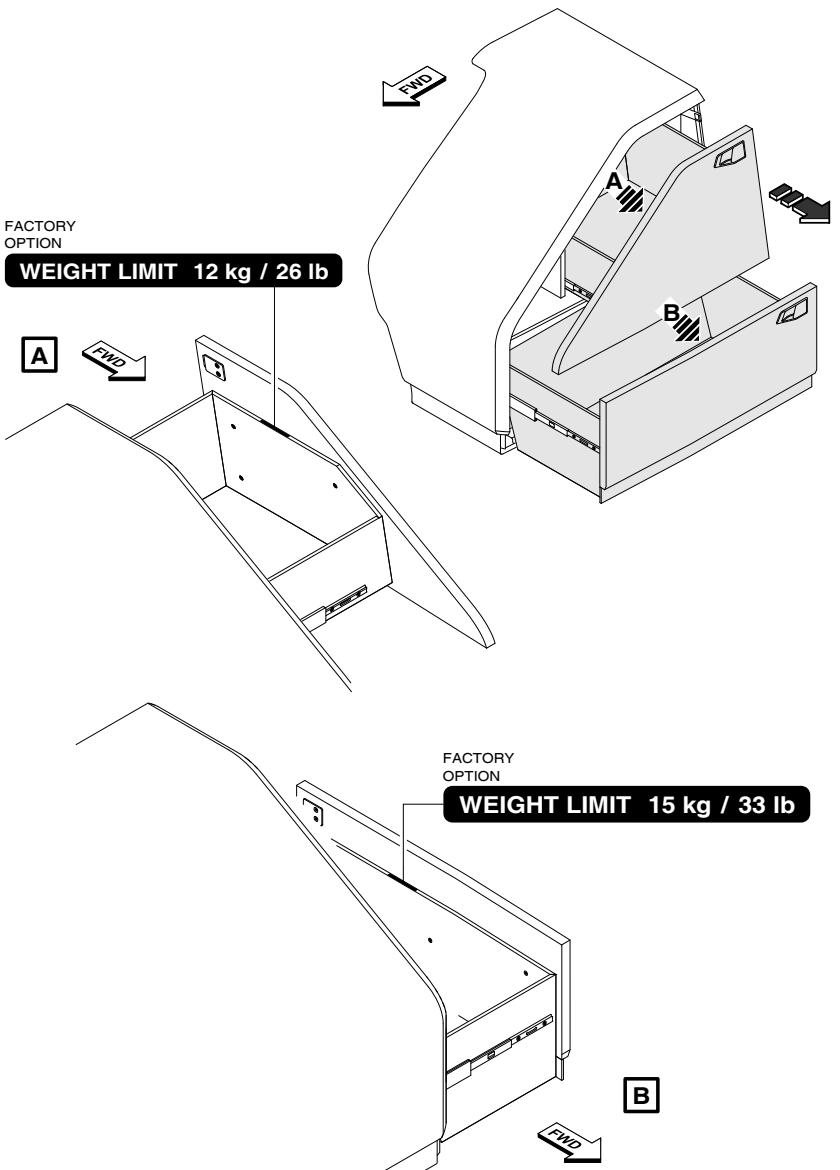


Figure 2-1-67: Placards - Storage Cabinet (Aft Right)

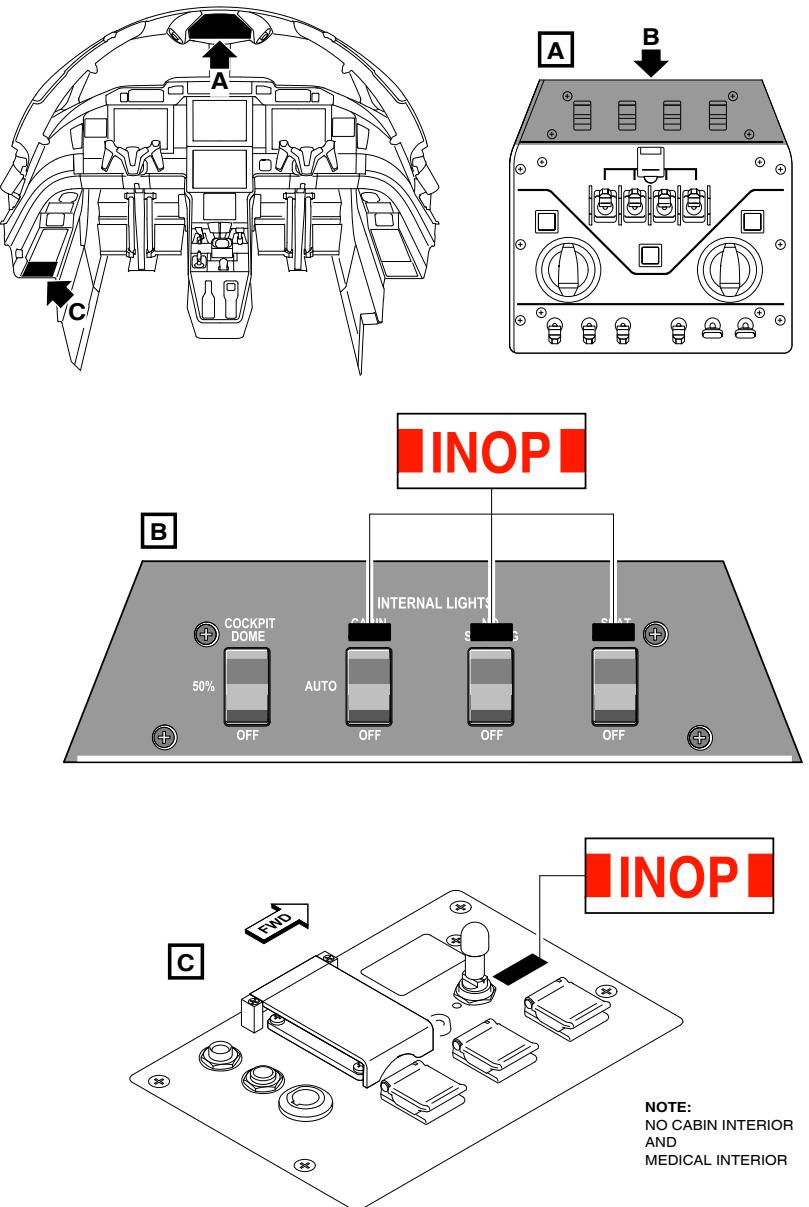


Figure 2-1-68: Cockpit - No Cabin Interior Option - Internal Lights (INOP)



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

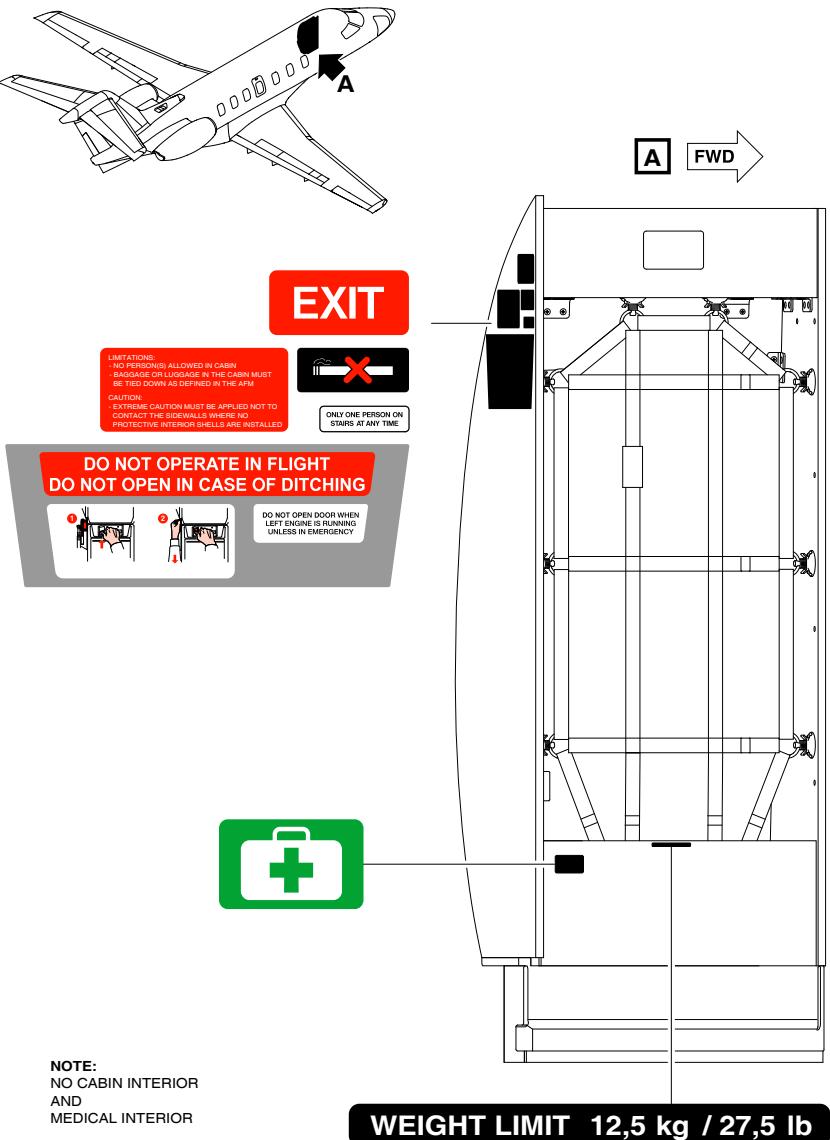


Figure 2-1-69: Placards - No Cabin Interior Option - Wardrobe

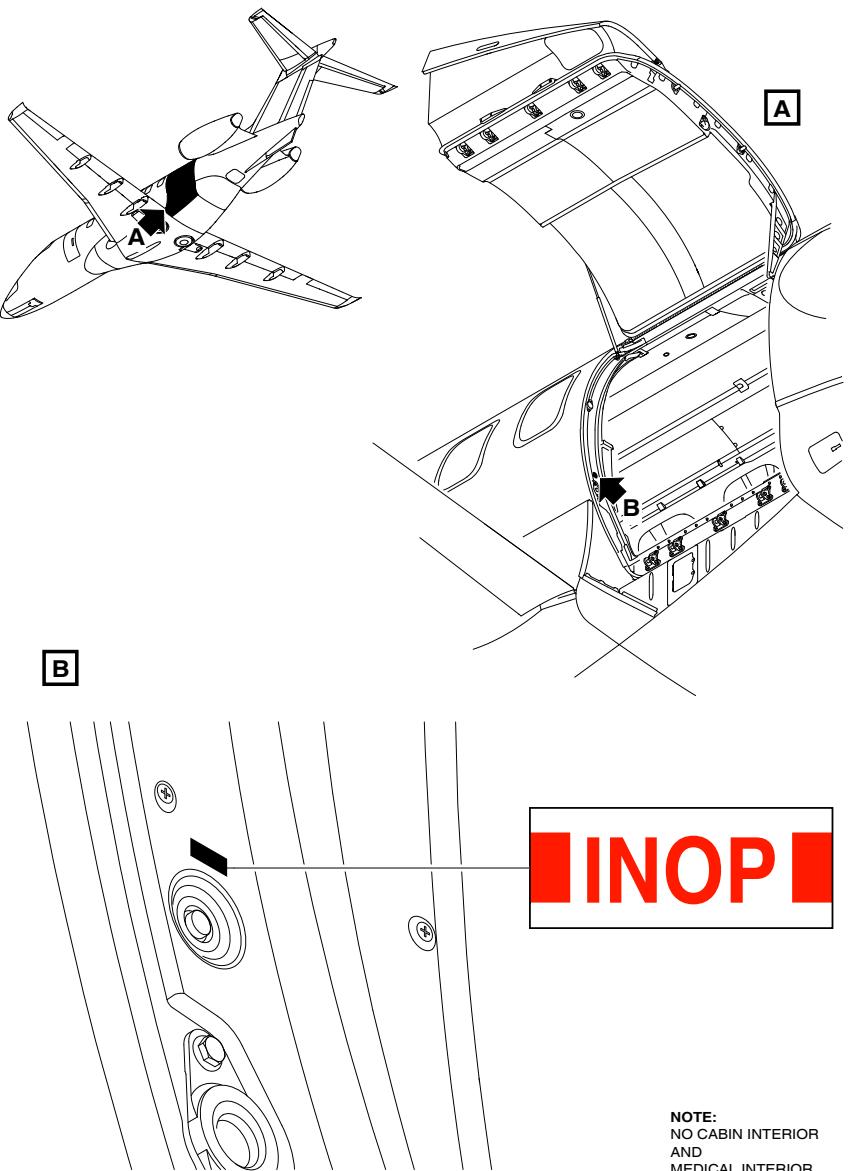


Figure 2-1-70: Placards - No Cabin Interior Option - Cargo Compartment Light

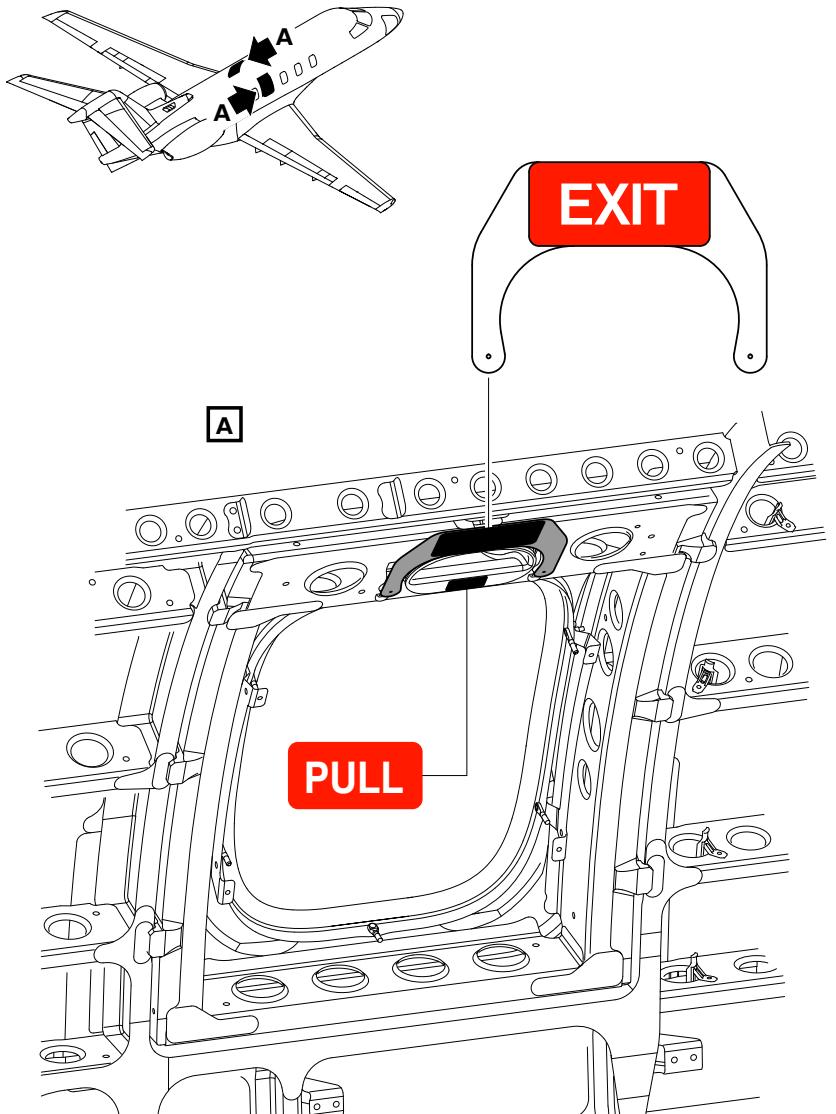


Figure 2-1-71: Placards - No Cabin Interior Option - Overwing Exit



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

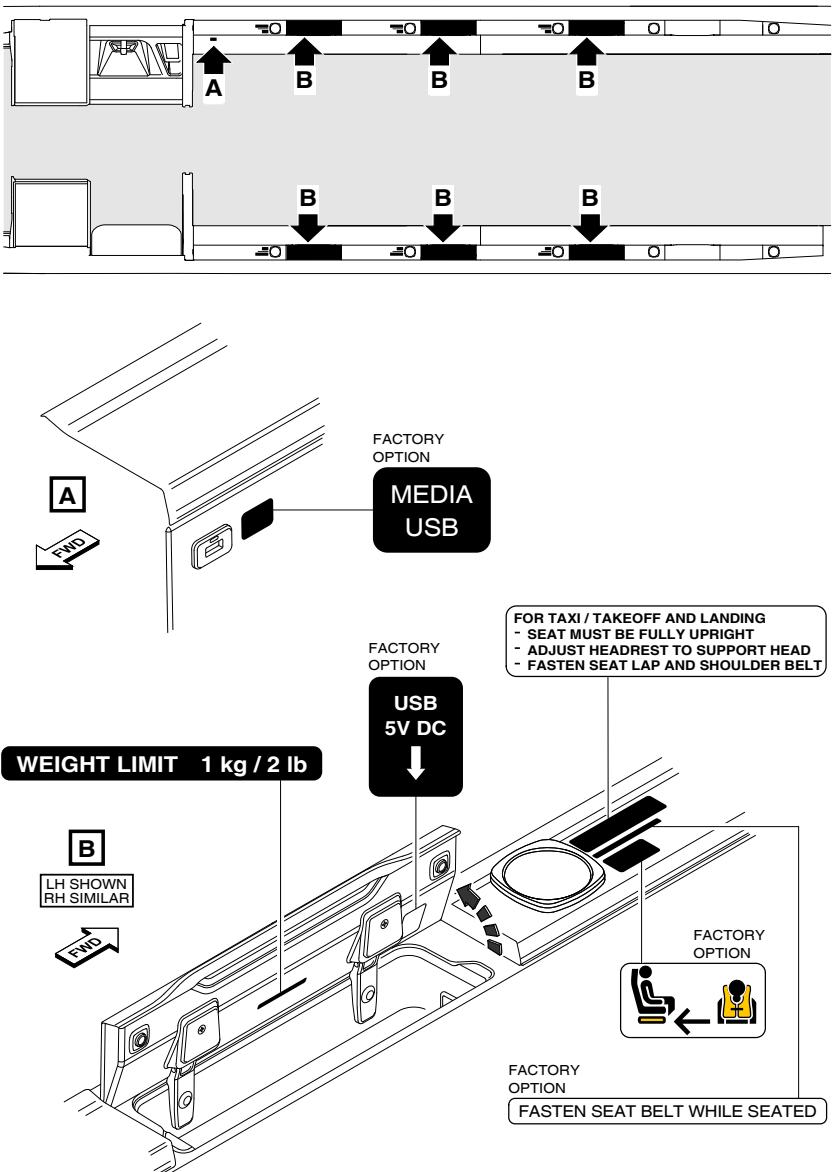


Figure 2-1-72: Placards - COM-10S-1 Interior Configuration (Sheet 1 of 3)

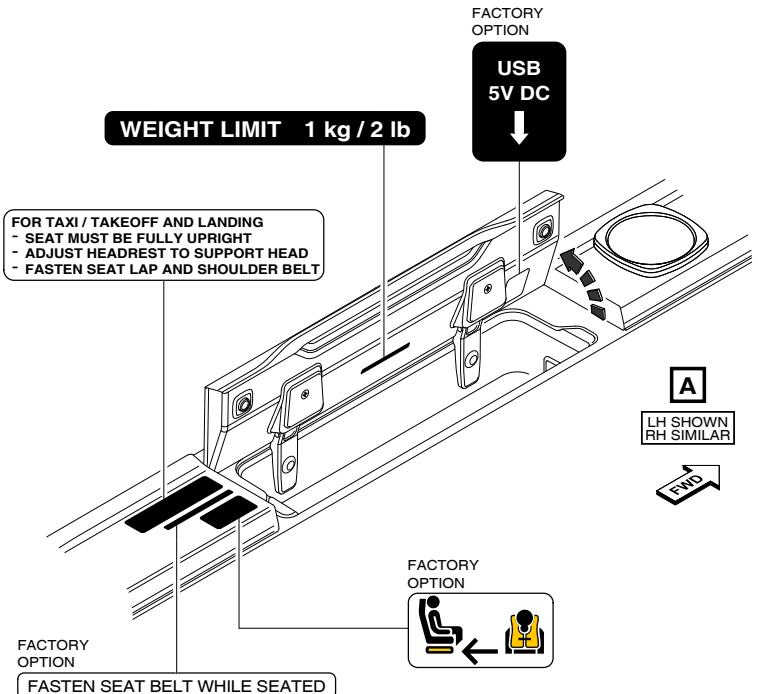
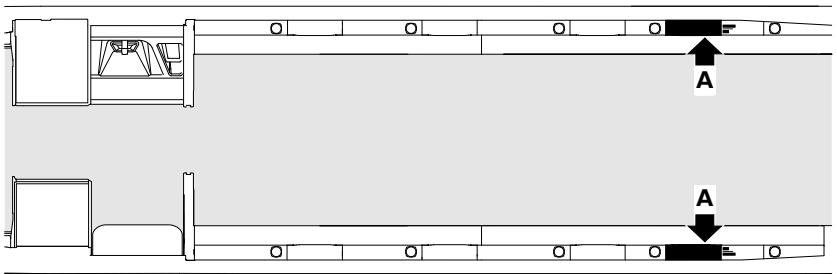


Figure 2-1-72: Placards - COM-10S-1 Interior Configuration (Sheet 2 of 3)



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

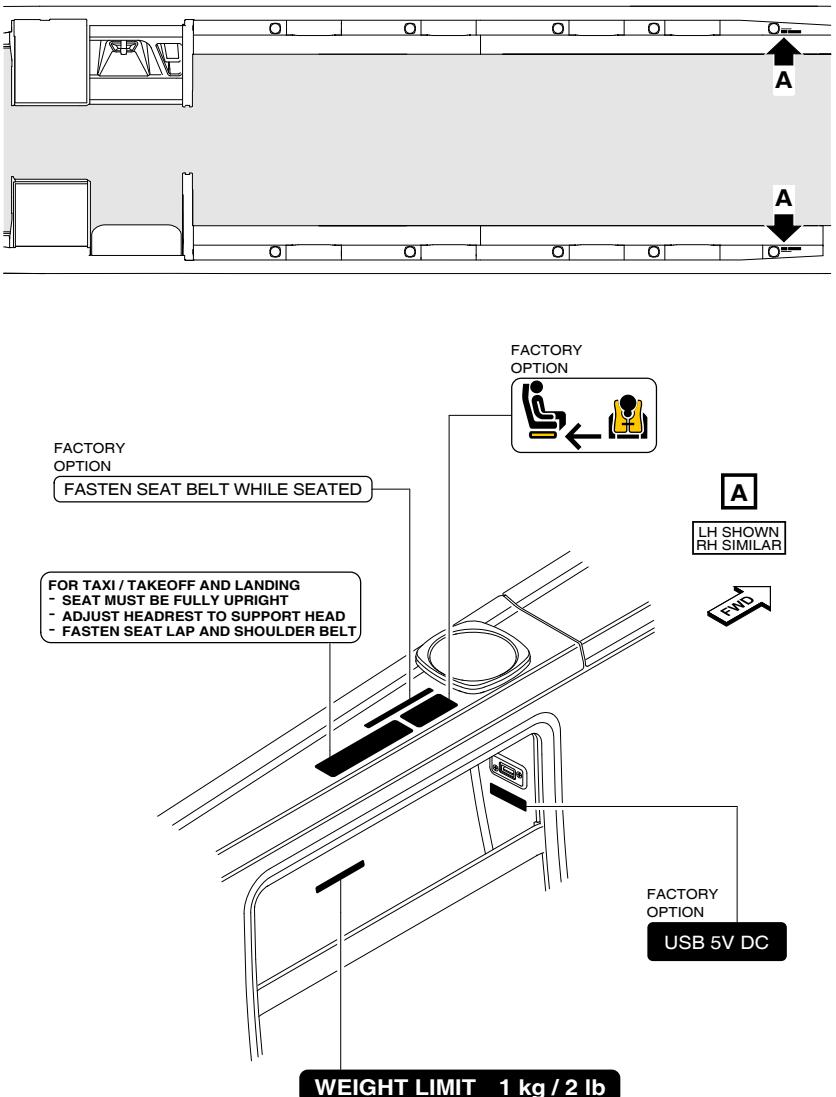


Figure 2-1-72: Placards - COM-10S-1 Interior Configuration (Sheet 3 of 3)



Section 2 - Limitations (Authority approved) Placards and Markings

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

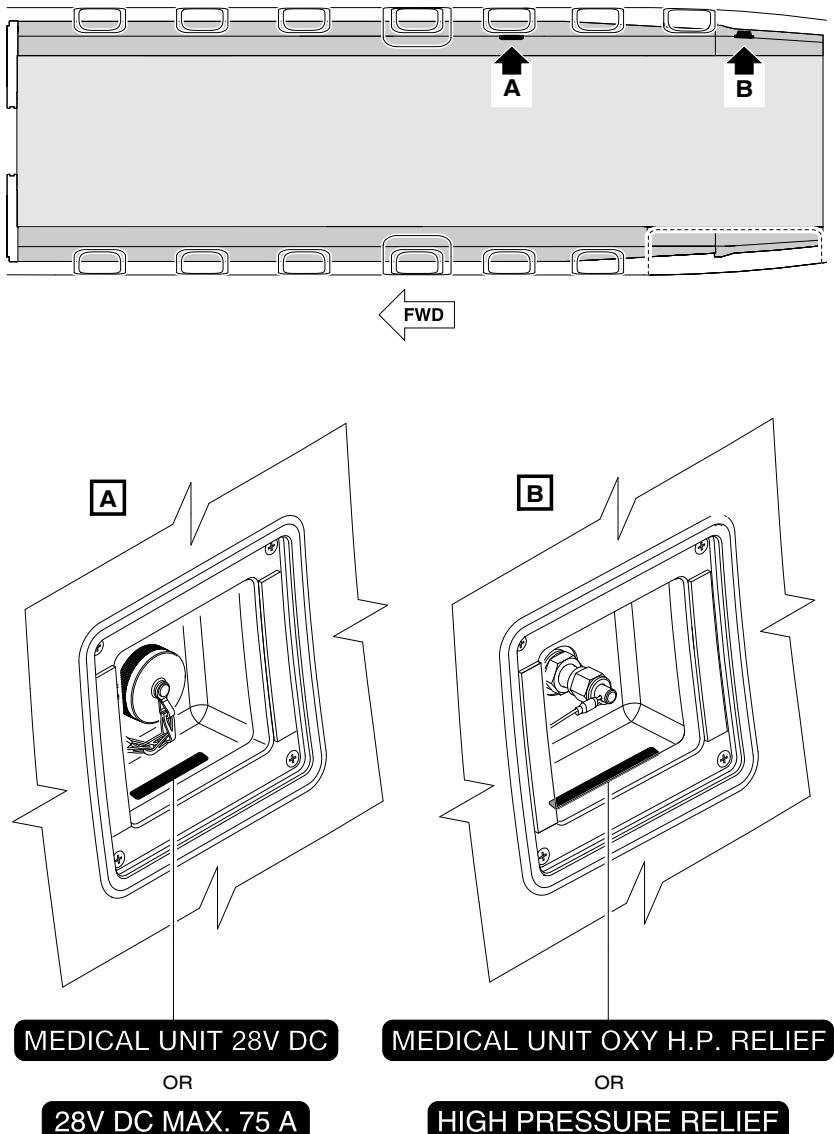


Figure 2-1-73: Placards - Electrical Outlet and High Pressure Relief Valve (factory option)

Section 2 - Limitations (Authority approved)
Placards and Markings



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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PC24-A15-10-0201-00A-043A-A



SECTION 3

Emergency Procedures (Authority approved)

Table of Contents

| Subject | | Page |
|----------------|--|--------------|
| General | | |
| 1 | General | 3-1-1 |
| 2 | Emergency Procedures | 3-1-1 |
| 3 | Memory Items | 3-1-1 |
| 3-NAL | Non-annunciated Emergency Procedures List | 3-2-1 |
| 3-NAE | Non-annunciated Emergency Procedures | 3-3-1 |
| 3-NAE-01 | Cabin Pressure Uncontrollable | 3-3-1 |
| 3-NAE-02 | Emergency Descent | 3-3-2 |
| 3-NAE-03 | Engine Airstart | 3-3-3 |
| 3-NAE-04 | Engine Failure Dual | 3-3-5 |
| 3-NAE-05 | Engine Fire On-ground / Tail Pipe Fire | 3-3-6 |
| 3-NAE-06 | Engine Fire or Failure During Takeoff | 3-3-7 |
| 3-NAE-07 | Engine Inflight Shutdown | 3-3-8 |
| 3-NAE-08 | Engine OEI Approach And Landing | 3-3-8 |
| 3-NAE-09 | Engine OEI Go Around | 3-3-9 |
| 3-NAE-10 | Flight Controls: Landing No Aileron Control | 3-3-9 |
| 3-NAE-11 | Flight Controls: Landing No Elevator Control | 3-3-10 |
| 3-NAE-12 | Flight Controls: Landing Primary / Secondary Pitch Trim Fail | 3-3-11 |
| 3-NAE-13 | L/G Emergency Extension | 3-3-12 |
| 3-NAE-14 | Landing: Ditching | 3-3-12 |
| 3-NAE-15 | Landing: Forced Landing | 3-3-14 |
| 3-NAE-16 | Landing: L/G Up | 3-3-15 |
| 3-NAE-17 | Landing: Main L/G Unlocked | 3-3-15 |
| 3-NAE-18 | Landing: Nose L/G Unlocked | 3-3-16 |
| 3-NAE-19 | Rejected Takeoff | 3-3-16 |
| 3-NAE-20 | Volcanic Ash Encounter | 3-3-17 |
| 3-NAE-21 | Windshield Cracked | 3-3-17 |
| 3-SMOKE | Fire, Smoke or Fumes in Cockpit / Cabin | 3-4-1 |
| 3-SMOKE-01 | Smoke, Fire or Fumes in Cockpit / Cabin | 3-4-1 |



| Subject | | Page |
|----------------|---|---------------|
| 3-EVAC | Emergency Evacuation | 3-5-1 |
| 3-EVAC-01 | Emergency Evacuation | 3-5-1 |
| 3-WCL | Warning CAS List | 3-6-1 |
| 3-ACE | Advanced Cockpit Environment (ACE) | 3-7-1 |
| 3-ACE-01 | System CONFIG Fail | 3-7-1 |
| 3-AFCS | Autopilot | 3-8-1 |
| 3-AFCS-01 | Yaw Damper Off | 3-8-1 |
| 3-BRKS | Brakes | 3-9-1 |
| 3-BRKS-01 | All Brakes Fail | 3-9-1 |
| 3-DOOR | Doors | 3-10-1 |
| 3-DOOR-01 | Cargo Door Open | 3-10-1 |
| 3-DOOR-01 | PAX Door Open | 3-10-1 |
| 3-DOOR-01 | PAX+Cargo Door Open | 3-10-1 |
| 3-ECS | ECS and Pneumatics | 3-11-1 |
| 3-ECS-01 | Cabin Altitude | 3-11-1 |
| 3-ECS-02 | Cabin Pressure | 3-11-2 |
| 3-ELEC | Electrical | 3-12-1 |
| 3-ELEC-01 | ** GEN 1+2 Offline * | 3-12-1 |
| 3-ELEC-02 | BAT 1 Hot | 3-12-5 |
| 3-ELEC-02 | BAT 2 Hot | 3-12-5 |
| 3-ELEC-03 | BAT 1+2 Hot | 3-12-5 |
| 3-ELEC-04 | ESS Bus Low Volts | 3-12-5 |
| 3-ENG | Engines | 3-13-1 |
| 3-ENG-01 | L+R ENG Fail | 3-13-1 |
| 3-ENG-02 | L ENG Fail | 3-13-1 |
| 3-ENG-02 | R ENG Fail | 3-13-1 |
| 3-ENG-03 | L+R ITT High | 3-13-2 |
| 3-ENG-04 | L ITT High | 3-13-2 |
| 3-ENG-04 | R ITT High | 3-13-2 |
| 3-ENG-05 | L+R N1 High | 3-13-2 |
| 3-ENG-06 | L N1 High | 3-13-3 |
| 3-ENG-06 | R N1 High | 3-13-3 |
| 3-ENG-07 | L+R N2 High | 3-13-3 |
| 3-ENG-08 | L N2 High | 3-13-3 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



| Subject | | Page |
|----------------|------------------------|---------------|
| 3-ENG-08 | R N2 High | 3-13-3 |
| 3-ENG-09 | L+R Oil PRESS High | 3-13-3 |
| 3-ENG-10 | L Oil PRESS High | 3-13-4 |
| 3-ENG-10 | R Oil PRESS High | 3-13-4 |
| 3-ENG-11 | L+R Oil PRESS Low | 3-13-4 |
| 3-ENG-12 | L Oil PRESS Low | 3-13-4 |
| 3-ENG-12 | R Oil PRESS Low | 3-13-4 |
| 3-ENG-13 | L+R Oil TEMP High | 3-13-4 |
| 3-ENG-14 | L Oil TEMP High | 3-13-5 |
| 3-ENG-14 | R Oil TEMP High | 3-13-5 |
| 3-ENG-15 | L+R Oil TEMP Low | 3-13-5 |
| 3-ENG-16 | L Oil TEMP Low | 3-13-5 |
| 3-ENG-16 | R Oil TEMP Low | 3-13-5 |
| 3-ENG-17 | L+R OVSPD Shutdown | 3-13-6 |
| 3-ENG-18 | L OVSPD Shutdown | 3-13-6 |
| 3-ENG-18 | R OVSPD Shutdown | 3-13-6 |
| 3-FCTL | Flight Controls | 3-14-1 |
| 3-FCTL-01 | Lift Dump Deployed | 3-14-1 |
| 3-FCTL-02 | MFS Deployed | 3-14-2 |
| 3-FIRE | Fire/Overheat | 3-15-1 |
| 3-FIRE-01 | L Engine Fire | 3-15-1 |
| 3-FIRE-01 | R Engine Fire | 3-15-1 |
| 3-FUEL | Fuel | 3-16-1 |
| 3-FUEL-01 | L+R Fuel PRESS Low | 3-16-1 |
| 3-IPS | Ice and Rain | 3-17-1 |
| 3-IPS-01 | L+R NAI Fail | 3-17-1 |
| 3-OXY | Oxygen | 3-18-1 |
| 3-OXY-01 | OXY Off | 3-18-1 |
| 3-OXY-02 | PAX OXY Off | 3-18-1 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 3 - Emergency Procedures (Authority approved)

Table of Contents

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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General

1 General

This section contains the procedures to be followed in emergency situations, both annunciated (with a CAS message) and un-annunciated (without CAS message).

2 Emergency Procedures

An emergency procedure is defined as a procedure requiring immediate flight crew action to protect the airplane and occupants from serious harm.

The emergency procedures use the terms "Land as soon as possible" and "Land as soon as practical". For the purpose of these procedures the meanings are as follows:

- Land as soon as possible - Land without delay at the nearest airport where a safe approach and landing is reasonably assured
- Land as soon as practical - Landing airport and duration of flight are at the discretion of the pilot. Extended flight beyond the nearest suitable airport is not recommended.

Emergency procedures alone cannot protect against all situations. Good airmanship must be used in conjunction with the emergency procedures to manage the emergency. It is good practice during the emergency procedures, where CAS messages are given, to check the circuit breaker panels to ensure there are no open circuit breakers related to the CAS annunciation.

If not detailed otherwise in the procedures, if any circuit breakers on the Essential Bus trip In Flight, only one attempt is allowed to reset the circuit breaker if the pilot in command determines that the system/equipment is needed for safe completion of that flight. The open circuit breaker can be reset after at least one minute has elapsed since the circuit breaker trip and if there is no remaining smoke or burning smell.

If an emergency procedure requires a circuit breaker to be reset, this means to open (pull out) the circuit breaker, wait for approximately 2 seconds and then close (push in) the circuit breaker. If a circuit breaker is found open, reset means close the circuit breaker.

Note

Reset of the transponder code to "7700" to communicate an emergency declaration to ATC is found in certain procedures contained in this manual. It should be recognized that transmission of a transponder code of "7700" does not necessarily indicate that the pilot is performing an emergency or abnormal procedure. Likewise, the performance of an emergency or abnormal procedure by the pilot does not necessarily require the declaration of an emergency or the transmission of a "7700" code from the transponder.

3 Memory Items

A memory item is a check for an abnormal or emergency situation that requires immediate action and is therefore carried out from memory, without prior reference to a checklist. Memory items are executed by heart without referring to a checklist. A specific checklist may be required to complete the action if the memory items cover only the initial actions. Memory Items are denoted by a solid red box around specific challenge and response items.



Section 3 - Emergency Procedures (Authority approved) Memory Items

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

This Page Intentionally Left Blank

PC24-AA15-40-0301-00A-141A-A

3-NAL Non-annunciated Emergency Procedures List

| Procedure Title | Procedure |
|--|-----------|
| C | |
| Cabin Pressure Uncontrollable | 3-NAE-01 |
| E | |
| Emergency Descent | 3-NAE-02 |
| Engine Airstart | 3-NAE-03 |
| Engine Failure Dual | 3-NAE-04 |
| Engine Fire On-ground / Tail Pipe Fire | 3-NAE-05 |
| Engine Fire or Failure During Takeoff | 3-NAE-06 |
| Engine Inflight Shutdown | 3-NAE-07 |
| Engine OEI Approach And Landing | 3-NAE-08 |
| Engine OEI Go Around | 3-NAE-09 |
| F | |
| Flight Controls: Landing No Aileron Control | 3-NAE-10 |
| Flight Controls: Landing No Elevator Control | 3-NAE-11 |
| Flight Controls: Landing Primary / Secondary Pitch Trim Fail | 3-NAE-12 |
| L | |
| L/G Emergency Extension | 3-NAE-13 |
| Landing: Ditching | 3-NAE-14 |
| Landing: Forced Landing | 3-NAE-15 |
| Landing: L/G Up | 3-NAE-16 |
| Landing: Main L/G Unlocked | 3-NAE-17 |
| Landing: Nose L/G Unlocked | 3-NAE-18 |
| R | |
| Rejected Takeoff | 3-NAE-19 |
| V | |
| Volcanic Ash Encounter | 3-NAE-20 |
| W | |
| Windshield Cracked | 3-NAE-21 |



Section 3 - Emergency Procedures (Authority approved) Non-annunciated Emergency Procedures List

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

This Page Intentionally Left Blank



3-NAE Non-annunciated Emergency Procedures

Cabin Pressure Uncontrollable

3-NAE-01

Uncontrolled fluctuations of cabin pressure.

1. CPCS MODE switch..... MANUAL
2. CPCS MANUAL CONTROL switch..... Select CLIMB or DESCENT as required
IF cabin pressure fluctuations continue:
 3. Crew Oxygen Masks..... Don / 100% as required
 4. Passenger Oxygen..... AUTO or ON. Instruct passengers to don drop down masks if presented
 5. Aircraft..... Start descent to below 10,000 ft MSL or MSA if higher
 6. CPCS DUMP switch..... Push to DUMP at an appropriate altitude

Note

Even after using the DUMP switch, cabin altitude will be regulated to stay at approximately 15,000 ft, if aircraft altitude is above 15,000 ft. There may be minor cabin altitude oscillations in this condition.

IF cabin pressure fluctuations continue:

7. Bleed rotary selector..... LEFT
- IF cabin pressure fluctuations continue:
 8. Bleed rotary selector..... RIGHT
- IF cabin pressure fluctuations continue:
 9. BLEED rotary selector..... Select OFF
 10. EMER RAM AIR handle..... Press to release, PULL to open

Note

Once the emergency ram air is opened, it cannot be closed In Flight.

11. Aircraft..... Land as soon as practical

Prior to Landing:

12. CPCS DUMP switch..... Push to DUMP (if not selected earlier)

----- END -----

[INDEX](#)

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Emergency Descent

3-NAE-02

1. Crew Oxygen Masks..... DON / 100% / Establish COMM
2. PASSENGER OXYGEN..... ON, instruct passengers to don drop down masks
3. SEAT BELTS..... ON
4. THRUST Levers..... IDLE
5. AIRBRAKE lever..... OUT
6. Aircraft.....
If current airspeed below 250 KIAS, extend L/G and descend at M_{MO} or 250 KIAS whichever is lower
If current airspeed above 250 KIAS, descend at M_{MO} / V_{MO}
Descend to below 10,000 ft MSL or MSA if higher

CAUTION

If structural damage is suspected, reduce airspeed and maneuvering loads as appropriate.

7. ATC..... Notify
8. XPDR..... 7700
9. WINDSHIELD rotary selector..... Select MAN HI
10. Aircraft..... Upon reaching 10,000 ft MSL or MSA if higher AIRBRAKE IN
Aircraft configuration as required

The pilot must consider the situation and priorities and adjust actions accordingly. The following factors must be considered:

- Cabin altitude and oxygen duration
- Electrical power endurance
- Distance to suitable landing area
- Flight conditions IMC, VMC, FIKI
- Minimum safe altitude
- Fuel reserves.

Note

If no smoke is present, consider setting the crew oxygen mask to normal to reduce oxygen consumption.

----- END -----

[INDEX](#)



Engine Airstart

3-NAE-03

CAUTION

If ONLY battery power is available (after loss of all generated power), only a starter assisted airstart is permitted. The airspeed must be ≤ 150 KIAS (ensuring N2 $< 10\%$) before a starter assisted airstart is attempted. Attempting a starter assisted airstart when airspeed > 150 KIAS may result in the loss of both FADEC channels.

Do not airstart engine if engine integrity is in question or after engine fire.

Airstart with STARTER ASSIST:

1. BAT 2..... Confirm On / above 23.0 V
If < 23.0 V, consider windmill airstart
2. THRUST lever affected ENG..... IDLE
3. ENG switch affected ENG..... OFF
4. ENG ISOL pushbutton..... Check dark
5. IPS mode switch..... Check AUTO
6. Bleed rotary selector..... Select operating ENG
7. GEN affected ENG..... Check ON
8. ENG switch affected ENG..... Check N2 below 24%, select RUN
9. ENG START..... Press
10. ENG instruments..... Monitor
IF start successful:
11. Bleed rotary selector..... As required

For aircraft 101 - 211 pre WISB-73-1018:

Note

ENG FAIL flag may remain on PFD engine display after airstart. To clear flag, the engine thrust levers should be slowly advanced until thrust reaches NTO.

For aircraft 101 - 211 post WISB-73-1018, and 212 - up:

Note

ENG FAIL flag may remain on PFD engine display after airstart. To clear flag, the engine thrust levers should be slowly advanced until thrust reaches MCT.

IF start NOT successful:

12. Affected ENG switch Identify / select OFF

Continued on next page



Engine Airstart

3-NAE-03

continued

13. Engine Inflight Shutdown - 3-
NAE-07..... Accomplish

--- END ---

[INDEX](#)

Airstart by Windmill:

1. THRUST lever affected ENG..... IDLE
2. ENG switch affected ENG..... Check OFF
3. ENG ISOL pushbutton..... Check dark
4. IPS mode switch..... Check AUTO
5. Bleed rotary selector..... Select operating ENG
6. GEN affected ENG..... Check ON
7. ENG switch affected ENG..... Check N2 >10% and <24%, Select RUN
8. ENG instruments..... Monitor
IF start successful:
9. Bleed rotary selector..... As required

For aircraft 101 - 211 pre WISB-73-1018:

Note

ENG FAIL flag may remain on PFD engine display after astart. To clear flag, the engine thrust levers should be slowly advanced until thrust reaches NTO.

For aircraft 101 - 211 post WISB-73-1018, and 212 - up:

Note

ENG FAIL flag may remain on PFD engine display after astart. To clear flag, the engine thrust levers should be slowly advanced until thrust reaches MCT.

IF start NOT successful:

9. ENG switch affected ENG..... Identify / Select OFF
10. Engine Inflight Shutdown - 3-
NAE-07..... Accomplish

Continued on next page



3-NAE-03

Engine Airstart

continued

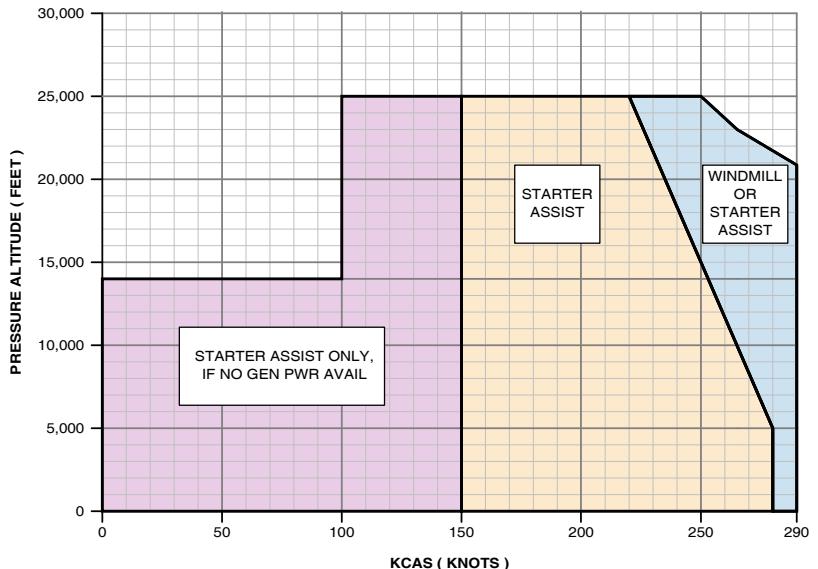


Figure 3-NAE-1: Air Start Envelope – Williams FJ44-4A-QPM

----- END -----

[INDEX](#)

3-NAE-04

Engine Failure Dual

Both engines have failed.

1. Airspeed..... As Required

WARNING

AVOID STALL - SHAKER AND PUSHER ARE UNAVAILABLE. WITH FLAPS UP, 150 KIAS IS RECOMMENDED AS A SAFE SPEED WITH GOOD GLIDE PERFORMANCE.

2. Cabin Altitude..... Monitor
3. [Emergency Descent - 3-NAE-02.](#) Accomplish

Continued on next page

**Engine Failure Dual****3-NAE-04**

continued

CAUTION**Start with engine deemed most likely to relight successfully.***When aircraft is at, or below, 25,000 ft:*

IF Right Engine to be started first:

- | | |
|--|---|
| 4. Fuel synoptic..... | L PUMP ON |
| | X-FEED OPEN |
| 5. Engine Airstart - 3-NAE-03..... | Accomplish |
| | After successful start reset pumps and X-FEED as required |
| IF Left Engine to be started first: | |
| 6. Engine Airstart - 3-NAE-03..... | Accomplish |
| | After successful start reset pumps and X-FEED as required |
| IF no Engine Airstart is successful: | |
| 7. Landing: Forced Landing - 3-NAE-15..... | Accomplish |

----- END -----

[INDEX](#)**Engine Fire On-ground / Tail Pipe Fire****3-NAE-05**

If during start, engine fire detector senses a temperature above 510 °C or else engine fire is indicated by ground personnel.

- | | |
|-------------------------------|---|
| 1. THRUST LEVER..... | IDENTIFY / IDLE |
| <i>Affected Engine</i> | |
| 2. ENG SWITCH..... | OFF |
| 3. ENG ISOL pushbutton..... | Push / check after 5 sec amber ENG ISOL |
| | CONFIRM green “1” |
| 4. FIRE XTING pushbutton..... | Push to activate |
| 5. ENG switch..... | DRY MOTOR |
| 6. ENG START..... | Press to motor |
| 7. ENG switch..... | OFF when 50 second cycle complete |

Continued on next page



Engine Fire On-ground / Tail Pipe Fire

3-NAE-05

continued

- IF engine fire message remains
8. FIRE XTING pushbutton..... CONFIRM green "2" illuminated approximately 30 sec after firing first extinguisher
 9. FIRE XTING pushbutton..... Push to activate
 10. [Emergency Evacuation - 3-EVAC-01](#)..... Consider

----- END -----

[INDEX](#)

Engine Fire or Failure During Takeoff

3-NAE-06

Airspeed below V₁

1. [Rejected Takeoff - 3-NAE-19](#)..... Accomplish

--- END ---

[INDEX](#)

Airspeed at or above V₁

1. THRUST levers..... Fully forward, ATR
2. V_R..... Rotate to 9° ANU Initially
3. Airspeed..... Maintain at or above V₂
4. L/G..... When positive rate of climb - UP

At TOSA (min 400 ft AGL):

5. Aircraft..... Accelerate
6. FLAP..... At V₂ +25, UP
7. Airspeed..... Establish and maintain OEI climb speed 170 KIAS
8. THRUST..... MCT as required

Aircraft stabilized and above 400 ft AGL:

9. [L Engine FireR Engine Fire - 3-FIRE-01](#)..... Analyze and Accomplish as appropriate
- [Engine Inflight Shutdown - 3-NAE-07](#).....

OR

Aircraft stabilized and above 400 ft AGL:

10. [Engine Inflight Shutdown - 3-NAE-07](#)..... Analyze and Accomplish as appropriate

----- END -----

[INDEX](#)



Engine Inflight Shutdown

3-NAE-07

If another procedure calls for inflight engine shutdown or the aircraft exhibits indications of severe engine damage including unusual sounds / vibration or unstable engine indications.

1. THRUST lever affected ENG..... IDENTIFY / IDLE
2. ENG switch affected ENG..... OFF
3. ENG ISOL pushbutton affected ENG..... Push / check after 5 sec amber ENG ISOL
4. Bleed rotary selector..... Select operating ENG
5. GEN affected ENG..... OFF
6. TCAS..... TA ONLY
7. FUEL..... Monitor balance
8. **Engine OEI Approach And Landing - 3-NAE-08**..... Accomplish
Land as soon as practical

----- END -----

[INDEX](#)

Engine OEI Approach And Landing

3-NAE-08

CAUTION

At any time, should operating Engine side Fuel Collector low caution come on, refer to [L Fuel Collector LowR Fuel Collector Low - 3A-FUEL-01](#).

1. FUEL..... Monitor balance, avoid prolonged unbalanced flight
2. L/G..... DN check "3" greens

Note

If required, only select Flaps 33° once landing is assured. The recommended landing configuration is Flaps 15°. Refer to Abnormal Landing information in AFM Section 5 for proper V_{REF} and landing performance in current configuration.

3. FLAP..... 15° recommended for landing OEI
4. Approach speed (zero wind)..... $V_{REF} +5$
5. Pressurization..... Diff Px below 0.7 psi decreasing
6. Yaw Damper..... OFF before landing

----- END -----

[INDEX](#)



Engine OEI Go Around

3-NAE-09

CAUTION

At any time, if operating Engine side Fuel Collector low caution come on, refer to L Fuel Collector LowR Fuel Collector Low - 3A-FUEL-01.

- | | |
|-----------------------|-------------------------|
| 1. THRUST levers..... | Fully forward, ATR |
| 2. FLAP..... | 15° |
| 3. Airspeed..... | $V_{REF} + 5$ |
| 4. L/G | (when positive rate) UP |

At TOSA (min 400 ft AGL):

- | | |
|--------------------------------|---|
| 5. Level flight..... | Acceleration |
| 6. FLAP..... | (at $V_2 + 25$ kt) UP |
| 7. Establish and maintain..... | OEI climb speed 170 kt |
| 8. THRUST..... | MCT as required. ATR limited to 10 minutes. |

----- END -----

[INDEX](#)

Flight Controls: Landing No Aileron Control

3-NAE-10

Landing in the event of a jammed or partially available aileron control.

CAUTION

Observe V_O limitations for rudder. Consider using no more than 15° angle of bank. Excessive bank angle without aileron may lead to rapid airspeed increase and potential tail overstress during recovery.

- | | |
|--------------------|---|
| 1. Yaw Damper..... | Below FL 300, disengage |
| 2. Aircraft..... | Adjust rudder / aileron inputs: Make small rudder inputs to control roll through the secondary effect rudder inputs Make small aileron trim inputs and allow trim change to take effect before making additional inputs or aircraft configuration changes |

Prior to landing

- | | |
|-------------|-------------------------------|
| 3. L/G..... | Extend L/G at a safe altitude |
|-------------|-------------------------------|

Continued on next page



Flight Controls: Landing No Aileron Control 3-NAE-10

continued

4. FLAP lever..... Extend flaps incrementally to desired landing flaps setting (Flaps 15° or Flaps 33°)

Note

If sufficient runway available and roll control is adequate, consider landing with Flaps 15°.

5. Airspeed..... Decelerate slowly towards V_{REF}
Assess aircraft controllability in roll. Do not slow below V_{REF} during approach

CAUTION

Landing with crosswind is not recommended.

6. Landing..... Consider slowly reducing thrust and using reduced rate of descent to ensure adequate roll control until touchdown

----- END -----

[INDEX](#)

Flight Controls: Landing No Elevator Control 3-NAE-11

Landing in the event of a jammed or partially available elevator control.

WARNING

WITH JAMMED ELEVATOR CONTROLS, THE STICK PUSHER MAY NOT OPERATE EFFECTIVELY. STALLS MUST BE AVOIDED.

1. Aircraft..... Use pitch trim to control aircraft pitch attitude. Make small pitch trim inputs and allow trim change to take effect before making additional inputs or aircraft configuration changes
Consider using ≤15° angle of bank
2. L/G..... Recommend extending L/G at safe altitude and <150 KIAS to minimize pitch change due to gear extension
3. FLAP lever..... Extend in increments to Flaps 15°
4. Airspeed..... Decelerate slowly to Flaps 15° V_{REF}
Consider using AIRBRAKE for approach

Continued on next page



Flight Controls: Landing No Elevator Control

3-NAE-11

continued

5. Landing Performance..... Recalculate landing distance
6. THRUST levers..... Adjust as required to maintain between 300 and 500 FPM rate of descent

At 50 feet AGL:

7. Aircraft..... Consider slowly reducing thrust and using pitch attitude to reduce rate of descent for touchdown

----- END -----

[INDEX](#)

Flight Controls: Landing Primary / Secondary Pitch Trim Fail

3-NAE-12

Note

This procedure assumes that trims are failed with aircraft in clean configuration and at high speed. Lower speeds should reduce pitch forces required.

Only apply procedure if pitch forces are objectionable for normal operation.

Pitch trim compensation not available. Flap retraction inhibited >160 KIAS.

1. Airspeed..... As required to reduce pitch force

Note

If the aircraft is in trim, the autopilot may be available. Do not change speeds or configuration with the autopilot engaged.

For landing:

2. Airspeed..... Below 250 KIAS
3. Landing gear lever..... DN

Note

Lowering the landing gear at high speed will add a nose up pitching moment.

4. Airspeed..... Below 200 KIAS
5. FLAP lever..... 15°
6. Airspeed..... Below 175 KIAS
7. FLAP lever..... 33°
8. Airspeed..... As appropriate to reduce forces. Do not slow below V_{REF}

----- END -----

[INDEX](#)

**L/G Emergency Extension****3-NAE-13****Note**

Emergency landing gear extension placard is located on the left cockpit sidewall.

1. Airspeed..... 160 KIAS or below
2. Landing gear lever..... DN
IF "3" green lights not illuminated after 30 sec:
3. L/G EMER EXTENSION OPEN
HANDLE Cover.....
4. L/G EMER EXTENSION PULL firmly to hard stop
HANDLE.....
- IF "3" green lights still not illuminated:
5. Aircraft..... Lock the landing gear
To lock landing gear: Conduct wing level skids (0° bank) right and left at sideslip angles not larger than 5.0° at 200 KIAS or 3.5° at 250 KIAS.
To lock the nose L/G: increase speed up to 250 KIAS.
Keep handle in pulled position
IF "3" green lights illuminated:
6. Aircraft..... Land as soon as practical
IF "3" green lights still not illuminated:

Consider carrying out EMER Procedure below. Landing with a single MAIN L/G UNLOCKED is the least preferred method. Burn off fuel to reduce touch down speed. Use time available to evaluate landing field, to prepare aircraft, crew and passengers. Organize ground assistance.

6. Landing: Nose L/G Unlocked - 3- Accomplish
NAE-18.....
OR
7. Landing: L/G Up - 3-NAE-16..... Accomplish
OR
8. Landing: Main L/G Unlocked - 3- Accomplish
NAE-17.....

----- END -----

[INDEX](#)**Landing: Ditching****3-NAE-14**

1. ATC..... MAYDAY call

Continued on next page



Landing: Ditching

3-NAE-14

continued

- | | | |
|-----|---|--|
| 2. | Transponder..... | 7700 |
| 3. | All occupants..... | Prepare for ditching as follows: |
| 4. | Life vests and life raft..... | Prepare |
| 5. | Loose articles..... | Secure |
| 6. | Seatbelts..... | Fasten firmly |
| 7. | Aircraft..... | Set heading to parallel the major swells |
| 8. | Landing gear lever..... | UP |
| 9. | ELT..... | ON |
| 10. | COCKPIT DOME light and CABIN LIGHTS..... | ON |

Before ditching, approximately 5000 ft AGL:

- | | | |
|-----|--------------------------------|--|
| 11. | Flaps..... | 33° |
| 12. | Approach speed..... | V _{REF} |
| 13. | Rate of descent..... | 200-300 fpm if engine thrust available |
| 14. | CPCS DUMP pushbutton..... | Press DUMP IF time permits: |
| 15. | Bleed rotary selector..... | OFF |
| 16. | CPCS DUMP pushbutton..... | Press to UN-DUMP and allow manual control of the outflow valve |
| 17. | CPCS system mode..... | MANUAL |
| 18. | CABIN ALT rotary selector..... | Hold DESCENT for 15 sec to close outflow valve |
| 19. | AURAL INHIBIT switch..... | PRESS |

Just prior to water contact:

- | | | |
|-----|---------------------------------|--|
| 20. | Aircraft pitch attitude..... | Slightly higher than normal landing attitude |
| 21. | Airspeed / Rate of descent..... | Reduce to minimum (do not stall aircraft) |
| 22. | Passengers..... | Brace for impact |
| 23. | ENG L + R switches..... | Both OFF |

Contact water on the crest of a swell, parallel to the major swell.

Note

If the EVI has been opened during other emergency procedures, expect water to ingress through the pilots air vents.

Continued on next page



Section 3 - Emergency Procedures (Authority approved) Non-annunciated Emergency Procedures

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

Landing: Ditching

3-NAE-14

continued

After water contact:

24. Aircraft..... Evacuate through the emergency over-wing exits only

----- END -----

[INDEX](#)

Landing: Forced Landing

3-NAE-15

1. ATC..... MAYDAY call
2. Transponder..... 7700
3. All occupants..... Prepare
4. Loose articles..... Secure
5. Seatbelts..... Fasten firmly
6. ELT..... ON
7. COCKPIT DOME light and CABIN LIGHTS..... ON

Before Landing:

8. Landing gear lever..... DN
9. Flaps..... 33°
10. Approach speed..... V_{REF}
11. CPCS DUMP pushbutton..... Press DUMP
12. Passengers..... Brace for impact

After Touchdown:

13. ENG L + R switches..... Both OFF
14. PARK / EMER brake..... Use to stop the aircraft
15. **Emergency Evacuation - 3-EVAC-01**..... Accomplish

----- END -----

[INDEX](#)



Section 3 - Emergency Procedures (Authority approved) Non-annunciated Emergency Procedures

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

Landing: L/G Up

3-NAE-16

1. L/G position..... Attempt to confirm by exterior means

Note

Consider pressing the AURAL DISABLE pushbutton to suppress the "Gear Gear" and TAWS audio callouts.

2. CPCS DUMP pushbutton..... When below 10,000 ft AMSL push to DUMP
3. Landing configuration..... Flaps 33°
4. Passengers..... Instruct to brace for impact
5. Landing..... Touchdown with minimum sink rate
Pitch attitude must be > 3.0 degrees
6. **Emergency Evacuation - 3-
EVAC-01..... Accomplish**

----- END -----

[INDEX](#)

Landing: Main L/G Unlocked

3-NAE-17

1. L/G position..... Attempt to confirm by exterior means
2. CPCS DUMP pushbutton..... When below 10,000 ft AMSL push to DUMP

Note

Consider pressing the AURAL DISABLE pushbutton to suppress the "Gear Gear" and TAWS audio callouts.

3. Landing configuration..... Flaps 33°
4. Aircraft..... Touchdown with normal landing attitude, lower nosewheel immediately to maintain lateral control. Maintain wings level as long as possible using ailerons
IF L/G collapses during touch down or if considered appropriate
5. **Emergency Evacuation - 3-
EVAC-01..... Accomplish**

----- END -----

[INDEX](#)



Landing: Nose L/G Unlocked

3-NAE-18

1. L/G position..... Attempt to confirm by exterior means
 2. CPCS DUMP pushbutton..... When below 10,000 ft AMSL push to DUMP
- Note**
Consider pressing the AURAL DISABLE pushbutton to suppress the "Gear Gear" and TAWS audio callouts.
3. Landing configuration..... Flaps 33°
 4. Aircraft..... Touchdown with normal landing attitude, gently lower nose to the ground while elevator remains effective, do not use the brakes until nose gear is on the ground
IF L/G collapses during touch down or if considered appropriate:
5. **Emergency Evacuation - 3-
EVAC-01**..... Accomplish

----- END -----

[INDEX](#)

Rejected Takeoff

3-NAE-19

CAUTION

If autothrottle was engaged for takeoff, ensure autothrottle is disconnected by either pressing an AT DISC pushbutton or holding the throttles at idle for 2 to 3 seconds until autothrottle disconnects.

1. THRUST levers..... IDLE
2. BRAKES..... Max Braking / As Required
3. ATC..... Inform
4. **Emergency Evacuation - 3-
EVAC-01**..... Analyze / Consider

----- END -----

[INDEX](#)



Volcanic Ash Encounter

3-NAE-20

WARNING

LAND AS SOON AS POSSIBLE.

CAUTION

Exit area contaminated with ash as soon as possible. Execute a 180° (or as appropriate) turn, but do NOT try to climb away from the contamination; the contour of an ash cloud cannot be determined visually or with the help of weather-radar.

1. Auto Throttle..... Disconnect
Move thrust levers slowly to stay below 835 °C ITT
If engine surge / stall is present, reduce thrust smoothly until surge / stall is corrected, while avoiding idle thrust if possible
2. Airspeed..... Monitor
Be prepared for IAS miscompare on PFD (Go to [IAS? and / or ALT? - 3B-FAS-10](#)) or loss of airspeed indication (Go to [X Replaces Airspeed Display - 3B-FAS-21](#))
IF acrid smell, haze or dust is present in cabin or cockpit:
3. Crew Oxygen Masks..... Don / 100% / Establish COMM
4. Passenger oxygen..... ON. Instruct passengers to don drop-down masks

----- END -----

[INDEX](#)

Windshield Cracked

3-NAE-21

Note

The windshield is made of glass outer layers and thicker acrylic inner layers. This procedure applies if the thicker inner layers are cracked or if it cannot be determined which layer is cracked. If the cabin altitude is increasing without explanation, this procedure should be applied.

1. All occupants..... Check securely strapped in

Note

Pilots should consider donning oxygen mask and smoke goggles for protection and check that there are no loose objects in the cockpit. If practical, consider that the pilot flying should be on the unimpaired side.

2. Airspeed..... Reduce to practical minimum

Continued on next page



Section 3 - Emergency Procedures (Authority approved)
Non-annunciated Emergency Procedures

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

Windshield Cracked

3-NAE-21

continued

3. CPCS System Mode..... Confirm AUTO
4. SYS SUM synoptic..... Select CAB LO
Set DEST ELEV to 9,000 ft
5. Aircraft..... Start a normal descent to FL 220 or below to maintain differential pressure below 4.5 psi
6. Aircraft..... Land as soon as practical

----- END -----

[INDEX](#)



3-SMOKE Fire, Smoke or Fumes in Cockpit / Cabin

Smoke, Fire or Fumes in Cockpit / Cabin

3-SMOKE-01

Note

If at any stage of the procedure the fire, smoke or fumes stop, interrupt the procedure and land as soon as possible.

IMMEDIATE ACTION

IF SMOKE AND / OR FUMES ARE PERCEPTIBLE:

1. CREW OXYGEN MASK..... DON / select EMGCY / Vent valve open
2. Smoke goggles..... DON
3. Passenger OXYGEN ON, Instruct PAX to don drop down masks

LAND ASAP / INITIATE DIVERSION

4. Aircraft..... Land as soon as possible

In case smoke / fire source obvious and accessible:

5. Faulty equipment..... Isolate
6. Portable fire extinguisher..... Use if required

IF SMOKE SOURCE NOT IMMEDIATELY ISOLATED:

Continued on next page



Smoke, Fire or Fumes in Cockpit / Cabin

3-SMOKE-01

continued

7. Aircraft..... Initiate descend to below 10000 ft MSL or MSA if higher

In case smoke removal is required at any time:

8. CPCs..... DUMP
9. EMERG RAM AIR..... PRESS TO RELEASE
PULL to open
10. ECS Synoptic..... CKPT FAN set to 5
CAB FAN set to 1

SOURCE IDENTIFICATION

IF TIME PERMITS START WITH SUSPECTED SOURCE:

11. BLEED AIR / ENGINES smoke..... Go to step 13
- ELEC SOURCE smoke..... Go to step 16

IF FIRE / SMOKE / FUMES BECOMES THE GREATEST THREAT:

12. Consider ESSENTIAL BUS Ops only..... Go to step 29

IF SMOKE FROM BLEED AIR / ENGINES SUSPECTED:

13. Bleed rotary selector. RIGHT

If smoke persists:

Continued on next page



Smoke, Fire or Fumes in Cockpit / Cabin

3-SMOKE-01

continued

14. Bleed rotary selector. LEFT

If smoke persists:

15. Bleed rotary selector. BOTH or

OFF if below FL100

IF SMOKE FROM ELECTRICAL SOURCE IS SUSPECTED:

16. Cabin CB (cockpit LH side)..... Pull

17. GEN 2..... OFF

If smoke persists, isolate right bus:

18. CPCS mode selector. MAN and operate CPCS in manual control

19. BUS TIE push button. Push to OPEN

Expect **** R Bus Fail **** CAS

20. MFC / TSC..... PRESS MFD Swap to recover CAS field

21. Refer to..... **** R Bus Fail **** - 3A-ELEC-02

Note

- CCD, COM2 + XPDR2 inoperative
- No Flaps control, Use EMER GEAR
- Recalculate VREF and landing performance

Continued on next page



Smoke, Fire or Fumes in Cockpit / Cabin

3-SMOKE-01

continued

If smoke persists, re-energize the right bus and isolate left and essential bus:

22. GEN 2..... ON

Note

Allow 1 min re-boot time - AP may disengage but can be re-engaged.

23. CPCS..... AUTO

24. COM..... Set active frequency on COM 2 / select XPDR 2

25. GEN 1..... OFF

26. BATT 1..... OFF

Expect **ESS Bus Low Volts** and ****** L Bus Fail ******
CAS

27. Display reversion controller..... Select upper MFD to OFF to operate in single MFD mode, for FMS navigation use virtual keyboard, CCD, INAV

28. Refer to..... ****** L Bus Fail **** - 3A-ELEC-01**

Continued on next page



Smoke, Fire or Fumes in Cockpit / Cabin

3-SMOKE-01

continued

Note

- PFD engine N1 display may contain a crossed, amber FAIL indication
- AP may disengage but can be re-engaged
- MFC / TSC, COM1, XPDR1 inoperative
- Shaker + Pusher inoperative
- Use EMER GEAR and EMER Brake
- Recalculate VREF and landing performance

IF FIRE / SMOKE / FUMES BECOMES THE GREATEST THREAT CONSIDER ESSENTIAL BUS OPERATION ONLY:

29. Aircraft..... Land within 60 minutes
30. BATT 1+2..... Check ON / select Batt 1 to ON
31. Display reversion controller..... Check all ON / select upper MFD to ON
32. GEN 1+2..... OFF
33. CPCS mode selector. MAN and operate CPCS in manual control
34. MFC / TSC..... PRESS MFD Swap to recover CAS field

Expect **** GEN 1+2 Offline * CAS**

35. Refer to..... **** GEN 1+2 Offline * - 3-ELEC-01**

Continued on next page



Smoke, Fire or Fumes in Cockpit / Cabin

3-SMOKE-01

continued

Note

- Only Pilot-PFD & upper MFD available
- CCD inoperative, COM1 via ACP1
- Use EMER GEAR, EMER Flaps and EMER Brake
- Recalculate VREF and landing performance

----- END -----

[INDEX](#)



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

3-EVAC Emergency Evacuation

Emergency Evacuation

3-EVAC-01

1. PARK BRAKE..... Set
2. ATC / distress message..... Notify
3. ENG L + R switches.. Both OFF
4. ENG ISOL pushbuttons..... Push both
5. FIRE XTING pushbutton..... If required, PUSH appropriate side
6. CPCS DUMP pushbutton..... Press DUMP
7. COCKPIT DOME light and CABIN LIGHTS..... ON
8. GEN and BAT switches..... All 4 OFF
9. Aircraft..... Evacuate

----- END -----

[INDEX](#)



Section 3 - Emergency Procedures (Authority approved) Emergency Evacuation

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

3-WCL Warning CAS List

| CAS Message | Procedure |
|----------------------|-----------|
| * | |
| ** GEN 1+2 Offline * | 3-ELEC-01 |
| A | |
| All Brakes Fail | 3-BRKS-01 |
| B | |
| BAT 1 Hot | 3-ELEC-02 |
| BAT 1+2 Hot | 3-ELEC-03 |
| BAT 2 Hot | 3-ELEC-02 |
| C | |
| Cabin Altitude | 3-ECS-01 |
| Cabin Pressure | 3-ECS-02 |
| Cargo Door Open | 3-DOOR-01 |
| E | |
| ESS Bus Low Volts | 3-ELEC-04 |
| L | |
| L ENG Fail | 3-ENG-02 |
| L Engine Fire | 3-FIRE-01 |
| L ITT High | 3-ENG-04 |
| L N1 High | 3-ENG-06 |
| L N2 High | 3-ENG-08 |
| L Oil PRESS High | 3-ENG-10 |
| L Oil PRESS Low | 3-ENG-12 |
| L Oil TEMP High | 3-ENG-14 |
| L Oil TEMP Low | 3-ENG-16 |
| L OVSPD Shutdown | 3-ENG-18 |
| L+R ENG Fail | 3-ENG-01 |
| L+R Fuel PRESS Low | 3-FUEL-01 |
| L+R ITT High | 3-ENG-03 |
| L+R N1 High | 3-ENG-05 |
| L+R N2 High | 3-ENG-07 |
| L+R NAI Fail | 3-IPS-01 |
| L+R Oil PRESS High | 3-ENG-09 |
| L+R Oil PRESS Low | 3-ENG-11 |
| L+R Oil TEMP High | 3-ENG-13 |



| CAS Message | Procedure |
|---------------------|-----------|
| L+R Oil TEMP Low | 3-ENG-15 |
| L+R OVSPD Shutdown | 3-ENG-17 |
| Lift Dump Deployed | 3-FCTL-01 |
| M | |
| MFS Deployed | 3-FCTL-02 |
| O | |
| OXY Off | 3-OXY-01 |
| P | |
| PAX Door Open | 3-DOOR-01 |
| PAX OXY Off | 3-OXY-02 |
| PAX+Cargo Door Open | 3-DOOR-01 |
| R | |
| R ENG Fail | 3-ENG-02 |
| R Engine Fire | 3-FIRE-01 |
| R ITT High | 3-ENG-04 |
| R N1 High | 3-ENG-06 |
| R N2 High | 3-ENG-08 |
| R Oil PRESS High | 3-ENG-10 |
| R Oil PRESS Low | 3-ENG-12 |
| R Oil TEMP High | 3-ENG-14 |
| R Oil TEMP Low | 3-ENG-16 |
| R OVSPD Shutdown | 3-ENG-18 |
| S | |
| System CONFIG Fail | 3-ACE-01 |
| Y | |
| Yaw Damper Off | 3-AFCS-01 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



3-ACE Advanced Cockpit Environment (ACE)

System CONFIG Fail

3-ACE-01

ACE™ system software is in wrong configuration. This caution will only appear on ground.

On ground only:

1. Aircraft..... Maintenance required

----- END -----

[INDEX](#)

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 3 - Emergency Procedures (Authority approved) Advanced Cockpit Environment (ACE)

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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PC24-AA15-40-0312-00A-141A-A



3-AFCS Autopilot

Yaw Damper Off

3-AFCS-01

Both YD are OFF and aircraft altitude is above 30,000 ft.

CAUTION

At altitudes above 30,000 feet with the Yaw Damper not engaged, the aircraft is more susceptible to dutch roll. Avoid exciting dutch roll with rudder inputs and / or rapid aileron inputs.

1. YD..... ENGAGE
IF warning persists:
2. Aircraft..... Descend below 30,000 ft MSL

----- END -----

[INDEX](#)

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



This Page Intentionally Left Blank

3-BRKS Brakes**All Brakes Fail****3-BRKS-01**

Both the main brakes and emergency brake system are sensed to be inoperative.

On-ground during taxi:

Note

Some braking pressure may still be available.

1. Wheel brakes / EMER brake..... Use if available to stop aircraft
2. L + R ENG switches..... OFF
3. Aircraft..... Use NWS to avoid obstacles

--- END ---

[INDEX](#)

In-flight:

1. Aircraft..... Plan to land on longest possible runway with minimum crosswind and minimum weight / lowest touchdown speed

Approximately one minute prior to landing:

2. Hydraulic Pump..... Consider selecting the hydraulic pump ON via Brakes synoptic page if page available. This may provide some braking pressure for a limited time
3. Brakes synoptic page..... Select
4. Apply light toe brakes and release..... If the indication at the brakes turns green then some pressure is available
5. Apply light Park/Emer Brake and release..... If **PARK/EMER Brake ON** CAS message appears and clears, then some pressure available

After touchdown:

6. L + R Engine switch..... OFF
7. Wheel brakes and emergency brakes..... Lower nose and use if some brake pressure available
IF no brakes available:
8. Aircraft..... Use aerodynamic braking by holding nose up approx. 4° pitch.
Lower nosewheel gently before control authority is lost. Use NWS to remain on RWY and avoid obstacles
IF overrun is imminent:
9. Brace for impact, inform ATC and prepare..... [Emergency Evacuation - 3-EVAC-01](#)

----- END -----

[INDEX](#)



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

This Page Intentionally Left Blank



3-DOOR Doors

Cargo Door Open**PAX Door Open****3-DOOR-01****PAX+Cargo Door Open**

The passenger and / or cargo door micro switch does not indicate that a door is fully closed.

On Ground:

CAUTION

The left engine must not be started with either the passenger or cargo door not fully closed.

1. Indicated door..... Check / confirm closed by observing green indicators

--- END ---

[INDEX](#)

In Flight:

CAUTION

Do not adjust the position of the door handle in flight.

1. All occupants..... Check fully strapped in
2. Aircraft..... Land as soon as practical

----- END -----

[INDEX](#)

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



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3-ECS ECS and Pneumatics

Cabin Altitude

3-ECS-01

Cabin altitude above warning threshold and voice callout "CABIN ALTITUDE".

1. Crew oxygen masks..... Don / 100% / Establish COMM
2. Passenger oxygen..... ON. Instruct passengers to don dropdown masks
IF rapid or explosive decompression:
3. [Emergency Descent - 3-NAE-02](#) Accomplish

Note

If autopilot is engaged, Emergency Descent Mode (EDM) will be triggered by a cabin altitude warning. Autopilot will command the aircraft to turn 90° to the left, descend at V_{MO} / M_{MO} to FL 150 and level off. Descent will be initiated in FLC-Mode, Autothrottles will automatically be engaged and levers will move back to IDLE.

IF not a rapid decompression and cabin altitude is slowly rising:

4. CPCS Mode Switch..... CPCS Manual
5. CPCS Manual Control Switch..... Select DESCENT to reduce cabin altitude
IF unsuccessful:
6. Aircraft..... Limit flight altitude to maintain cabin altitude below 10,000 ft MSL or MSA

The pilot must consider the situation and priorities and adjust actions accordingly.
The following factors must be considered:

- Cabin altitude and oxygen duration
- Electrical power endurance
- Distance to suitable landing area
- Flight conditions IMC, VMC, FIKI
- Minimum safe altitude
- Fuel reserves.

Note

If no smoke is present, consider setting the crew oxygen mask to normal to reduce oxygen consumption.

Prior to landing:

6. Cabin pressure switch..... DUMP

----- END -----

[INDEX](#)

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Cabin Pressure

3-ECS-02

Excessive positive or negative differential pressure.

On Ground:

Note

Cabin Pressure warnings might occur after prolonged cold soaks below -15 °C. Allow cabin to warm up above -15 °C prior dispatch.

1. CABIN PRESSURE switch..... DUMP
IF DUMP unsuccessful:
 2. CPCS MODE selector..... MAN
 3. CABIN PRESSURE switch..... DUMP
 4. Aircraft..... Do not open doors until cabin pressure is equalized

--- END ---

[INDEX](#)

In Flight with excessive negative differential pressure:

1. Aircraft..... Reduce descent rate

--- END ---

[INDEX](#)

In Flight excessive positive differential pressure:

1. Crew oxygen masks..... Don / 100% / Establish COMM
2. Passenger oxygen..... ON. Instruct passengers to don drop down masks
3. Aircraft..... Start descent to below 10,000 ft MSL or MSA if higher
4. CPCS DUMP switch..... Push to DUMP

Note

Even after using the DUMP switch, cabin altitude will be regulated to stay at 15,000 ft or below if aircraft altitude is above 15,000 ft and sufficient inflow is provided.

IF warning persists:

5. Bleed selector..... OFF
6. EMRG RAM AIR handle..... Pull

IF warning persists, carry out the emergency descent as follows:

7. Thrust levers..... Idle
8. AIRBRAKE lever..... OUT

Continued on next page



Cabin Pressure

3-ECS-02

continued

9. Aircraft..... If current airspeed below 250 KIAS, extend landing gear and descend at M_{MO} or 250 KIAS whichever is lower
If current airspeed above 250 KIAS, descend at M_{MO} / V_{MO}
Descend to below 10,000 ft MSL or MSA if higher

CAUTION

If structural damage is suspected, consider using reduced airspeed and maneuvering loads.

10. ATC..... Notify
11. XPDR..... 7700
12. WINDSHIELD rotary selector..... Select MAN HI
13. Aircraft..... Upon reaching 10,000 ft MSL or MSA if higher, AIRBRAKE IN, Aircraft configuration as required

The pilot must consider the situation and priorities and adjust actions accordingly.
The following factors must be considered:

- Cabin altitude and oxygen duration
- Electrical power endurance
- Distance to suitable landing area
- Flight conditions IMC, VMC, FIKI
- Minimum safe altitude
- Fuel reserves.

Note

If no smoke is present, consider setting the crew oxygen mask to normal to reduce oxygen consumption.

----- END -----

[INDEX](#)



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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3-ELEC Electrical

** GEN 1+2 Offline *

3-ELEC-01

Both generators are offline. Essential Bus is powered solely by batteries 1 and 2.

CAUTION

When batteries 1 and 2 serve as the sole source of power for the essential bus, electrical power will be provided for 60 minutes.

CAUTION

This electrical configuration results in closure of left and right pneumatic shutoff valves and corresponding loss of pressurization inflow.

- | | |
|---------------------------------|--|
| 1. MFC / TSC..... | CCD not available, use MFC / TSC, press MFD. Swap to display CAS window. |
| 2. GEN 1..... | OFF then ON to reset |
| 3. GEN 2..... | OFF then ON to reset IF reset unsuccessful: |
| 4. Aircraft..... | Operate CPCS in manual mode, descend as necessary to maintain cabin altitude below 9,800 ft |
| 5. Battery 1 and 2 voltage..... | Monitor |
| 6. Aircraft..... | Land as soon as possible Avoid icing conditions. Do not rely upon ESIS air data in icing (probe is unheated). |
| 7. Pilot PFD..... | If no XPDR code is shown, switch to XPDR 1 |

Note

Expect the following indications on the PFD engine display: L or R ENG Fail flag amber crossed, WAI, R NAI, HSDI amber crossed, L and R Oil Temp amber dashed, Right N1 may be slightly higher than left due to R Bleed level 1 set.

- | | |
|-----------------------|--|
| 8. Fuel Synoptic..... | If fuel transfer required from left to right, turn L Pump ON and select X-FEED to OPEN |
|-----------------------|--|

Continued on next page

**** GEN 1+2 Offline *****3-ELEC-01**

continued

For descent and approach planning, consider:

- Emergency flap operation, emergency gear extension are required
- Emergency brake is required after touchdown (no anti-skid)
- Ground spoilers will not be operative
- Landing distance will be affected by loss of anti-skid, main brakes and ground spoilers. Refer to Abnormal Landing information in AFM Section 5 for abnormal landing factors with anti-skid and lift dump failure.
- Review services available in the table at the end of this procedure.

IF flaps movement is desired:

9. FLAPS EMER PWR switch..... Select FLAPS

Lift guard and press to activate. Wait approximately one minute for DCPU 2 reboot. Successful reboot indicated if flap position indicator no longer amber.

Note

Expect multiple CAS messages as various systems are re-powered and come online.

CAUTION

Consider landing distance and go around performance. Consider using a maximum of Flaps 15° due to inability to retract the gear in case of go-around.

When Flaps position indication restored on system summary window after DCPU 2 reboots:

10. Flaps handle..... Select desired FLAPS position

11. FLAPS EMER PWR switch..... Depower as necessary. Consider time to land and electrical power available

CAUTION

Once emergency extended, landing gear cannot be retracted. Consider go around performance.

When landing gear extension is necessary:

12. L/G Emergency Extension - 3-NAE-13..... Accomplish

13. CPCS Dump Switch..... DUMP prior to landing, with aircraft altitude less than 10,000 ft or MSA if higher

Continued on next page



** GEN 1+2 Offline *

3-ELEC-01

continued

After loss of all generated power, the following functions / indications are affected:

| System | Function / Indication Affected |
|-----------------|--|
| Airbrake | No airbrake |
| AP / AT | No AT AP control available |
| Brakes | Use EMER BRAKE |
| CPCS | No bleed inflow, CPCS MAN only |
| ECB | No ECB control |
| ECS | No L Bleed, No R Bleed, No ECS |
| Electrical | BAT 1 and BAT 2 available |
| Engine | Battery Control, FADEC, Igniters, starter motor power and control throttle available |
| Fire | Both fuel shutoff valves available Fire detectors and smoke detector, fire extinguishers available |
| Flaps | Use FLAPS EMER PWR, then normal use |
| Fuel | No fuel XFR L Fuel Level Low and R Fuel Level Low available No L fuel indication, no R fuel indication, no TOTAL fuel indication |
| Gear | Use EMER GEAR Heaters in actuators to allow free-fall available Position indicators available |
| IPS | No WAI No HSDI L PS probe HEAT available WSHLD EMER PWR available, selectable in 100 sec bursts, no auto control NAI activated and indicated invalid |
| Lift Dump | No GS and MFS |
| Lights | Cockpit panel and flood lights available Cabin emergency exit lights available Left landing light available Wing inspection light available |
| Pusher / Shaker | No pusher, No shaker |
| Radios / XPNDR | MMDR 1 available, XPD 1 available, Intercom via ACP 1. |
| Roll Assist | No roll assist |
| Rudder Limiter | Functional |

Continued on next page



**** GEN 1+2 Offline ***

3-ELEC-01

continued

| System | Function / Indication Affected |
|--------|---|
| Trim | Low rate pitch trim only Yaw trim available Roll trim available during EMER FLAPS operation |
| Other | MAU 1, GPS 1, IRS, Air data available Pilot PFD and controller available Upper MFD and controller available Oxygen low quantity caution available MFC / TSC available CVR, FDR and ELT available |

----- END -----

[INDEX](#)

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

**BAT 1 Hot****BAT 2 Hot****3-ELEC-02**

The indicated battery temperature exceeds 70 °C.

1. Affected BAT switch..... OFF
IF associated **BAT Off** caution is indicated:
2. Aircraft..... Land as soon as practical
IF associated **BAT Off** caution is NOT shown:
3. Aircraft..... Land as soon as possible
Expect fire and / or smoke

----- END -----

[INDEX](#)

BAT 1+2 Hot**3-ELEC-03**

Both batteries temperature exceeds 70 °C.

1. BAT 1 + 2 switches..... OFF
IF **BAT 1 Off** and **BAT 2 Off** cautions are indicated:
2. Aircraft..... Land as soon as practical
IF **BAT Off** caution of one or both batteries is NOT shown:
3. Aircraft..... Land as soon as possible
Expect fire and / or smoke

----- END -----

[INDEX](#)

ESS Bus Low Volts**3-ELEC-04**

Essential bus voltage <20.5 V.

WARNING

IF THE WARNING PERSISTS, ALL THE ELECTRICAL FUNCTIONS WILL BEGIN TO DROP OFFLINE AS THE VOLTAGE DROPS.

1. GENERATORS..... CHECK ON / RESET
2. Aircraft..... Land as soon as possible

----- END -----

[INDEX](#)



Section 3 - Emergency Procedures (Authority approved) Electrical

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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3-ENG Engines

L+R ENG Fail

3-ENG-01

Both engines have failed.

1. Airspeed..... As Required

WARNING

AVOID STALL - SHAKER AND PUSHER ARE UNAVAILABLE. WITH FLAPS UP, 150 KIAS IS RECOMMENDED AS A SAFE SPEED WITH GOOD GLIDE PERFORMANCE.

2. Cabin Altitude..... Monitor
3. [Emergency Descent - 3-NAE-02](#). Accomplish

When aircraft is at, or below, 25,000 ft:

CAUTION

Start with engine deemed most likely to relight successfully.

4. [Engine Airstart - 3-NAE-03](#)..... Accomplish
IF no Engine Airstart is successful:
5. [Landing: Forced Landing - 3-NAE-15](#)..... Accomplish

----- END -----

[INDEX](#)

L ENG Fail

R ENG Fail

3-ENG-02

The indicated N1 has dropped 15% within 0.5 sec. This will activate ATR during takeoff.

1. Engine instruments..... Monitor / Confirm
IF engine failure is confirmed:
2. Affected THRUST lever..... Confirm / Idle
3. Affected Engine switch..... Confirm / OFF
IF engine relight is considered:
4. [Engine Airstart - 3-NAE-03](#)..... Accomplish
IF engine relight is NOT considered:
5. [Engine Inflight Shutdown - 3-NAE-07](#)..... Accomplish

----- END -----

[INDEX](#)



L+R ITT High

3-ENG-03

Confirm indications and refer to **ITT High** single failure case(s) as appropriate.

----- END -----

[INDEX](#)

L ITT High

R ITT High

3-ENG-04

One or more conditions have occurred in the indicated engine.

| Flight Phase | Condition |
|----------------|---|
| During Start | ITT >835 °C for more than 30 sec, or ITT >900 °C for more than 15 sec, or ITT >1,000 °C. |
| During Takeoff | ITT is ≤870 °C but has exceeded 855 °C, for 5 min AEO, or ITT has exceeded 855 °C for 10 min OEI. |
| In Flight | ITT is ≤870 °C, but has exceeded 835 °C. |

During ground start or on-ground:

1. Affected THRUST lever..... Idle
2. Affected ENG switch..... OFF
3. Affected ENG switch..... DRY MOTOR
4. Affected ENG start push button.. Push to motor engine

After 50 sec:

5. Affected ENG switch..... OFF

--- END ---

[INDEX](#)

In-flight:

1. Affected THRUST lever..... Reduce

IF warning removed:

2. Aircraft..... Land as soon as practical

IF warning persists:

3. **Engine Inflight Shutdown - 3-NAE-07**..... Accomplish

----- END -----

[INDEX](#)

L+R N1 High

3-ENG-05

Confirm indications and refer to **N1 High** single failure case(s) as appropriate.

----- END -----

[INDEX](#)



| | | |
|------------------|------------------|-----------------|
| L N1 High | R N1 High | 3-ENG-06 |
|------------------|------------------|-----------------|

The indicated N1 is less than 105.8% but has exceeded 104.8% for more than 120 sec.

1. Affected THRUST lever..... Reduce
IF warning removed:
2. Aircraft..... Land as soon as practical
IF warning persists:
3. **Engine Inflight Shutdown - 3-
NAE-07**..... Accomplish

----- END -----

[INDEX](#)

| | |
|--------------------|-----------------|
| L+R N2 High | 3-ENG-07 |
|--------------------|-----------------|

Confirm indications and refer to **N2 High** single failure case(s) as appropriate.

----- END -----

[INDEX](#)

| | | |
|------------------|------------------|-----------------|
| L N2 High | R N2 High | 3-ENG-08 |
|------------------|------------------|-----------------|

The indicated N2 is <101.6% but has exceeded 100.9% for more than 120 sec.

1. Affected THRUST lever..... Reduce
IF warning removed:
2. Aircraft..... Land as soon as practical
IF warning persists:
3. **Engine Inflight Shutdown - 3-
NAE-07**..... Accomplish

----- END -----

[INDEX](#)

| | |
|---------------------------|-----------------|
| L+R Oil PRESS High | 3-ENG-09 |
|---------------------------|-----------------|

Confirm indications and refer to **Oil PRESS High** single failure case(s) as appropriate.

----- END -----

[INDEX](#)



| | | |
|-------------------------|-------------------------|-----------------|
| L Oil PRESS High | R Oil PRESS High | 3-ENG-10 |
|-------------------------|-------------------------|-----------------|

The Indicated Oil Pressure is >120 psi but ≤130 psi in a duration of a maximum five min.

1. Affected THRUST lever..... Reduce
IF warning removed:
2. Aircraft..... Land as soon as practical
IF warning persists:
3. **Engine Inflight Shutdown - 3-**
NAE-07..... Accomplish

----- END -----

[INDEX](#)

| | |
|--------------------------|-----------------|
| L+R Oil PRESS Low | 3-ENG-11 |
|--------------------------|-----------------|

Confirm indications and refer to **Oil PRESS Low** single failure case(s) as appropriate.

----- END -----

[INDEX](#)

| | | |
|------------------------|------------------------|-----------------|
| L Oil PRESS Low | R Oil PRESS Low | 3-ENG-12 |
|------------------------|------------------------|-----------------|

One of the following is occurring in the indicated engine:

- The oil pressure is below 23 psi, or
 - With N2 below 80%, the oil pressure is between 23 and 30 psi for more than 5 minutes, or
 - With N2 above 80%, the oil pressure is below 40 psi.
1. Affected THRUST lever..... If practical, slowly increase to increase oil pressure
IF warning removed:
 2. Aircraft..... Land as soon as practical
IF warning persists:
 3. **Engine Inflight Shutdown - 3-**
NAE-07..... Accomplish

----- END -----

[INDEX](#)

| | |
|--------------------------|-----------------|
| L+R Oil TEMP High | 3-ENG-13 |
|--------------------------|-----------------|

Confirm indications and refer to **Oil TEMP High** single failure case(s) as appropriate.

----- END -----

[INDEX](#)



L Oil TEMP High

R Oil TEMP High

3-ENG-14

The indicated Engine oil temperature is $>135^{\circ}\text{C}$ but $<149^{\circ}\text{C}$ for up to five min when operated $<80\%$ N2. Or the indicated Engine oil temperature is $>135^{\circ}\text{C}$ with $>80\%$ N2.

1. Affected THRUST lever..... Reduce
IF warning removed:
2. Aircraft..... Land as soon as practical
IF warning persists:
3. [Engine Inflight Shutdown - 3-NAE-07](#)..... Accomplish

----- END -----

[INDEX](#)

L+R Oil TEMP Low

3-ENG-15

Confirm indications and refer to [Oil TEMP Low](#) single failure case(s) as appropriate.

----- END -----

[INDEX](#)

L Oil TEMP Low

R Oil TEMP Low

3-ENG-16

Engine oil temperature is $<10^{\circ}\text{C}$ with N2 $>80\%$.

On Ground if oil temperature is $<-40^{\circ}\text{C}$.

1. Aircraft..... Do not start Affected engine
Preheating is required

----- END -----

[INDEX](#)



L+R OVSPD Shutdown

3-ENG-17

FADEC has detected a N1 or N2 overspeed condition in both engines, and has shutdown both engines.

1. Airspeed..... As Required

WARNING

AVOID STALL - SHAKER AND PUSHER ARE UNAVAILABLE. WITH FLAPS UP, 150 KIAS IS RECOMMENDED AS A SAFE SPEED WITH GOOD GLIDE PERFORMANCE.

2. Cabin Altitude..... Monitor
3. [Emergency Descent - 3-NAE-02.](#) Accomplish

CAUTION

Start with engine deemed most likely to relight successfully.

When aircraft is at, or below, 25,000 ft:

4. [Engine Airstart - 3-NAE-03.....](#) Accomplish
IF no Engine Airstart is successful:
5. [Landing: Forced Landing - 3-NAE-15.....](#) Accomplish

----- END -----

[INDEX](#)

L OVSPD Shutdown

R OVSPD Shutdown

3-ENG-18

FADEC has detected an N1 or N2 overspeed condition in the indicated engine and has shutdown the indicated engine.

IF engine relight is considered:

1. [Engine Airstart - 3-NAE-03.....](#) Accomplish

IF engine relight is NOT considered:

2. [Engine Inflight Shutdown - 3-NAE-07.....](#) Accomplish

----- END -----

[INDEX](#)



3-FCTL Flight Controls

Lift Dump Deployed

3-FCTL-01

Any ground spoiler actuator has failed in the deployed position on ground.

On-ground:

1. Aircraft..... Do not takeoff / abort takeoff

--- END ---

[INDEX](#)

In-flight:

1. THRUST levers..... Fully forward / ATR

2. Airspeed..... Increase as required to maintain control

IF aircraft uncontrollable and flaps are extended:

WARNING

DO NOT EXTEND FLAPS.

3. FLAP lever..... Retract / 0°

WARNING

**DO NOT CHANGE FLAP CONFIGURATION ONCE AN ACCEPTABLE
CONTROLLABLE CONFIGURATION HAS BEEN ACHIEVED. UNDER NO
CIRCUMSTANCES SHALL THE FLAPS BE FURTHER EXTENDED.**

Prior to landing:

4. Aircraft..... Perform controllability check in appropriate landing configuration at an appropriate altitude as follows:

1. Reduce airspeed in 10 KIAS steps towards no less than V_{REF} and evaluate controllability

2. Monitor aileron deflection. Do not decelerate below a speed requiring more than half aileron deflection to counter roll due to spoilers

3. Monitor approach speed. Use either V_{REF} or speed no less than that which required less than half aileron deflection current configuration

5. Landing performance..... Consider increase in landing distance if using an increased V_{REF}

----- END -----

[INDEX](#)

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



MFS Deployed

3-FCTL-02

Uncommanded asymmetric deployment of the MFSs is detected.

CAUTION

If Multi-Function Spoilers deployed asymmetrically, do not decelerate below a speed requiring more than half aileron deflection to counter roll due to spoilers.

1. Aircraft..... Reduce speed and use roll trim to alleviate control forces if required
2. AIRBRAKE Lever..... Check in
3. THRUST levers..... Advance levers momentarily to MCT to attempt MFS retraction. Reset desired thrust
IF warning remains, prior to landing:
4. Aircraft..... Perform controllability check in appropriate landing configuration at an appropriate altitude as follows:
 1. Reduce airspeed in 10 KIAS increments towards no less than V_{REF} and evaluate controllability
 2. Monitor aileron deflection. Do not decelerate below a speed requiring more than half aileron deflection to counter roll due to MFS
 3. Monitor approach speed. Use either V_{REF} or speed no less than that which required less than half aileron deflection current configuration
5. Landing performance..... Consider increase in landing distance if using an increased V_{REF}

----- END -----

[INDEX](#)



3-FIRE Fire/Overheat

| L Engine Fire | R Engine Fire | 3-FIRE-01 |
|---|---------------|-----------|
| The indicated Engine Fire detector senses a temperature above 510 °C. Additional indications: Audio "Left Engine Fire" callout, RED "FIRE" light on the associated Engine Isolation Push button, Synoptic page: FIRE flag on Engine ITT indication, Red color of associated engine outline. | | |
| <ol style="list-style-type: none">1. ENGINE FIRE..... CONFIRM L or R IF fire confirmed:<ol style="list-style-type: none">2. THRUST LEVER..... IDLE3. ENGINE SWITCH..... OFF / STOP4. ENGINE ISOLATION push button..... PUSH Check Associated CAS "ENGINE ISOLATED" after five sec. CONFIRM ASSOCIATED green "1" illuminated | | |
| <p>Note</p> <p>If possible, keep pitch and bank angles to within ±10° to achieve maximum extinguisher effectiveness.</p> | | |
| <p>IF CAS Message remains, affected side:</p> <ol style="list-style-type: none">5. EXTINGUISHER push button..... PUSH | | |
| <p>IF CAS Message remains, affected side:</p> <ol style="list-style-type: none">6. Affected EXTINGUISHER push button light..... CONFIRM green "2" illuminated approximately 30 sec after firing first extinguisher7. Associated EXTINGUISHER push button..... PUSH8. BLEED Rotary Selector..... Select operating engine side | | |
| <p>Note</p> <p>The FUEL X-FEED should be closed prior to landing.</p> | | |
| <ol style="list-style-type: none">9. FUEL..... Monitor balance | | |
| <p>CAUTION</p> <p>Do not restart engine after a confirmed engine fire.</p> | | |
| <ol style="list-style-type: none">10. Aircraft..... Land as soon as possible | | |
| Follow Engine OEI Approach And Landing - 3-NAE-08 checklist and / or Emergency Evacuation - 3-EVAC-01 | | |
| ----- END ----- | | |
| INDEX | | |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 3 - Emergency Procedures (Authority approved) Fire/Overheat

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

This Page Intentionally Left Blank



3-FUEL Fuel

L+R Fuel PRESS Low

3-FUEL-01

L+R Engine inlet fuel pressure is less than eight psig or L and R fuel pressure sensor signals are not valid.

In-flight:

CAUTION

Consider the possibility of complete loss of thrust.

1. L+R Fuel pumps..... Select both ON
Confirm status via system summary window
2. L+R Thrust lever..... Reduce to minimum required power
3. Engine Indications..... Monitor PFD engine indications for instabilities or indications of fuel starvation
4. FUEL synoptic..... Monitor indications
If fuel leak suspected, follow [Fuel Suspected Leak - 3A-NAA-13](#) procedure
5. Aircraft..... Land as soon as possible

----- END -----

[INDEX](#)

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

This Page Intentionally Left Blank



3-IPS Ice and Rain

L+R NAI Fail

3-IPS-01

BOTH Nacelle Anti-ice valves commanded OPEN and NEITHER have sufficient bleed air pressure available for effective operation.

In Flight:

IF ice accretion is observed or anticipated:

1. THRUST levers..... Advance if practical
Wait minimum 10 seconds
- IF unsuccessful:
2. ENGINE switches..... LEFT to IGN, RIGHT to IGN
3. Aircraft..... Land as soon as practical
Exit and remain clear of icing conditions

--- END ---

[INDEX](#)

On ground:

1. THRUST levers..... Advance if practical

----- END -----

[INDEX](#)

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 3 - Emergency Procedures (Authority approved) Ice and Rain

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

This Page Intentionally Left Blank



3-OXY Oxygen

OXY Off

3-OXY-01

Main oxygen supply line pressure is low.

CAUTION

This message may indicate an oxygen system leak.

1. Oxygen control lever..... Check ON
2. ECS synoptic..... Check Oxygen quantity
IF message persists:
 3. Aircraft..... Descent to below 10,000 ft or MSA, if higher
IF **OXY Off** message is combined with **Cabin Altitude** warning:
 4. Emergency Descent - 3-NAE-02. Accomplish

----- END -----

[INDEX](#)

PAX OXY Off

3-OXY-02

PAX oxygen supply line pressure is low and cabin is not pressurized.

CAUTION

This message may indicate an oxygen system leak.

1. Oxygen control lever..... Check ON
2. ECS synoptic..... Check oxygen quantity
3. Passenger OXY selector..... Confirm AUTO or ON
4. Aircraft..... Descend to below 10,000 ft or MSA, if higher
IF **PAX OXY Off** is combined with **Cabin Altitude** warning:
 5. Emergency Descent - 3-NAE-02. Accomplish

----- END -----

[INDEX](#)

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 3 - Emergency Procedures (Authority approved) Oxygen

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

This Page Intentionally Left Blank



SECTION 3A

Abnormal Procedures (Authority approved)

Table of Contents

| Subject | | Page |
|----------------|--|---------------|
| General | | |
| 1 | General | 3A-1-1 |
| 2 | Procedures | 3A-1-1 |
| 3 | Memory Items | 3A-1-1 |
| 3A-NAL | Non-annunciated Abnormal Procedures List | 3A-2-1 |
| 3A-NAA | Non-annunciated Abnormal Procedures | 3A-3-1 |
| 3A-NAA-01 | AFCS Abnormal Disconnect | 3A-3-1 |
| 3A-NAA-02 | AFCS Uncommanded Deviation From Flight Path | 3A-3-1 |
| 3A-NAA-03 | CAS Window Not Displayed | 3A-3-2 |
| 3A-NAA-04 | Displays All Blank or Indicate Red X | 3A-3-2 |
| 3A-NAA-05 | Electrical Burning Smell in Cabin | 3A-3-4 |
| 3A-NAA-06 | Engine Fails To Start On-ground - No Lightoff | 3A-3-4 |
| 3A-NAA-07 | Engine Hot Start On Ground | 3A-3-5 |
| 3A-NAA-08 | Engine Hung Start On Ground | 3A-3-5 |
| 3A-NAA-09 | Engine No N1 Speed At 25% N2 During Start | 3A-3-5 |
| 3A-NAA-10 | Engine Partial Loss of Thrust | 3A-3-6 |
| 3A-NAA-11 | Engine Starter Fails To Disengage | 3A-3-6 |
| 3A-NAA-12 | Engine Thrust Lever Fails To Respond | 3A-3-7 |
| 3A-NAA-13 | Fuel Suspected Leak | 3A-3-7 |
| 3A-NAA-14 | RVSM Loss of Autopilot Altitude Hold Function in RVSM Airspace | 3A-3-9 |
| 3A-NAA-15 | RVSM Primary Altimeter Diverge by 200 Feet or More | 3A-3-10 |
| 3A-NAA-16 | SWPS Inadvertent Pusher Operation | 3A-3-10 |
| 3A-NAA-17 | SWPS Inadvertent Shaker Operation | 3A-3-11 |
| 3A-CCL | Caution CAS List | 3A-4-1 |
| 3A-ACE | Advanced Cockpit Environment (ACE) | 3A-5-1 |
| 3A-ACE-01 | ADC 1+2 Fail | 3A-5-1 |
| 3A-ACE-02 | ADC 1 Fail | 3A-5-2 |
| 3A-ACE-03 | ADC 2 Fail | 3A-5-2 |
| 3A-ACE-04 | ADC1 Static VLV Fail | 3A-5-3 |



| Subject | Page |
|--------------------------------|-------------|
| 3A-ACE-05 ADC2 Static VLV Fail | 3A-5-3 |
| 3A-ACE-06 AGM 1 Fail | 3A-5-3 |
| 3A-ACE-07 AGM 2 Fail | 3A-5-3 |
| 3A-ACE-08 AIOP 1A Fail | 3A-5-3 |
| 3A-ACE-09 AIOP 1A+1B Fail | 3A-5-4 |
| 3A-ACE-10 AIOP 1A+1B+2B Fail | 3A-5-4 |
| 3A-ACE-11 AIOP 1A+2B Fail | 3A-5-4 |
| 3A-ACE-12 AIOP 1B+2A Fail | 3A-5-4 |
| 3A-ACE-13 AIOP 1B+2A+2B Fail | 3A-5-5 |
| 3A-ACE-14 AIOP 1B+2B Fail | 3A-5-5 |
| 3A-ACE-15 AIOP 2A Fail | 3A-5-5 |
| 3A-ACE-16 AIOP 2A+2B Fail | 3A-5-5 |
| 3A-ACE-17 Air / Ground Fail | 3A-5-6 |
| 3A-ACE-18 AOA Heat Fail ON | 3A-5-6 |
| 3A-ACE-19 APM Fail | 3A-5-6 |
| 3A-ACE-20 APM Miscompare | 3A-5-6 |
| 3A-ACE-21 ASCB Fail | 3A-5-6 |
| 3A-ACE-22 ATC Datalink Fail | 3A-5-7 |
| 3A-ACE-23 ATT 1 Fail | 3A-5-7 |
| 3A-ACE-24 ATT 1+2 Fail | 3A-5-8 |
| 3A-ACE-25 ATT 2 Fail | 3A-5-8 |
| 3A-ACE-26 Aural Warning Fail | 3A-5-9 |
| 3A-ACE-27 Check DU 1 | 3A-5-9 |
| 3A-ACE-27 Check DU 2 | 3A-5-9 |
| 3A-ACE-27 Check DU 3 | 3A-5-9 |
| 3A-ACE-27 Check DU 4 | 3A-5-9 |
| 3A-ACE-28 Check DU 1+2+3+4 | 3A-5-10 |
| 3A-ACE-29 Check Copilot PFD | 3A-5-10 |
| 3A-ACE-30 Check Pilot PFD | 3A-5-11 |
| 3A-ACE-31 Check Engine Display | 3A-5-11 |
| 3A-ACE-32 CMS Fail | 3A-5-11 |
| 3A-ACE-33 CSIO 1+2 Fail | 3A-5-11 |
| 3A-ACE-34 CSIO 1 Fail | 3A-5-12 |
| 3A-ACE-34 CSIO 2 Fail | 3A-5-12 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



| Subject | Page |
|---------------------------------|---------------|
| 3A-ACE-35 DU 1+2+3+4 OVHT | 3A-5-12 |
| 3A-ACE-36 DU 1 OVHT | 3A-5-13 |
| 3A-ACE-36 DU 2 OVHT | 3A-5-13 |
| 3A-ACE-36 DU 3 OVHT | 3A-5-13 |
| 3A-ACE-36 DU 4 OVHT | 3A-5-13 |
| 3A-ACE-37 GIO 1A Fail | 3A-5-13 |
| 3A-ACE-38 GIO 1A+1B Fail | 3A-5-14 |
| 3A-ACE-39 GIO 1A+1B+2 Fail | 3A-5-14 |
| 3A-ACE-40 GIO 1A+2 Fail | 3A-5-15 |
| 3A-ACE-41 GIO 1B+2 Fail | 3A-5-15 |
| 3A-ACE-42 GIO 2 Fail | 3A-5-15 |
| 3A-ACE-43 MAINT Air Mode | 3A-5-16 |
| 3A-ACE-44 MAINT Ground Mode | 3A-5-16 |
| 3A-ACE-45 MAU 1A Fail | 3A-5-16 |
| 3A-ACE-46 MAU 1A+1B Fail | 3A-5-17 |
| 3A-ACE-47 MAU 1A+2A Fail | 3A-5-17 |
| 3A-ACE-48 MAU 1B Fail | 3A-5-18 |
| 3A-ACE-49 MAU 1B+2A Fail | 3A-5-18 |
| 3A-ACE-50 MAU 2A Fail | 3A-5-19 |
| 3A-ACE-51 LH+RH PFD CTLR Fail | 3A-5-19 |
| 3A-ACE-52 LH PFD CTLR Fail | 3A-5-19 |
| 3A-ACE-52 RH PFD CTLR Fail | 3A-5-19 |
| 3A-ACE-53 L+R PS Heat Fail | 3A-5-20 |
| 3A-ACE-54 L PS Heat Fail | 3A-5-21 |
| 3A-ACE-55 R PS Heat Fail | 3A-5-22 |
| 3A-ACE-56 STBY PS Heat Fail | 3A-5-22 |
| 3A-ACE-57 Rad Alt 1 Fail | 3A-5-23 |
| 3A-ACE-58 System Config Fail | 3A-5-23 |
| 3A-ACE-59 Validate Config | 3A-5-23 |
| 3A-AFCS Autopilot | 3A-6-1 |
| 3A-AFCS-01 AP Hold LH Wing Down | 3A-6-1 |
| 3A-AFCS-01 AP Hold Nose Down | 3A-6-1 |
| 3A-AFCS-01 AP Hold RH Wing Down | 3A-6-1 |
| 3A-AFCS-01 AP Hold Nose Up | 3A-6-1 |



| Subject | Page |
|-----------------------------------|---------------|
| 3A-AFCS-02 Emergency Descent | 3A-6-1 |
| 3A-AFCS-02 Cabin Altitude | 3A-6-1 |
| 3A-AFCS-03 Flight CTRL A Fail | 3A-6-2 |
| 3A-AFCS-04 Flight CTRL B Fail | 3A-6-2 |
| 3A-AFCS-05 Flight CTRL A+B Fail | 3A-6-2 |
| 3A-AFCS-06 Pusher Fail | 3A-6-3 |
| 3A-AFCS-07 Shaker Fail | 3A-6-4 |
| 3A-AFCS-08 Yaw Damper 1+2 Fail | 3A-6-5 |
| 3A-AFCS-09 Yaw Damper 1 Fail | 3A-6-5 |
| 3A-AFCS-09 Yaw Damper 2 Fail | 3A-6-5 |
| 3A-AFCS-10 YD Hold Nose Left | 3A-6-6 |
| 3A-AFCS-10 YD Hold Nose Right | 3A-6-6 |
| 3A-BRKS Brakes | 3A-7-1 |
| 3A-BRKS-01 Anti Skid Fail | 3A-7-1 |
| 3A-BRKS-02 HYD Pump Fail ON | 3A-7-1 |
| 3A-BRKS-03 Main Brake Fail | 3A-7-2 |
| 3A-BRKS-04 PARK / EMER Brake Fail | 3A-7-3 |
| 3A-BRKS-05 PARK / EMER Brake ON | 3A-7-4 |
| 3A-BRKS-06 PARK / EMER Brake OFF | 3A-7-4 |
| 3A-ECS ECS and Pneumatics | 3A-8-1 |
| 3A-ECS-01 L Bleed TEMP Fail | 3A-8-1 |
| 3A-ECS-01 R Bleed TEMP Fail | 3A-8-1 |
| 3A-ECS-02 L+R Bleed Off / Fail | 3A-8-1 |
| 3A-ECS-03 L Bleed Off / Fail | 3A-8-2 |
| 3A-ECS-03 R Bleed Off / Fail | 3A-8-2 |
| 3A-ECS-04 Cabin Pressure | 3A-8-2 |
| 3A-ECS-05 CPCS Fail | 3A-8-3 |
| 3A-ECS-06 CPCS Manual | 3A-8-4 |
| 3A-ECS-07 ECS Inflow Degrade | 3A-8-4 |
| 3A-ECS-08 WSHLD De-Fog Degrade | 3A-8-5 |
| 3A-ECS-09 X-Bleed Fail Closed | 3A-8-5 |
| 3A-ECS-10 X-Bleed Fail Open | 3A-8-5 |
| 3A-ELEC Electrical | 3A-9-1 |
| 3A-ELEC-01 **** L Bus Fail **** | 3A-9-1 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



| Subject | Page |
|---------------------------------|----------------|
| 3A-ELEC-02 **** R Bus Fail **** | 3A-9-5 |
| 3A-ELEC-03 BAT 1 Fail | 3A-9-9 |
| 3A-ELEC-03 BAT 2 Fail | 3A-9-9 |
| 3A-ELEC-04 BAT 1 Off | 3A-9-10 |
| 3A-ELEC-04 BAT 2 Off | 3A-9-10 |
| 3A-ELEC-05 Bus Tie 1 Closed | 3A-9-10 |
| 3A-ELEC-06 Bus Tie 1 Open | 3A-9-11 |
| 3A-ELEC-07 Bus Tie 2 Closed | 3A-9-12 |
| 3A-ELEC-08 Bus Tie 2 Open | 3A-9-13 |
| 3A-ELEC-09 EPDU Config Fail | 3A-9-13 |
| 3A-ELEC-10 EPDU 1 FAIL | 3A-9-13 |
| 3A-ELEC-10 EPDU 2 FAIL | 3A-9-13 |
| 3A-ELEC-10 EPDU 3 FAIL | 3A-9-13 |
| 3A-ELEC-10 EPDU 4 FAIL | 3A-9-13 |
| 3A-ELEC-11 GEN 1 Offline | 3A-9-14 |
| 3A-ELEC-11 GEN 2 Offline | 3A-9-14 |
| 3A-ELEC-12 GEN 1 Overload | 3A-9-15 |
| 3A-ELEC-12 GEN 2 Overload | 3A-9-15 |
| 3A-ELEC-13 GPU Connected | 3A-9-16 |
| 3A-ENG Engines | 3A-10-1 |
| 3A-ENG-01 ATR Unavailable | 3A-10-1 |
| 3A-ENG-02 L FADEC Fail | 3A-10-1 |
| 3A-ENG-02 R FADEC Fail | 3A-10-1 |
| 3A-ENG-03 L GND Idle | 3A-10-2 |
| 3A-ENG-03 R GND Idle | 3A-10-2 |
| 3A-ENG-04 L ITT High | 3A-10-2 |
| 3A-ENG-04 R ITT High | 3A-10-2 |
| 3A-ENG-05 L N1 High | 3A-10-3 |
| 3A-ENG-05 R N1 High | 3A-10-3 |
| 3A-ENG-06 L N2 High | 3A-10-3 |
| 3A-ENG-06 R N2 High | 3A-10-3 |
| 3A-ENG-07 L Oil Chip | 3A-10-3 |
| 3A-ENG-07 R Oil Chip | 3A-10-3 |
| 3A-ENG-08 L OIL IMP Bypass | 3A-10-4 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



| Subject | | Page |
|----------------|----------------------------|----------------|
| 3A-ENG-08 | R OIL IMP Bypass | 3A-10-4 |
| 3A-ENG-09 | L Oil LVL Low | 3A-10-4 |
| 3A-ENG-09 | R Oil LVL Low | 3A-10-4 |
| 3A-ENG-10 | L Oil PRESS High | 3A-10-4 |
| 3A-ENG-10 | R Oil PRESS High | 3A-10-4 |
| 3A-ENG-11 | L Oil PRESS Low | 3A-10-5 |
| 3A-ENG-11 | R Oil PRESS Low | 3A-10-5 |
| 3A-ENG-12 | L Oil TEMP High | 3A-10-6 |
| 3A-ENG-12 | R Oil TEMP High | 3A-10-6 |
| 3A-ENG-13 | L Oil TEMP Low | 3A-10-6 |
| 3A-ENG-13 | R Oil TEMP Low | 3A-10-6 |
| 3A-ENG-14 | L TAT Probe Fail | 3A-10-7 |
| 3A-ENG-14 | R TAT Probe Fail | 3A-10-7 |
| 3A-FCTL | Flight Controls | 3A-11-1 |
| 3A-FCTL-01 | AIL Trim Fail | 3A-11-1 |
| 3A-FCTL-02 | Flaps Fail | 3A-11-1 |
| 3A-FCTL-03 | Lift Dump Fail | 3A-11-5 |
| 3A-FCTL-04 | Mach Trim Fail | 3A-11-5 |
| 3A-FCTL-05 | MFS Degrade | 3A-11-6 |
| 3A-FCTL-06 | RUD Limiter Fail | 3A-11-6 |
| 3A-FCTL-07 | RUD Trim Fail | 3A-11-7 |
| 3A-FCTL-08 | STAB Trim Fail | 3A-11-8 |
| 3A-FCTL-09 | STAB Trim Degrade | 3A-11-8 |
| 3A-FIRE | Fire/Overheat/Smoke | 3A-12-1 |
| 3A-FIRE-01 | Baggage COMP Smoke | 3A-12-1 |
| 3A-FIRE-02 | L Bleed Leak | 3A-12-1 |
| 3A-FIRE-02 | R Bleed Leak | 3A-12-1 |
| 3A-FIRE-03 | L ENG ISOL Fail | 3A-12-2 |
| 3A-FIRE-03 | R ENG ISOL Fail | 3A-12-2 |
| 3A-FIRE-04 | L Engine Isolated | 3A-12-2 |
| 3A-FIRE-04 | R Engine Isolated | 3A-12-2 |
| 3A-FIRE-05 | L Fire DTECT Fail | 3A-12-2 |
| 3A-FIRE-05 | R Fire DTECT Fail | 3A-12-2 |
| 3A-FIRE-06 | Tail Bleed Leak | 3A-12-3 |



| Subject | Page |
|---------------------------------|----------------|
| 3A-FIRE-07 WAI Bleed Leak | 3A-12-4 |
| 3A-FIRE-08 XTING 1 Empty | 3A-12-5 |
| 3A-FIRE-08 XTING 2 Empty | 3A-12-5 |
| 3A-FUEL Fuel | 3A-13-1 |
| 3A-FUEL-01 L Fuel Collector Low | 3A-13-1 |
| 3A-FUEL-01 R Fuel Collector Low | 3A-13-1 |
| 3A-FUEL-02 Fuel Door Open | 3A-13-2 |
| 3A-FUEL-03 L+R Fuel IMP Bypass | 3A-13-2 |
| 3A-FUEL-04 L Fuel IMP Bypass | 3A-13-2 |
| 3A-FUEL-04 R Fuel IMP Bypass | 3A-13-2 |
| 3A-FUEL-05 Fuel Imbalance | 3A-13-3 |
| 3A-FUEL-06 L Fuel Level Low | 3A-13-4 |
| 3A-FUEL-06 R Fuel Level Low | 3A-13-4 |
| 3A-FUEL-07 L Fuel PRESS Low | 3A-13-4 |
| 3A-FUEL-07 R Fuel PRESS Low | 3A-13-4 |
| 3A-FUEL-08 L Fuel Pump Fail | 3A-13-5 |
| 3A-FUEL-09 R Fuel Pump Fail | 3A-13-6 |
| 3A-FUEL-10 L Fuel QTY Fail | 3A-13-8 |
| 3A-FUEL-10 R Fuel QTY Fail | 3A-13-8 |
| 3A-FUEL-11 L Fuel SOV Fail | 3A-13-9 |
| 3A-FUEL-12 R Fuel SOV Fail | 3A-13-9 |
| 3A-FUEL-13 L Fuel TEMP High | 3A-13-10 |
| 3A-FUEL-13 R Fuel TEMP High | 3A-13-10 |
| 3A-FUEL-14 L Fuel TEMP Low | 3A-13-10 |
| 3A-FUEL-14 R Fuel TEMP Low | 3A-13-10 |
| 3A-FUEL-15 Fuel X-Feed Fail | 3A-13-11 |
| 3A-FUEL-16 L XFER Valve Fail | 3A-13-11 |
| 3A-FUEL-16 R XFER Valve Fail | 3A-13-11 |
| 3A-GEAR Landing Gear | 3A-14-1 |
| 3A-GEAR-01 Gear Mismatch | 3A-14-1 |
| 3A-GEAR-02 Gear Actuator CTRL | 3A-14-2 |
| 3A-GEAR-03 Gear Actuator TEMP | 3A-14-2 |
| 3A-IPS Ice and Rain | 3A-15-1 |
| 3A-IPS-01 HSDI Fail | 3A-15-1 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



| Subject | | Page |
|----------------|----------------------|----------------|
| 3A-IPS-02 | HSDI Fail On | 3A-15-1 |
| 3A-IPS-03 | Ice Detector Fail | 3A-15-2 |
| 3A-IPS-04 | L+R ICE DTECT Fail | 3A-15-2 |
| 3A-IPS-05 | IPS Low Energy | 3A-15-3 |
| 3A-IPS-06 | IPS Off | 3A-15-3 |
| 3A-IPS-07 | IPS On-TAT Limit | 3A-15-3 |
| 3A-IPS-08 | L NAI Fail | 3A-15-5 |
| 3A-IPS-08 | R NAI Fail | 3A-15-5 |
| 3A-IPS-09 | WAI Fail | 3A-15-5 |
| 3A-IPS-10 | WSHLD Heat Fail | 3A-15-8 |
| 3A-NAV | Navigation | 3A-16-1 |
| 3A-NAV-01 | CHECK MAG/TRUE | 3A-16-1 |
| 3A-NAV-02 | FMS1-GPS1 POS MISC | 3A-16-1 |
| 3A-NAV-03 | FMS1-GPS1+2 POS MISC | 3A-16-1 |
| 3A-NAV-04 | FMS1-GPS2 POS MISC | 3A-16-1 |
| 3A-NAV-05 | FMS2-GPS1 POS MISC | 3A-16-2 |
| 3A-NAV-06 | FMS2-GPS1+2 POS MISC | 3A-16-2 |
| 3A-NAV-07 | FMS2-GPS2 POS MISC | 3A-16-2 |
| 3A-NAV-08 | MMDR 1 Fail | 3A-16-3 |
| 3A-NAV-09 | MMDR 2 Fail | 3A-16-3 |
| 3A-NAV-10 | MMDR 1+2 Fail | 3A-16-3 |
| 3A-NAV-11 | Unable FMS-GPS MON | 3A-16-3 |
| 3A-NAV-12 | XPDR 1 Fail | 3A-16-4 |
| 3A-NAV-13 | XPDR 2 Fail | 3A-16-4 |
| 3A-NAV-14 | XPDR 1+2 Fail | 3A-16-4 |
| 3A-OXY | Oxygen | 3A-17-1 |
| 3A-OXY-01 | OXY Low | 3A-17-1 |
| 3A-UMS | UMS | 3A-18-1 |
| 3A-UMS-01 | *** DCPU 1A Fail *** | 3A-18-1 |
| 3A-UMS-02 | *** DCPU 1B Fail *** | 3A-18-3 |
| 3A-UMS-03 | *** DCPU 2A Fail *** | 3A-18-5 |
| 3A-UMS-04 | *** DCPU 2B Fail *** | 3A-18-7 |
| 3A-UMS-05 | *** DCPU 3A Fail *** | 3A-18-10 |
| 3A-UMS-06 | *** DCPU 3B Fail *** | 3A-18-14 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



| Subject | | Page |
|----------------|--|----------------|
| 3A-UMS-07 | *** DCPU 4A Fail *** | 3A-18-16 |
| 3A-UMS-08 | *** DCPU 4B Fail *** | 3A-18-19 |
| 3A-UMS-09 | * DCPU 1A+2A Fail * | 3A-18-20 |
| 3A-UMS-10 | * DCPU 1B+2B Fail * | 3A-18-21 |
| 3A-UMS-11 | ** DCPU Data Fail ** | 3A-18-21 |
| 3A-UMS-12 | MAINT Switch | 3A-18-21 |
| 3A-UMS-13 | Rigging Switch | 3A-18-21 |
| 3A-UMS-14 | UMS Config | 3A-18-22 |
| 3A-UMS-15 | UMS Databus Fail | 3A-18-22 |
| 3A-MISC | Miscellaneous Emergency / Abnormal Procedures | 3A-19-1 |
| 3A-MISC-01 | CAS Miscompare | 3A-19-1 |
| 3A-MISC-02 | Stuck Microphone | 3A-19-1 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 3A - Abnormal Procedures (Authority approved)
Table of Contents

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

This Page Intentionally Left Blank



General

1 General

This section contains the procedures to be followed during annunciated and non-annunciated abnormal situations in the PC-24.

2 Procedures

An Abnormal Procedure is defined as follows:

Abnormal Procedure: A procedure requiring flight crew action, due to failure of a system or component, to maintain an acceptable level of airworthiness for continued safe flight and landing.

The Abnormal procedures use the terms "Land as soon as possible" and "Land as soon as practical". For the purpose of these procedures the meanings are as follows:

- Land as soon as possible - Land without delay at the nearest airport where a safe approach and landing is reasonably assured.
- Land as soon as practical - Landing airport and duration of flight are at the discretion of the pilot. Extended flight beyond the nearest suitable airport is not recommended.

Abnormal procedures alone cannot protect against all situations. Good airmanship must be used in conjunction with the abnormal procedures to manage the abnormal condition. It is good practice during the abnormal procedures, where CAS messages are given, to check the circuit breaker panels to ensure there are no open circuit breakers related to the CAS annunciation.

If not detailed otherwise in the procedures, if any circuit breakers on the Essential Bus trip in flight, only one attempt is allowed to reset the circuit breaker if the pilot in command determines that the system/equipment is needed for safe completion of that flight. The open circuit breaker can be reset after at least one minute has elapsed since the circuit breaker trip and if there is no remaining smoke or burning smell.

If an abnormal procedure requires a circuit breaker to be reset, this means to open (pull out) the circuit breaker, wait for approximately two sec and then close (push in) the circuit breaker. If a circuit breaker is found open, reset means close the circuit breaker.

Note

Reset of the transponder code to 7700 to communicate an emergency declaration to ATC is found in certain procedures contained in this manual. It should be recognized that transmission of a transponder code of 7700 does not necessarily indicate that the pilot is performing an emergency or abnormal procedure. Likewise, the performance of an emergency or abnormal procedure by the pilot does not necessarily require the declaration of an emergency or the transmission of a 7700 code from the transponder.

3 Memory Items

A memory item is a check for an abnormal or emergency situation that requires immediate action and is therefore carried out from memory, without prior reference to a checklist. Memory items are executed by heart without referring to a checklist. A specific checklist may be required to complete the action if the memory items cover only the initial actions. Memory Items are denoted by a solid red box around specific challenge and response items.



Section 3A - Abnormal Procedures (Authority approved) Memory Items

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

This Page Intentionally Left Blank



3A-NAL Non-annunciated Abnormal Procedures List

| Procedure Title | Procedure |
|--|-----------|
| A | |
| AFCS Abnormal Disconnect | 3A-NAA-01 |
| AFCS Uncommanded Deviation From Flight Path | 3A-NAA-02 |
| C | |
| CAS Window Not Displayed | 3A-NAA-03 |
| D | |
| Displays All Blank or Indicate Red X | 3A-NAA-04 |
| E | |
| Electrical Burning Smell in Cabin | 3A-NAA-05 |
| Engine Fails To Start On-ground - No Lightoff | 3A-NAA-06 |
| Engine Hot Start On Ground | 3A-NAA-07 |
| Engine Hung Start On Ground | 3A-NAA-08 |
| Engine No N1 Speed At 25% N2 During Start | 3A-NAA-09 |
| Engine Partial Loss of Thrust | 3A-NAA-10 |
| Engine Starter Fails To Disengage | 3A-NAA-11 |
| Engine Thrust Lever Fails To Respond | 3A-NAA-12 |
| F | |
| Fuel Suspected Leak | 3A-NAA-13 |
| R | |
| RVSM Loss of Autopilot Altitude Hold Function in RVSM Airspace | 3A-NAA-14 |
| RVSM Primary Altimeter Diverge by 200 Feet or More | 3A-NAA-15 |
| S | |
| SWPS Inadvertent Pusher Operation | 3A-NAA-16 |
| SWPS Inadvertent Shaker Operation | 3A-NAA-17 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 3A - Abnormal Procedures (Authority approved) Non-annunciated Abnormal Procedures List

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

This Page Intentionally Left Blank



3A-NAA Non-annunciated Abnormal Procedures

Automatic Flight Control System Failures

The four-step procedure that follows should be among the basic aircraft emergency procedures that are committed to memory. It is important that the pilot be proficient in accomplishing all four steps without reference to the AFM or the QRH.

AFCS Abnormal Disconnect

3A-NAA-01

Indication: Flashing red "AP" on PFD and continuous "Cavalry Charge" aural warning.

- | | |
|------------------------------------|---|
| 1. Airplane control wheel..... | Grasp firmly and regain aircraft control |
| 2. Autopilot Disengage switch..... | Press to cancel aural warning (pilot or copilot wheel) |
| 3. Aircraft..... | Retrim manually as necessary IF no AFCS associated CAS messages: |
| 4. Aircraft..... | Attempt to re-engage autopilot once |

----- END -----

[INDEX](#)

AFCS Uncommanded Deviation From Flight Path

3A-NAA-02

Indication: Abrupt control and / or airplane motion.

WARNING

DO NOT ATTEMPT TO RE-ENGAGE THE AUTOPILOT FOLLOWING AN AUTOPILOT OR AUTOTRIM MALFUNCTION.

Accomplish items 1 and 2 simultaneously:

- | | |
|------------------------------------|---|
| 1. Airplane control wheel..... | Grasp firmly and regain aircraft control |
| 2. Autopilot Disengage switch..... | Press to disengage the autopilot (pilot or copilot wheel) |
| 3. Aircraft..... | Retrim manually as necessary |

----- END -----

[INDEX](#)

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



CAS Window Not Displayed

3A-NAA-03

If the CAS Window cannot be displayed, this indicates that A1OP 1A and 2A are not available.

CAUTION

The following functions have been lost: Avionics (ACE™) Air Data, Crew Alerting System, Autopilot, Yaw Damper, Autothrottle.

1. SYNOPTIC pages..... Review for system status and functioning items
2. Aircraft..... Land as soon as practical
Use ESIS for Air Data

----- END -----

[INDEX](#)

Displays All Blank or Indicate Red X

3A-NAA-04

All four displays blank, indicate red X or suspect.

1. Aircraft..... Use ESIS as primary source
2. MAU 1 PWR 1 CB [LH Cockpit ESS BUS CB Panel]..... PULL, wait five sec, RESET

Note

Expect multiple CAS messages and caution tones during reset process.

IF no displays return after approximately one min:

3. Display reversion panel..... One at a time, switch each display OFF, wait five sec, then switch display back ON

IF no displays return and >10,000 ft MSL and no additional indication of cabin altitude:

3. Crew Oxygen Mask..... On
4. Communication..... Establish, use EMRG COM 1 if required
5. Aircraft..... Land as soon as practical
Descend below 10,000 ft or MSA if higher

Continued on next page



Displays All Blank or Indicate Red X

3A-NAA-04

continued

CAUTION

With four inoperative displays, there are no fuel, engines, or other system indications. Consider approximate fuel state for landing. Fuel flow can be estimated using performance tables. There will be no available system indications of gear and flap state. Consider using Flaps 15° and an additional margin on V_{REF} and landing performance estimates.

Prior to landing:

- 6. CPCS Mode switch..... MANUAL
- 7. Cabin Pressure Switch..... DUMP

----- END -----

[INDEX](#)

**Electrical Burning Smell in Cabin****3A-NAA-05**

If an electrical burning smell is detected in the cabin but no smoke is present, the electrical cabin heaters may be the source of the smell. Deselecting HEAT on the ECS Synoptic may remove the smell.

IF visible smoke is present:

1. **Smoke, Fire or Fumes in Cockpit / Cabin - 3-SMOKE-01...** Accomplish

IF an electrical burning smell is present **without smoke**:

2. ECS Synoptic..... Check if cabin HEAT indicates not white on the ECS Synoptic page

IF cabin HEAT was not white on the ECS Synoptic page at the time when electrical smell was noticed:

3. ECS Synoptic..... Select Heat / Cool to OFF or COOL
Do not use electrical HEAT for remainder of the flight
If cabin becomes uncomfortably cold, consider descending to below FL250

IF cabin HEAT was white on the ECS Synoptic page at the time when electrical smell was noticed or **electrical burning smell persists**:

4. **Smoke, Fire or Fumes in Cockpit / Cabin - 3-SMOKE-01...** Accomplish

After landing:

5. Aircraft..... Report to maintenance and refer to (M)MEL

----- END -----

[INDEX](#)

Engine Fails To Start On-ground - No Lightoff**3A-NAA-06**

Engine fails to lightoff within 10 sec after igniter indication.

1. Engine Switch..... OFF
2. Thrust lever IDLE
3. Engine Switch..... Select Dry Motor
4. Engine Start button..... Push to motor

Continued on next page



Engine Fails To Start On-ground - No Lightoff

3A-NAA-06

continued

After 50 sec motoring:

5. Engine Switch..... Check OFF

----- END -----

[INDEX](#)

Engine Hot Start On Ground

3A-NAA-07

Indications for hot start: Rapidly rising ITT approaching engine limits of 1,000 °C, or ITT hanging between 900 °C and 1,000 °C for 15 sec.

1. Engine Switch..... OFF
 2. Thrust lever..... IDLE
 3. Engine Switch..... Select Dry Motor
 4. Engine Start button..... Push to motor
- After 50 sec motoring:
5. Engine Switch..... Check OFF

----- END -----

[INDEX](#)

Engine Hung Start On Ground

3A-NAA-08

Indications: engine fails to accelerate for >30 sec.

1. Engine Switch..... OFF
 2. Thrust lever IDLE
 3. Engine Switch..... Select Dry Motor
 4. Engine Start button..... Push to motor
- After 30 sec motoring:
5. Engine Switch..... Check OFF

----- END -----

[INDEX](#)

Engine No N1 Speed At 25% N2 During Start

3A-NAA-09

N1 is still reading zero by the time N2 has accelerated to 25%.

1. Engine Switch..... OFF

Continued on next page



Engine No N1 Speed At 25% N2 During Start 3A-NAA-09

continued

2. THRUST lever IDLE
----- END -----

[INDEX](#)

Engine Partial Loss of Thrust 3A-NAA-10

One or both engines are not producing expected thrust.

May be accompanied by a FADEC Fail CAS message.

Flight through ice crystals without NAI ON may result in as much as 10% thrust loss per engine.

Indications may include a N1 split with thrust levers matched, or less than predicted N1.

1. IPS mode rotary switch..... Set to NAI ON
2. Thrust levers..... Advance as required

Note

Up to 5 minutes may be required for engine sensors to restore accurate measurements after switching NAI ON.

If unable to maintain altitude and safe airspeed:

3. ATC..... Notify
4. Aircraft..... Descend as required

More than 5 minutes after switching NAI ON or when FADEC Reset is available.

5. ENG Synoptic..... Attempt FADEC reset

If thrust not restored to normal:

6. Aircraft..... Land as soon as practical.

----- END -----

[INDEX](#)

Engine Starter Fails To Disengage 3A-NAA-11

Generator PCU has failed to shift from start mode to generator mode at appropriate N2 for starter cutout.

Indications: After start, starter still engaged and START still indicated on PFD engines display.

Continued on next page



Engine Starter Fails To Disengage

3A-NAA-11

continued

On-ground:

1. Engine Switch..... OFF

--- END ---

[INDEX](#)

In-flight (after starter assisted airstart):

IF engine indications are NOT normal:

1. [Engine Inflight Shutdown - 3-](#) Consider
NAE-07.....

IF engine indications are normal:

2. Generator Switch..... Cycle OFF then ON

Note

No damage to the starter generator or electrical system results from continued operation in this condition.

----- END -----

[INDEX](#)

Engine Thrust Lever Fails To Respond

3A-NAA-12

1. ENG synoptic..... FADEC Reset if available

IF thrust lever still unresponsive and unable to achieve appropriate approach speed due to high thrust:

2. [Engine Inflight Shutdown - 3-](#) Accomplish
NAE-07.....

IF thrust lever still unresponsive but aircraft is able to achieve appropriate approach and landing speed:

3. Associated engine..... Shutdown upon landing

----- END -----

[INDEX](#)

Fuel Suspected Leak

3A-NAA-13

WARNING

DO NOT RESTART AN ENGINE WITH A FUEL LEAK DUE TO HIGH PROBABILITY OF FIRE.

A suspected fuel leak may be indicated by:

Continued on next page



Fuel Suspected Leak

3A-NAA-13

continued

Excessive operation of fuel pumps or of the fuel balancing function, unexplained fuel odor in the cabin, visible fuel leakage (weeping, vapor plume) or erratic engine operation, non-matching fuel flows, or actual fuel remaining not corresponding roughly to expected or planned values.

A fuel leak may be indicated by one or more of the following CAS messages:

- Fuel Imbalance
- Fuel Level Low
- Fuel PRESS Low
- XFER Valve Fail

This procedure addresses a suspected fuel leak first with leak verification then source determination then pilot action.

CAUTION

This procedure will result in the termination of automatic fuel balancing, and will result in a fuel imbalance if a leak is present. Monitor fuel balance throughout this procedure.

Leak Verification:

1. THRUST levers..... Match indicated fuel flows
2. FUEL synoptic..... XFR OFF
X-FEED CLOSE
3. Fuel Balance..... Monitor
4. Aircraft..... Consider magnitude of leak
Land as soon as possible
OR land as soon as practical as required

Note

An imbalance that occurs or increases indicates fuel leak is on LOWER quantity side.

Source Determination:

IF engine fuel leak is suspected:

Note

An engine fuel leak is suspected when an imbalance occurs or increases with an accompanying same side **Fuel PRESS Low** message.

5. FUEL synoptic..... XFR from leaking side as required
Confirm correct green pump indications

Continued on next page



Fuel Suspected Leak

3A-NAA-13

continued

6. Engine Inflight Shutdown - 3- NAE-07 Consider / Accomplish

Note

If engine has been shut down and fuel quantity is NOT decreasing on the shutdown side, consider using XFR AUTO.

IF fuel tank leak is suspected:

Note

A fuel tank leak is suspected if an imbalance occurs or increases and is NOT accompanied by a same-side **Fuel PRESS Low** message.

Note

Pilot should consider transferring fuel from the leaking side (AFM limitation is 330 lb; maximum tested imbalance is 1,100 lb). If a fuel imbalance is expected to exist at any time during the approach and landing, consider disconnecting autopilot and adjust aileron trim. Prior to landing, anticipate a roll towards the heavier wing upon autopilot disconnect.

7. FUEL synoptic..... XFR from leaking side as required
Confirm correct green pump indications
8. Fuel Balance..... Monitor
IF fuel exhaustion and engine flameout on the leaking side is expected prior to landing:
9. Engine Inflight Shutdown - 3- NAE-07..... Accomplish

----- END -----

[INDEX](#)

RVSM Loss of Autopilot Altitude Hold Function in RVSM Airspace

3A-NAA-14

Autopilot altitude hold function has failed in flight.

Ensure altitude hold function of autopilot is disengaged

Maintain assigned altitude manually

Perform appropriate national RVSM contingency procedures for loss of altitude hold capability

----- END -----

[INDEX](#)



RVSM Primary Altimeter Diverge by 200 Feet or More

3A-NAA-15

Primary altimeter system is defective.

IF able to identify defective altimetry system:

Determine aircraft altitude using operating ADC

Disengage autopilot and flight director

Select operating ADC, using the flight director couple select switch (L/R)

Re-engage autopilot and flight director

Perform appropriate national RVSM contingency procedures for loss of redundancy of primary altimeters

IF unable to determine accuracy of either altimetry system:

Perform appropriate national RVSM contingency procedures for loss of all primary altimetry systems

----- END -----

[INDEX](#)

SWPS Inadvertent Pusher Operation

3A-NAA-16

Non-commanded pusher operation, rapid nose-down motion.

WARNING

NATURAL STALLS ARE NOT PREVENTED WITH THE STICK PUSHER INOPERATIVE. STALLS MUST BE AVOIDED WHEN THE STICK PUSHER IS INOPERATIVE.

1. Control wheel..... Hold against pusher action
2. AP disconnect button..... Press and hold continuously

IF pusher continues to operate and is confirmed to be erroneous:

3. Aircraft..... Observe PFD stall awareness and low speed indications, including LSA and DSB

Continued on next page



SWPS Inadvertent Pusher Operation

3A-NAA-16

continued

As time allows with aircraft NOT in icing conditions and icing not forecast or expected:

4. ECB synoptic..... Use CCD or joystick to highlight the appropriate ECB
Select STATUS softkey to view tripped ECBs, then select ALL softkey
Set R AOA Vane Heat to OUT. Expect that this will trigger PUSHER FAIL CAS message
5. AP disconnect button..... Release. Be prepared to hold AP disconnect button if pusher continues to operate erroneously

----- END -----

[INDEX](#)

SWPS Inadvertent Shaker Operation

3A-NAA-17

Stick shaker operating continuously or erroneously. This procedure applies only if all other indications including airspeed, DSB and LSA are still operating correctly.

On-ground:

1. ECB synoptic..... Use CCD or joystick to highlight the appropriate ECB
Select STATUS softkey to view tripped ECBs, then select ALL softkey
Set SHAKER ECB to OUT

--- END ---

[INDEX](#)

In-flight:

1. Aircraft..... Confirm airspeed sufficient
2. ECB synoptic..... Use CCD or joystick to highlight the appropriate ECB
Select STATUS softkey to view tripped ECBs, then select ALL softkey
Set SHAKER ECB to OUT
3. Aircraft..... Observe PFD stall awareness and low speed indications, including LSA and DSB
Avoid stall

----- END -----

[INDEX](#)



Section 3A - Abnormal Procedures (Authority approved) Non-annunciated Abnormal Procedures

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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3A-CCL Caution CAS List

| CAS Message | Procedure |
|----------------------|------------|
| * | |
| * DCPU 1A+2A Fail * | 3A-UMS-09 |
| * DCPU 1B+2B Fail * | 3A-UMS-10 |
| ** DCPU Data Fail ** | 3A-UMS-11 |
| *** DCPU 1A Fail *** | 3A-UMS-01 |
| *** DCPU 1B Fail *** | 3A-UMS-02 |
| *** DCPU 2A Fail *** | 3A-UMS-03 |
| *** DCPU 2B Fail *** | 3A-UMS-04 |
| *** DCPU 3A Fail *** | 3A-UMS-05 |
| *** DCPU 3B Fail *** | 3A-UMS-06 |
| *** DCPU 4A Fail *** | 3A-UMS-07 |
| *** DCPU 4B Fail *** | 3A-UMS-08 |
| **** L Bus Fail **** | 3A-ELEC-01 |
| **** R Bus Fail **** | 3A-ELEC-02 |
| A | |
| ADC 1 Fail | 3A-ACE-02 |
| ADC 1+2 Fail | 3A-ACE-01 |
| ADC 2 Fail | 3A-ACE-03 |
| ADC1 Static VLV Fail | 3A-ACE-04 |
| ADC2 Static VLV Fail | 3A-ACE-05 |
| AGM 1 Fail | 3A-ACE-06 |
| AGM 2 Fail | 3A-ACE-07 |
| AIL Trim Fail | 3A-FCTL-01 |
| AIOP 1A Fail | 3A-ACE-08 |
| AIOP 1A+1B Fail | 3A-ACE-09 |
| AIOP 1A+1B+2B Fail | 3A-ACE-10 |
| AIOP 1A+2B Fail | 3A-ACE-11 |
| AIOP 1B+2A Fail | 3A-ACE-12 |
| AIOP 1B+2A+2B Fail | 3A-ACE-13 |
| AIOP 1B+2B Fail | 3A-ACE-14 |
| AIOP 2A Fail | 3A-ACE-15 |
| AIOP 2A+2B Fail | 3A-ACE-16 |
| Air / Ground Fail | 3A-ACE-17 |
| Anti Skid Fail | 3A-BRKS-01 |



| CAS Message | Procedure |
|----------------------|------------|
| AOA Heat Fail ON | 3A-ACE-18 |
| AP Hold LH Wing Down | 3A-AFCS-01 |
| AP Hold Nose Down | 3A-AFCS-01 |
| AP Hold Nose Up | 3A-AFCS-01 |
| AP Hold RH Wing Down | 3A-AFCS-01 |
| APM Fail | 3A-ACE-19 |
| APM Miscompare | 3A-ACE-20 |
| ASCB Fail | 3A-ACE-21 |
| ATC Datalink Fail | 3A-ACE-22 |
| ATR Unavailable | 3A-ENG-01 |
| ATT 1 Fail | 3A-ACE-23 |
| ATT 1+2 Fail | 3A-ACE-24 |
| ATT 2 Fail | 3A-ACE-25 |
| Aural Warning Fail | 3A-ACE-26 |
| B | |
| Baggage COMP Smoke | 3A-FIRE-01 |
| BAT 1 Fail | 3A-ELEC-03 |
| BAT 1 Off | 3A-ELEC-04 |
| BAT 2 Fail | 3A-ELEC-03 |
| BAT 2 Off | 3A-ELEC-04 |
| Bus Tie 1 Closed | 3A-ELEC-05 |
| Bus Tie 1 Open | 3A-ELEC-06 |
| Bus Tie 2 Closed | 3A-ELEC-07 |
| Bus Tie 2 Open | 3A-ELEC-08 |
| C | |
| Cabin Pressure | 3A-ECS-04 |
| Check Copilot PFD | 3A-ACE-29 |
| Check DU 1 | 3A-ACE-27 |
| Check DU 1+2+3+4 | 3A-ACE-28 |
| Check DU 2 | 3A-ACE-27 |
| Check DU 3 | 3A-ACE-27 |
| Check DU 4 | 3A-ACE-27 |
| Check Engine Display | 3A-ACE-31 |
| CHECK MAG/TRUE | 3A-NAV-01 |
| Check Pilot PFD | 3A-ACE-30 |
| CMS Fail | 3A-ACE-32 |
| CPCS Fail | 3A-ECS-05 |



| CAS Message | Procedure |
|----------------------|------------|
| CPCS Manual | 3A-ECS-06 |
| CSIO 1 Fail | 3A-ACE-34 |
| CSIO 1+2 Fail | 3A-ACE-33 |
| CSIO 2 Fail | 3A-ACE-34 |
| D | |
| DU 1 OVHT | 3A-ACE-36 |
| DU 1+2+3+4 OVHT | 3A-ACE-35 |
| DU 2 OVHT | 3A-ACE-36 |
| DU 3 OVHT | 3A-ACE-36 |
| DU 4 OVHT | 3A-ACE-36 |
| E | |
| ECS Inflow Degrade | 3A-ECS-07 |
| Emergency Descent | 3A-AFCS-02 |
| EPDU 1 FAIL | 3A-ELEC-10 |
| EPDU 2 FAIL | 3A-ELEC-10 |
| EPDU 3 FAIL | 3A-ELEC-10 |
| EPDU 4 FAIL | 3A-ELEC-10 |
| EPDU Config Fail | 3A-ELEC-09 |
| F | |
| Flaps Fail | 3A-FCTL-02 |
| Flight CTRL A Fail | 3A-AFCS-03 |
| Flight CTRL A+B Fail | 3A-AFCS-05 |
| Flight CTRL B Fail | 3A-AFCS-04 |
| FMS1-GPS1 POS MISC | 3A-NAV-02 |
| FMS1-GPS1+2 POS MISC | 3A-NAV-03 |
| FMS1-GPS2 POS MISC | 3A-NAV-04 |
| FMS2-GPS1 POS MISC | 3A-NAV-05 |
| FMS2-GPS1+2 POS MISC | 3A-NAV-06 |
| FMS2-GPS2 POS MISC | 3A-NAV-07 |
| Fuel Door Open | 3A-FUEL-02 |
| Fuel Imbalance | 3A-FUEL-05 |
| Fuel X-Feed Fail | 3A-FUEL-15 |
| G | |
| Gear Actuator CTRL | 3A-GEAR-02 |
| Gear Actuator TEMP | 3A-GEAR-03 |
| Gear Mismatch | 3A-GEAR-01 |
| GEN 1 Offline | 3A-ELEC-11 |



| CAS Message | Procedure |
|----------------------|------------|
| GEN 1 Overload | 3A-ELEC-12 |
| GEN 2 Offline | 3A-ELEC-11 |
| GEN 2 Overload | 3A-ELEC-12 |
| GIO 1A Fail | 3A-ACE-37 |
| GIO 1A+1B Fail | 3A-ACE-38 |
| GIO 1A+1B+2 Fail | 3A-ACE-39 |
| GIO 1A+2 Fail | 3A-ACE-40 |
| GIO 1B+2 Fail | 3A-ACE-41 |
| GIO 2 Fail | 3A-ACE-42 |
| GPU Connected | 3A-ELEC-13 |
| H | |
| HSDI Fail | 3A-IPS-01 |
| HSDI Fail On | 3A-IPS-02 |
| HYD Pump Fail ON | 3A-BRKS-02 |
| I | |
| Ice Detector Fail | 3A-IPS-03 |
| IPS Low Energy | 3A-IPS-05 |
| IPS Off | 3A-IPS-06 |
| IPS On-TAT Limit | 3A-IPS-07 |
| L | |
| L Bleed Leak | 3A-FIRE-02 |
| L Bleed Off / Fail | 3A-ECS-03 |
| L Bleed TEMP Fail | 3A-ECS-01 |
| L ENG ISOL Fail | 3A-FIRE-03 |
| L Engine Isolated | 3A-FIRE-04 |
| L FADEC Fail | 3A-ENG-02 |
| L Fire DTECT Fail | 3A-FIRE-05 |
| L Fuel Collector Low | 3A-FUEL-01 |
| L Fuel IMP Bypass | 3A-FUEL-04 |
| L Fuel Level Low | 3A-FUEL-06 |
| L Fuel PRESS Low | 3A-FUEL-07 |
| L Fuel Pump Fail | 3A-FUEL-08 |
| L Fuel QTY Fail | 3A-FUEL-10 |
| L Fuel SOV Fail | 3A-FUEL-11 |
| L Fuel TEMP High | 3A-FUEL-13 |
| L Fuel TEMP Low | 3A-FUEL-14 |
| L GND Idle | 3A-ENG-03 |



| CAS Message | Procedure |
|----------------------|------------|
| L ITT High | 3A-ENG-04 |
| L N1 High | 3A-ENG-05 |
| L N2 High | 3A-ENG-06 |
| L NAI Fail | 3A-IPS-08 |
| L Oil Chip | 3A-ENG-07 |
| L OIL IMP Bypass | 3A-ENG-08 |
| L Oil LVL Low | 3A-ENG-09 |
| L Oil PRESS High | 3A-ENG-10 |
| L Oil PRESS Low | 3A-ENG-11 |
| L Oil TEMP High | 3A-ENG-12 |
| L Oil TEMP Low | 3A-ENG-13 |
| L PS Heat Fail | 3A-ACE-54 |
| L TAT Probe Fail | 3A-ENG-14 |
| L XFER Valve Fail | 3A-FUEL-16 |
| L+R Bleed Off / Fail | 3A-ECS-02 |
| L+R Fuel IMP Bypass | 3A-FUEL-03 |
| L+R ICE DTECT Fail | 3A-IPS-04 |
| L+R PS Heat Fail | 3A-ACE-53 |
| LH PFD CTLR Fail | 3A-ACE-52 |
| LH+RH PFD CTLR Fail | 3A-ACE-51 |
| Lift Dump Fail | 3A-FCTL-03 |
| M | |
| Mach Trim Fail | 3A-FCTL-04 |
| Main Brake Fail | 3A-BRKS-03 |
| MAINT Air Mode | 3A-ACE-43 |
| MAINT Ground Mode | 3A-ACE-44 |
| MAINT Switch | 3A-UMS-12 |
| MAU 1A Fail | 3A-ACE-45 |
| MAU 1A+1B Fail | 3A-ACE-46 |
| MAU 1A+2A Fail | 3A-ACE-47 |
| MAU 1B Fail | 3A-ACE-48 |
| MAU 1B+2A Fail | 3A-ACE-49 |
| MAU 2A Fail | 3A-ACE-50 |
| MFS Degrade | 3A-FCTL-05 |
| MMDR 1 Fail | 3A-NAV-08 |
| MMDR 1+2 Fail | 3A-NAV-10 |
| MMDR 2 Fail | 3A-NAV-09 |



| CAS Message | Procedure |
|------------------------|------------|
| O | |
| OXY Low | 3A-OXY-01 |
| P | |
| PARK / EMER Brake Fail | 3A-BRKS-04 |
| PARK / EMER Brake OFF | 3A-BRKS-06 |
| PARK / EMER Brake ON | 3A-BRKS-05 |
| Pusher Fail | 3A-AFCS-06 |
| R | |
| R Bleed Leak | 3A-FIRE-02 |
| R Bleed Off / Fail | 3A-ECS-03 |
| R Bleed TEMP Fail | 3A-ECS-01 |
| R ENG ISOL Fail | 3A-FIRE-03 |
| R Engine Isolated | 3A-FIRE-04 |
| R FADEC Fail | 3A-ENG-02 |
| R Fire DTECT Fail | 3A-FIRE-05 |
| R Fuel Collector Low | 3A-FUEL-01 |
| R Fuel IMP Bypass | 3A-FUEL-04 |
| R Fuel Level Low | 3A-FUEL-06 |
| R Fuel PRESS Low | 3A-FUEL-07 |
| R Fuel Pump Fail | 3A-FUEL-09 |
| R Fuel QTY Fail | 3A-FUEL-10 |
| R Fuel SOV Fail | 3A-FUEL-12 |
| R Fuel TEMP High | 3A-FUEL-13 |
| R Fuel TEMP Low | 3A-FUEL-14 |
| R GND Idle | 3A-ENG-03 |
| R ITT High | 3A-ENG-04 |
| R N1 High | 3A-ENG-05 |
| R N2 High | 3A-ENG-06 |
| R NAI Fail | 3A-IPS-08 |
| R Oil Chip | 3A-ENG-07 |
| R OIL IMP Bypass | 3A-ENG-08 |
| R Oil LVL Low | 3A-ENG-09 |
| R Oil PRESS High | 3A-ENG-10 |
| R Oil PRESS Low | 3A-ENG-11 |
| R Oil TEMP High | 3A-ENG-12 |
| R Oil TEMP Low | 3A-ENG-13 |
| R PS Heat Fail | 3A-ACE-55 |



| CAS Message | Procedure |
|----------------------|------------|
| R TAT Probe Fail | 3A-ENG-14 |
| R XFER Valve Fail | 3A-FUEL-16 |
| Rad Alt 1 Fail | 3A-ACE-57 |
| RH PFD CTLR Fail | 3A-ACE-52 |
| Rigging Switch | 3A-UMS-13 |
| RUD Limiter Fail | 3A-FCTL-06 |
| RUD Trim Fail | 3A-FCTL-07 |
| S | |
| Shaker Fail | 3A-AFCS-07 |
| STAB Trim Degrade | 3A-FCTL-09 |
| STAB Trim Fail | 3A-FCTL-08 |
| STBY PS Heat Fail | 3A-ACE-56 |
| System Config Fail | 3A-ACE-58 |
| T | |
| Tail Bleed Leak | 3A-FIRE-06 |
| U | |
| UMS Config | 3A-UMS-14 |
| UMS Databus Fail | 3A-UMS-15 |
| Unable FMS-GPS MON | 3A-NAV-11 |
| V | |
| Validate Config | 3A-ACE-59 |
| W | |
| WAI Bleed Leak | 3A-FIRE-07 |
| WAI Fail | 3A-IPS-09 |
| WSHLD De-Fog Degrade | 3A-ECS-08 |
| WSHLD Heat Fail | 3A-IPS-10 |
| X | |
| X-Bleed Fail Closed | 3A-ECS-09 |
| X-Bleed Fail Open | 3A-ECS-10 |
| XPDR 1 Fail | 3A-NAV-12 |
| XPDR 1+2 Fail | 3A-NAV-14 |
| XPDR 2 Fail | 3A-NAV-13 |
| XTING 1 Empty | 3A-FIRE-08 |
| XTING 2 Empty | 3A-FIRE-08 |
| Y | |
| Yaw Damper 1 Fail | 3A-AFCS-09 |
| Yaw Damper 1+2 Fail | 3A-AFCS-08 |



| CAS Message | Procedure |
|--------------------|------------|
| Yaw Damper 2 Fail | 3A-AFCS-09 |
| YD Hold Nose Left | 3A-AFCS-10 |
| YD Hold Nose Right | 3A-AFCS-10 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



3A-ACE Advanced Cockpit Environment (ACE)

ADC 1+2 Fail

3A-ACE-01

Loss of primary altitude and airspeed data. Systems inoperative: Air data to other systems, Attitude alert monitor, Autopilot, FMS Vertical Navigation, Overspeed warning.

1. Aircraft..... Use ESIS for altitude and airspeed
IF workload and flight conditions permit:
 2. ECB Synoptic..... Use CCD or joystick to highlight the appropriate ECB
Select STATUS softkey to view tripped ECBs, then select ALL softkey
Reset ADC 1 and ADC 2 ECB once only if out or tripped
- IF at least one ADC can be recovered:
 3. PFD controller..... Press ADHRS button
 4. PFD..... Select ADC 1 or ADC 2 as required, check source indication and compare data with ESIS
- IF failure persists and loss of cabin pressure automatic control and ΔP display:
 5. CPCS mode switch..... MANUAL
 6. CPCS Manual control..... Select DESCENT for 30 sec to close outflow valve
- IF **CABIN ALTITUDE** CAS warning comes on:
 7. Emergency Descent - 3-NAE-02. Accomplish

IF RVSM is applicable:

Monitor and maintain assigned altitude by using ESIS

Inform ATC to facilitate a route or altitude change to exit RVSM airspace

Note

Pilots should be aware of any national RVSM contingency procedures for loss of redundancy of primary altimetry systems.

----- END -----

[INDEX](#)

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



ADC 1 Fail 3A-ACE-02

ADC 1 has failed.

1. Pilot PFD Controller..... Press ADHRS button
Select ADC 2, confirm ADC 2 source and compare with ESIS data
2. Airspeed..... Above FL 200, maintain airspeed above 150 KIAS

IF RVSM is applicable:

Determine aircraft altitude using ADC 2 source

Cross-check aircraft altitude using ESIS. Record each altimeter reading. Record the differences between operating ADC 2 and standby altimeter readings for use in additional contingency situations. Repeat procedure each hour

Inform ATC to facilitate a route or altitude change to exit RVSM airspace

Note

Pilots should be aware of any national RVSM contingency procedures for loss of redundancy of primary altimetry systems.

----- END -----

[INDEX](#)

ADC 2 Fail 3A-ACE-03

ADC 2 has failed.

1. Copilot PFD Controller..... Press ADHRS button
Select ADC 1, confirm ADC 1 source and compare with ESIS data
2. Airspeed..... Above FL 200, maintain airspeed above 150 KIAS

IF RVSM is applicable:

Determine aircraft altitude using ADC 1 source

Cross-check aircraft altitude using ESIS. Record each altimeter reading. The differences between the operating ADC 1 altimeter and the standby altimeter readings should be noted for use in additional contingency situations. Repeat procedure each hour

Inform ATC to facilitate a route or altitude change to exit RVSM airspace

Note

Pilots should be aware of any national RVSM contingency procedures for loss of redundancy of primary altimetry systems.

----- END -----

[INDEX](#)



ADC1 Static VLV Fail

3A-ACE-04

Static Source Valve not in commanded position.

1. Pilot PFD..... Select ADC 2
2. ATC..... Notify that RVSM capability is lost.

----- END -----

[INDEX](#)

ADC2 Static VLV Fail

3A-ACE-05

Static Source Valve not in commanded position.

1. Pilot PFD..... Select ADC 1
2. ATC..... Notify that RVSM capability is lost.

----- END -----

[INDEX](#)

AGM 1 Fail

3A-ACE-06

AGM 1 has failed. Pilot PFD and upper MFD display red X.

1. Display Reversion Controller..... Select AGM2 for Pilot PFD
2. Upper MFD..... OFF

----- END -----

[INDEX](#)

AGM 2 Fail

3A-ACE-07

AGM2 has failed. Copilot PFD and lower MFD display red X.

1. Display Reversion Controller..... Select AGM1 for Copilot PFD
2. Lower MFD..... OFF

----- END -----

[INDEX](#)

AIOP 1A Fail

3A-ACE-08

Actuator I / O Processor 1 has failed. AP function is lost.

1. Pilot PFD Controller..... Press ADHRS button
2. Pilot PFD..... Select ADC 2, confirm ADC 2 source and compare with ESIS data
3. Airspeed..... Above FL 200, maintain airspeed above 150 KIAS

----- END -----

[INDEX](#)



| AIOP 1A+1B Fail | 3A-ACE-09 |
|--|---|
| AIOP 1A+1B has failed. Systems inoperative: Autothrottle, ECL. | |
| 1. Pilot PFD Controller..... | Press ADHRS button |
| 2. Pilot PFD..... | Select ADC 2 on Sensor Selection Window |
| 3. PFD Controller..... | Select FMS 2 if FMS required |
| ----- END ----- | |
| INDEX | |

| AIOP 1A+1B+2B Fail | 3A-ACE-10 |
|--|---|
| AIOP 1A+1B+2B has failed. Systems inoperative: Autopilot, Autothrottle, ECL, FMS (Both), Yaw Damper. | |
| 1. Pilot PFD Controller..... | Press ADHRS button |
| 2. Pilot PFD..... | Select ADC 2 on Sensor Selection Window |
| 3. Navigation..... | Revert to Radio Navigation |
| ----- END ----- | |
| INDEX | |

| AIOP 1A+2B Fail | 3A-ACE-11 |
|--|---|
| AIOP 1A+2B has failed. Systems inoperative: Autopilot, Autothrottle, Yaw Damper. | |
| 1. Pilot PFD Controller..... | Press ADHRS button |
| 2. Pilot PFD..... | Select ADC 2, confirm ADC 2 source and compare with ESIS data |
| 3. Pilot PFD Controller..... | If using FMS 1, select FMS 2 |
| ----- END ----- | |
| INDEX | |

| AIOP 1B+2A Fail | 3A-ACE-12 |
|---|---|
| AIOP 1B+2A has failed. Systems inoperative: Autopilot, Autothrottle, ECL, Yaw Damper. | |
| 1. Copilot PFD Controller..... | Press ADHRS button |
| 2. Copilot PFD..... | Select ADC 1 on Sensor Selection Window |
| 3. Pilot PFD Controller..... | Select FMS 1 if FMS required |
| ----- END ----- | |
| INDEX | |



AIOP 1B+2A+2B Fail

3A-ACE-13

AIOP 1B+2A+2B has failed. Systems inoperative: Autopilot, Autothrottle, ECL, FMS, Yaw Damper.

1. Copilot PFD Controller..... Press ADHRS button
2. Copilot PFD..... Select ADC 1 on Sensor Selection Window

----- END -----

[INDEX](#)

AIOP 1B+2B Fail

3A-ACE-14

AIOP 1B+2B has failed. Systems inoperative: Autopilot, Autothrottle, ECL, FMS, Yaw Damper.

1. Navigation..... Revert to Radio Navigation if required

----- END -----

[INDEX](#)

AIOP 2A Fail

3A-ACE-15

Actuator I / O Processor 2 has failed. AP function is lost.

1. Pilot PFD Controller..... Press ADHRS button
2. Pilot PFD..... Select ADC 2, confirm ADC 1 source and compare with ESIS data
3. Airspeed..... Above FL 200, maintain airspeed above 150 KIAS

----- END -----

[INDEX](#)

AIOP 2A+2B Fail

3A-ACE-16

AIOP 2A+2B has failed. Loss of redundancy only.

1. Copilot PFD Controller..... Press ADHRS button
2. Copilot PFD..... Select ADC 1 on Sensor Selection Window
3. PFD Controller..... Select FMS 1 if FMS required

----- END -----

[INDEX](#)



Air / Ground Fail

3A-ACE-17

ACE™ system cannot determine the air / ground status. ACE system defaults to IN AIR mode.

No action required in air.

On-ground only:

1. Aircraft..... Maintenance required

----- END -----

[INDEX](#)

AOA Heat Fail ON

3A-ACE-18

L and / or R AOA sensor heater is failed ON and continuously heated on ground.

On-ground only with engine not running.

1. BAT 1+2..... OFF

----- END -----

[INDEX](#)

APM Fail

3A-ACE-19

Aircraft personality module has failed.

On-ground only:

1. Aircraft..... Maintenance required

----- END -----

[INDEX](#)

APM Miscompare

3A-ACE-20

Aircraft personality modules 1 and 2 do not agree.

On-ground only:

1. Aircraft..... Maintenance required

----- END -----

[INDEX](#)

ASCB Fail

3A-ACE-21

Aircraft Standard Communications Bus has failed.

1. Displayed data..... Cross check PFD with ESIS. Check engine instruments. Check system summary window

All flight data looks normal - Single ASCB Failure is indicated:

2. Displays..... Monitor for remainder of flight

--- END ---

[INDEX](#)

Continued on next page



ASCB Fail

3A-ACE-21

continued

Some or all flight data is suspect - Dual ASCB failure is indicated:

2. Aircraft..... Use ESIS as primary air data and attitude reference

--- END ---

[INDEX](#)

Above 10,000 ft AMSL and ΔP and / or CAB ALT indications are suspect or lost:

2. Crew Oxygen Mask..... Don / 100%

Note

If no smoke is present, consider setting the crew oxygen mask to normal to reduce oxygen consumption.

3. Aircraft..... Descend to below 10,000 ft or MSA as required

--- END ---

[INDEX](#)

Prior to landing:

2. Cabin Pressure Switch..... DUMP

----- END -----

[INDEX](#)

ATC Datalink Fail

3A-ACE-22

Inform ATC capability is lost.

----- END -----

[INDEX](#)

ATT 1 Fail

3A-ACE-23

Loss of IRS Attitude and Directional 1 data. Loss of RNP AR operation.

1. Pilot PFD Controller..... Press ADHRS button

Note

If message clears, monitor IRS navigation page and confirm system back to navigation mode. Only attitude will be displayed until air alignment completed.

2. Pilot PFD..... Select ATT 2, confirm ATT 2 source and compare with ESIS data

----- END -----

[INDEX](#)

**ATT 1+2 Fail****3A-ACE-24**

Loss of both main Attitude & Directional sources. Autopilot is inoperative. INAV map position remains available, however the aircraft symbol will be replaced with the non-directional symbol as heading data is not available.

1. Aircraft..... Use ESIS for primary attitude reference
IF workload and flight conditions permit, attempt to re-align AHRS 2 first (<1 min):
2. Aircraft..... Wings level, no pitch changes
3. ECB Synoptic..... Use CCD or joystick to highlight the appropriate ECB
Select STATUS softkey to view tripped ECBs, then select ALL softkey
Check / reset AHRS ECB once
IF at least one attitude source re-alignment is successful:
4. PFD controller..... Press ADHRS button
5. PFD..... Select ATT 2 (ADHRS) or ATT 1 (IRS) as required, check source indication and compare data with ESIS
6. Aircraft..... Use ESIS for primary attitude reference
7. Aircraft..... Land as soon as practical

----- END -----

[INDEX](#)**ATT 2 Fail****3A-ACE-25**

Loss of ADHRS Attitude & Directional 2 data.

1. Copilot PFD Controller..... Press ADHRS button
2. Copilot PFD..... Select ATT 1, confirm ATT 1 source and compare with ESIS data

----- END -----

[INDEX](#)



Aural Warning Fail

3A-ACE-26

All aural warnings except TCAS and TAWS are inhibited.

1. AURAL DISABLE switch..... Check push button is dark / OUT
IF push button is dark / OUT:
2. AURAL DISABLE switch..... Push IN then push OUT to reset

If the message remains, no aural warnings except TCAS and TAWS will be audible.
Inhibited aural warnings include master warning tone, master caution tone, voice callouts, stall voice callout, autopilot tones and ACE™ system tones.

----- END -----

[INDEX](#)

Check DU 1

Check DU 2

3A-ACE-27

Check DU 3

Check DU 4

Note

Or any other combination of 2 or 3 Check DU failure indications.

1. Display(s)..... Check relevant display(s)
IF display is blank or suspect:

Note

If more than one display has failed, wait 10 sec after switching OFF the first affected DU. This allows the system time to reconfigure.

2. Reversion controller..... Set respective DU control selector OFF/ REV

Note

Basic Autopilot operation is independent of DU availability. Use annunciation of the Flight Guidance Controller and attempt to continue using the autopilot.

----- END -----

[INDEX](#)

**Check DU 1+2+3+4****3A-ACE-28**

All four displays blank, indicate red X or suspect.

1. Flight..... Use ESIS as primary source
2. MAU 1 PWR 1 CB [Left Cockpit ESS BUS CB Panel]..... PULL, wait five sec, RESET

Note

Expect multiple CAS caution tones during reset process.

IF no displays return after approximately one min:

3. Display reversion panel..... One at a time, switch each display OFF, wait five sec, then switch display back ON

IF no displays return and above 10,000 ft MSL and no additional indication of cabin altitude:

3. Crew Oxygen Mask..... On
 4. Communication..... Establish, use EMRG COM 1 if required
 5. Aircraft..... Land as soon as practical.
- Descend below 10,000 ft or MSA if higher

With four inoperative displays, there are no fuel, engines, or other system indications. Consider approximate fuel state for landing. Fuel flow can be estimated using performance tables. There will be no available system indications of gear and flap state. Consider using Flaps 15° and an additional margin on V_{REF} and landing performance estimates.

Prior to landing:

6. Cabin Pressure Switch..... Dump

----- END -----

[INDEX](#)

Check Copilot PFD**3A-ACE-29**

Copilot PFD is displaying faulty data.

1. Display..... Crosscheck with Pilot PFD
IF data confirmed to be suspect:
2. Reversion Controller..... Set Copilot PFD control selector to AGM1

----- END -----

[INDEX](#)



| Check Pilot PFD | 3A-ACE-30 |
|--------------------------------------|--|
| Pilot PFD is displaying faulty data. | |
| 1. Display..... | Crosscheck with Copilot PFD or ESIS |
| IF data confirmed to be suspect: | |
| 2. Reversion Controller..... | Set Pilot PFD control selector to AGM2 |
| ----- END ----- | |
| | INDEX |

| Check Engine Display | 3A-ACE-31 |
|----------------------------------|--|
| PFD Engine data suspect. | |
| 1. Display..... | Crosscheck Pilot and Copilot PFD data and MFD ENG synoptic |
| IF data confirmed to be suspect: | |
| 2. Reversion Controller..... | Set Pilot PFD control selector to AGM2 |
| ----- END ----- | |
| | INDEX |

| CMS Fail | 3A-ACE-32 |
|--------------------------------------|-----------------------|
| Central maintenance function failed. | |
| 1. Aircraft..... | Maintenance required |
| ----- END ----- | |
| | INDEX |

| CSIO 1+2 Fail | 3A-ACE-33 |
|--|------------------------|
| Custom input output card 1 and 2 have failed. Systems inoperative: Audio Panel mode indications, Aural warnings, CPCS manual data, DME 1, ECB status, FDR, HF Radio, Synoptic status pages, TCAS, XPDR 2 | |
| 1. XPDR..... | Verify XPDR 1 selected |
| ----- END ----- | |
| | INDEX |



| CSIO 1 Fail | CSIO 2 Fail | 3A-ACE-34 |
|---|-------------|-----------|
| CAUTION | | |
| <p>After turning on batteries or external power, leave power on for at least 30 seconds. ECU channels require a minimum of 30 seconds to complete their P-BIT. Power reset during the FADEC system P-BIT results in an "Unexpected Power Reset" fault, which may lead to a latched FADEC Fail, which can only be reset by maintenance action.</p> | | |
| <p>The indicated custom input output card has failed. Inoperative systems with CSIO 1 Fail: HF Radio, XPDRA 2. Inoperative systems with CSIO 2 Fail: audio panel mode indications, aural warnings, CPCS manual data, DME 1, ECB status, FDR, Synoptic status page, TCAS.</p> <p><i>On ground only:</i></p> <ol style="list-style-type: none"> 1. BAT 1 switch..... ON for minimum 10 minutes if OAT \geq 0 °C, or, ON for minimum of 15 minutes if OAT < 0 °C | | |
| <p>Note</p> <p>Turning on BAT 1 will heat up the CSIO cards.</p> | | |
| <ol style="list-style-type: none"> 2. BAT 1 switch..... OFF for minimum of 15 seconds 3. BAT 1 switch..... ON <p><i>If message returns:</i></p> <p>Repeat above procedure as required. Respect battery limitations for start and use external power if required.</p> <p><i>If message clears:</i></p> <p>Perform normal startup procedure.</p> | | |
| ----- END ----- | | |
| INDEX | | |

| DU 1+2+3+4 OVHT | 3A-ACE-35 |
|--|-----------|
| DUs 1+2+3+4 have overheated. | |
| <ol style="list-style-type: none"> 1. Aircraft..... Use ESIS 2. PFD or MFD CB / ECB..... Pull two of the suspect display CB / ECB if available For ECB, use CCD or joystick to highlight the appropriate ECB 3. Reversion controller..... Select STATUS softkey to view tripped ECBs, then select ALL softkey Set affected DU control selector to OFF / REV | |
| <i>Continued on next page</i> | |



DU 1+2+3+4 OVHT

3A-ACE-35

continued

Note

If any of the currently operating DUs subsequently fail, consider recovering a previously switched off DU.

4. Aircraft..... Land as soon as practical

CAUTION

If all displays subsequently fail, refer to [ADC 1 Fail - 3A-ACE-02 procedure](#).

----- END -----

[INDEX](#)

DU 1 OVHT DU 3 OVHT

DU 2 OVHT DU 4 OVHT

3A-ACE-36

Note

Or any other combination of 2 or 3 DU OVHT failure indications.

1. Display(s)..... Check relevant display(s)
2. Reversion Controller..... Set respective DU control selector OFF / REV
3. Relevant PFD or MFD CB / ECB
Pull if available
For ECB, use CCD or joystick to highlight the appropriate ECB
Select STATUS softkey to view tripped ECBs, then select ALL softkey
4. Display data..... Crosscheck with ESIS

----- END -----

[INDEX](#)

GIO 1A Fail

3A-ACE-37

ACE™ MAU 1A Generic Input / Output card has failed. This leads to a loss of MMDR 1.

1. COM and NAV..... Use COM 2 and NAV 2

----- END -----

[INDEX](#)



GIO 1A+1B Fail

3A-ACE-38

GIO 1 has failed. Systems inoperative: Autothrottle, CPCS indication, DME 1, ECL, FDR, Landing gear indication, RAD ALT, Weather Radar.

1. Display Reversion Controller..... Pilot PFD select AGM2
2. Pilots PFD Controller..... Select FMS2 if required
3. Flight Guidance Panel..... Couple to right
4. Windows Focus..... Select Copilot
5. Use CCD / MFC Joystick PFD.... Select XPDR 2 (Via Detail on Controller)
6. XPDR, COM 2 and NAV 2..... Tune as required

----- END -----

[INDEX](#)

GIO 1A+1B+2 Fail

3A-ACE-39

GIO 1A+1B+2 has failed. Systems inoperative: ACE (All Navigation and Communication systems), AFCS, Display Units (Invalid data will be displayed), **CPCS Fail** CAS message will display, Landing gear indications,

1. Aircraft..... Use ESIS
2. Communication..... Tune MMDR 1 to EMER frequency 121.50 MHz
3. CPCS Mode..... Select MAN
4. Aircraft..... Land as soon as practical

----- END -----

[INDEX](#)



GIO 1A+2 Fail

3A-ACE-40

GIO 1A+2 has failed. Systems inoperative: Copilot PFD (softkey function), Datalink, ECB Status page (softkey function), Lower MFD (softkey function), MMDR 1 + 2 (last tuned frequency locked), XPDR 1 + 2.

1. Copilot PFD Controller..... Select ADHRS
2. Sensor Selection Window..... Select ATT / HDG 1 and ADC 1
3. Communication..... Tune MMDR 1 to EMER frequency 121.50 MHz if required
4. Transponder..... Verify with ATC

----- END -----

[INDEX](#)

GIO 1B+2 Fail

3A-ACE-41

GIO 1B+2 has failed. Systems inoperative: Copilot PFD (softkey function), Datalink, ECB Status page (softkey function), Lower MFD (softkey function), MMDR 1 + 2 (last tuned frequency locked).

1. Copilot PFD Controller..... Select ADHRS
2. Sensor Selection Window..... Select ATT / HDG 1 and ADC 1
3. Communication..... Tune MMDR 1 to EMER frequency 121.50 MHz if required
4. Transponder..... Verify with ATC

----- END -----

[INDEX](#)

GIO 2 Fail

3A-ACE-42

ACE™ MAU 2 Generic Input / Output card has failed. This leads to a loss of MMDR 2, AHRS 2 and ADC 2, TCAS and Datalink.

1. Copilot PFD Controller..... Select ADHRS
2. Sensor Selection Window..... Select ATT/HDG 1 and ADC 1
3. Communication..... Use MMDR 1
4. Transponder..... Verify with ATC

----- END -----

[INDEX](#)



MAINT Air Mode 3A-ACE-43

ACE™ system is in the indicated Maintenance mode.

On-ground only:

1. Aircraft..... Maintenance required

----- END -----

[INDEX](#)

MAINT Ground Mode 3A-ACE-44

ACE™ system is in the indicated Maintenance mode.

On-ground only:

1. Aircraft..... Maintenance required

----- END -----

[INDEX](#)

MAU 1A Fail 3A-ACE-45

MAU 1 Channel A has failed. Pilot PFD and Upper MFD display red X. Systems inoperative: Autopilot (Will remain active if engaged, but can revert to ROL / PIT), Autothrottle, DME 1, FADEC, FGP (LEDs will not illuminate. Check selections on FMA), Stick Pusher, TCAS, TAWS, XPDR 1.

Note

In case of any MAU reset, ECB synoptic page may not be properly synchronized.
Prior to commanding any ECB:

- Use CCD or joystick to highlight the appropriate ECB
- Select STATUS softkey to view tripped ECBS
- Select ALL softkey.

1. Display Reversion Controller..... Pilot PFD select AGM2
2. Upper MFD..... Select OFF
3. XPDR..... Select XPDR 2
4. Navigation Source..... Select FMS2
5. Airspeed..... Above FL 200, maintain airspeed above 150 KIAS

----- END -----

[INDEX](#)



MAU 1A+1B Fail

3A-ACE-46

MAU 1 has failed. Systems inoperative: Autothrottle, CPCS indications, Datalink, DME 1, ECL, Landing Gear indications, RAD ALT, TCAS, Weather Radar.

Note

In case of any MAU reset, ECB synoptic page may not be properly synchronized.
Prior to commanding any ECB:

- Use CCD or joystick to highlight the appropriate ECB
- Select STATUS softkey to view tripped ECBs
- Select ALL softkey.

1. Display Reversion Controller..... Pilot PFD select AGM2
2. Pilot PFD Controller..... Select FMS2 if FMS required
3. Windows Focus..... Select Copilot PFD
4. Use CCD / MFC Joystick..... Select XPDR 2 (via Detail on PFD Controller)
5. XPDR / COM2 / NAV2..... Tune as required

----- END -----

[INDEX](#)

MAU 1A+2A Fail

3A-ACE-47

MAU A channel of MAU 1+2 has failed. All four displays are dark. Systems inoperative: ACE (Complete Avionics suite except COM 1 EMER Frequency)

Note

In case of any MAU reset, ECB synoptic page may not be properly synchronized.
Prior to commanding any ECB:

- Use CCD or joystick to highlight the appropriate ECB
- Select STATUS softkey to view tripped ECBs
- Select ALL softkey.

1. Aircraft..... Use ESIS
2. Communication..... Select EMER frequency 121.50 MHz

----- END -----

[INDEX](#)



MAU 1B Fail

3A-ACE-48

MAU 1 channel B has failed. No pilot action required.
Datalink and global weather systems are inoperative.

Note

In case of any MAU reset, ECB synoptic page may not be properly synchronized. Prior to commanding any ECB:

- Use CCD or joystick to highlight the appropriate ECB
- Select STATUS softkey to view tripped ECBs
- Select ALL softkey.

----- END -----

[INDEX](#)

MAU 1B+2A Fail

3A-ACE-49

MAU 1 channel B and MAU 2 channel A has failed. The following systems have been affected: Datalink, EPGWF, Global Weather, Stormscope, TAWS, TCAS, Weather Radar (control functions).

Note

In case of any MAU reset, ECB synoptic page may not be properly synchronized. Prior to commanding any ECB:

- Use CCD or joystick to highlight the appropriate ECB
- Select STATUS softkey to view tripped ECBs
- Select ALL softkey.

1. Display Reversion Controller..... Copilot PFD select AGM 1
2. Pilots PFD Controller..... Select FMS 1 if FMS required
3. Windows Focus..... Select Copilot PFD
4. Use CCD / MFC Joystick..... Select XPDR 2 (via Detail on PFD Controller)
5. COM 1 and NAV 1..... Tune as required

----- END -----

[INDEX](#)



MAU 2A Fail

3A-ACE-50

MAU 2 channel A has failed. Systems inoperative: EPGWF, Stormscope, TAWS, TCAS.

Note

In case of any MAU reset, ECB synoptic page may not be properly synchronized.
Prior to commanding any ECB:

- Use CCD or joystick to highlight the appropriate ECB
- Select STATUS softkey to view tripped ECBs
- Select ALL softkey.

1. Display Reversion Controller..... Copilot PFD select AGM1
2. Pilots PFD Controller..... Select FMS1 if FMS required
3. Windows Focus..... Select Copilot PFD
4. Use CCD / MFC Joystick..... Select XPDR 2 (via Detail on PFD Controller)
5. Airspeed..... Above FL 200, maintain airspeed above 150 KIAS
6. COM1 and NAV1..... Tune as required

----- END -----

[INDEX](#)

LH+RH PFD CTLR Fail

3A-ACE-51

Both PFD controllers reporting faults.
On-ground only.

1. Aircraft..... Maintenance required

----- END -----

[INDEX](#)

LH PFD CTLR Fail

RH PFD CTLR Fail

3A-ACE-52

The indicated PFD controller reports a fault.
On-ground only.

1. Aircraft..... Maintenance required

----- END -----

[INDEX](#)



L+R PS Heat Fail

3A-ACE-53

Both the L+R pitot-static probe heat elements are not operating when commanded on. **ADC1 Static VLV CLSD** and **ADC2 Static VLV CLSD** are indicating that the static valves are closed as commanded.

On-ground with both engines running:

1. ECB Synoptic..... Check both L and R PS Heat for Trip, Fail or Out.
Use CCD or joystick to highlight the appropriate ECB
Select STATUS softkey to view tripped ECBs, then select ALL softkey
If tripped or out, only one reset attempt permitted

--- END ---

[INDEX](#)

In-flight:

1. ESIS..... Reference for air data
2. ATC..... Inform about loss of RVSM capability
3. ECB Synoptic..... Check both L and R PS Heat for Trip, Fail or Out
Use CCD or joystick to highlight the appropriate ECB
Select STATUS softkey to view tripped ECBs, then select ALL softkey
If tripped or out, only one reset attempt permitted
If only one PS Heat will reset, refer to single failure case

IF **L+R PS Heat Fail** CAS message disappears and remains clear for at least one minute and there is no IAS or ALT miscompare:

4. PFD..... Reference for air data
5. Aircraft..... Avoid icing conditions

----- END -----

[INDEX](#)



L PS Heat Fail

3A-ACE-54

Left pitot-static probe heat element is not operating when commanded on. **ADC1 Static VLV CLSD** is indicating that the static valve is closed as commanded.

On-ground with both engines running:

1. Cockpit CB Panel..... CB Pitot Heat L check
If tripped or out, only one reset attempt permitted

--- END ---

[INDEX](#)

In-flight:

1. ESIS..... Reference for air data
2. ATC..... Inform about loss of RVSM capability
3. Pilot PFD controller..... Press ADHRS button
4. Airspeed..... Above FL 200, maintain airspeed above 150 KIAS
5. Pilot PFD..... Select ADC 2, confirm source and compare with ESIS data
6. Cockpit CB Panel..... CB Pitot Heat L check
If tripped or out, only one reset attempt permitted

IF **L PS Heat Fail** CAS message disappears and remains clear for at least one minute and there is no IAS or ALT miscompare:

7. Pilot PFD..... Reselect ADC1

----- END -----

[INDEX](#)



R PS Heat Fail

3A-ACE-55

Right pitot-static probe heat element is not operating when commanded on. **ADC2 Static VLV CLSD** is indicating that the static valve is closed as commanded.

On-ground with both engines running:

1. ECB Synoptic..... Check R PS Heat for Trip, Fail or Out
Use CCD or joystick to highlight the appropriate ECB
Select STATUS softkey to view tripped ECBs, then select ALL softkey
If tripped or out, only one reset attempt permitted

--- END ---

[INDEX](#)

In-flight:

1. ESIS..... Reference for air data
2. ATC..... Inform about loss of RVSM capability
3. Copilot PFD controller..... Press ADHRS button
4. Airspeed..... Above FL 200, maintain airspeed above 150 KIAS
5. Copilot PFD..... Select ADC 1, confirm ADC 1 source and compare with ESIS data
6. ECB Synoptic..... Check R PS Heat for Trip, Fail or Out
Use CCD or joystick to highlight the appropriate ECB
Select STATUS softkey to view tripped ECBs, then select ALL softkey
If tripped or out, only one reset attempt permitted

IF **R PS Heat Fail** CAS message disappears and remains clear for at least one minute and there is no AS or ALT miscompare:

7. Copilot PFD..... Reselect ADC2

----- END -----

[INDEX](#)

STBY PS Heat Fail

3A-ACE-56

Standby pitot-static probe heat element is not operating when it has been commanded on. STBY PS Probe provides Air Data for L ESIS only.

In-flight:

1. L ESIS airspeed / altitude..... Disregard. Use L+R PFD Data

----- END -----

[INDEX](#)



Rad Alt 1 Fail

3A-ACE-57

Radar Altimeter has failed.

The following functions have been lost: Radar altitude indication on PFD, Synthetic Vision below 2,500 ft, Terrain not available.

----- END -----

[INDEX](#)

System Config Fail

3A-ACE-58

ACE™ system software is in wrong configuration.

On-ground only:

1. Aircraft..... Maintenance required

----- END -----

[INDEX](#)

Validate Config

3A-ACE-59

ACE™ system software must be validated by maintenance.

On-ground only:

1. Aircraft..... Maintenance required

----- END -----

[INDEX](#)



Section 3A - Abnormal Procedures (Authority approved)
Advanced Cockpit Environment (ACE)

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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3A-AFCS Autopilot

| | | |
|----------------------|-------------------|------------|
| AP Hold LH Wing Down | AP Hold Nose Down | 3A-AFCS-01 |
| AP Hold RH Wing Down | AP Hold Nose Up | |

Autopilot servos are holding a force.

CAUTION

If autopilot disengages, high flight control forces may be present due to untrimmed flight condition.

1. Airplane control wheel Grasp firmly and regain aircraft control
2. Autopilot Disengage switch..... Press to disengage the autopilot (pilot or copilot wheel)
3. Aircraft..... Retrim manually as necessary
4. Autopilot..... Engage as required
IF message reappears:
5. Aircraft..... Disengage autopilot as above and continue flight without autopilot

----- END -----

[INDEX](#)

Emergency Descent

Cabin Altitude

3A-AFCS-02

If autopilot is engaged, Emergency Descent Mode (EDM) will be triggered by a Cabin Altitude warning. Autopilot will command the aircraft to turn 90° to the left, descend at V_{MO} / M_{MO} to FL 150 and level off. Descent will be initiated in FLC-Mode, Autothrottles will automatically be engaged and levers will move back to IDLE.

In-flight, with **Cabin Altitude** CAS message present:

1. Cabin Altitude - 3-ECS-01..... Accomplish

--- END ---

[INDEX](#)

In-flight, with **Cabin Altitude** CAS NOT present and cabin altitude is within normal limits:

1. Autopilot..... Disconnect

CAUTION

Do not use Autopilot or Autothrottles while **Emergency Descent** CAS message is displayed.

2. Autothrottles..... Disconnect

----- END -----

[INDEX](#)



Flight CTRL A Fail

3A-AFCS-03

The Flight Controller Channel A has failed. Message is only displayed on the ground. Channel redundancy is lost.

1. Aircraft..... Do not dispatch if YD required

----- END -----

[INDEX](#)

Flight CTRL B Fail

3A-AFCS-04

The Flight Controller Channel B has failed. Message is only displayed on the ground. Channel redundancy is lost.

1. Aircraft..... Do not dispatch if YD required

----- END -----

[INDEX](#)

Flight CTRL A+B Fail

3A-AFCS-05

Both Flight Controller channels have failed. Autopilot, Flight Director, Autothrottles, Altitude Alerter, Heading Select and Yaw Damper are lost. Message is amber on the ground or cyan in flight.

On-ground:

1. ECB synoptic.....
 - Use CCD or joystick to highlight the appropriate ECB
 - Select STATUS softkey to view tripped ECBs, then select ALL softkey
 - Cycle FGP CH B ECB out for five sec then back IN

IF message remains:

2. Aircraft..... Do not dispatch if AP and YD required for flight

----- END -----

[INDEX](#)



Pusher Fail

3A-AFCS-06

Pusher has failed. The aircraft stall protection is lost. The LSA and DSB may be unreliable.

Note

If there is an **ADC 1 Fail** or **ADC 2 Fail** or **IAS?** on the PFD, the Shaker is not compensated for Mach, but has a conservative threshold, which will activate prior to natural stall up to Mach 0.35.

On-ground:

1. Aircraft..... Maintenance required

--- END ---

[INDEX](#)

In-flight:

1. Airspeed..... With flaps UP, maintain airspeed greater than 150 KIAS to avoid stall

For approach and landing, use reference speeds according to weight and configuration

2. ECB synoptic..... Use CCD or joystick to highlight the appropriate ECBs

Select STATUS softkey to view tripped ECBs, then select ALL softkey

Confirm L AOA VANE Heat and R AOA VANE. Heat ECBs are IN. If one of these ECBs is OUT, one reset attempt is permitted

Note

If accompanied by an **LSA Fail** advisory and the AOA vane indicator on the IPS page is in amber color, then AOA heating has failed. Reference LSA on working side and consider exiting and avoiding icing conditions.

----- END -----

[INDEX](#)



Shaker Fail

3A-AFCS-07

The vibrating yoke stall warning has failed. Also Pusher will be failed.

On-ground:

Note

LSA could be erroneous on both PFDs. Do not rely on LSA and DSB.

1. Aircraft..... Maintenance required

--- END ---

[INDEX](#)

In flight:

1. Aircraft..... Avoid stall

Use reference speeds according to configuration

2. ECB Synoptic..... Use CCD or joystick to highlight the appropriate ECB

Select STATUS softkey to view tripped ECBs, then select ALL softkey

Check SHAKER ECB is IN

If SHAKER ECB is OUT, one reset attempt is permitted

----- END -----

[INDEX](#)



Yaw Damper 1+2 Fail

3A-AFCS-08

Yaw damper 1+2 have failed below 30,000 ft.

On ground:

CAUTION

With Yaw Damper 1+2 Fail message flight is limited to below 30,000 ft.

1. Aircraft..... Restrict altitude for planned flight to below 30,000 ft

--- END ---

[INDEX](#)

In-flight:

1. YD..... Attempt to re-engage

IF unsuccessful:

2. ECB Synoptic..... Use CCD or joystick to highlight the appropriate ECB

Select STATUS softkey to view tripped ECBs, then select ALL softkey

Cycle Yaw Damper ECB out for five sec then back IN

IF message remains:

3. Aircraft..... Maintain altitude below 30,000 ft

----- END -----

[INDEX](#)

Yaw Damper 1 Fail

Yaw Damper 2 Fail

3A-AFCS-09

The indicated yaw damper has failed and aircraft is above 30,000 ft. This message will turn cyan once the aircraft is below 30,000 ft.

1. Aircraft..... Consider descending and remaining below 30,000 ft due to loss of YD redundancy

----- END -----

[INDEX](#)



YD Hold Nose Left

YD Hold Nose Right

3A-AFCS-10

Yaw Damper is holding a force.

CAUTION

If Yaw Damper disengages, high rudder force may be present due to untrimmed flight condition.

1. Rudder Pedals..... Place feet firmly on rudder pedals in case of YD disconnect
 2. RUD TRIM switch..... Trim rudder for balanced flight as required
- IF message remains:
3. Aircraft..... Decelerate and descend below 30,000 ft
Below 30,000 ft:
 4. Yaw Damper..... Disengage

----- END -----

[INDEX](#)



3A-BRKS Brakes

Anti Skid Fail

3A-BRKS-01

The anti-skid system is not available.

Note

UMS Build 9.0 and higher (MSN 101 - 290 post SB 42-020, and MSN 291 - UP): Cycling the anti-skid system is not possible if these CAS Caution messages are shown:

- ***** DCPU 3A Fail *****
- ***** DCPU 3B Fail *****
- ***** DCPU 4A Fail *****
- ***** DCPU 4B Fail *****

Note

The system takes approximately seven seconds to reset the anti-skid and for normal indications to return if reset was successful.

1. Brakes Synoptic..... Cycle ANTI SKID AUTO-OFF-AUTO
IF caution persists:
2. Wheel brakes..... Use with caution
3. Aircraft..... Consider runway length and braking performance. Landing distance may be increased.

Refer to Abnormal Landing information in AFM Section 5 for abnormal factor for landing with anti-skid failure.

----- END -----

[INDEX](#)

HYD Pump Fail ON

3A-BRKS-02

Brake hydraulic pump is running when not commanded.

CAUTION

Pump may overheat. Prepare [Main Brake Fail - 3A-BRKS-03](#) if pump operation cannot be restored.

1. Brakes Synoptic..... PUMP OFF

Continued on next page

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

**HYD Pump Fail ON****3A-BRKS-02**

continued

IF caution persists:

2. ECB synoptic..... Use CCD or joystick to highlight the appropriate ECB
Select STATUS softkey to view tripped ECBs, then select ALL softkey
Brake CNTL ECB OUT
- Before landing:
3. ECB synoptic..... Use CCD or joystick to highlight the appropriate ECB
Select STATUS softkey to view tripped ECBs, then select ALL softkey
Brake CNTL ECB IN
Pump AUTO, Hydraulic Px Check

----- END -----

[INDEX](#)**Main Brake Fail****3A-BRKS-03**

BIT failure or low pressure in brake system.

*On-ground:***Note**

Some brake pressure may still be available from the main brake system.

1. PARK / EMER brake..... Use to stop the aircraft
2. Aircraft..... Do not taxi with caution displayed
3. ECB synoptic..... Use CCD or TSC touchpad / MFC joystick to highlight the 0 Brake CTRL ECB
If 0 Brake CTRL ECB is tripped, set to IN (only once)
If 0 Brake CTRL ECB is not tripped, cycle the ECB OUT for five seconds then back IN

--- END ---

[INDEX](#)*Continued on next page*

**Main Brake Fail****3A-BRKS-03**

continued

In-flight:

1. ECB synoptic..... Use CCD or TSC touchpad / MFC joystick to highlight the 0 Brake CTRL ECB
If 0 Brake CTRL ECB is tripped, set to IN (only once)
If 0 Brake CTRL ECB is not tripped, cycle the ECB OUT for five seconds then back IN

IF caution remains

CAUTION**Anti-skid protection is not available when using the PARK / EMER brake system.**

2. Landing Performance..... Refer to Abnormal Landing information in AFM Section 5 for reference table and factor for landing using Emergency Brake

Approximately one minute prior to landing:

3. Brakes Synoptic..... Consider selecting PUMP ON. This may provide some main brake pressure for a limited time

Note

PARK / EMER brake system is sized to provide a minimum of six full PARK / EMER brake applications.

After touchdown:

4. Main wheelbrakes..... Consider applying if pressure is available
5. PARK / EMER brake..... If required, pull carefully and modulate pressure as necessary
6. Rudder / NWS..... Use to maintain directional control
7. Aircraft..... Do not taxi

----- END -----

[INDEX](#)**PARK / EMER Brake Fail****3A-BRKS-04**

Parking and Emergency brake is not available.

On-ground:

1. Aircraft..... Stop completely and set Park Brake

Continued on next page

**PARK / EMER Brake Fail****3A-BRKS-04**

continued

- IF caution remains:
2. Hyd Pump..... ON
- IF caution remains:
3. Hyd Pump..... AUTO
 4. For aircraft parking..... Use wheel chocks

--- END ---

[INDEX](#)*In-flight:***Note**

PARK / EMER Brake may not be available after touchdown.

1. Main wheelbrakes..... Apply

----- END -----

[INDEX](#)**PARK / EMER Brake ON****3A-BRKS-05**

A minimum of 150 psi is measured in PARK / EMER brake system in flight.

CAUTION**Partial to full braking may be expected on touchdown.**

1. PARK / EMER Brake..... Release
IF caution remains:
2. PARK / EMER Brake..... Cycle
IF caution remains:

For landing:

3. Aircraft..... Expect possible asymmetric braking and / or tire burst upon landing

Note

After landing, if taxi is possible expect hot brakes. Extended taxiing is not recommended.

----- END -----

[INDEX](#)**PARK / EMER Brake OFF****3A-BRKS-06**

PARK / EMER Pressure is <1000 psi during engine start.

1. PARK / EMER Brake..... Set

Continued on next page

**PARK / EMER Brake OFF****3A-BRKS-06**

continued

IF caution persists and aircraft is not chocked:

- | | |
|--------------------------------|----------------------|
| 2. Wheel brakes..... | HOLD |
| 3. PARK / EMER brake..... | Release and re-apply |

----- END -----

[INDEX](#)



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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3A-ECS ECS and Pneumatics

L Bleed TEMP Fail

R Bleed TEMP Fail

3A-ECS-01

Bleed air temperature control is lost on the indicated side.

Prior to entering icing conditions:

CAUTION

Entering icing conditions with an active L Bleed Temp FAIL or R Bleed Temp FAIL CAS message and without selecting a single bleed source can cause bleed asymmetry and subsequent WAI de-activation that cannot be reset in flight.

1. Bleed rotary selector..... Select unaffected side to command IPS single source operation

When clear of icing conditions:

2. Bleed rotary selector..... Reselect BOTH

----- END -----

[INDEX](#)

L+R Bleed Off / Fail

3A-ECS-02

Both bleed shutoff valves have been closed due to detected failures, or ECS BLEED selector has been set to OFF. On ground, SOV BIT fail on both bleed shutoff valves.

On-ground:

1. ECS BLEED selector..... Select BOTH, if CAS remains select OFF for >10 sec, then back to BOTH

--- END ---

[INDEX](#)

In-flight:

CAUTION

Both bleed valves are closed and pressurization, ice protection and parts of the air conditioning has failed. Avoid icing conditions.

1. ECS BLEED selector..... As required
 - Select OFF then reselect BOTH to reset, or
 - Select BOTH if already selected to OFF

IF message remains:

2. EMRG RAM AIR..... PULL

IF aircraft altitude is above 10,000 ft:

3. [Emergency Descent - 3-NAE-02](#)..... Accomplish

----- END -----

[INDEX](#)



| L Bleed Off / Fail | R Bleed Off / Fail | 3A-ECS-03 |
|--|--------------------|-----------|
| Indicated side bleed shutoff valve has been closed due to detected failure, or ECS BLEED selector has been set to single bleed source. On ground, SOV BIT fail on indicated side bleed shutoff valve. | | |
| <i>On-ground:</i> | | |
| 1. ECS BLEED selector..... Select BOTH, if CAS remains select OFF for >10 sec, then back to BOTH --- END --- | | |
| INDEX | | |
| <i>In-flight:</i> | | |
| CAUTION | | |
| When in icing conditions, do not use autothrottles and make thrust lever changes slowly. Monitor ITT when operating with a single bleed source. With IPS active, bleed source changes can affect engine thrust. | | |
| 1. ECS BLEED selector..... Select to operating side then reselect BOTH IF message remains and in addition "X-Bleed Fail Closed" appears: 2. Cabin Pressure..... Monitor IF entering icing conditions: 3. AT..... Disconnect and use manual thrust ----- END ----- | | |
| INDEX | | |

| Cabin Pressure | 3A-ECS-04 |
|--|-----------|
| The CPCS is not capable of maintaining the cabin differential pressure within safe limits. Excessive positive differential pressure. | |
| 1. CPCS MODE selector..... MAN | |
| 2. CPCS CABIN ALT selector..... Select CLIMB as required to reduce differential pressure IF message remains: | |
| 3. Aircraft..... Consider reducing inflow by selecting X-Bleed CLOSED and then ECS BLEED selector L, R or OFF | |
| Note | |
| Cabin altitude will increase when CPCS Dump is selected. Before cabin dump, prepare Emergency Descent - 3-NAE-02 procedure and use oxygen for occupants. | |
| 4. CPCS DUMP push button..... Consider DUMP | |
| <i>Continued on next page</i> | |



Cabin Pressure

3A-ECS-04

continued

Note

Even after using DUMP switch, cabin altitude will be regulated to $\geq 15,000$ ft if aircraft altitude is $> 15,000$ ft and sufficient inflow is provided.

Prior to landing:

5. CPCS DUMP push button..... DUMP

----- END -----

[INDEX](#)

CPCS Fail

3A-ECS-05

The CPCS has detected an internal fault.

On-ground:

1. CPCS MODE selector..... MAN for at least 1 sec, then AUTO

IF message remains:

2. ECB Synoptic..... Use CCD or joystick to highlight the appropriate ECB

Select STATUS softkey to view tripped ECBs, then select ALL softkey

CPCS AUTO ECB select OUT (wait 4 sec) then IN

--- END ---

[INDEX](#)

In-flight and ΔP and cabin altitude indications are displayed:

1. CPCS MODE selector..... MANUAL for at least 1 sec, then AUTO

IF message remains:

2. CPCS MODE selector..... Select MAN

3. CPCS CABIN ALT selector..... Use to control cabin altitude as required

Prior to landing:

4. CPCS DUMP pushbutton..... Push DUMP

--- END ---

[INDEX](#)

In-flight and ΔP and / or cabin altitude indications are NOT displayed:

1. CPCS MODE selector..... Select MAN

IF ΔP and / or cabin altitude indications regained:

2. CPCS CABIN ALT selector..... Use to control cabin altitude as required

IF ΔP and/or cabin altitude indications NOT regained:

3. CPCS CABIN ALT selector..... Select DESCENT for 30 sec to close OFV

Continued on next page



| CPCS Fail | 3A-ECS-05 |
|---|-----------------------------------|
| continued | |
| 4. Aircraft..... | Descend to below 10,000 ft or MSA |
| CAUTION | |
| If the Cabin Altitude warning comes on, follow Cabin Altitude - 3-ECS-01 warning procedure. | |
| Prior to landing: | |
| 5. CPCS DUMP pushbutton..... | Push DUMP |
| ----- END ----- | |
| INDEX | |

| CPCS Manual | 3A-ECS-06 |
|------------------------------------|--|
| The CPCS status is manual control. | |
| 1. CPCS mode selector..... | Select AUTO if required To reset auto channel, cycle switch to MAN for at least 1 sec, then to AUTO |
| IF caution remains: | |
| 2. CPCS mode selector..... | Select MAN |
| 3. CPCS CABIN ALT selector..... | Use to control cabin altitude as required |
| Prior to landing: | |
| 4. CPCS DUMP push button..... | Push DUMP |
| ----- END ----- | |
| INDEX | |

| ECS Inflow Degrade | 3A-ECS-07 |
|---|---|
| The CPCS is not capable of following the predetermined cabin pressurization schedule. | |
| 1. ECS BLEED Selector..... | Check BOTH |
| IF caution remains: | |
| 2. Cabin altitude..... | Monitor |
| 3. Aircraft..... | Land as soon as practical Descend as necessary |
| ----- END ----- | |
| INDEX | |



WSHLD De-Fog Degrade

3A-ECS-08

One component of the secondary defog capability has failed. Expect reduced defog performance.

1. WINDSHIELD rotary selector..... Select MAN HI
2. ECS Synoptic..... Select WSHLD OFF
Select FACE OFF
Select FOOT ON

After landing:

3. WINDSHIELD rotary selector..... Select AUTO HI

Note

Try to reset the system by setting the Heat / Cool softkey to OFF and then back to AUTO. If the CAS message is removed, continue with normal system operation.

----- END -----

[INDEX](#)

X-Bleed Fail Closed

3A-ECS-09

ECS X-Bleed valve did not open during single source bleed operation.

Wing anti-ice is not available.

On-ground:

1. ECS Synoptic..... Select X-Bleed CLOSE for 10 sec then reselect X-Bleed AUTO

--- END ---

[INDEX](#)

In-flight:

1. ECS Synoptic..... Select X-Bleed CLOSE for 10 sec then reselect X-Bleed AUTO

IF message remains:

2. Aircraft..... Avoid icing conditions

----- END -----

[INDEX](#)

X-Bleed Fail Open

3A-ECS-10

Note

In case of an X-Bleed BIT failure on ground, ECS Synoptic Cross-bleed valve position and CAS message may not agree.

ECS Cross-bleed valve failed in open position. Single bleed isolation is not possible.

Continued on next page



X-Bleed Fail Open 3A-ECS-10

continued

On-ground:

1. ECS Bleed Selector..... Select BOTH, if CAS message remains select OFF for more than 10 sec, then reselect BOTH

--- END ---

[INDEX](#)

In-flight:

1. ECS Synoptic..... Select X-Bleed CLOSE for 10 sec then reselect X-Bleed AUTO
2. Engine indications..... Check for ITT imbalance
3. Thrust levers..... Adjust to reduce ITT to be within limits, if required

----- END -----

[INDEX](#)



3A-ELEC Electrical

**** L Bus Fail ****

3A-ELEC-01

The left bus voltage has dropped to < 20.5 V.

A summary of affected functions and indications is included at the end of this procedure.

1. COM..... Set active frequency on COM 2 / select XPDR 2

Note

If during approach and landing imminent, leave BAT 1 powered. If required to switch OFF BAT 1 to preserve power, be ready to switch off upper MFD to force DU 4 into composite mode, use COM 2 and XPDR 2, check FMA and reselect desired AP mode.

2. BAT 1 switch..... OFF to preserve power
Expect **ESS BUS Low Volts** warning
3. Display reversion controller..... Select upper MFD to OFF to operate in single MFD mode, for FMS navigation use virtual keyboard, CCD, INAV
4. Autopilot..... If engaged, AP reverts to ROL / PIT
Reselect desired modes

Note

AP control available using Flight Controller. LED lights on Flight Controller will not illuminate. YD can only be disengaged via yoke switch. Refer to Copilot PFD for flight mode annunciation.

5. Airspeed..... Above FL 200, maintain airspeed above 150 KIAS
6. Aircraft..... Land as soon as practical
Consider exiting / avoiding icing conditions due to degraded IPS (see chart at end of procedure)
Maintain airspeed above 150 KIAS when in clean configuration

WARNING

AVOID STALL - SHAKER AND PUSHER ARE UNAVAILABLE, PRIMARY FLIGHT DISPLAY / AURAL STALL WARNINGS ARE AVAILABLE.

Continued on next page

****** L Bus Fail ********3A-ELEC-01**

continued

CAUTION

Rudder limiter has failed in its last position. Plan landing on runway with appropriate characteristics for Rudder Travel Limiter assumed position (crosswind). With flaps UP move rudder with caution when high deflections required and limit rudder pedal input to less than 2/3 of a full pedal input.

Note

UMS Build 8.1 and below (MSN 101 - 290 pre SB 42-020): FMS fuel weight may be incorrect and predictions may be incorrect. The pilot shall not rely upon FMS weight and fuel predictions.

Note

UMS Build 9.0 and higher (MSN 101 - 290 post SB 42-020, and MSN 291 - UP): FMS fuel weight and fuel predictions are degraded. The pilot should not rely upon FMS fuel weight and fuel predictions.

7. Landing performance..... Calculate due to partial loss of lift dump, loss of anti-skid, and loss of main brakes.

Refer to Abnormal Landing information in AFM Section 5 for abnormal landing factor with anti-skid and lift dump failure.

Maximum crosswind of 17 kt

Use reference speeds according to weight and configuration

For landing weights <13,500 lb, refer to [RUD Limiter Fail - 3A-FCTL-06](#) procedure for V_{REF} speeds

Before landing:

8. [L/G Emergency Extension - 3-NAE-13](#)..... Accomplish
9. L and R ENG Switch..... IGN
10. Landing..... Expect multiple CAS messages on touchdown
11. Brakes..... Use EMER brake

CAUTION

Battery one power and brake accumulator charging available only for approximately five minutes. The system requires approximately one minute to bring Essential Bus items back online. Do not taxi until main brake accumulator has charged.

Continued on next page



**** L Bus Fail ****

3A-ELEC-01

continued

After landing, if taxiing desired:

12. BAT 1.....

On to recover main brake pressure to taxi
clear of runway

Continued on next page



**** L Bus Fail ****

3A-ELEC-01

continued

When L Bus is unpowered these functions / indications are affected:

| System | Function / Indication |
|------------|---|
| Airbrake | Degraded, Only IB MFS function |
| AP / AT | No AT AP control available No LED lights on Flight Controller YD can only be disengaged via the yoke switch |
| Brakes | Use EMER brake |
| CPCS | No L Bleed, CPCS Auto only |
| ECB | No control over L BUS ECBs Status of ECBs of EPDU1 and EPDU3 not shown. |
| ECS | No L bleed air, No CKPT temp control No CAB fan control, CKPT heating degraded |
| Electrical | L BUS unavailable |
| Engine | Only one extinguisher available Cyan L and R FADEC Fail CAS in air |
| Fire | Only one Fire extinguisher available |
| Flaps | Functional |
| Fuel | UMS Build 8.1 and below (MSN 101 - 290 pre SB 42-020): No fuel total indication No LEFT FUEL quantity, No L PUMP X-FEED and XFR unavailable UMS Build 9.0 and higher (MSN 101 - 290 post SB 42-020, and MSN 291 - UP): No LEFT FUEL quantity, No L PUMP X-FEED and XFR unavailable L Fuel PRESS unavailable Total fuel quantity error margin increased to +/- 5 % |
| Gear | Use EMER GEAR |
| IPS | Partial loss of windshield HEAT No L pitot probe heating No L AOA heating STBY pitot probe heating functional No L TAT probe heating No L ice detector L NAI activated automatically and indicated invalid |
| Lift Dump | Degraded, Only IB GS and IB MFS function |

Continued on next page



**** L Bus Fail ****

3A-ELEC-01

continued

| System | Function / Indication |
|-----------------|--|
| Lights | No outboard LH Taxi, no LH Red Nav, no LH Red Beacon, no LH anti-collision, no tail lights |
| Pusher / Shaker | No Pusher, No Shaker. PFD / aural stall warnings are available |
| Radios / XPDR | No MMDR 1, no XPDR 1 No VOR / ILS 1 and DME |
| Roll Assist | Degraded, Only IB MFS function |
| Rudder Limiter | Remains at last position |
| Trim | No rudder trim Low rate pitch trim only |
| Other | No RAD ALT, No TCAS No MFC / TSC. Use CCD and / or virtual keyboard |

----- END -----

[INDEX](#)

**** R Bus Fail ****

3A-ELEC-02

The right bus voltage has dropped to < 20.5 V.

A summary of affected functions and indications is included at the end of this procedure.

1. CPCS MODE selector..... Select MAN and operate CPCS in manual control
2. COM..... Set active frequency on COM 1 / Select XPDR1
3. Display reversion controller..... Select CO-PILOT PFD to AGM 1, use MFC to access FMW, MAP, SYNOPTIC
4. Aircraft..... Land as soon as practical

Continued on next page



****** R Bus Fail ******

3A-ELEC-02

continued

IF flaps are not fully retracted:

5. Airspeed..... Above FL 200, maintain airspeed above 150 KIAS
Do NOT use ESIS indicated airspeed / altitude due to loss of ESIS probe heating.
If flaps are not fully retracted, refer to the V_{FO} table below:

| Indicated FLAP Position | Max Speed KIAS |
|-------------------------|----------------|
| 0° to 15° | 200 |
| 16° to 33° or unknown | 175 |

CAUTION

Depending upon the nature of the R Bus Fail, the Emergency flap switch may be effective to regain flaps. Attempting to use the Emergency flap switch may result in high current draw on BATT 2 and should only be considered within five minutes of landing if sufficient generated and / or battery power is available. In the event of go-around, retract flaps to desired position and de-select emergency flap switch.

Prior to landing:

6. FLAPS EMER PWR..... Lift guard and press to activate. Wait approximately one min for DCPU 2 reboot. Successful reboot indicated if flap position indicator no longer amber. Autopilot may disconnect and can be re-engaged.
7. FLAP lever..... Select required Flap position
If conditions permit, consider using Flaps 15° for landing to preserve go around capability

Note

UMS Build 8.1 and below (MSN 101 - 290 pre SB 42-020): FMS fuel weight may be incorrect and predictions may be incorrect. The pilot shall not rely upon FMS weight and fuel predictions.

Continued on next page



**** R Bus Fail ****

3A-ELEC-02

continued

8. V_{REF} and landing performance.... Calculate due to partial loss of lift dump and current flap position.

Refer to Abnormal Landing information in AFM Section 5 for abnormal landing factor with lift dump failure in current configuration.

| Actual FLAP Position | Use V_{REF} and performance table for |
|----------------------|---|
| 0° to 14° | Flaps 0° |
| 15° to 32° | Flaps 15° |
| 33° | Flaps 33° |

Note

Landing performance is based on a maximum braking effort (pedals fully pressed) with anti-skid working.

9. L/G Emergency Extension - 3-
NAE-13..... Accomplish
10. L and R ENG Switch..... IGN
11. CPCS Dump Switch..... DUMP prior to landing, with aircraft altitude less than 10,000 ft or MSA if higher

Continued on next page

****** R Bus Fail ********3A-ELEC-02**

continued

When R Bus is unpowered these functions / indications are affected:

| System | Function / Indication |
|-----------------|--|
| Airbrake | Degraded, Only OB MFS function |
| AP / AT | Functional |
| Brakes | Functional |
| CPCS | CPCS MAN only |
| ECB | No control over R BUS ECBs Status of ECBs of EPDU2 and EPDU4 not shown. |
| ECS | No CKPT / CAB fan control No CAB temp control, CKPT heating degraded |
| Electrical | No R BUS |
| Engine | Only one extinguisher available Cyan L and R FADEC Fail CAS in air |
| Fire | Only one Fire extinguisher available |
| Flaps | No Flap control Last known flap position displayed |
| Fuel | UMS Build 8.1 and below (MSN 101 - 290 pre SB 42-020): No R PUMP R Ejector Pump shown in amber but still functions No FUEL Transfer from R to L UMS Build 9.0 and higher (MSN 101 - 290 post SB 42-020, and MSN 291 - UP): No R PUMP R Ejector Pump shown in amber but still functions No FUEL Transfer from R to L R Fuel PRESS unavailable |
| Gear | Use EMER GEAR |
| IPS | Partial loss of windshield HEAT Windshield rotary knob not functional No R pitot probe heating No R AOA heating No STBY pitot probe heating No R TAT probe heating No R Ice Detector |
| Lift Dump | Degraded, Only OB GS and OB MFS function |
| Lights | No RH Taxi, no RH landing, no RH Green Nav, no RH Red Beacon, no RH anti-collision |
| Pusher / Shaker | No Pusher |

Continued on next page



**** R Bus Fail ****

3A-ELEC-02

continued

| System | Function / Indication |
|----------------|--|
| Radios / XPDR | No MMDR 2, XPDR 2 No VOR / ILS 2 |
| Roll Assist | No Roll assist |
| Rudder Limiter | Functional |
| Trim | No aileron trim, No secondary pitch trim No pitch trim compensation Low rate pitch trim only |
| Other | No TCAS No CCD, Use MFC / TSC |

----- END -----

[INDEX](#)

BAT 1 Fail

BAT 2 Fail

3A-ELEC-03

One or more of the following conditions exists:

- Voltage of the indicated battery is below 22 V
- Voltage of the indicated battery is above 30.0 V
- Indicated battery is discharging >60 A.
- If Li-Ion batteries are installed: the Li-Ion battery capacity has degraded below acceptable limits. In case of dual generator failure, power will be available for less than 60 minutes.

1. Associated BAT..... Check Volts / Amps

Associated BAT Volt <22 V or >30.0 V:

2. Associated BAT switch..... OFF

--- END ---

[INDEX](#)

Associated BAT Discharge >60 A:

2. Associated BAT SW..... Check ON

3. BUS TIE..... Check CLOSED

4. GEN 1+2..... Check Volts / Amps

IF the **GEN 1 Offline** or **GEN 2 Offline** caution is illuminated:

5. Affected generator switch..... Reset

IF associated BAT discharge remains >60 A:

6. Affected BAT switch..... OFF

Continued on next page



| BAT 1 Fail | BAT 2 Fail | 3A-ELEC-03 |
|--|---|-----------------------|
| continued | | |
| 7. Any procedures for other displayed CAS messages for electrical system..... | Accomplish --- END --- | INDEX |
| <i>If Li-Ion batteries installed: battery capacity has degraded below acceptable limits:</i> | | |
| <i>On-ground:</i> | | |
| 2. Aircraft..... | Maintenance required --- END --- | INDEX |
| <i>In-flight:</i> | | |
| 2. Aircraft..... | Maintenance required after landing ----- END ----- | INDEX |

| BAT 1 Off | BAT 2 Off | 3A-ELEC-04 |
|---|---------------------------------------|-----------------------|
| The indicated battery is isolated from the electrical system. | | |
| 1. Affected BAT..... | Check ON | |
| 2. Affected BAT..... | Check Volts / Amps ----- END ----- | INDEX |

| Bus Tie 1 Closed | 3A-ELEC-05 |
|--|--|
| Bus Tie 1 (XC 1) is closed when it should be open. Electrical buses are powered by multiple power sources. | |
| 1. BUS TIE pushbutton..... | Check status indication IF BUS TIE pushbutton shows closed by the appearance of a white line in the switch: |
| 2. BUS TIE pushbutton..... | Push to OPEN and then push to CLOSE (cycle the pushbutton) IF message remains: |
| 3. GEN 2 switch..... | Reset IF message remains: |
| 4. GEN 2 switch..... | OFF to prevent unbalanced GEN loads and possible damage |

Continued on next page



Bus Tie 1 Closed

3A-ELEC-05

continued

5. Aircraft..... Land as soon as practical

Note

During single generator operations, non-essential loads are automatically shed.
GEN 2 remains available in the event of subsequent GEN 1 failure.

----- END -----

[INDEX](#)

Bus Tie 1 Open

3A-ELEC-06

Bus Tie 1 (XC 1) is open when it should be closed. Electrical buses are not interconnected.

1. BUS TIE pushbutton..... Check status indication
IF BUS TIE pushbutton shows OPEN and the white line is not illuminated in the pushbutton:
2. BUS TIE pushbutton..... Push to CLOSE
*If message remains and GEN 1 has failed, LH Bus and ESS Bus are isolated from generated power. A BAT 1 FAIL caution may appear due to high discharge rate:
IF more than approximately 15 min flight time remaining:*

CAUTION

This electrical configuration results in the loss of the LH Bus and ESS Bus with corresponding failures.

3. BAT 1 Switch..... OFF to preserve power
Refer to the **** L Bus Fail **** - 3A-ELEC-01 procedure
 4. Aircraft..... Avoid icing conditions
- Prior to landing, with approximately 5 min flight time remaining:
5. BAT 1 switch..... ON to recover LH and ESS Bus

Note

The system requires approximately one minute to bring all LH and ESS bus items back online.

Continued on next page

**Bus Tie 1 Open****3A-ELEC-06**

continued

6. ECS synoptic..... Heat / Cool OFF

--- END ---

[INDEX](#)

If message remains and GEN 2 has failed, BAT 2 and RH Bus are isolated from generated power. A **BAT 2 Fail** caution may appear due to high battery discharge rate:

IF more than approximately 15 min flight time remaining:

Note

This electrical configuration results in the loss of the RH bus with corresponding failures.

- 3. BAT 2 switch..... OFF to preserve power
- 4. Aircraft..... Avoid icing conditions
- 5. MFD SWAP button..... PUSH to recover CAS if required
- 6. CPCS MODE..... Select MAN and operate CPCS in manual control

Prior to landing, with approximately 5 min flight time remaining:

7. BAT 2 switch..... ON to recover RH Bus

CAUTION

The system requires approximately one minute to bring all RH bus items back online. Do not operate gear and flap until flap indications are restored. Do not operate gear and flap at the same time to avoid peak electrical loads.

- 8. CPCS MODE..... Select AUTO
- 9. ECS Synoptic..... Heat / Cool OFF

----- END -----

[INDEX](#)**Bus Tie 2 Closed****3A-ELEC-07**

Bus Tie 2 (XC 2) is closed when it should be open. Electrical buses are powered by multiple power sources.

1. BUS TIE pushbutton..... Push to OPEN and then push to CLOSE (cycle the pushbutton)

IF message remains:

2. GEN 2 switch..... Reset

Continued on next page



Bus Tie 2 Closed

3A-ELEC-07

continued

IF message remains:

3. GEN 2 switch..... OFF to prevent unbalanced GEN loads and possible damage

Note

During single generator operations, non-essential loads are automatically shed. GEN 2 remains available in the event of subsequent GEN 1 failure.

4. Aircraft..... Land as soon as practical

----- END -----

[INDEX](#)

Bus Tie 2 Open

3A-ELEC-08

Bus Tie 2 (XC 2) is open when it should be closed. Electrical buses are not interconnected.

1. BUS TIE pushbutton..... Check status indication
IF BUS TIE pushbutton indicates OPEN:
2. BUS TIE pushbutton..... Push to CLOSE

If this message remains on the ground, do not attempt engine start. In flight, this message is only displayed during an astart.

Note

If the **Bus Tie 2 Open** message appears during astart, expect that RH bus powered items will be lost until startup sequence is completed.

----- END -----

[INDEX](#)

EPDU Config Fail

3A-ELEC-09

EPDU config database has not been loaded to all EPDUs.

1. Aircraft..... Maintenance required

----- END -----

[INDEX](#)

EPDU 1 FAIL EPDU 3 FAIL

EPDU 2 FAIL EPDU 4 FAIL

3A-ELEC-10

The indicated Electrical Power Distribution Unit has failed or has lost communication with UMS, and one of the following has occurred:

Continued on next page



| EPDU 1 FAIL EPDU 3 FAIL | EPDU 2 FAIL EPDU 4 FAIL | 3A-ELEC-10 | | | | | | | | | |
|---|---|-----------------------|---------------------------------|---|--|------------------|---------------------------|-----------------------|-------------|--|-----------------------|
| <ul style="list-style-type: none"> - If no other CAS messages generated simultaneously: Both communication channels between the UMS and the indicated EPDU have failed. The indicated EPDU reverts to safe mode. Therefore ECBs remain in the last known state and cannot be controlled. Systems by themselves are not affected - If multiple CAS messages are generated simultaneously, the indicated EPDU has a hard fault. | | | | | | | | | | | |
| <p><i>With no other CAS messages generated simultaneously:</i></p> | | | | | | | | | | | |
| <table> <tr> <td>1. ECB Synoptic page.....</td> <td>Check affected consumers associated with the indicated EPDU</td> <td></td> </tr> <tr> <td>2. Aircraft.....</td> <td>Land as soon as practical</td> <td></td> </tr> <tr> <td colspan="2" style="text-align: center;">--- END ---</td><td>INDEX</td> </tr> </table> | | | 1. ECB Synoptic page..... | Check affected consumers associated with the indicated EPDU | | 2. Aircraft..... | Land as soon as practical | | --- END --- | | INDEX |
| 1. ECB Synoptic page..... | Check affected consumers associated with the indicated EPDU | | | | | | | | | | |
| 2. Aircraft..... | Land as soon as practical | | | | | | | | | | |
| --- END --- | | INDEX | | | | | | | | | |
| <p><i>Multiple additional CAS messages generated simultaneously:</i></p> | | | | | | | | | | | |
| <table> <tr> <td>1. Additional CAS messages.....</td> <td>Address in order of severity</td> <td></td> </tr> <tr> <td colspan="2" style="text-align: center;">----- END -----</td><td>INDEX</td> </tr> </table> | | | 1. Additional CAS messages..... | Address in order of severity | | ----- END ----- | | INDEX | | | |
| 1. Additional CAS messages..... | Address in order of severity | | | | | | | | | | |
| ----- END ----- | | INDEX | | | | | | | | | |

| GEN 1 Offline | GEN 2 Offline | 3A-ELEC-11 | | | | | | | | | | | | | | | | | | |
|--|-------------------------------------|------------|----------------------------|-------------------------------------|--|--|--|--|----------------------|-----|--|-----------------------|----------------------------|--|---|--|--|-----------------------|--------|--|
| <p>The indicated generator is not providing power to the electrical system due to switch position, failure, and/or bus tie incorrect state. The electrical system is automatically load shedding non-essential loads.</p> | | | | | | | | | | | | | | | | | | | | |
| <table> <tr> <td>1. Affected GEN.....</td> <td>Reset / Check ON</td> <td></td> </tr> <tr> <td colspan="2">IF message persists:</td><td></td> </tr> <tr> <td>2. Affected GEN.....</td> <td>OFF</td> <td></td> </tr> <tr> <td>3. ELEC synoptic.....</td> <td>Check BAT 1 and BAT 2 AMPS</td> <td></td> </tr> <tr> <td colspan="2">IF both BAT 1 and BAT 2 indicate 0 or POSITIVE AMPS (charging):</td><td></td> </tr> <tr> <td>4. Lost services.....</td> <td>Review</td> <td></td> </tr> </table> | | | 1. Affected GEN..... | Reset / Check ON | | IF message persists: | | | 2. Affected GEN..... | OFF | | 3. ELEC synoptic..... | Check BAT 1 and BAT 2 AMPS | | IF both BAT 1 and BAT 2 indicate 0 or POSITIVE AMPS (charging): | | | 4. Lost services..... | Review | |
| 1. Affected GEN..... | Reset / Check ON | | | | | | | | | | | | | | | | | | | |
| IF message persists: | | | | | | | | | | | | | | | | | | | | |
| 2. Affected GEN..... | OFF | | | | | | | | | | | | | | | | | | | |
| 3. ELEC synoptic..... | Check BAT 1 and BAT 2 AMPS | | | | | | | | | | | | | | | | | | | |
| IF both BAT 1 and BAT 2 indicate 0 or POSITIVE AMPS (charging): | | | | | | | | | | | | | | | | | | | | |
| 4. Lost services..... | Review | | | | | | | | | | | | | | | | | | | |
| <p>Note</p> <p>The following items are automatically load shed in single generator mode in flight: R windshield electrical defog and deice, VCS, cockpit electrical heaters, cabin electrical heaters and fans.</p> | | | | | | | | | | | | | | | | | | | | |
| <p>IF BAT 1 or BAT 2 indicate NEGATIVE AMPS (discharging):</p> | | | | | | | | | | | | | | | | | | | | |
| <table> <tr> <td>5. BUS TIE pushbutton.....</td> <td>Push to OPEN and then push to CLOSE</td> <td></td> </tr> <tr> <td colspan="2">Check that amber OPEN is NOT displayed</td><td></td> </tr> </table> | | | 5. BUS TIE pushbutton..... | Push to OPEN and then push to CLOSE | | Check that amber OPEN is NOT displayed | | | | | | | | | | | | | | |
| 5. BUS TIE pushbutton..... | Push to OPEN and then push to CLOSE | | | | | | | | | | | | | | | | | | | |
| Check that amber OPEN is NOT displayed | | | | | | | | | | | | | | | | | | | | |
| <p>IF BAT 1 or BAT 2 continue to indicate NEGATIVE AMPS (discharging):</p> | | | | | | | | | | | | | | | | | | | | |
| <table> <tr> <td>6. Aircraft.....</td> <td>Land as soon as practical</td> <td></td> </tr> </table> | | | 6. Aircraft..... | Land as soon as practical | | | | | | | | | | | | | | | | |
| 6. Aircraft..... | Land as soon as practical | | | | | | | | | | | | | | | | | | | |
| <p><i>Continued on next page</i></p> | | | | | | | | | | | | | | | | | | | | |



| GEN 1 Offline | GEN 2 Offline | 3A-ELEC-11 |
|---|---|-----------------------|
| continued | | |
| 7. ELEC synoptic..... | Identify discharging battery | |
| CAUTION | | |
| Switching a discharging BAT OFF with only one operating GEN will result in a L Bus Fail or R Bus Fail message. Consider time to land and BAT charge status prior to switching OFF a discharging battery. | | |
| IF BAT 1 indicates NEGATIVE AMPS (discharging), BAT 1 is powering the L Bus / ESS Bus: | | |
| 8. **** L Bus Fail **** - 3A- ELEC-01..... | Consider | |
| IF BAT 2 indicates NEGATIVE AMPS (discharging), BAT 2 is powering the R Bus: | | |
| 8. BAT 2 switch..... | Consider switching OFF to preserve BAT 2 power for FLAPS extension prior to landing | |
| 9. **** R Bus Fail **** - 3A- ELEC-02..... | Accomplish | |
| ----- END ----- | | INDEX |

| GEN 1 Overload | GEN 2 Overload | 3A-ELEC-12 |
|---|---|-----------------------|
| Generator 1 has operated at a sustained output of >400 A for more than 75 sec. | | |
| Generator 2 has operated at a sustained output of >250 A for more than 75 sec in QPM, or output of >400 A for more than 75 sec. | | |
| Note | | |
| PCU will switch off the affected generator after 2 min over 400 A. | | |
| 1. Non-essential loads from the affected bus | Deselect | |
| | Consider temporarily deselecting electrical heaters, electrical cooling, and windshield heating | |
| ----- END ----- | | INDEX |



GPU Connected

3A-ELEC-13

GPU remains connected after engine start and parking brake released.

WARNING

DO NOT TAXI THE AIRCRAFT WITH A GPU CONNECTED.

1. Parking brake..... Check ON
2. GPU..... Check disconnected before taxi

----- END -----

[INDEX](#)



3A-ENG Engines

| ATR Unavailable | 3A-ENG-01 | |
|---|--|-----------------------|
| ATR is not available for takeoff. <i>On-ground only:</i> | | |
| 1. Aircraft performance..... | Calculate without ATR. Refer to Performance Abnormal takeoff information in the FCOM for abnormal takeoff factor for ATR inoperative. | |
| ----- END ----- | | |
| | | INDEX |
| L FADEC Fail | R FADEC Fail | 3A-ENG-02 |
| Indicated FADEC single channel failure on-ground or both channels have detected a fault in air. | | |
| <i>On Ground:</i> | | |
| 1. ENG Synoptic..... | Attempt FADEC reset --- END --- | INDEX |
| <i>In-flight:</i> | | |
| CAUTION | | |
| Affected engine may not respond properly to thrust lever. If FADEC fail occurred while flying in potential icing / ice crystals conditions, activate Nacelle Anti-Ice manually for a minimum of 5 minutes before attempting FADEC reset. | | |
| 1. Affected Thrust lever..... | Gently confirm same response as unaffected engine IF TAT < 10 °C: | |
| 2. IPS Mode rotary switch..... | Set to AUTO / NAI | |
| 2. ENG Synoptic..... | Attempt reset of affected FADEC IF caution persists and engine response normal: | |
| 3. Aircraft..... | Land as soon as practical IF caution persists and engine response is NOT normal at TOD: | |
| 4. Affected engine..... | Consider shutting down IF engine shut down is desired: | |
| 5. Engine Inflight Shutdown - 3- NAE-07 | Accomplish ----- END ----- | INDEX |



| L GND Idle | R GND Idle | 3A-ENG-03 |
|---|---|-----------------------|
| Ground idle has been activated in flight on the indicated engine. Engine spool up time will be increased. | | |
| <i>In-flight only:</i> | | |
| CAUTION | | |
| Expect slower engine spool up from idle. | | |
| 1. Affected THRUST lever..... | Increase to match thrust of unaffected engine Do not select idle except during landing flare | ----- END ----- |
| | | INDEX |

| L ITT High | R ITT High | 3A-ENG-04 |
|---|--|-----------|
| One or more conditions has occurred in the indicated engine. | | |
| | | |
| | | |
| Phase of Operation | Condition(s) | |
| During Start | ITT >835 °C for more than 30 sec, or ITT >925 °C for more than 15 sec, or ITT >1,025 °C. | |
| In-Flight | ITT is above 835 °C. | |
| During Takeoff | ITT is ≤870 °C but has exceeded 855 °C, or ITT has exceeded 835 °C for 5 min AEO, or ITT has exceeded 835 °C for 10 min OEI. | |
| At ALL other times | ITT is ≤870 °C but has exceeded 835 °C | |
| <i>In-flight:</i> | | |
| 1. Affected ENG THRUST lever..... | Reduce as appropriate | |
| IF caution persists: | | |
| 2. Affected ENG THRUST..... | Minimum required | |
| | Consider Engine Inflight Shutdown - 3-NAE-07 | |
| 3. Aircraft..... | Land as soon as practical | |
| IF in icing conditions or likely to encounter icing: | | |
| Note | | |
| If WAI is active and asymmetric engine thrust causes bleed asymmetry, the lower thrust bleed side will be automatically de-activated. | | |
| ----- END ----- | | |
| INDEX | | |



| L N1 High | R N1 High | 3A-ENG-05 |
|--|-----------|-----------------------|
| N1 of the indicated engine is <105.76% but has exceeded 104.76% for <120 sec. | | |
| <i>In-flight:</i> | | |
| 1. Affected ENG THRUST lever..... Reduce as appropriate IF caution persists: | | |
| 2. Affected ENG THRUST..... Minimum required Consider Engine Inflight Shutdown - 3-NAE-07 | | |
| 3. Aircraft..... Land as soon as practical | | |
| IF in icing conditions or likely to encounter icing: | | |
| Note If WAI is active and asymmetric engine thrust causes bleed asymmetry, the lower thrust bleed side will be automatically de-activated. | | |
| ----- END ----- | | INDEX |

| L N2 High | R N2 High | 3A-ENG-06 |
|--|-----------|-----------------------|
| N2 of the indicated engine is <101.59% but has exceeded 100.86% for <120 sec. | | |
| <i>In-flight:</i> | | |
| 1. Affected ENG THRUST lever..... Reduce as appropriate IF caution persists: | | |
| 2. Affected ENG THRUST..... Minimum required Consider Engine Inflight Shutdown - 3-NAE-07 | | |
| 3. Aircraft..... Land as soon as practical | | |
| IF in icing conditions or likely to encounter icing: | | |
| Note If WAI is active and asymmetric engine thrust causes bleed asymmetry, the lower thrust bleed side will be automatically de-activated. | | |
| ----- END ----- | | INDEX |

| L Oil Chip | R Oil Chip | 3A-ENG-07 |
|---|------------|-----------------------|
| Metallic particles are detected on the magnetic chip detector of the indicated engine. Caution only displayed on ground with engine not running. | | |
| 1. Aircraft..... Do not start engine | | |
| ----- END ----- | | INDEX |



| L OIL IMP Bypass | R OIL IMP Bypass | 3A-ENG-08 |
|---|------------------|-----------|
| The indicated oil filter is in an impending bypass condition or the impending bypass indicator output is invalid. | | |
| <i>On-ground:</i> | | |
| 1. Affected Engine..... Do not start. Maintenance required IF caution appears after engine start: | | |
| 2. Aircraft..... Do not takeoff --- END --- | | |
| <i>In-flight:</i> | | |
| 1. Engine instruments..... Monitor 2. Aircraft..... Land as soon as practical ----- END ----- | | |
| | | |

| L Oil LVL Low | R Oil LVL Low | 3A-ENG-09 |
|--|---------------|-----------|
| Caution only displayed on ground with engine not running. | | |
| 1. Affected engine oil level sight glass..... Visual inspection IF oil level is acceptable: | | |
| 2. Aircraft..... Operate normal IF oil level is confirmed low: | | |
| 3. Affected engine..... Do not start ----- END ----- | | |
| | | |

| L Oil PRESS High | R Oil PRESS High | 3A-ENG-10 |
|--|------------------|-----------|
| <i>On-ground:</i> | | |
| 1. Affected engine thrust lever..... IDLE IF caution persists: | | |
| 2. Affected ENG switch..... OFF --- END --- | | |
| <i>In-flight:</i> | | |
| 1. Affected ENG THRUST lever..... Reduce as appropriate IF caution persists: | | |
| 2. Affected ENG THRUST..... Minimum required Consider Engine Inflight Shutdown - 3-NAE-07 | | |
| <i>Continued on next page</i> | | |



| L Oil PRESS High | R Oil PRESS High | 3A-ENG-10 |
|--|---------------------------|-----------|
| continued | | |
| 3. Aircraft..... | Land as soon as practical | |
| IF in icing conditions or likely to encounter icing: | | |

Note

If WAI is active and asymmetric engine thrust causes bleed asymmetry, the lower thrust bleed side will be automatically de-activated.

----- END -----

[INDEX](#)

| L Oil PRESS Low | R Oil PRESS Low | 3A-ENG-11 |
|---|--|-----------------------|
| With N2 below 80%, the oil pressure in the indicated engine is between 23 and 30 psi for more than 4 minutes. | | |
| <i>On-ground:</i> | | |
| 1. Affected engine..... | Increase thrust on the affected engine to increase oil pressure. | |
| IF caution persists: | | |
| 2. Affected Engine thrust lever..... | IDLE | |
| 3. Affected ENG switch..... | OFF | |
| --- END --- | | INDEX |
| <i>In-flight:</i> | | |
| 1. Affected ENGINE THRUST LEVER..... | Adjust to change oil pressure | |
| IF caution persists: | | |
| 2. Affected engine..... | Consider shut down | |
| IF engine shut down is desired: | | |
| 3. Engine Inflight Shutdown - 3-NAE-07 | Accomplish | |
| IF caution removed: | | |
| 3. Aircraft..... | Land as soon as practical | |
| ----- END ----- | | INDEX |



| L Oil TEMP High | R Oil TEMP High | 3A-ENG-12 |
|--|-----------------|-----------|
| Oil temp of indicated engine is above 135 °C, but less than 149 °C for up to 5 min when N2 is less than 80%. | | |
| <i>On-ground:</i> | | |
| 1. Affected Engine thrust lever..... IDLE | | |
| 2. Affected ENG switch..... OFF | | |
| --- END --- | | |
| INDEX | | |
| <i>In-flight:</i> | | |
| 1. Affected ENG THRUST lever..... Reduce as appropriate | | |
| IF caution persists: | | |
| 2. Affected ENG THRUST..... Minimum required | | |
| Consider Engine Inflight Shutdown - 3-NAE-07 | | |
| 3. Aircraft..... Land as soon as practical | | |
| IF in icing conditions or likely to encounter icing: | | |
| Note If WAI is active and asymmetric engine thrust causes bleed asymmetry, the lower thrust bleed side will be automatically de-activated. | | |
| ----- END ----- | | |
| INDEX | | |

| L Oil TEMP Low | R Oil TEMP Low | 3A-ENG-13 |
|---|----------------|-----------|
| Oil temp of indicated engine is < 10 °C with N2 < 80%. | | |
| IF on-ground if oil temperature is >-40 °C | | |
| 1. Affected engine Thrust lever..... Use low power settings. | | |
| The affected engine should not be operated above 80% N2 until oil temperature is >10 °C | | |
| ----- END ----- | | |
| INDEX | | |



| L TAT Probe Fail | R TAT Probe Fail | 3A-ENG-14 |
|--|--|-----------------------|
| Associated engine total air temperature probe has failed. This caution will also cause L FADEC Fail or R FADEC Fail CAS message. | | |
| 1. ECB Synoptic..... | | |
| Use CCD or joystick to highlight the appropriate ECB Select STATUS softkey to view tripped ECBs, then select ALL softkey Check for tripped "ENG PT2 + TT2" ECB If tripped, reset once | | |
| IF ECB reset successful and TAT <10 °C: | | |
| 2. IPS rotary switch..... | MAN | |
| 3. IPS synoptic..... | L and R NAI ON for 2 min | |
| 4. IPS rotary switch..... | AUTO | |
| 5. ENG Synoptic..... | Check if FADEC RESET softkey is available after approximately 2 min Reset if available | |
| IF ECB reset unsuccessful, or FADEC RESET not available: | | |
| 6. Aircraft..... | Exit / avoid icing conditions as soon as practical due to possible ice accumulation on the temperature probe | |
| 7. IPS..... | Operate NAI manually as required | |
| ----- END ----- | | INDEX |



Section 3A - Abnormal Procedures (Authority approved) Engines

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

This Page Intentionally Left Blank



3A-FCTL Flight Controls

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

AIL Trim Fail

3A-FCTL-01

Aileron trim relay has failed.

CAUTION

Autopilot operation may lead to an improper trim condition. Use caution when disconnecting autopilot due possible untrimmed condition. Control forces may be high. If aircraft is untrimmed reduce speed to reduce control forces.

1. Manual trim switch..... Release / confirm both switches aligned
----- END -----

[INDEX](#)

Flaps Fail

3A-FCTL-02

One of the following has occurred:

- DCPU 2 has failed
- Loss of flaps function
- Inadvertent flaps motion protected (flaps are frozen in position)
- Loss of flap position indication
- Erroneous flap position
- One or more flap actuator brakes fail to engage.

On-ground:

IF prior to engine start:

1. Flap lever..... Match to current flap position

CAUTION

Cycling aircraft electrical power requires a minimum power-up time of 30 seconds. Repeated resets with less than 30 second power-up time may lead to a latched FADEC Fail, which requires maintenance action.

2. Cycle aircraft electrical power..... BAT 1 and 2 OFF

IF GPU connected:

1. GPU ON/OFF pushbutton..... Push and hold for 15 sec to disconnect

Continued on next page



Flaps Fail

3A-FCTL-02

continued

2. Normal checklists..... Accomplish

IF caution remains:

1. Aircraft..... Maintenance required

--- END ---

[INDEX](#)

In-flight:

CAUTION

Loss of flap function may increase both calculated approach speed and landing distance.

CAUTION

The dynamic speed bug and low speed awareness indications on Primary Flight Displays may be unreliable / incorrect in case of loss of flap position indication.

CAUTION

If flaps are extended greater than 15°, avoid icing conditions.

1. Flap lever..... Match to nearest flap position
2. Airspeed..... Refer to V_{FO} table below

| Flap Position | Max Speed KIAS |
|-----------------------|----------------|
| 0° to 15° | 200 |
| 16° to 33° or unknown | 175 |

Continued on next page



Flaps Fail

3A-FCTL-02

continued

3. For landing.....

Refer to Abnormal Landing information in AFM Cockpit Handbook Section 5 or FCOM Performance section for proper V_{REF} and landing performance in current configuration

| Actual Flap Position | Use V_{REF} and performance for |
|----------------------|-----------------------------------|
| 0° to 15° | 0° |
| 16° to 33° | 15° |

Refer to [Fig. 3A-FCTL-1](#) for the maximum landing weight with flaps up at pressure altitude >8650 ft and OAT >19°C when applying the maximum braking effort.

Continued on next page



Flaps Fail

3A-FCTL-02

continued

MAX. LANDING WEIGHT WITH FLAPS UP

AT PRESSURE ALTITUDE >8,750 FT AND OAT >19°C

EXAMPLE:
MSN 101 - MAX. LANDING WEIGHT 16,600 LB
UP: 17,340 LB
OAT: 30.5°C
MAX LANDING WEIGHT : 17,010 LB

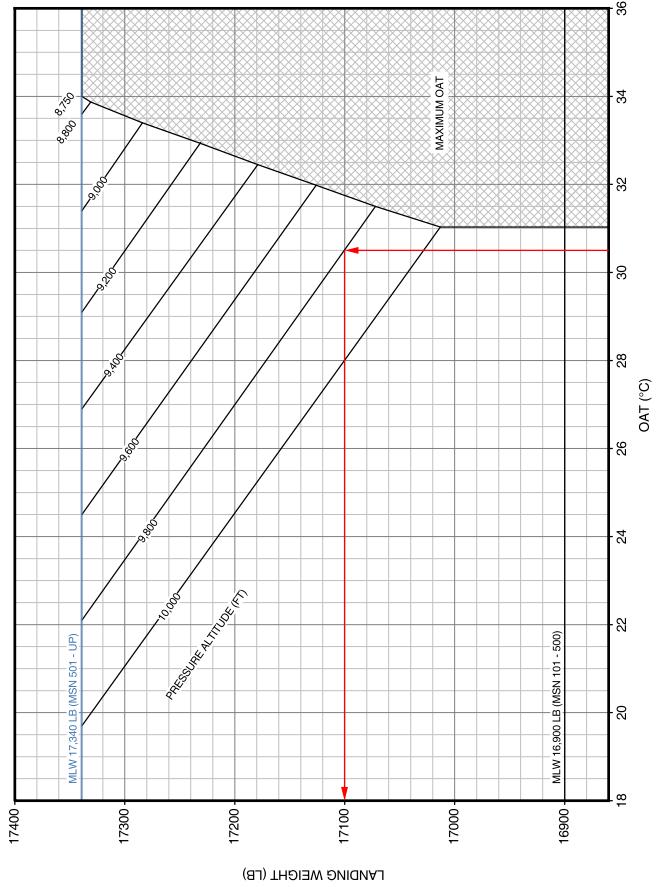


Figure 3A-FCTL-1: Brake Kinetic Energy Limitations (Flaps Up Landing)

Continued on next page



Flaps Fail

3A-FCTL-02

continued

In the event of a failure of the flaps in the fully retracted position with ice, the flight crew should:

- Leave and avoid icing conditions
- Burn fuel to reduce landing weight
- Check for available airports within current range and choose the one that best matches the aircraft weight / airport altitude.

----- END -----

[INDEX](#)

Lift Dump Fail

3A-FCTL-03

One of the following occurred:

- On ground after touchdown: one or more of the ground spoilers did not deploy properly
- In flight: total or partial loss of lift dump detected before landing.

On-ground:

1. Directional Control..... Maintain
2. Wheel brakes..... Apply

--- END ---

[INDEX](#)

In-flight:

1. Landing distance..... Recalculate with factor for ground spoilers inoperative. Refer to Abnormal Landing information in AFM Cockpit Handbook Section 5 or FCOM Performance section for abnormal factor for landing with lift dump failure.

----- END -----

[INDEX](#)

Mach Trim Fail

3A-FCTL-04

Failure of the Mach trim system, which is only active above M_{MO} .

1. Aircraft..... Do not exceed M 0.71

----- END -----

[INDEX](#)



MFS Degrade

3A-FCTL-05

Message indicates a partial or complete loss of Roll Assist or Airbrake function. Airbrake function may still be available and can be confirmed by setting airbrake lever to OUT and checking that green AIRBRK indication appears on the system summary.

1. Aircraft..... Do not exceed M 0.71
Maximum crosswind component (including gust intensity) at landing of 20 kt

----- END -----

[INDEX](#)

RUD Limiter Fail

3A-FCTL-06

The rudder limiter has failed in its last position.

CAUTION

Rudder limiter has failed in its last position. Plan landing on runway with appropriate characteristics for Rudder Travel Limiter assumed position (crosswind). With flaps UP move rudder with caution when high deflections required and limit rudder pedal input to less than 2/3 of a full pedal input.

CAUTION

At low aircraft landing weights (below 13,700 lb), expect an increased aircraft tendency to float during flare and increase in landing distances.

1. Rudder..... With flaps UP, limit rudder pedal input to less than 2/3 of a full pedal input
- Prior to landing:
2. Aircraft..... For landing with flaps 15° or 33°, maximum crosswind of 17 kt

Continued on next page



RUD Limiter Fail

3A-FCTL-06

continued

For landing weights less than 13,700 lb and Flaps 33°, use table below:

| Weight (lb) | Adjusted V _{REF} |
|-------------|---------------------------------------|
| 11,000 | 103 |
| 11,500 | 101 |
| 12,000 | 99 |
| 12,500 | 97 |
| 13,000 | 95 |
| 13,500 | 93 |
| 13,700 | 92 |
| >13,700 | Use published V _{REF} tables |

For landing weights less than 13,850 lb and Flaps 15°, use table below:

| Weight (lb) | Adjusted V _{REF} |
|-------------|---------------------------------------|
| 11,000 | 108 |
| 11,500 | 107 |
| 12,000 | 106 |
| 12,500 | 104 |
| 13,000 | 102 |
| 13,500 | 100 |
| 13,850 | 99 |
| >13,850 | Use published V _{REF} tables |

----- END -----

[INDEX](#)

RUD Trim Fail

3A-FCTL-07

The following has occurred:

- Rudder trim switch mismatch
- Rudder trim relay has failed.

1. Manual trim switch..... Release / confirm both switches aligned

Rudder trim has failed

2. Aircraft..... Land as soon as practical

----- END -----

[INDEX](#)



STAB Trim Fail

3A-FCTL-08

The primary stab trim is not operational.

One of the following has occurred:

- Incorrect or uncommanded trim movement
- Trim switch mismatch
- STAB trim monitoring system detects a fault.

CAUTION

With a STAB trim fail, the pitch trim compensation is lost:

- Flap retraction cannot be commanded > 160 KIAS
- Airbrake movement cannot be commanded > 250 KIAS.

1. Aircraft..... Do not exceed M 0.71
2. Yoke mounted trim switch..... Release
IF caution remains:
 3. SEC STAB TRIM pushbutton..... Push ON
 4. SEC STAB TRIM..... Use to trim the aircraft
 5. PRIMARY STAB TRIM CB [LH Cockpit ESS BUS CB Panel]..... Pull

Note

If the aircraft is in trim, the autopilot may be available / used. Do not change speeds or configuration with the autopilot engaged.

----- END -----

[INDEX](#)

STAB Trim Degrade

3A-FCTL-09

Only low rate primary STAB Trim is available.

One of the following has occurred:

- DCPU 2A or DCPU 2B or both are off
- RH Bus Failure

Continued on next page



STAB Trim Degrade

3A-FCTL-09

continued

CAUTION

With a STAB trim degrade, the pitch trim compensation is lost:

- Airbrake movement cannot be commanded > 250 KIAS.

Do not use secondary trim.

Note

Flaps are not available due to DCPU 2 being off.

1. Aircraft..... Do not exceed M 0.71
2. Yoke mounted trim switch..... Use to trim the aircraft
Expect longer trim inputs at low airspeed

----- END -----

[INDEX](#)



Section 3A - Abnormal Procedures (Authority approved) Flight Controls

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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3A-FIRE Fire/Overheat/Smoke

Baggage COMP Smoke

3A-FIRE-01

Smoke or particle contamination has been detected in the baggage compartment.

Smoke or fire is present in the cockpit or cabin:

1. Perform Smoke, Fire or Fumes in Cockpit / Cabin - 3-SMOKE-01

--- END ---

[INDEX](#)

NO smoke, fumes or smell are immediately evident:

Use all available means to establish the cause of the caution.

1. Second crew member (if available and workload permits). Inspect baggage compartment, if necessary fight the fire using PBE, portable extinguisher

IF baggage smoke / fire cannot be excluded, or single crew operation does not allow a baggage compartment inspection:

2. Aircraft..... Land as soon as possible

----- END -----

[INDEX](#)

L Bleed Leak

R Bleed Leak

3A-FIRE-02

Triggered by temperature sensor positioned in the associated pylon exceeding 130 °C for longer than 10 sec.

1. Bleed rotary selector..... Select non-leak side

Note

CPCS and IPS are operating in single source operation.

IF caution remains:

2. Aircraft..... Consider shutting down affected engine
Refer to [Engine Inflight Shutdown - 3-NAE-07](#) procedure

IF caution removed:

3. Aircraft..... Land as soon as practical

----- END -----

[INDEX](#)



| L ENG ISOL Fail | R ENG ISOL Fail | 3A-FIRE-03 |
|---|--|-----------------------|
| The indicated engine isolation push button has been pressed, but the associated fuel SOV and / or ECS SOV have not closed within 5 sec. Fire Extinguisher operation is still possible. If this message appears during a L Engine Fire/R Engine Fire - 3-FIRE-01 procedure, continue with FIRE procedure and then return to carry out these steps: | | |
| 1. Affected engine switch..... | Check OFF | |
| 2. Bleed rotary switch..... | Select the non-associated bleed source | |
| 3. ECS SOV..... | Confirm open if synoptics available | |
| 4. Aircraft..... | Land as soon as practical | |
| ----- END ----- | | INDEX |

| L Engine Isolated | R Engine Isolated | 3A-FIRE-04 |
|---|--|-----------------------|
| The indicated Engine Isolation pushbutton has been pressed and the indicated Fuel SOV and the indicated ECS SOV have both closed. | | |
| IF engine is isolated after engine fire procedure: | | |
| 1. Engine Fire procedure..... | Continue, no further pilot action required | |
| IF engine operation is desired: | | |
| Note | | |
| Pushing the affected engine isolation push button again reverses all effects of the engine isolation push button. | | |
| 2. Affected engine Isolation pushbutton..... | Push / disengage | |
| For engine restart: | | |
| 3. Engine Airstart - 3-NAE-03 | Accomplish | |
| ----- END ----- | | INDEX |

| L Fire DTECT Fail | R Fire DTECT Fail | 3A-FIRE-05 |
|---|-------------------|-----------------------|
| The indicated fire detection loop has failed, or not all fire warnings are available in a fire event. Engine fire isolation still functions normal. | | |
| <i>On-ground:</i> | | |
| <i>Before engine start:</i> | | |
| 1. Affected engine..... | Do not start | |
| --- END --- | | INDEX |
| <i>Continued on next page</i> | | |



| L Fire DTECT Fail | R Fire DTECT Fail | 3A-FIRE-05 |
|----------------------------|---|-----------------------|
| continued | | |
| <i>After engine start:</i> | | |
| 1. Affected engine..... | Shut down / monitor ITT Refer to Engine Inflight Shutdown - 3-NAE-07 procedure | |
| | --- END --- | INDEX |
| <i>In-flight:</i> | | |
| 1. Affected engine..... | Monitor engine parameters | |
| 2. Aircraft..... | Land as soon as practical | |
| | ----- END ----- | INDEX |

| Tail Bleed Leak | 3A-FIRE-06 |
|--|---|
| Any of the temperature sensors positioned in the Rear Fuselage have exceeded 85 °C for longer than 10 sec. | |
| <p>1. Aircraft..... Exit and remain clear of icing conditions</p> <p>While exiting icing conditions:</p> <p>2. ECS Synoptic..... Select X-Bleed to CLOSE</p> <p>3. Both engines..... Check ITT</p> | |
| CAUTION | |
| WAI unavailable with X-Bleed valve in bleed single source. With ICE detected, WAI will fail and the SWPS will advance the Pusher/Shaker thresholds to ICE Mode 2. Refer to WAI Bleed Leak - 3A-FIRE-07. | |
| 4. Bleed Air Rotary Selector..... | Select the single bleed source (L or R): select the side with the lower ITT IF caution remains after approximately two minutes: |
| 5. Bleed Air Rotary Selector..... | Select opposite bleed source IF caution remains after approximately two minutes: |
| 6. Bleed Air Rotary Selector..... | OFF |
| 7. EMRG RAM AIR..... | PULL |
| 8. Emergency Descent - 3-NAE-02 . | Accomplish if required Land as soon as possible if caution remains |
| IF caution removed: | |
| 6. Aircraft..... | Land as soon as practical |
| | ----- END ----- |
| | INDEX |



WAI Bleed Leak

3A-FIRE-07

Triggered by any of the temperature sensors positioned in the over-wing fairing exceeding 85 °C for longer than 10 sec. Leak can be either left or right side, therefore it is necessary to completely isolate the WAI in order to prevent asymmetry.

1. IPS Rotary selector..... MAN
2. IPS Synoptic..... WAI OFF

CAUTION

Switching OFF WAI with ICE detected will advance the SWPS Pusher/Shaker into ICE Mode 2.

CAUTION

If ice crystals are suspected, switch both NAI manually ON on the IPS synoptic.

3. Aircraft..... Exit and remain clear of icing conditions
IF caution remains:
4. ECS Synoptic..... X-Bleed OFF
5. BLEED selector..... Left (wait two min)
IF caution remains:
6. BLEED selector..... Right (wait two min)
IF caution remains:
7. Aircraft..... Land as soon as possible
IF caution extinguished:
8. Aircraft..... Continue with Single Bleed source operation and remain clear of icing conditions

----- END -----

[INDEX](#)



XTING 1 Empty

XTING 2 Empty

3A-FIRE-08

The indicated engine fire bottle is discharged or low pressure has been sensed.

IF an extinguisher push button has been pressed during an Engine Fire procedure:

Note

This is an expected indication.

1. Appropriate L Engine FireR Continue
Engine Fire - 3-FIRE-01
procedure.....

IF extinguisher push button has not been pressed:

Only the unaffected fire bottle is available for one shot into one engine.

2. Aircraft..... Land as soon as practical

----- END -----

[INDEX](#)



Section 3A - Abnormal Procedures (Authority approved) Fire/Overheat/Smoke

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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3A-FUEL Fuel

| L Fuel Collector Low | R Fuel Collector Low | 3A-FUEL-01 |
|----------------------|----------------------|------------|
|----------------------|----------------------|------------|

The indicated collector tank not maintained full.

Both engines operating:

1. Aircraft..... Avoid pitch attitudes greater than 10°
Avoid unbalanced flight
 2. Fuel Quantity..... Check and confirm affected collector tank refills and caution removed
- If a fuel leak is suspected:
3. Fuel Suspected Leak - 3A-NAA-13..... Accomplish

--- END ---

[INDEX](#)

OEI with L Engine operative:

1. R Fuel Pump..... ON
2. FUEL X-FEED..... OPEN

Note

Selecting XFEED open with R Fuel SOV closed, automatically selects R pump ON.

3. FUEL..... Monitor L Collector Tank Qty increasing
4. Aircraft..... Avoid pitch attitudes greater than 10°
Avoid prolonged unbalanced flight

When L collector tank full:

5. FUEL X-FEED..... CLOSED

--- END ---

[INDEX](#)

OEI with R Engine operative:

1. L Fuel Pump..... ON
2. FUEL X-FEED..... OPEN

Note

Selecting XFEED open with L Fuel SOV closed, automatically selects L pump ON.

3. FUEL..... Monitor R Collector Tank Qty increasing
4. Aircraft..... Avoid pitch attitudes greater than 10°
Avoid prolonged unbalanced flight
5. Fuel Quantity..... Check and confirm R Collector Tank refills and caution removed
6. FUEL X-FEED..... CLOSED

----- END -----

[INDEX](#)



| Fuel Door Open | 3A-FUEL-02 |
|--|-----------------------|
| Fuel door panel, FWD of the right wing root is not closed. | |
| On-ground indication only. | |
| 1. Refuel door..... | Close |
| | ----- END ----- |
| | INDEX |

| L+R Fuel IMP Bypass | 3A-FUEL-03 |
|---|------------------------------|
| The L and R engine fuel filter have become clogged and fuel filter bypass is impending or signal sensor output invalid. | |
| To prevent contaminated fuel from transferring to the other tank: | |
| 2. Fuel Synoptic..... | - XFR OFF - X-FEED closed |
| ----- END ----- | |
| 3. Fuel balance..... | Monitor |
| 4. Aircraft..... | Land as soon as possible |
| | INDEX |

| L Fuel IMP Bypass | R Fuel IMP Bypass | 3A-FUEL-04 |
|--|---------------------------|-----------------------|
| The indicated engine fuel filter has become clogged and fuel filter bypass is impending or signal sensor output invalid. | | |
| <i>On Ground:</i> | | |
| 1. Affected engine..... | | |
| | Do not start | |
| | Maintenance required | |
| Do not take off. | | |
| <i>In Flight:</i> | | |
| 1. Associated fuel flow..... | Monitor | |
| To prevent contaminated fuel from transferring to the other tank | | |
| 2. Fuel Synoptic..... | XFR OFF X-FEED OFF | |
| 3. Aircraft..... | Land as soon as practical | |
| | ----- END ----- | |
| | | INDEX |

**Fuel Imbalance****3A-FUEL-05**

Difference of more than 330 lb and increasing. Failure of automatic fuel balancing and / or fuel leak suspected.

CAUTION

Automatic transfer is disabled if the imbalance exceeds 441 lb. If large fuel imbalance exists aircraft controllability may be reduced.

1. Aircraft..... Avoid unbalanced flight
Do not reduce speed
Aircraft tends to roll towards heavier wing, requiring increased aileron deflection to counter with increased fuel imbalance or reduced speed
2. Fuel quantity..... Check fuel contents and balance
Compare fuel used, actual FOB versus preflight FOB predictions
3. FUEL synoptic..... XFR OFF
IF a fuel leak is suspected:
 4. Fuel Suspected Leak - 3A-NAA-13..... Accomplish
- IF fuel quantity differs for unknown reason but fuel leak is NOT suspected:
IF L fuel quantity is Low:
 4. FUEL synoptic..... XFR L<-R
Confirm right PUMP operation and fuel transferring
- IF R fuel quantity is Low:
 5. FUEL synoptic..... XFR L->R
Confirm left PUMP operation and fuel transferring
- When fuel is balanced:
 5. FUEL synoptic..... XFR OFF
 6. Fuel Balance..... Manually balance fuel for the remainder of flight
IF fuel balance is not possible:
 7. Aircraft..... Land as soon as practical

Note

With a large fuel imbalance, consider using higher approach speed and / or Flaps 15° for landing. Consider disengaging autopilot to assess aileron trim.

----- END -----

[INDEX](#)



| L Fuel Level Low | R Fuel Level Low | 3A-FUEL-06 |
|--|--------------------------|-----------------------|
| One of the following has occurred: | | |
| <ul style="list-style-type: none"> - The associated low fuel quantity sensor detects less than 250 lb of fuel in the indicated tank - The indicated sensor has failed. | | |
| IF fuel leak is suspected: | | |
| 1. Fuel Quantity..... | Check | |
| CAUTION | | |
| Approximately 30 minutes flight time remains at 5,000 ft Mean Sea Level or above and holding speed. Avoid excessive pitch attitudes and avoid unbalanced flight. | | |
| 2. Fuel Suspected Leak - 3A-NAA-13..... | Accomplish | |
| IF fuel leak is NOT suspected and the opposite fuel level is also low or nearly low: | | |
| 3. Associated Engine start switch... | IGN | |
| 4. Aircraft..... | Land as soon as possible | |
| ----- END ----- | | INDEX |

| L Fuel PRESS Low | R Fuel PRESS Low | 3A-FUEL-07 |
|--|------------------|-----------------------|
| One or more of the following has occurred: | | |
| <ul style="list-style-type: none"> - Low fuel pressure condition detected at the indicated Engine inlet - The associated fuel pressure sensor signal has become invalid. | | |
| 1. FUEL Synoptic..... Affected side pump ON 2. Engine Parameters..... Monitor IF caution removed: 3. Fuel balance..... Monitor | | |
| IF caution remains: 4. Affected THRUST lever..... Avoid rapid THRUST lever movements Set minimum required thrust 5. Aircraft..... Descend if practical IF caution remains: 6. Aircraft..... Land as soon as practical | | |
| ----- END ----- | | INDEX |

**L Fuel Pump Fail****3A-FUEL-08**

L Wing fuel electric booster pump is not operating as commanded.

Note

L Fuel Pump failed ON, failed OFF and Invalid status can be identified from the fuel synoptic page.

On-ground:

IF caution appears during engine start:

1. Engine Start..... Abort

IF caution appears after engine running:

2. Aircraft..... Shutdown

Maintenance required

--- END ---

[INDEX](#)

*In Flight - L Fuel Pump is inoperative and no associated **Fuel PRESS Low** CAS messages are present:*

CAUTION

Automatic Fuel Balance function may be unreliable. For L Engine In Flight restart use R Fuel Pump and fuel cross-feed.

CAUTION

Manual fuel balancing from LEFT to RIGHT is not possible. If fuel balancing required, consider the use of asymmetric thrust.

1. Fuel Balance..... Monitor

2. Aircraft..... Land as soon as practical

--- END ---

[INDEX](#)

*In Flight - L Fuel Pump is inoperative and associated **Fuel PRESS Low** CAS messages are present:*

1. FUEL synoptic..... X-FEED OPEN

Left pump ON

CAUTION

Manual fuel balancing from LEFT to RIGHT is not possible. If fuel balancing required, consider the use of asymmetric thrust.

2. Fuel Balance..... Monitor

3. Aircraft..... Land as soon as practical

--- END ---

[INDEX](#)

Continued on next page

**L Fuel Pump Fail****3A-FUEL-08**

continued

*L Fuel Pump is operating and no associated **Fuel PRESS Low** CAS messages are present: The pump was operating and failed to stop when commanded by pilot or UMS:*

1. FUEL synoptic..... Left pump OFF

Note

Consider selecting AUTO if the caution disappears.

IF caution persists:

2. Fuel synoptic..... XFR OFF
3. Fuel Balance..... Monitor

Note

If fuel balancing required, consider the use of asymmetric thrust.

4. Aircraft..... Land as soon as practical

----- END -----

[INDEX](#)**R Fuel Pump Fail****3A-FUEL-09**

R Wing fuel electric booster pump is not operating as commanded.

Note

R Fuel Pump failed ON, failed OFF and Invalid status can be identified from the fuel synoptic page.

Continued on next page

**R Fuel Pump Fail****3A-FUEL-09**

continued

On-ground:

IF caution appears during engine start:

1. Engine Start..... Abort

IF caution appears after engine running:

2. Aircraft..... Shutdown

Maintenance required

--- END ---

[INDEX](#)*In Flight - R Fuel Pump is inoperative and no associated **Fuel PRESS Low** CAS messages are present:***CAUTION**

Automatic Fuel Balance function may be unreliable. For R Engine In Flight restart use L Fuel Pump and Fuel cross-feed.

CAUTION

Manual fuel balancing from RIGHT to LEFT is not possible. If fuel balancing required, consider the use of asymmetric thrust.

1. Fuel Balance..... Monitor
2. Aircraft..... Land as soon as practical

--- END ---

[INDEX](#)*In Flight - R Fuel Pump is inoperative and associated **Fuel PRESS Low** CAS messages are present:*

1. FUEL synoptic..... X-FEED OPEN
Right pump ON

CAUTION

Manual fuel balancing from RIGHT to LEFT is not possible. If fuel balancing required, consider the use of asymmetric thrust.

2. Fuel Balance..... Monitor
3. Aircraft..... Land as soon as practical

--- END ---

[INDEX](#)*Continued on next page*

**R Fuel Pump Fail****3A-FUEL-09**

continued

*In Flight - R Fuel Pump is operating and no associated **Fuel PRESS Low** CAS messages are present: The pump was operating and failed to stop when commanded by pilot or UMS:*

1. FUEL synoptic..... Right Pump OFF

Note

Consider selecting AUTO if the caution disappears.

IF caution persists:

2. Fuel synoptic..... XFR OFF
3. Fuel Balance..... Monitor

Note

If fuel balancing required, consider the use of asymmetric thrust.

4. Aircraft..... Land as soon as practical

----- END -----

[INDEX](#)

L Fuel QTY Fail**R Fuel QTY Fail****3A-FUEL-10**

The indicated fuel quantity indication is failed or invalid.

CAUTION

UMS Build 8.1 and below (MSN 101 - 290 pre SB 42-020): Automatic Fuel Balance will not function and total fuel quantity will also become invalid. Fuel used and endurance will remain valid.

CAUTION

UMS Build 9.0 and higher (MSN 101 - 290 post SB 42-020, and MSN 291 - UP): Automatic Fuel Balance will not function. Total fuel quantity will switch to a calculated value, that has an error margin of +/- 5 %. Fuel used and endurance values remain valid.

Note

The applicable **Fuel Level Low** Message will still function.

1. L and R THRUST levers..... Match left and right fuel flow on PFD
2. Fuel quantity..... Calculate / Monitor based on the remaining fuel quantity indication
3. Aircraft..... Land as soon as practical

----- END -----

[INDEX](#)

**L Fuel SOV Fail****3A-FUEL-11****Note**

L Fuel SOV Failed OPEN, failed CLOSED and Invalid status can be identified from the fuel synoptic page.

Left fuel SOV is not operating as commanded or position cannot be determined.

In-flight:

IF engine Isolation push button has been pressed and engine shutdown is desired:

The fuel SOV has not been closed. This can be confirmed by checking fuel flow. The fire bottle will be still be armed and available.

1. L ENG switch..... OFF

IF engine Isolation push button has NOT been pressed:

SOV position feedback has been lost.

2. Fuel flow and engine parameters Monitor

----- END -----

[INDEX](#)**R Fuel SOV Fail****3A-FUEL-12****Note**

R Fuel SOV failed OPEN, failed CLOSED and invalid status can be identified from the fuel synoptic page.

Right fuel SOV is not operating as commanded or position cannot be determined.

In-flight:

IF engine Isolation push button has been pressed and engine shutdown is desired:

The fuel SOV has not been closed. This can be confirmed by checking fuel flow. The fire bottle will be still be armed and available.

1. R ENG switch..... OFF

IF engine Isolation push button has NOT been pressed:

SOV position feedback has been lost.

2. Fuel flow and engine parameters Monitor

----- END -----

[INDEX](#)



| | | |
|-------------------------|-------------------------|-------------------|
| L Fuel TEMP High | R Fuel TEMP High | 3A-FUEL-13 |
|-------------------------|-------------------------|-------------------|

The indicated collector tank temperature exceeds 80 °C.

On-ground:

1. Engines..... Do not start

--- END ---

[INDEX](#)

In-flight:

Note

This condition may occur with low fuel quantity and high ambient temperatures.

1. FUEL Synoptic..... Monitor fuel temperature
2. Aircraft..... Climb to cooler air or land as soon as practical

CAUTION

Operating with fuel temperatures above 80 °C for more than 30 minutes could lead to damage to the collector tank fuel system.

----- END -----

[INDEX](#)

| | | |
|------------------------|------------------------|-------------------|
| L Fuel TEMP Low | R Fuel TEMP Low | 3A-FUEL-14 |
|------------------------|------------------------|-------------------|

The fuel probes on the indicated side have sensed fuel temperature below -40 °C.

On-ground:

1. FUEL Synoptic..... Check indicated collector tank temperature.
IF fuel synoptic shows temperature <-40 °C:
2. Associated engine..... Do not start

--- END ---

[INDEX](#)

In-flight:

1. Engine Parameters..... Monitor
2. Fuel temperatures..... Monitor
3. Aircraft..... Consider descending to warmer SAT
IF unable to raise fuel temperature:
4. Aircraft..... Land as soon as practical

----- END -----

[INDEX](#)

**Fuel X-Feed Fail****3A-FUEL-15**

X-FEED valve is not operating as commanded, or the position of the X-FEED valve cannot be determined.

In-flight:

1. FUEL Synoptic..... Determine status of X-FEED valve
IF status still undetermined:
 2. FUEL Synoptic..... Left Pump ON
 3. FUEL Synoptic..... Observe L and R engine inlet pressure indication
If L and R engine inlet pressure indication similar, then X-FEED is OPEN
If L and R engine inlet pressure indication NOT similar
4. FUEL Synoptic..... L Pump OFF
5. Fuel balance..... Monitor

----- END -----

[INDEX](#)

L XFER Valve Fail**R XFER Valve Fail****3A-FUEL-16**

The indicated XFR valve is not operating as commanded or its position cannot be determined.

In-flight:

1. Fuel Synoptic..... Determine if the indicated XFR valve has failed OPEN or CLOSED
2. Fuel Balance..... Monitor and balance manually if required

Note

If the affected XFR valve is failed CLOSED, fuel transfer from the opposite fuel tank to the affected side is not possible. Fuel balancing should be accomplished as required by activating the Fuel synoptic page and selecting the Fuel Pump on the high quantity side to ON, and opening the X-FEED valve.

----- END -----

[INDEX](#)



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3A-GEAR Landing Gear

Gear Mismatch

3A-GEAR-01

Landing gear position does not match lever position after 30 sec.

CAUTION

On ground, this message indicates that gear lever is providing an up signal.

On-ground:

1. Landing gear lever..... Confirm / set lever to DN
IF caution remains:
2. Aircraft..... Do not taxi

--- END ---

[INDEX](#)

In-flight:

IF gear was selected UP:

1. Aircraft..... Airspeed maintain below 200 KIAS

Note

Following an icing encounter with gear extended, the NLG may not fully retract leading to gear mismatch CAS. If this occurs, limit speed to 200 KIAS and extend gear normally before landing.

IF caution appeared after severe turbulence and/ or considerable G-load:

2. Landing gear..... Use pilot discretion
Consider cycling the landing gear once. Cycling the gear one time is only permitted for suspected mismatch due to turbulence or G-loading

Before landing:

3. Landing gear lever..... DN
4. Aircraft..... Land as soon as practical

IF gear was selected DN:

Note

This indication should be expected if emergency gear extension is performed and the landing gear lever is not selected DN.

For landing:

4. Landing gear lever..... Check DN
IF caution persists:
5. [L/G Emergency Extension - 3-NAE-13](#)..... Accomplish

----- END -----

[INDEX](#)

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Gear Actuator CTRL

3A-GEAR-02

One or more landing gear actuators have reported a fault. Maintenance action is required.

CAUTION

Do not cycle gear. If gear is already up extension is permitted.

In-flight:

1. Landing gear..... Do not cycle

Before landing:

2. Landing gear lever..... DN
IF three green lights not illuminated within 30 sec:
3. L/G Emergency Extension - 3-
NAE-13..... Accomplish

----- END -----

[INDEX](#)

Gear Actuator TEMP

3A-GEAR-03

One or more landing gear actuator heaters have failed.

In Flight:

IF aircraft and flight path allow:

1. Aircraft..... Descend to warmer air (SAT > -55 °C)

IF no descend possible:

1. Flight planning..... Flights should be planned at altitudes where SAT >-55 C, where not possible increase speed.
2. Flight path..... Monitor the SAT at regular intervals during the flight.

--- END ---

[INDEX](#)

After landing

1. Aircraft..... Report to maintenance and refer to (M)MEL.

----- END -----

[INDEX](#)



3A-IPS Ice and Rain

HSDI Fail

3A-IPS-01

HSDI pressure switch detecting no, or low pressure when HSDI commanded ON.

CAUTION

Flap extension is not permitted > Flaps 15° in this condition to prevent horizontal stabilizer stall due to residual ice.

1. Aircraft..... Exit and remain clear of icing conditions
IF approach and landing:
2. Flaps..... Maximum Flaps 15°
3. Airspeed..... Use V_{REF} for Flaps 15° IPS ON ICE Mode
1

----- END -----

[INDEX](#)

HSDI Fail On

3A-IPS-02

HSDI is ON when not commanded ON. The pressure switch is detecting a pressure higher than the given threshold.

CAUTION

Flap extension is not permitted > Flaps 15° in this condition to prevent horizontal stabilizer stall due to residual ice.

1. Aircraft..... Exit and remain clear of icing conditions
IF approach and landing:
2. Flaps..... Maximum Flaps 15°
3. Airspeed..... Use V_{REF} for Flaps 15° IPS ON ICE Mode
1

Note

UMS Build 8.1 and below (MSN 101 - 290 pre SB 42-020): The HSDI Fail ON may be spuriously triggered at system de-activation. Consider performing a manual activation on ground after an aircraft power cycle to confirm correct operation.

----- END -----

[INDEX](#)

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Ice Detector Fail

3A-IPS-03

Left or right ice detector failed when aircraft was on ground. The remaining ice detector will provide correct information regarding icing conditions. However, it is the pilot's responsibility to manually activate ice protection systems.

CAUTION

Expect icing conditions in visible moisture and <10 °C TAT.

First signs of ice accretion will be visible on the cockpit windshields non heated areas, close to the center strut.

Note

If one ice detector fails in flight **Ice Detector Fail** will be displayed until end of the flight. In this case, the IPS remains fully functional in auto mode until end of the flight. Only redundancy has been lost.

IF encountering icing conditions:

1. IPS mode rotary selector..... ALL ON
2. IPS Synoptic..... Observe correct function

IF leaving icing conditions:

3. IPS mode rotary selector..... AUTO

----- END -----

[INDEX](#)

L+R ICE DTECT Fail

3A-IPS-04

Both ice detectors are inoperative. IPS automatic mode will not work.

CAUTION

Expect icing conditions in visible moisture and <10 °C TAT.

First signs of ice accretion will be visible on the cockpit windshields non heated areas, close to the center strut.

IF encountering icing conditions

1. IPS mode rotary selector..... ALL ON
2. IPS Synoptic..... Observe correct function
3. SWPS ICE OVRD push button / SWPS ICE MODE rotary selector..... Consider reverting to ICE Mode 1 SWPS settings.

If SWPS ICE OVRD successfully activated as indicated by white **ICE** caption in the PFD, use V_{REF} for IPS on (ICE Mode 1)

IF leaving icing conditions:

4. IPS mode rotary selector..... AUTO

----- END -----

[INDEX](#)



IPS Low Energy

3A-IPS-05

The IPS system may require more bleed air to function optimally when flying in icing conditions and IPS is required.

IF system is operating in single bleed source with operating side above MCT:

1. Thrust Levers..... When practical / safe, select MCT or lower

IF system is operating normally in dual bleed source, or thrust levers below MCT:

2. Thrust Levers..... Advance until caution is removed

IF caution remains:

3. Aircraft..... Consider avoiding icing conditions

----- END -----

[INDEX](#)

IPS Off

3A-IPS-06

The aircraft has detected ice and the IPS is either switched OFF or has failed.

1. IPS rotary selector..... Confirm / Select AUTO or AUTO / NAI as required

IF message remains:

2. IPS rotary selector..... ALL ON

IF message remains:

3. Aircraft..... Avoid icing condition

4. **WAI Fail - 3A-IPS-09**..... Accomplish for **WAI Fail**

Note

Operation of the flaps is limited to 15° extension, if the aircraft is in, or has been in icing conditions.

----- END -----

[INDEX](#)

IPS On-TAT Limit

3A-IPS-07

One of the following has occurred:

- WAI and / or NAI set to ON and TAT >10 °C, or

Continued on next page



IPS On-TAT Limit 3A-IPS-07

continued

- HSDI set to ON and TAT <-40 °C.

CAUTION

Avoid high engine power settings if the aircraft is on the ground and the NAI is ON, and the temperature > 10 °C Total Air Temperature, as it can damage the engine inlet.

CAUTION

Horizontal Stabilizer De-Ice operation is limited to operate >-40 °C Total Air Temperature.

If temperature <-40 °C Total Air Temperature expect possible damage to elevator boots.

IF no icing conditions / ice crystals are present and TAT indication is plausible:

1. IPS rotary selector..... Select AUTO

IF potential icing conditions / ice crystals are present and TAT reading appears erroneous:

2. IPS rotary selector..... Select NAI

Note

NAI selection provides heating power to Pt2 and Tt2 sensors to clear potential ice accumulation.

IF no icing conditions / ice crystals are present and IPS does not switch off in AUTO mode within 2 minutes consider:

3. IPS rotary selector..... Select MAN
4. IPS synoptic..... Select affected systems OFF
5. Aircraft..... Avoid icing conditions

Note

If any IPS-related system is set to OFF with ice detectors indicating icing, the IPS OFF caution CAS will be displayed.

If WAI is set to OFF with ice detectors indicating icing, SWPS ice mode 2 is set and the WAI Fail caution CAS will be displayed.

----- END -----

[INDEX](#)



| L NAI Fail | R NAI Fail | 3A-IPS-08 |
|--|---|-----------------------|
| The indicated Nacelle Anti-Ice valve is commanded OPEN and there is insufficient bleed air pressure available for effective operation. | | |
| <i>In Flight:</i> | | |
| IF ice accretion is observed or anticipated: | | |
| 1. THRUST levers..... | Advance if practical Wait minimum 10 seconds | |
| IF unsuccessful: | | |
| 2. ENGINE switches..... | For R NAI Fail set RIGHT to IGN For L NAI Fail set LEFT to IGN | |
| 3. Aircraft..... | Land as soon as practical Exit and remain clear of icing conditions | |
| --- END --- | | INDEX |
| <i>On ground:</i> | | |
| 1. THRUST levers..... | Advance if practical | |
| ----- END ----- | | INDEX |

| WAI Fail | 3A-IPS-09 |
|---|-----------|
| WAI failed in operation due to a detected fault or is unavailable for operation due to loss of essential control / monitor input signals. | |
| CAUTION | |
| If amber ICE caption present on the Primary Flight Display, the Stall Protection Warning System will advance Low Speed Awareness, Shaker, and Pusher speeds to Ice Mode 2 values. Maintain airspeed above Dynamic Speed Bug. | |
| 1. Aircraft..... Exit and remain clear of icing conditions 2. Wing leading edge..... Inspect for Ice | |

Continued on next page



WAI Fail

3A-IPS-09

continued

IF no amber **ICE** caption on the PFD:

3. Aircraft..... Make normal approach and landing using appropriate V_{REF} for ICE Mode 0 or 1 as indicated.

IF amber **ICE** caption present on the PFD and SWPS ICE mode override permitted:

Note

SWPS ICE mode override is permitted when the pilot is confident that there is no residual ice on wings and $TAT \geq 10^{\circ}\text{C}$. SWPS ICE mode override is also permitted with $TAT < 10^{\circ}\text{C}$ when pilot is confident that there is no residual ice on wings and the HSDI is functioning normally. If the pilot has any doubt after assessing previous ice encounter, thoroughly checking wings visually, and anticipating icing conditions, SWPS ICE mode shall not be overridden.

4. SWPS ICE OVRD push button / SWPS ICE MODE rotary selector..... Consider reverting to ICE Mode 1 SWPS settings.

If SWPS ICE OVRD successfully activated as indicated by white **ICE** caption in the PFD, use V_{REF} for IPS on (ICE Mode 1) and refer to 3B-FAS-12 for flaps use limitations.

IF amber **ICE** caption present on the PFD and ice is present on wings or pilot is uncertain of residual ice on leading edge:

5. Flaps..... Do not use Flaps 33°. Maximum Flaps 15° for approach and landing and respect the Landing Weight and Airport Altitude Limits for Landing in ICE Mode 2 and Flaps 15° in Fig. 3A-IPS-1.

Continued on next page



WAI Fail

continued

3A-IPS-09

MAX. LANDING WEIGHT WITH FLAPS 15° IN ICE MODE 2

NOTES:

MSN 101 - 500: MAX. LANDING WEIGHT 16,300 LB
MSN 501 - UP: MAX. LANDING WEIGHT 17,340 LB

EXAMPLE:
MAX. LANDING WEIGHT : 16,000 LB
MAX. LANDING ALTITUDE : 8,200 FT

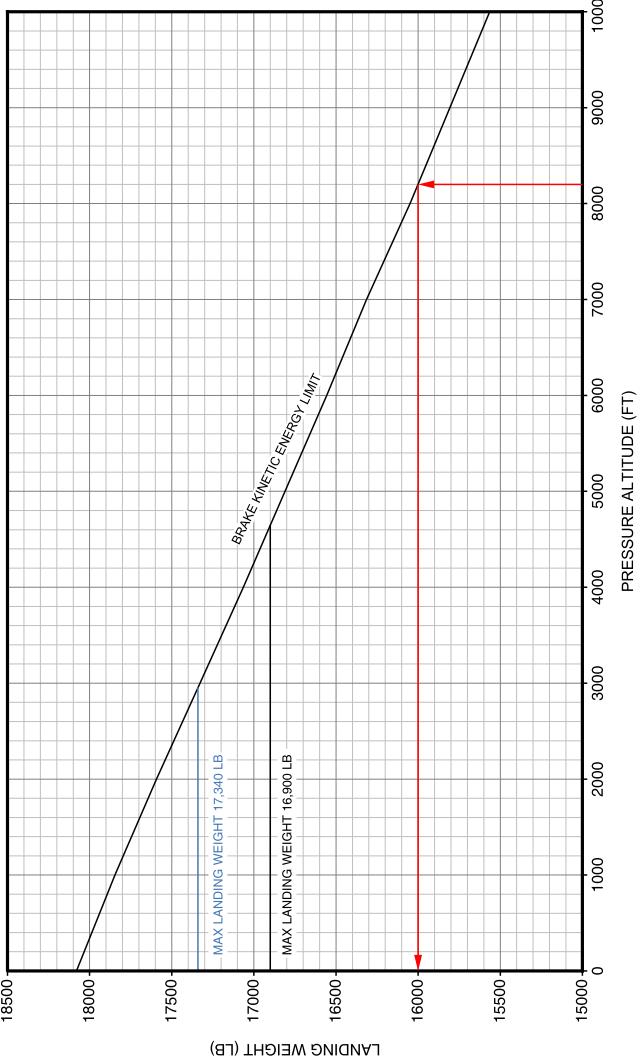


Figure 3A-IPS-1: Landing Weight and Airport Altitude Limits for Landing in ICE MODE 2
Continued on next page



WAI Fail

3A-IPS-09

continued

and Flaps 15°

6. Landing performance..... Recalculate with abnormal factor for ICE Mode 2 V_{REF} speeds

CAUTION

Due to significantly increased V_{REF} speeds, landing distance will be increased. Minimize flare but ensure landing is made with main gear touchdown before the nosewheel.

7. Airspeed..... Use ICE Mode 2 V_{REF} speeds below:

| Weight (lb) | Adjusted V_{REF} (KIAS) Flaps 15°, Ice Mode 2 |
|-------------|--|
| 11,000 | 118 |
| 11,500 | 121 |
| 12,000 | 124 |
| 12,500 | 126 |
| 13,000 | 129 |
| 13,500 | 131 |
| 14,000 | 133 |
| 14,500 | 136 |
| 15,000 | 138 |
| 15,500 | 140 |
| 16,000 | 143 |
| 16,500 | 145 |
| 17,000 | 147 |
| 17,500 | 149 |
| 18,000 | 151 |
| 18,300 | 153 |
| 18,740 | 155 |

----- END -----

[INDEX](#)

WSHLD Heat Fail

3A-IPS-10

One or more of the following has occurred:

- Power to both windshields and both side windows heaters has failed
- The current measurement determines that no power is supplied to the windshields
- Windshield heat function is lost due to failed temperature sensors.
- The windshield monitoring channel detect an overheat and activates the protective cutout

Continued on next page



WSHLD Heat Fail

3A-IPS-10

continued

- The WINDSHIELD rotary selector is not set to AUTO HI before starting an engine (refer to [Cabin / Cockpit Preparation - 4-PF-03](#)). Consequently, on ground, the Power-Up Built-In Test (P BIT) has failed.
- QPM has been activated with engine in Ground Idle for less than 2 minutes (refer to [Quiet Power Mode Operation - 4A-QP-01](#)). Consequently, on ground, the Power-Up Built-In Test (P BIT) has failed.

On-ground, before engine start:

CAUTION

Cycling aircraft electrical power requires a minimum power-up time of 30 seconds. Repeated resets with less than 30 second power-up time may lead to a latched FADEC Fail, which requires maintenance action.

1. Aircraft..... Cycle the aircraft electrical power
2. WINDSHIELD rotary selector..... Select AUTO HI

--- END ---

[INDEX](#)

Note

The windshield emergency power will turn off automatically after 100 seconds.

1. ECB synoptic..... Use CCD or joystick to highlight the appropriate ECB

Select STATUS softkey to view tripped ECBs, then select ALL softkey

Check / reset WS De-Ice L / R ECB as required

IF windshields are fogging or icing up:

2. WS EMER PWR..... ON
- After 100 sec:
3. WS EMER PWR..... Check OFF

----- END -----

[INDEX](#)



Section 3A - Abnormal Procedures (Authority approved)
Ice and Rain

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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PC24-AA15-48-0313-00A-141A-A



3A-NAV Navigation

CHECK MAG/TRUE

3A-NAV-01

Heading reference has automatically been set to true in regions of low magnetic field strength. Exiting this region requires the pilot to set heading reference manually to magnetic. Using a tuned VOR station, the pilot is required to set the heading reference in accordance to the tuned true or magnetic VOR orientation.

1. Multipurpose window..... Select page Avionics, PFD Tab, Set HDG reference to magnetic or true as required

----- END -----

[INDEX](#)

FMS1-GPS1 POS MISC

3A-NAV-02

Any combination of FMS 1 and / or FMS 2 with GPS 1 Pos MISC or GPS 2 Pos MISC.

1. Position..... Check GPS versus FMS position
2. GPS..... Confirm alternate GPS is selected on SENSORS GPS page
3. Aircraft..... Inform ATC if RNAV capability is lost

----- END -----

[INDEX](#)

FMS1-GPS1+2 POS MISC

3A-NAV-03

Loss of RAIM and GPS Navigation.

Note

Monitor navigation performance and FMS messages against required navigation performance.

1. Position..... Check position on map and / or sensor pages
2. Aircraft..... Inform ATC if required navigation performance is not being met

----- END -----

[INDEX](#)

FMS1-GPS2 POS MISC

3A-NAV-04

Any combination of FMS1 and / or FMS2 with GPS1 Pos MISC or GPS2 Pos MISC.

1. Position..... Check GPS versus FMS position

Continued on next page



FMS1-GPS2 POS MISC

3A-NAV-04

continued

- | | |
|------------------|--|
| 2. GPS..... | Confirm alternate GPS is selected on SENSORS GPS page |
| 3. Aircraft..... | Inform ATC if RNAV capability is lost |

----- END -----

[INDEX](#)

FMS2-GPS1 POS MISC

3A-NAV-05

Any combination of FMS1 and / or FMS 2 with GPS 1 Pos MISC or GPS 2 Pos MISC.

- | | |
|------------------|--|
| 1. Position..... | Check GPS versus FMS position |
| 2. GPS..... | Confirm alternate GPS is selected on SENSORS GPS page |
| 3. Aircraft..... | Inform ATC if RNAV capability is lost |

----- END -----

[INDEX](#)

FMS2-GPS1+2 POS MISC

3A-NAV-06

Loss of RAIM and GPS Navigation.

Note

Monitor navigation performance and FMS messages against required navigation performance.

- | | |
|------------------|---|
| 1. Position..... | Check position on map and / or sensor pages |
| 2. Aircraft..... | Inform ATC if required navigation performance is not being met |

----- END -----

[INDEX](#)

FMS2-GPS2 POS MISC

3A-NAV-07

Or any combination of FMS1 and / or FMS2 with GPS1 Pos MISC or GPS2 Pos MISC.

- | | |
|------------------|--|
| 1. Position..... | Check GPS versus FMS position |
| 2. GPS..... | Confirm alternate GPS is selected on SENSORS GPS page |
| 3. Aircraft..... | Inform ATC if RNAV capability is lost |

----- END -----

[INDEX](#)



MMDR 1 Fail

3A-NAV-08

COM1, NAV1 and ADF have failed.

1. COM and NAV Use COM2 and NAV2

----- END -----

[INDEX](#)

MMDR 2 Fail

3A-NAV-09

COM2 and NAV2 have failed.

1. COM and NAV Use COM1 and NAV1

----- END -----

[INDEX](#)

MMDR 1+2 Fail

3A-NAV-10

Loss of Communication and Radio Navigation aids.

1. ECB Synoptic Use CCD or joystick to highlight the appropriate ECB

Select STATUS softkey to view tripped ECBs, then select ALL softkey

Check / reset MMDR 2 ECB

IF caution persists and communication is required:

2. XPDRA Set 7600

----- END -----

[INDEX](#)

Unable FMS-GPS MON

3A-NAV-11

Monitor Warning System continuously compares the positions between each FMS and each GPS and annunciates miscompares between any if the threshold is exceeded.

1. Sensor page Check GPS navigation mode

IF FMS failed revert to basic navigation:

2. Aircraft Inform ATC if RNAV capability is lost

----- END -----

[INDEX](#)



XPDR 1 Fail 3A-NAV-12

Transponder 1 has failed.

1. PFD Radio Window..... Press softkey adjacent to appropriate XPDR
2. PFD controller..... Press detail
3. XPDR detail page..... Select XPDR 2

----- END -----

[INDEX](#)

XPDR 2 Fail 3A-NAV-13

Transponder 2 has failed.

1. PFD Radio Window..... Press softkey adjacent to appropriate XPDR
2. PFD controller..... Press DETAIL
3. XPDR detail page..... Select XPDR 1

----- END -----

[INDEX](#)

XPDR 1+2 Fail 3A-NAV-14

Transponders 1 and 2 have failed.

1. ATC..... Inform
2. Flight..... Proceed as instructed

----- END -----

[INDEX](#)



3A-OXY Oxygen

OXY Low

3A-OXY-01

Less than 680 liters of oxygen remain in the oxygen bottle.

CAUTION

This message may indicate an oxygen leak.

In-flight:

- | | |
|-----------------------------|---|
| 1. Aircraft..... | Descend below 10,000 ft AMSL as soon as practicable |
| 2. ECS Synoptic..... | Crosscheck and monitor oxygen quantity |
| 3. PASSENGER OXYGEN SW..... | OFF |
| 4. Aircraft..... | Land as soon as practical |

----- END -----

[INDEX](#)

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 3A - Abnormal Procedures (Authority approved) Oxygen

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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3A-UMS UMS

*** DCPU 1A Fail ***

3A-UMS-01

CAUTION

Rudder limiter has failed in its last position. Plan landing on runway with appropriate characteristics for Rudder Travel Limiter assumed position (crosswind). With flaps UP move rudder with caution when high deflections required and limit rudder pedal input to less than 2/3 of a full pedal input.

DCPU 1 Channel A has failed.

A summary of affected functions and indications is included at the end of this procedure. The following CAS messages may appear due to this failure (if associated equipment is installed):

- *** DCPU 1A Fail ***
- Pusher Fail
- RUD Limiter Fail
- R FADEC Fail
- L FADEC Fail
- Heat Fail
- Ice Detector Fail
- Auto Yaw Trim Fail
- DCPU 1A Data Fail
- UMS Databus Fail
- STAB Trim Degrade
- L LSA Fail
- HF Fail

In Flight:

1. DCPU 1A CB (LH Cockpit)..... Check tripped, if not pull
2. Pilot PFD controller..... Press ADHRS button
3. Pilot PFD sensor window..... Select ADS 2

Note

UMS Build 8.1 and below (MSN 101 - 290 pre SB 42-020): FMS fuel weight may be incorrect and predictions may be incorrect. The pilot shall not rely upon FMS weight and fuel predictions.

Continued on next page

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



*** DCPU 1A Fail ***

3A-UMS-01

continued

4. Aircraft..... Land as soon as practical
 Maximum crosswind of 17 kt
 Avoid stall and use reference speeds according to weight and configuration
 For landing weights less than 13,500 lb, refer to [RUD Limiter Fail - 3A-FCTL-06](#) for V_{REF} speeds.

--- END ---

[INDEX](#)

When DCPU 1A is unpowered these functions / indications are affected:

| System | Function / Indication Affected |
|-----------------|---|
| Airbrake | Functional |
| AP / AT | Functional |
| Brakes | Functional |
| CPCS | Functional |
| ECB | Functional |
| ECS | Cockpit control degraded No Cockpit temperature indication |
| Electrical | For nickel-cadmium batteries only: No BAT 1 temperature indication |
| Engine | No oil pressure indication |
| Fire | Functional |
| Flaps | Functional |
| Fuel | No Left to Right Fuel Transfer |
| Gear | Functional |
| IPS | Windshield HEAT degraded No left Ice detector |
| Lift Dump | Functional |
| Lights | Functional |
| Oxygen | Functional |
| Pusher / Shaker | No pusher |
| Radios / XPNDR | No HF Radio (if installed) |
| Roll Assist | Functional |
| Rudder Limiter | Rudder travel limiter remains in last position |
| Trim | Primary pitch trim is at low rate only with compensation Rudder trim indication lost Rudder trim functional No auto yaw trim |

----- END -----

[INDEX](#)



*** DCPU 1B Fail ***

3A-UMS-02

DCPU 1 Channel B has failed.

A summary of affected functions and indications is included at the end of this procedure.
The following CAS messages may appear due to this failure (if associated equipment is installed):

- Lift Dump Fail
- *** DCPU 1B Fail ***
- R FADEC Fail
- L FADEC Fail
- Heat Fail
- Ice Detector Fail
- DCPU 1B Data Fail
- UMS Databus Fail
- ECS Inflow Degrade

In Flight:

1. DCPU 1B CB (LH Cockpit)..... Check tripped, if not pull
2. ATC..... Inform RVSM capability is lost
3. Aircraft..... Land as soon as practical

--- END ---

[INDEX](#)

Continued on next page



*** DCPU 1B Fail ***

3A-UMS-02

continued

When DCPU 1B is unpowered these functions / indications are affected:

| System | Function / Indication Affected |
|-----------------|---|
| Airbrake | Functional |
| AP / AT | Functional |
| Brakes | Functional |
| CPCS | Functional |
| ECB | Functional |
| ECS | ECS Inflow Degrade, Cockpit control degraded Loss of ECS secondary windshield De-Fog |
| Electrical | Functional |
| Engine | Functional |
| Fire | Engine isolation function available Loss of engine isolated CAS messages Loss of Fwd Fire Extinguisher indication |
| Flaps | Functional |
| Fuel | Functional |
| Gear | Functional |
| IPS | Partial loss of windshield heat Loss of Left ice detector Loss of Left PS probe |
| Lift Dump | Possible delayed Lift Dump function on landing |
| Lights | Functional |
| Pusher / Shaker | Functional |
| Radios / XPNDR | Functional |
| Roll Assist | Functional |
| Rudder Limiter | Functional |
| Trim | Functional |

----- END -----

[INDEX](#)



*** DCPU 2A Fail ***

3A-UMS-03

DCPU 2 Channel A has failed.

A summary of affected functions and indications is included at the end of this procedure. The following CAS messages may appear due to this failure (if associated equipment is installed):

- **ECS Inflow Degrade**
- **DCPU 2A Fail**
- **STAB Trim Degrade**
- **MFS Degrade**
- **Flaps Fail**
- **Pusher Fail**
- **UMS Data Bus Fail**
- **L FADEC Fail**
- **R FADEC Fail**
- **ECS Inflow Degrade**
- **Ice Detector Fail**
- **DCPU 2A Data Fail**
- **R LSA Fail**

In Flight:

1. ECB synoptic..... Use CCD or TSC touchpad / MFC joystick to highlight the appropriate ECB
Confirm 0 DCPU 2A ECB is tripped. If not tripped, set 0 DCPU 2A ECB to OUT
2. Aircraft..... Land as soon as practical
3. Airspeed..... If flaps are not fully retracted, refer to the V_{FO} table below:

| Indicated FLAP Position | Max Speed KIAS |
|-------------------------|----------------|
| 0° to 15° | 200 |
| 16° to 33° or unknown | 175 |

4. V_{REF} and landing performance.... Refer to Abnormal Landing information in AFM Section 5 for proper V_{REF} and landing performance in current configuration.

| Actual FLAP Position | Use V_{REF} table for: |
|----------------------|--------------------------|
| 0° to 14° | FLAP 0° |
| 15° to 32° | FLAP 15° |
| 33° | FLAP 33° |

Note

Landing performance is based on a maximum braking effort (pedals fully pressed) with anti-skid working.

Continued on next page

**3A-UMS-03******* DCPU 2A Fail *****

continued

5. L/G Emergency Extension - 3- Accomplish
NAE-13.....

After landing:

6. CPCS Mode Selector..... MAN
7. CPCS DUMP pushbutton..... Push to DUMP

--- END ---

[INDEX](#)

When DCPU 2A is unpowered these functions / indications are affected:

| System | Function / Indication Affected |
|-----------------|--|
| Airbrake | Functional |
| AP / AT | Functional |
| Brakes | Functional |
| CPCS | Functional After landing CPCS mode selector to MAN, DUMP Cabin |
| ECB | Functional |
| ECS | Degraded cabin heat |
| Electrical | For nickel-cadmium batteries only: loss of BAT 2 temperature indication |
| Engine | Functional |
| Fire | Loss of Aft Fire Extinguisher indication |
| Flaps | Flaps control lost Last known flap position is displayed |
| Fuel | Functional |
| Gear | Normal gear extension lost |
| IPS | Partial loss of windshield HEAT Loss of right ICE detector Windshield rotary knob not functional |
| Lift Dump | Functional |
| Lights | Functional |
| Pusher / Shaker | No Pusher |
| Radios / XPNDR | Functional |
| Roll Assist | Only outboard MFS available for roll assist |
| Rudder Limiter | Functional |
| Trim | Primary pitch trim is low rate only No pitch trim compensation |

----- END -----

[INDEX](#)

***** DCPU 2B Fail *******3A-UMS-04**

DCPU 2 Channel B has failed.

A summary of affected functions and indications is included at the end of this procedure. The following CAS messages may appear due to this failure (if associated equipment is installed):

- Lift Dump Fail
- ***** DCPU 2B Fail *****
- STAB Trim Degrade
- MFS Degrade
- Flaps Fail
- R FADEC Fail
- L FADEC Fail
- Ice Detector Fail
- Cool Fail
- DCPU 2B Data Fail
- UMS Data Bus Fail
- ECS Inflow Degrade

In Flight:

1. ECB synoptic..... Use CCD or TSC touchpad / MFC joystick to highlight the appropriate ECB
Confirm 0 DCPU 2B ECB is tripped. If not tripped, set 0 DCPU 2B ECB to OUT
2. ATC..... Inform RVSM capability is lost
3. Aircraft..... Land as soon as practical
4. Airspeed..... If flaps are not fully retracted, refer to the V_{FO} table below

| Indicated FLAP Position | Max Speed KIAS |
|-------------------------|----------------|
| 0° to 15° | 200 |
| 16° to 33° or unknown | 175 |

Continued on next page



*** DCPU 2B Fail ***

3A-UMS-04

continued

Prior to landing:

5. V_{REF} and landing performance.... Refer to Abnormal Landing information in AFM Section 5 for proper V_{REF} and landing performance in current configuration.

| Actual FLAP Position | Use V_{ref} table for: |
|----------------------|--------------------------|
| 0° to 14° | Flaps 0° |
| 15° to 32° | Flaps 15° |
| 33° | Flaps 33° |

Note

Landing performance is based on a maximum braking effort (pedals fully pressed) with anti-skid working.

6. L/G Emergency Extension - 3-
NAE-13..... Accomplish

--- END ---

[INDEX](#)

Continued on next page



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

***** DCPU 2B Fail *******3A-UMS-04**

continued

When DCPU 2B is unpowered these functions / indications are affected:

| System | Function / Indication Affected |
|-----------------|---|
| Airbrake | Functional |
| AP / AT | Functional |
| Brakes | Functional |
| CPCS | Functional |
| ECB | Functional |
| ECS | Cabin heating and cooling degraded |
| Electrical | Functional |
| Engine | Functional |
| Fire | Loss of Aft Fire Extinguisher indication Only Fwd engine fire extinguisher available |
| Flaps | Flaps control lost Last known flap position is displayed |
| Fuel | Loss of R Fuel Level Low alert |
| Gear | Normal gear extension lost |
| IPS | Partial loss of windshield heat Loss of right ice detector |
| Lift Dump | Expect slightly delayed lift dump on landing |
| Lights | Functional |
| Pusher / Shaker | Functional |
| Radios / XPNDR | Functional |
| Roll Assist | Only inboard MFS available for roll assist |
| Rudder Limiter | Functional |
| Trim | Primary pitch trim is low rate only No pitch trim compensation |

----- END -----

[INDEX](#)

***** DCPU 3A Fail *******3A-UMS-05**

DCPU 3 Channel A has failed.

A summary of affected functions and indications is included at the end of this procedure. The following CAS messages may appear due to this failure (if associated equipment is installed):

- **ECS Inflow Degrade**
- **WSHLD De-Fog Degrade**
- **Anti Skid Fail**
- **L Fuel PRESS Low**
- **L TAT Probe Fail**
- **Lift Dump Fail**
- ***** DCPU 3A Fail *****
- **L Bleed Off/Fail**

- **Heat Fail**
- **L FADEC Fail**
- **NAI Fail On**
- **Boost Pump On CONT**
- **UMS Data Bus Fail**

In Flight:

1. ECB Synoptic..... Use CCD or TSC touchpad / MFC joystick to highlight the appropriate ECB
Confirm 0 DCPU 3A ECB is tripped. If not tripped, set 0 DCPU 3A ECB to OUT
2. ENG Synoptic..... If available, FADEC reset via softkey
3. FUEL Synoptic..... Left pump check AUTO ON
4. Fuel Balance..... Assess by periodically checking roll trim required to maintain straight and level flight

Note

UMS Build 9.0 and higher (MSN 101 - 290 post SB 42-020, and MSN 291 - UP): FMS fuel weight and fuel predictions are degraded. The pilot should not rely upon FMS fuel weight and fuel predictions.

IF prior to descent and additional De-Fog required:

5. ECS Synoptic..... Select DEFOG HIGH
6. WINDSHIELD rotary selector..... Select MAN HI for maximum defogging

Prior to landing:

7. **UMS Build 8.1 and below (MSN 101 - 290 pre SB 42-020):** Select ANTI SKID to OFF
- BRAKES synoptic.....

Continued on next page



***** DCPU 3A Fail *****

3A-UMS-05

continued

8. Landing performance..... Calculate due to partial loss of lift dump and loss of anti-skid.

Refer to Abnormal Landing information in AFM Section 5 for abnormal landing factor with anti-skid and lift dump failure.

9. Wheel Brakes..... Use with caution due to loss of anti-skid

--- END ---

[INDEX](#)

Continued on next page



*** DCPU 3A Fail ***

3A-UMS-05

continued

When DCPU 3A is unpowered these functions / indications are affected:

| System | Function / Indication Affected |
|-----------------|---|
| Airbrake | Functional |
| AP / AT | Functional |
| Brakes | UMS Build 8.1 and below (MSN 101 - 290 pre SB 42-020): Anti-skid unavailable, select OFF Pump in AUTO only UMS Build 9.0 and higher (MSN 101 - 290 post SB 42-020, and MSN 291 - UP): Anti-skid unavailable Pump in AUTO only |
| CPCS | Functional |
| ECB | Functional |
| ECS | Left bleed air unavailable Windshield defog air degraded |
| Electrical | Functional |
| Engine | L FADEC Fail displayed |
| Fire | Functional |
| Flaps | Functional |
| Fuel | UMS Build 8.1 and below (MSN 101 - 290 pre SB 42-020): Loss of some left side fuel indications L Fuel Press Low displayed UMS Build 9.0 and higher (MSN 101 - 290 post SB 42-020, and MSN 291 - UP): Loss of some left side fuel indications Total fuel quantity error margin increased to +/- 5 % L Fuel Press Low displayed |
| Gear | Functional |
| IPS | IPS is in single source operation L NAI automatically activated and indicated invalid |
| Lift Dump | Outboard ground spoilers unavailable for lift dump on landing |
| Lights | Functional |
| Pusher / Shaker | Functional |
| Radios / XPNDR | Functional |

Continued on next page



*** DCPU 3A Fail ***

3A-UMS-05

continued

| System | Function / Indication Affected |
|----------------|--------------------------------|
| Roll Assist | Functional |
| Rudder Limiter | Functional |
| Trim | Functional |

----- END -----

[INDEX](#)

***** DCPU 3B Fail *******3A-UMS-06**

DCPU 3 Channel B has failed.

A summary of affected functions and indications is included at the end of this procedure. The following CAS messages may appear due to this failure (if associated equipment is installed):

- **WSHILD De-Fog Degrade**
- **L Bleed Off/Fail**
- **Anti Skid Fail**
- **Lift Dump Fail**
- ***** DCPU 3B Fail *****
- **ECS Inflow Degrade**
- **WAI Sensor Degrade**
- **UMS Data Bus Fail**

In Flight:

1. ECB Synoptic..... Use CCD or TSC touchpad / MFC joystick to highlight the appropriate ECB
Confirm 0 DCPU 3B ECB is tripped. If not tripped, set 0 DCPU 3B ECB to OUT
2. Aircraft..... Land as soon as practical
Exit and avoid icing conditions

Prior to landing:

3. **UMS Build 8.1 and below (MSN 101 - 290 pre SB 42-020):** BRAKES synoptic..... Select ANTI SKID to OFF
4. Landing performance..... Calculate due to partial loss of lift dump and loss of anti-skid.
Refer to Abnormal Landing information in AFM Section 5 for abnormal landing factor with anti-skid and lift dump failure.

After landing:

5. Wheel Brakes..... Use with caution due to loss of anti-skid.

--- END ---

[INDEX](#)*Continued on next page*



*** DCPU 3B Fail ***

3A-UMS-06

continued

When DCPU 3B is unpowered the following functions and indications are affected:

| System | Function / Indication Affected |
|-----------------|---|
| Airbrake | Inboard MFS only |
| AP / AT | Functional |
| Brakes | UMS Build 8.1 and below (MSN 101 - 290 pre SB 42-020): Anti-skid unavailable, select OFF UMS Build 9.0 and higher (MSN 101 - 290 post SB 42-020, and MSN 291 - UP): Anti-skid unavailable |
| CPCS | Functional |
| ECB | Functional |
| ECS | Left bleed air unavailable Windshield de-fog degraded |
| Electrical | Functional |
| Engine | Functional |
| Fire | Functional |
| Flaps | Functional |
| Fuel | Functional |
| Gear | Functional |
| IPS | UMS Build 8.1 and below (MSN 101 - 290 pre SB 42-020): IPS in single source operation WAI PFD indications amber crossed, but WAI still functional Loss of LH NAI indication UMS Build 9.0 and higher (MSN 101 - 290 post SB 42-020, and MSN 291 - UP): IPS in single source operation Loss of LH NAI indication |
| Lift Dump | Inboard MFS and inboard GS only |
| Lights | Functional |
| Pusher / Shaker | Functional |
| Radios / XPNDR | Functional |
| Roll Assist | Inboard MFS only |
| Rudder Limiter | Functional |
| Trim | Functional |

----- END -----

INDEX

***** DCPU 4A Fail *******3A-UMS-07**

DCPU 4 Channel A has failed.

A summary of affected functions and indications is included at the end of this procedure. The following CAS messages may appear due to this failure (if associated equipment is installed):

- Anti Skid Fail
- R TAT Probe Fail
- Lift Dump Fail
- ***** DCPU 4A Fail *****
- R Bleed Off/Fail
- WAI Fail
- ECS Inflow Degrade
- Heat Fail
- R FADEC Fail
- NAI Fail On
- UMS Data Bus Fail

In Flight:

1. ECB Synoptic..... Use CCD or TSC touchpad / MFC joystick to highlight the appropriate ECB
Confirm 0 DCPU 4A ECB and 0 DCPU 4A Alt Pwr ECB are tripped. If not tripped, set 0 DCPU 4A ECB and 0 DCPU 4A Alt Pwr ECB to OUT
2. Aircraft..... Land as soon as practical
Exit and avoid icing conditions
3. Fuel Balance..... Assess by periodically checking roll trim required to maintain straight and level flight.

Note

UMS Build 9.0 and higher (MSN 101 - 290 post SB 42-020, and MSN 291 - UP): FMS fuel weight and fuel predictions are degraded. The pilot should not rely upon FMS fuel weight and fuel predictions.

Prior to landing:

4. **UMS Build 8.1 and below (MSN 101 - 290 pre SB 42-020):** BRAKES synoptic..... Select ANTI SKID to OFF
5. Landing performance..... Calculate due to partial loss of lift dump and loss of anti-skid.
Refer to Abnormal Landing information in AFM Section 5 for abnormal landing factor with anti-skid and lift dump failure.

Continued on next page



***** DCPU 4A Fail *****

3A-UMS-07

continued

After landing:

- | | |
|------------------------------|--|
| 6. Wheel Brakes..... | Use with caution due to loss of anti-skid. |
| 7. CPCS Mode Selector..... | MAN |
| 8. CPCS DUMP pushbutton..... | Push to DUMP |

--- END ---

[INDEX](#)

Continued on next page



***** DCPU 4A Fail *****

3A-UMS-07

continued

When DCPU 4A is unpowered these functions / indications are affected:

| System | Function / Indication Affected |
|-----------------|---|
| Airbrake | Outboard MFS only |
| AP / AT | Functional |
| Brakes | <p>UMS Build 8.1 and below (MSN 101 - 290 pre SB 42-020): Anti-skid unavailable, select OFF</p> <p>UMS Build 9.0 and higher (MSN 101 - 290 post SB 42-020, and MSN 291 - UP): Anti-skid unavailable</p> |
| CPCS | <p>Functional</p> <p>After landing CPCS mode selector to MAN, DUMP Cabin</p> |
| ECB | Functional |
| ECS | No R bleed, X-Bleed failed closed Cabin heat degraded |
| Electrical | Functional |
| Engine | Right FADEC failed |
| Fire | Functional |
| Flaps | Functional |
| Fuel | <p>UMS Build 8.1 and below (MSN 101 - 290 pre SB 42-020): Loss of some right side fuel indications Fuel quantity and balancing lost</p> <p>UMS Build 9.0 and higher (MSN 101 - 290 post SB 42-020, and MSN 291 - UP): Loss of some right side fuel indications Total fuel quantity error margin increased to +/- 5 % Balancing lost</p> |
| Gear | Functional |
| IPS | No WAI, No HSDI R NAI automatically activated and indicated invalid |
| Lift Dump | Outboard GS and outboard MFS only |
| Lights | Functional |
| Pusher / Shaker | Functional |
| Radios / XPNDR | Functional |
| Roll Assist | Outboard MFS only |
| Rudder Limiter | Functional |
| Trim | Functional |

----- END -----

[INDEX](#)

***** DCPU 4B Fail *******3A-UMS-08**

DCPU 4 Channel B has failed.

A summary of affected functions and indications is included at the end of this procedure. The following CAS messages may appear due to this failure (if associated equipment is installed):

- **Anti Skid Fail**
 - **X-Bleed Fail Closed**
 - **R Bleed Off/Fail**
 - **Lift Dump Fail**
 - ***** DCPU 4B Fail *****
 - **WAI Fail**
- ECS Inflow Degrade**
- UMS Data Bus Fail**

In Flight:

1. ECB Synoptic..... Use CCD or TSC touchpad / MFC joystick to highlight the appropriate ECB
Confirm 0 DCPU 4B ECB and 0 DCPU 4B Alt Pwr ECB are tripped. If not tripped, set 0 DCPU 4B ECB and 0 DCPU 4B Alt Pwr ECB to OUT
2. Aircraft..... Land as soon as practical
Exit and avoid icing conditions

Prior to landing:

3. **UMS Build 8.1 and below (MSN 101 - 290 pre SB 42-020):** BRAKES synoptic..... Select ANTI SKID to OFF
4. Landing performance..... Calculate due to partial loss of lift dump and loss of anti-skid.
Refer to Abnormal Landing information in AFM Section 5 for abnormal landing factor with anti-skid and lift dump failure.

After landing:

5. Wheel Brakes..... Use with caution due to loss of anti-skid.

--- END ---

[INDEX](#)*Continued on next page*



***** DCPU 4B Fail *****

3A-UMS-08

continued

When DCPU 4B is unpowered these functions / indications are affected:

| System | Function Affected |
|-----------------|--|
| Airbrake | Functional |
| AP / AT | Functional |
| Brakes | UMS Build 8.1 and below (MSN 101 - 290 pre SB 42-020): Anti-skid unavailable, select OFF UMS Build 9.0 and higher (MSN 101 - 290 post SB 42-020, and MSN 291 - UP): Anti-skid unavailable |
| CPCS | Functional |
| ECB | Functional |
| ECS | No R Bleed, X-Bleed failed closed |
| Electrical | Functional |
| Engine | Functional |
| Fire | Functional |
| Flaps | Functional |
| Fuel | Functional |
| Gear | Functional |
| IPS | No WAI, Loss of RH NAI indication Loss of HSDI monitoring |
| Lift Dump | MFS and outboard GS only |
| Lights | Functional |
| Pusher / Shaker | Functional |
| Radios / XPNDR | Functional |
| Roll Assist | Functional |
| Rudder Limiter | Functional |
| Trim | Functional |

----- END -----

[INDEX](#)

*** DCPU 1A+2A Fail ***

3A-UMS-09

APEX detects loss of communication with all DCPU A channels, refer to the following procedure(s) as appropriate:

- ***** DCPU 1A Fail *****
- ***** DCPU 2A Fail *****
- ***** DCPU 3A Fail *****
- ***** DCPU 4A Fail *****

----- END -----

[INDEX](#)



* DCPU 1B+2B Fail *

3A-UMS-10

APEX detects loss of communication with all DCPU B channels, refer to the following procedure(s) as appropriate:

- *** DCPU 1B Fail ***
- *** DCPU 2B Fail ***
- *** DCPU 3B Fail ***
- *** DCPU 4B Fail ***

----- END -----

[INDEX](#)

** DCPU Data Fail **

3A-UMS-11

APEX detects loss of communication with all DCPU A and DCPU B channels, refer to the following procedure(s) as appropriate:

- *** DCPU 1A Fail ***
- *** DCPU 1B Fail ***
- *** DCPU 2A Fail ***
- *** DCPU 2B Fail ***
- *** DCPU 3A Fail ***
- *** DCPU 3B Fail ***
- *** DCPU 4A Fail ***
- *** DCPU 4B Fail ***

----- END -----

[INDEX](#)

MAINT Switch

3A-UMS-12

On ground:

1. Aircraft..... Do not dispatch. Maintenance required

----- END -----

[INDEX](#)

Rigging Switch

3A-UMS-13

On ground:

1. Aircraft..... Do not dispatch. Maintenance required

----- END -----

[INDEX](#)

**3A-UMS-14****UMS Config**

UMS software is in wrong configuration.

On-ground:

1. Aircraft..... Do not dispatch. Maintenance required

--- END ---

[INDEX](#)

In flight:

1. Aircraft..... Land as soon as practical

----- END -----

[INDEX](#)

3A-UMS-15**UMS Databus Fail**

Communication failure between DCPUs, databus input failure, or Li-Ion batteries went to sleep on ground.

On ground:

1. ELEC Synoptic..... Check battery indications.
if the battery and state of charge symbols are dashed and crossed out in amber, and GPU connected, cycle BAT 1 and BAT 2.

--- END ---

[INDEX](#)

If CAS message persists:

CAUTION

Cycling aircraft electrical power requires a minimum power-up time of 30 seconds. Repeated resets with less than 30 second power-up time may lead to a latched FADEC Fail, which requires maintenance action.

1. Aircraft..... Cycle aircraft power. If CAS message persists: Do not dispatch, maintenance required.

----- END -----

[INDEX](#)



3A-MISC Miscellaneous Emergency / Abnormal Procedures

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

CAS Miscompare

3A-MISC-01

Indication: MW caption on left side of CAS window.

Condition: Monitor Warning Function Channels A and B miscompare.

1. CAS Window..... Toggle MW soft key to see alternatively Channel A or B of the MWF to find out which message is triggering the MW miscompare condition
2. Aircraft..... Ascertain the reason for the miscompare flag and take appropriate action, using the affected CAS message and Abnormal Procedures

----- END -----

[INDEX](#)

Stuck Microphone

3A-MISC-02

STUCK MIC is displayed in amber on the VHF COM windows when the PTT is pressed for longer than 32 sec.

1. Push to talk switch..... Release
IF **STUCK MIC** is still present:
2. Audio panel SPKR / PA button.... Select PA and press PTT momentarily
Reselect OFF or ON as desired
IF **STUCK MIC** is still present:
3. Audio panel SPKR / PA button.... Select PA
4. MIC select Switch..... Select other side
5. Communication..... Use handheld microphone for transmissions

----- END -----

[INDEX](#)



Section 3A - Abnormal Procedures (Authority approved) Miscellaneous Emergency / Abnormal Procedures

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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PC24-AA15-48-0321-00A-141A-A



SECTION 3B

Advisory, Status and FAS Messages (Authority approved)

Table of Contents

| Subject | Page |
|--|---------------|
| General | 3B-1-1 |
| 1 General | 3B-1-1 |
| 2 Procedures | 3B-1-1 |
| 3B-ACL Advisory CAS List | 3B-2-1 |
| 3B-ACE Advanced Cockpit Environment (ACE) | 3B-3-1 |
| 3B-ACE-01 AIOP 1B Fail | 3B-3-1 |
| 3B-ACE-02 AIOP 2B Fail | 3B-3-1 |
| 3B-AFCS Autopilot | 3B-4-1 |
| 3B-AFCS-01 Flight CTRL A+B Fail | 3B-4-1 |
| 3B-AFCS-02 Yaw Damper 1 Fail | 3B-4-1 |
| 3B-AFCS-02 Yaw Damper 2 Fail | 3B-4-1 |
| 3B-ECS ECS and Pneumatics | 3B-5-1 |
| 3B-ECS-01 GND COOL Fan Fail | 3B-5-1 |
| 3B-FCTL Flight Controls | 3B-6-1 |
| 3B-FCTL-01 Flaps Inhibit | 3B-6-1 |
| 3B-FCTL-02 Rudder Limiter Open | 3B-6-1 |
| 3B-FCTL-03 STAB Trim Degrade | 3B-6-1 |
| 3B-SCL Status CAS List | 3B-7-1 |
| 3B-FML FAS Message List | 3B-8-1 |
| 3B-FAS FAS Messages | 3B-9-1 |
| 3B-FAS-01 ATT FAIL | 3B-9-1 |
| 3B-FAS-02 BARO? | 3B-9-1 |
| 3B-FAS-03 CAB PRESS | 3B-9-1 |
| 3B-FAS-04 CABIN ALT | 3B-9-2 |
| 3B-FAS-05 CONFIG FAIL | 3B-9-2 |
| 3B-FAS-06 GEAR | 3B-9-2 |
| 3B-FAS-07 GND PROX / PULL UP | 3B-9-2 |
| 3B-FAS-08 HDG FAIL | 3B-9-3 |
| 3B-FAS-09 HDG? | 3B-9-3 |



| Subject | Page |
|---|-------------|
| 3B-FAS-10 IAS? and / or ALT? | 3B-9-3 |
| 3B-FAS-11 ICE | 3B-9-4 |
| 3B-FAS-12 ICE | 3B-9-5 |
| 3B-FAS-13 NO TAKEOFF | 3B-9-5 |
| 3B-FAS-14 OVERSPEED | 3B-9-5 |
| 3B-FAS-15 PITCH? | 3B-9-5 |
| 3B-FAS-16 RA FAIL | 3B-9-6 |
| 3B-FAS-17 RAD | 3B-9-6 |
| 3B-FAS-18 ROLL? | 3B-9-6 |
| 3B-FAS-19 STALL | 3B-9-6 |
| 3B-FAS-20 TCAS Resolution Advisory | 3B-9-7 |
| 3B-FAS-21 X Replaces Airspeed Display | 3B-9-7 |
| 3B-FAS-22 X Replaces Altitude Display | 3B-9-7 |
| 3B-FAS-23 X Replaces Vertical Speed Display | 3B-9-7 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



General

1 General

This section contains the procedures and necessary information to be followed during annunciation of Advisory or Status CAS messages

2 Procedures

2.1 Advisory CAS Messages

This section contains a list of all Advisory CAS messages and their respective meanings and possible actions. Refer to [Advisory CAS List](#) for further guidance.

2.2 Status CAS Messages

This section contains a list of all Status CAS messages and their respective meanings and possible actions. Refer to [Status CAS List](#) for further guidance.



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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3B-ACL Advisory CAS List

Table 3B-ACL-1: Advisory Crew Alerting System Messages

| CAS message: | Meaning, effects and possible actions: |
|----------------------------|---|
| A | |
| ADS-B In Fail | TCAS hardware / software fault leading to loss of CDTI. |
| AFCS Fault | AFCS BIT fault displayed on ground only. Sensor miscompare or fault detected during flight. |
| AHRS 2 LO MAG Field | Attitude Heading Reference System senses a low magnetic field strength, leading to HDG Fail at high latitudes. Select DG Mode on the AHRS Selection window under the Sensors tab in the ACE multipurpose window. |
| AHRS 2 DGD Mode | Loss of Air Data to Attitude Heading Reference System or during initial alignment, accuracy reduced to 0.5°. Do not taxi. |
| AIOP 1B Fail | Refer to 3B-ACE-01. AIOP 1B Card Failure leading to loss of Mach Trim, Stick Pusher, AP 1+2, AT, YD 1, FD 1, Rudder Bias 1 and FMS 1. L FADEC Fail and R FADEC Fail CAS messages may be displayed due to loss of autothrottle. |
| AIOP 1B+2B Fail | Internal hardware / software failures leading to loss of ECL 1, AP1, YD 1, FD 1, ECL 2, AP2, YD 2, FD 2. Control aircraft manually using raw data. Revert to Tablet or Paper Checklist. |
| AIOP 2B Fail | Refer to 3B-ACE-02. AIOP 2B Card Failure leading to loss of Mach Trim, Stick Pusher, AP 1+2, YD 2, FD 2, Rudder Bias 2 and FMS 2. |
| Air Brake | Airbrake lever in intermediate position for more than 3 sec, extended with thrust setting at MCT or above (auto retraction), or extension commanded with loss of pitch trim above 250 kt. Set airbrake lever to match airbrake position to clear the CAS message. |



Table 3B-ACL-1: Advisory Crew Alerting System Messages (continued from previous page)

| CAS message: | Meaning, effects and possible actions: |
|--------------------|---|
| Air TEMP 1 Fail | Loss of Temp Data from Left FADEC. |
| Air TEMP 1+2 Fail | Loss of all Temp Data from FADEC. |
| Air TEMP 2 Fail | Loss of Temp Data from Right FADEC. |
| Anti Skid OFF | Selected OFF via Brakes synoptic page soft key. Select Anti-Skid to Auto or careful use of brakes during landing roll. |
| AOC Uplink | Datalink Airline Operational Control incoming message. Accept/acknowledge message to delete PFD amber message box. |
| AP 1 Fail | AFCS Autopilot 1 system failure leading to loss of redundancy. |
| AP 1+2 Fail | AFCS Autopilot failure both systems leading to loss of Autopilot. |
| AP 2 Fail | AFCS Autopilot 2 system failure leading to loss of redundancy. |
| APEX-UMS Data Fail | Communication between the ACE System and UMS has failed. |
| AT Fail | Autothrottle function is not available. Control throttle manually. |
| ATC Uplink | Datalink Air Traffic Service incoming message. Accept/acknowledge message to delete PFD message |
| ATR Disarm | FADEC has received the Automatic Thrust Reserve DISARM command, or FADEC has disarmed ATR 5 min after takeoff and the advisory is displayed for 1 min and then switched off till landing. Do not attempt takeoff if performance is calculated with ATR being available. |
| ATS Uplink | Datalink Air Traffic Services incoming message. Accept/acknowledge message to delete PFD amber message box. |
| ATT 1 Align Mode | Inertial Reference System is in Align Mode (initialization). Do not taxi. |



Table 3B-ACL-1: Advisory Crew Alerting System Messages (continued from previous page)

| CAS message: | Meaning, effects and possible actions: |
|----------------------------|--|
| Aural Warning Fault | Latent single failure of one Aural Warning Channel - Typically the Mute Switch is set to inhibit leading to loss of Aural Warnings. Reset Aural Warning Switch to NOT-INHIBIT. |
| Auto Yaw Trim Fail | Displayed when AutoYaw Trim is unavailable. Message inhibited when RUD Trim Fail message is provided by the UMS or a Yaw Damper 1+2 FAIL from the AFCS. Use Manual Trim to manage sideslip as required. |
| Auto Yaw Trim Off | Displayed when the Yaw Damper is Engaged, but the AutoYaw Trim is disengaged. Message inhibited when RUD Trim Fail message is provided by the UMS. Disengage and Re-Engage YD to re-enable Auto Yaw Trim, otherwise use Manual Trim to manage sideslip as required. |
| B | |
| BAT 1 Cold | Ni-Cd Battery: Battery temperature <-20 °C on ground or <0 °C in flight. Battery internal heater failed in air. Consider descending to warmer air. Li-Ion Battery: Battery temperature <-5 °C on ground or <0 °C in flight. Battery internal heater failed in air. Consider descending to warmer air. |
| BAT 2 Cold | Ni-Cd Battery: Battery temperature <-20 °C on ground or <0 °C in flight. Pre-heat Battery 2 prior to battery engine start. Internal heater failed in flight. Consider descending to warmer air. |



Table 3B-ACL-1: Advisory Crew Alerting System Messages (continued from previous page)

| CAS message: | Meaning, effects and possible actions: |
|---------------------------|--|
| | Li-Ion Battery: Battery temperature <-5 °C on ground or <0 °C in flight. Pre-heat Battery 2 prior to battery engine start. Internal heater failed in flight. Consider descending to warmer air. |
| Boost Pump On CONT | Any fuel boost pump has been commanded ON automatically, due a low pressure sensed by the associated fuel pressure sensor at the engine inlet. Maintenance required. |
| C | |
| CAS A Fail | Latent Failure in CAS Channel A leading to loss of redundancy. |
| CAS B Fail | Latent Failure in CAS Channel B leading to loss of redundancy. |
| CIO 1 Fail | Input / Output Hardware / Software failures leading to loss of DATALINK function. |
| CIO 2 Fail | Optional HF tuning no longer available. |
| CMS 1 Fail | Central Maintenance System 1 offline or internal fault. Displayed on ground only. |
| CMS 2 Fail | Central Maintenance System 2 offline or internal fault. Displayed on ground only. |
| Cool Fail | Fault detected within the Vapor Cycle Cooling System that caused system to be disabled or operate at reduced capacity. Within the ECS synoptic page, try to reset the system by setting the Heat / Cool softkey to OFF and then back to AUTO. Allow a minimum of 6 minutes for system to reset. If function is reestablished, continue with normal system operation. |
| CSIO 1 Fail | Internal Hardware / Software failures leading to loss of TCAS Display, DME 1, FDR, Aural Warn 1, CPCS Analog Cabin Pressure Measurement. |



Table 3B-ACL-1: Advisory Crew Alerting System Messages (continued from previous page)

| CAS message: | Meaning, effects and possible actions: |
|-----------------------------|---|
| | D |
| DCPU 1A Data Fail | Loss of or invalid data from Data Concentration and Processing Unit leading to loss of redundancy. |
| DCPU 1A Fault | DCPU software failure. |
| DCPU 1A+1B Data Fail | Loss of or invalid data from Data Concentration and Processing Unit leading to loss of redundancy. |
| DCPU 1A+2B Data Fail | Loss of or invalid data from Data Concentration and Processing Unit leading to loss of redundancy. |
| DCPU 1B Data Fail | Loss of or invalid data from Data Concentration and Processing Unit leading to loss of redundancy. |
| DCPU 1B+2A Data Fail | Loss of or invalid data from Data Concentration and Processing Unit leading to loss of redundancy. |
| DCPU 2A Data Fail | Loss of or invalid data from Data Concentration and Processing Unit leading to loss of redundancy. |
| DCPU 2A Fault | DCPU software failure. |
| DCPU 2A+2B Data Fail | Loss of or invalid data from Data Concentration and Processing Unit leading to loss of redundancy. |
| DCPU 2B Data Fail | Loss of or invalid data from Data Concentration and Processing Unit leading to loss of redundancy. |
| DCPU 3A Fault | DCPU software failure. |
| DCPU 4A Fault | DCPU software failure. |
| DME 1 Fail | Distance Measurement Equipment hardware or power input failure leading to loss of DME function. Use other approach type, which does not need DME. |



Table 3B-ACL-1: Advisory Crew Alerting System Messages (continued from previous page)

| CAS message: | Meaning, effects and possible actions: |
|---------------------------|--|
| E | |
| ECB Fail | Review Electronic Circuit Breaker Synoptic page and/or any other CAS messages for lost services. UMS has lost communication with some or all ECBs. Refer to active CAS messages in order of priority and determine lost functions. Synoptic pages may show amber X's indicating invalid or lost data. |
| ECB Trip | ECB tripped out due to Overload. Check on ECB Synoptic page the ECB out status filter, check CAS, check all Synoptics. |
| ECS Inflow Degrade | Fault detected within the Flow Control System. Confirm at least one bleed is available. Try to reset the system by setting the Heat / Cool softkey to OFF and then back to AUTO. If the CAS message is removed, continue with normal system operation, otherwise expect reduced windshield defogging and / or ECS performance. |
| Enter IRS 1 POS | Inertial Reference System does not receive position during initialization and does not align. Manually enter position via FMS FMW Initialization Tab. |
| F | |
| FD 1 Fail | AFCS Flight Director 1 system failure leading to loss of redundancy. |
| FD 1+2 Fail | AFCS Flight Director failure both systems leading to loss of autopilot. |
| FD 2 Fail | AFCS Flight Director 2 system failure leading to loss of redundancy. |



Table 3B-ACL-1: Advisory Crew Alerting System Messages (continued from previous page)

| CAS message: | Meaning, effects and possible actions: |
|-----------------------------|---|
| Flaps Inhibit | Refer to 3B-FCTL-01 Flap lever in intermediate position for more than 3 sec, lever mismatch with position at power up, or V_{FE} exceedance. Set Flap lever to previous position. Seek maintenance if CAS persists when on ground. In flight reduce speed and slowly set lever appropriately. |
| Flight CTRL A Fail | AFCS Flight Controller Channel A hardware or power input failure leading to loss of redundancy. The Flight Controller Channel A has failed. Message is amber on the ground or cyan in flight. Channel redundancy is lost. |
| Flight CTRL A+B Fail | Refer to 3B-AFCS-01 AFCS Flight Controller Channel A and B hardware or power input failure leading to complete loss of Flight Director and Autopilot Function. |
| Flight CTRL B Fail | AFCS Flight Controller Channel B hardware or power input failure leading to loss of redundancy. The Flight Controller Channel B has failed. Message is amber on the ground or cyan in flight. Channel redundancy is lost. |
| FMS 1 Fail | Internal Hardware failures leading to loss of FMS 1 Function. Select FMS 2 Navigation source with the NAV button on PFD Controller. |
| FMS 1+2 Fail | Internal Hardware failures leading to loss of all FMS Functions. Revert to alternate navigation system. |
| FMS 2 Fail | Internal Hardware failures leading to loss of FMS 2 Function. Select FMS 1 Navigation source with the NAV button on PFD Controller. |



Table 3B-ACL-1: Advisory Crew Alerting System Messages (continued from previous page)

| CAS message: | Meaning, effects and possible actions: |
|-------------------|---|
| FMS SYNCH Error | Internal hardware / software failures leading to loss of synchronous FMS function or waypoints / routes were stored in single FMS operation, which need to be manually synchronized to the cross side FMS. FMS can also be used in single (not synchronized) operation. |
| Fuel QTY Degrade | The fuel quantity indication in one or both wing tanks has reduced accuracy. This can be caused by <ol style="list-style-type: none"> 1 failure of a probe, 2 loss of aircraft attitude (i.e. bank) information, or 3 low fuel quantity. In the case of (3) the CAS message can be extinguished by running the boost pumps or by refueling the aircraft. |
| G | |
| GIO 1B Fail | Generic Input / Output hardware / software failures leading to loss of redundancy. |
| GND Cool Fan Fail | Refer to 3B-ECS-01 Dual Heat Exchanger fan fault. Operates on ground only. Try to reset the system by setting the Heat / Cool softkey to OFF and then back to AUTO. If the CAS message is removed, continue with normal system operation. |
| GPS 1 Fail | GPS 1 hardware or power input failure leading to loss of GPS 1. GPS 2 is used by the system. |



Table 3B-ACL-1: Advisory Crew Alerting System Messages (continued from previous page)

| CAS message: | Meaning, effects and possible actions: |
|---------------------------|---|
| GPS 1+2 Fail | GPS 1 & 2 hardware or power input failure leading to loss of all GPS. Use CCD or joystick to highlight the appropriate ECB. Select STATUS softkey to view tripped ECBs. Select ALL softkey. Attempt to reset GPS 2. If unsuccessful, use alternate navigation source. |
| GPS 2 Fail | GPS 2 hardware or power input failure leading to loss of GPS 2. GPS 1 is used by the system. Use CCD or joystick to highlight the appropriate ECB. Select STATUS softkey to view tripped ECBs. Select ALL softkey. Attempt to reset GPS 2. |
| H | |
| Heat Fail | Electrical heater fan or sensor failure or over temperature. Try to reset the system by setting the Heat / Cool softkey to OFF and then back to AUTO. If the CAS message is removed, continue with normal system operation. |
| HF Fail | High Frequency Radio hardware or power input failure leading to loss of HF communication. |
| HF Low PWR | HF Power Amplifier or Coupler issue leading to reduced HF communication capability. |
| HSI 1 is DG Mode | Pilot has manually selected AHRS into Directional Gyro Mode at high latitudes. AHRS is slaved to IRS or GPS or manual input track. |
| HSI 1 is MAG TRK | Aircraft in high latitude area. Pilot PFD HSI is using Magnetic Track. |
| HSI 1 is TRU TRK | Aircraft in extreme latitude. Pilot PFD HSI is using TRU Track. |
| HSI 1+2 is DG Mode | Pilot has manually selected AHRS into Directional Gyro Mode at high latitudes. AHRS is slaved to IRS or GPS or manual input track. |



Table 3B-ACL-1: Advisory Crew Alerting System Messages (continued from previous page)

| CAS message: | Meaning, effects and possible actions: |
|---------------------------|--|
| HSI 1+2 is MAG TRK | Aircraft in high latitude area, both Horizontal Situation Indicators are using Magnetic Track. |
| HSI 1+2 is TRU TRK | Aircraft in high latitude area both HSIs are using TRU Track. |
| HSI 2 is DG Mode | Pilot has manually selected AHRS into Directional Gyro Mode at high latitudes. AHRS is slaved to IRS or GPS or manual input track. |
| HSI 2 is MAG TRK | Aircraft in high latitude area. Copilot PFDHSI is using Magnetic Track. |
| HSI 2 is TRU TRK | Aircraft in extreme latitude. Copilot PFD HSI is using TRU Track. |
| I | |
| Ice Detector Fail | Left ice detector or right ice detector failed in flight. IPS continues to function automatically based on the remaining functional ice detector. Report to maintenance and refer to (M)MEL. |
| IPS Manual | Ice Protection System rotary selector is not set to AUTO position or switch signal is invalid. This CAS message emphasizes that the system is either partly under manual control (NAI ON) or fully under manual control. Confirm rotary selector set as desired, otherwise seek maintenance. If in icing, confirm ice protection systems active or manually select on. |
| IVC 1 Fail | Independent volume control of COM1 (VHF1) and COM5 ⁽¹⁾ / TEL ⁽²⁾ (SATCOM 1) failed for both pilot and copilot. COM1 (VHF1): Both pilot and copilot share the same volume setting. COM5 ⁽¹⁾ / TEL ⁽²⁾ (SATCOM 1): Volume is set to a default, fixed volume. ⁽¹⁾ on KMA-29 audio panel, ⁽²⁾ on KMA-29A audio panel (factory option) |



Table 3B-ACL-1: Advisory Crew Alerting System Messages (continued from previous page)

| CAS message: | Meaning, effects and possible actions: |
|-------------------------|---|
| IVC 2 Fail | Independent volume control of COM2 (VHF2) failed for both pilot and copilot. COM2 (VHF2): Both pilot and copilot share the same volume setting. |
| IVC 1+2 Fail | Independent volume control of COM1 (VHF1), COM2 (VHF2) and COM5 ⁽¹⁾ / TEL ⁽²⁾ (SATCOM 1) failed for both pilot and copilot. COM1 (VHF1) and COM2 (VHF2): Both pilot and copilot share the same volume setting. COM5 ⁽¹⁾ / TEL ⁽²⁾ (SATCOM 1): Volume is set to a default, fixed volume. ⁽¹⁾ on KMA-29 audio panel, ⁽²⁾ on KMA-29A audio panel (factory option) |
| L | |
| L FADEC Fail | FADEC has determined that the control system integrity has dropped below minimum acceptable level. Attempt RESET with softkey Button on Engine Synoptic page. Seek maintenance if CAS persists when on ground. In flight consider diversion to an airfield with appropriate maintenance capability. |
| L Fuel TEMP High | Fuel temperature probe actual temperature >70 °C for more than 5 sec. Monitor fuel temperature and engine parameters, possibly climb to colder air temperature. |
| L Fuel TEMP Low | Fuel temperature probe actual temperature <-30 °C for more than 5 sec. Monitor fuel temperature and engine parameters. Consider descending to warmer air. |



Table 3B-ACL-1: Advisory Crew Alerting System Messages (continued from previous page)

| CAS message: | Meaning, effects and possible actions: |
|----------------------------|---|
| L LSA Fail | Left PFD Low Speed Awareness Tape is not available. Angle of Attack input failure is leading to loss of Left Low Speed Awareness Tape and loss of Stick Pusher. If the AOA vane indicator on the IPS page is in amber color, then AOA heating has failed. Reference LSA on working side and consider exiting and avoiding icing conditions. |
| LH PFD CTLR Fail | Pilot PFD Controller hardware or power input failure leading to loss of Pilot PFD Controller Function. Press PFD button on Copilot PFD Controller to control cross side PFD. |
| LH+RH PFD CTLR Fail | Pilot and Copilot PFD Controller hardware or power input failure leading to loss of Pilot and Copilot PFD Controller Function. Use Multi-Function Controller for Radio tuning. |
| M | |
| Maintenance Fail | Central Maintenance Function Fail (CMC card) leading to loss of recording of new faults, displayed on ground only. |
| MAU 1 Fan | MAU 1 Fan failed. |
| MAU 1+2 Fan | Both MAU Fans failed. |
| MAU 1A OVHT | MAU Temperature High. |
| MAU 1A+1B OVHT | MAU Temperature High. |
| MAU 1A+1B+2A OVHT | MAU Temperature High. |
| MAU 1A+2A OVHT | MAU Temperature High. |
| MAU 1B OVHT | MAU Temperature High. |
| MAU 1B+2A OVHT | MAU Temperature High. |
| MAU 2 Fan | MAU 2 Fan failed. |
| MAU 2A OVHT | MAU Temperature High. |
| MF CTLR Fail | Multi-Function Controller hardware or power input failure leading to loss of MFC function. Use CCD and Pop-Up Keyboard. Move cursor over data entry field and select enter for two sec to bring up the Artificial Pop-Up Keyboard. |



Table 3B-ACL-1: Advisory Crew Alerting System Messages (continued from previous page)

| CAS message: | Meaning, effects and possible actions: |
|----------------------------|--|
| MMDR 1 OVHT | MMDR 1 Over temperature sensed. |
| MMDR 1+2 OVHT | MMDR 1 and 2 Over temperature sensed. |
| MMDR 2 OVHT | MMDR 2 Over temperature sensed. |
| Monitor Fault | Latent Failure in Utility Management System input to the Monitor Functions - redundant inputs do not match. |
| Monitors Fail | Level A monitors invalid leading to loss of Aural Warnings, air ground sensing. |
| Monitors Miscompare | Mismatch between UMS input to the Monitor Functions leading to loss of Monitor redundancy. |
| N | |
| NAI Fail On | Any NAI pressure switch senses pressure, while NAI is not commanded ON. The associated NAIV failed open (ON). In flight, no pilot action required. On ground, when ambient temperature is above 10°C, do not select high power settings on the engine with the failed NAIV. Report to maintenance and refer to (M)MEL. |
| No ALT Reporting | Selected transponder not reporting altitude. Reselect TA / RA or ALT mode. If unsuccessful, revert to second Transponder selectable on the radio window under Transponder details. |
| P | |
| PAX OXY Manual | Passenger Oxygen Control Valve not in AUTO position. Set POCV to AUTO when Passengers in cabin. |
| PAX OXY On | Pressure sensed in passenger oxygen system. Monitor supply. |
| POS 1 Entry Fault | Position entered into Inertial Reference System is incorrect and IRS does not align. Manually enter correct position via FMS FMW Initialization Tab. |
| Processor 1 Fail | Internal hardware / software failures leading to loss of DATALINK. |



Table 3B-ACL-1: Advisory Crew Alerting System Messages (continued from previous page)

| CAS message: | Meaning, effects and possible actions: |
|---------------------------|---|
| | R |
| R FADEC Fail | FADEC has determined that the control system integrity has dropped below minimum acceptable level. Attempt RESET with softkey Button on Engine Synoptic page. Seek maintenance if CAS persists when on ground. In flight consider diversion to an airfield with appropriate maintenance capability. |
| R Fuel TEMP High | Fuel temperature probe actual temperature >70 °C for more than 5 sec. Monitor fuel temperature and engine parameters, possibly climb to colder air temperature. |
| R Fuel TEMP Low | Fuel temperature probe actual temperature <-30 °C for more than 5 sec. Monitor fuel temperature and engine parameters. Consider descending to warmer air. |
| R LSA Fail | Right Copilot PFD Low Speed Awareness Tape is not available. Angle of Attack input failure is leading to loss of Right Low Speed Awareness Tape and loss of Stick Pusher. If the AOA vane indicator on the IPS page is in amber color, then AOA heating has failed. Reference LSA on working side and consider exiting and avoiding icing conditions. |
| RAAS Fail | Internal hardware / software or input failures leading to loss of RAAS function. |
| RAAS Not Available | Missing RAAS Parameter (e.g. Airport not in Database) leading to loss of RAAS function. |
| RH PFD CTRL Fail | Copilot PFD Controller hardware or power input failure leading to loss of Copilot PFD Controller Function. Press PFD button on Pilot PFD Controller to control cross side PFD. |
| Rudder Bias 1 Fail | AFCS Rudder Boost (symmetric thrust compensation function) failure #1 system. Leading to loss of redundancy. |



Table 3B-ACL-1: Advisory Crew Alerting System Messages (continued from previous page)

| CAS message: | Meaning, effects and possible actions: |
|----------------------|--|
| Rudder Bias 1+2 Fail | AFCS Rudder Boost failure both systems leading to loss of asymmetric thrust compensation function. |
| Rudder Bias 2 Fail | AFCS Rudder Boost (asymmetric thrust compensation function failure #2 system). Leading to loss of redundancy. |
| Rudder Limiter Open | Refer to 3B-FCTL-02. Rudder limiter remains in its maximum open position allowing full rudder travel. |
| S | |
| SATCOM 1 Data Fail | SATCOM data transmission function not available or degraded. |
| SATCOM 1 Fail | SATCOM function not available. |
| SATCOM 1 Incoming | Accept Call on SATCOM Controller and Audio Panel. |
| SATCOM 1 Voice Fail | SATCOM voice transmission function not available or degraded. |
| SATCOM 2 Fail | SATCOM function not available. |
| SATCOM 2 Incoming | Accept Call on SATCOM Controller and Audio Panel Com 5. With factory option Audio Panel KMA 29A installed: accept call on SATCOM controller and audio panel with TEL. |
| STAB Trim Degrade | Refer to 3B-FCTL-03. The primary stab trim is only operational for manual trim at the low rate. Pitch trim compensations are operating normally. |
| SURF Traffic UNAVAIL | Required parameter levels not available leading to loss of Surface Traffic function. |
| T | |
| Takeoff CONFIG | Primary and secondary flight controls, parking brake and gust lock not configured for takeoff. Set each system in a takeoff position, range, or state. Do not attempt takeoff with this message displayed. |
| TAWS Fail | Internal hardware / software or input failures leading to loss of EGPWS (TAWS). |



Table 3B-ACL-1: Advisory Crew Alerting System Messages (continued from previous page)

| CAS message: | Meaning, effects and possible actions: |
|-------------------------|---|
| TCAS Fail | TCAS hardware / software fault leading to loss of TCAS and CDTI. |
| Terrain Fail | Terrain Awareness inoperative leading to loss of display. |
| TF 1 Fail | TF Bank Limit Protection and Overspeed Protection not available in MAU 1. AFCS Tactile Feedback system 1 failure leading to loss of redundancy of the Tactile Feedback System. |
| TF 2 Fail | TF Bank Limit Protection and Overspeed Protection not available in MAU 2. AFCS Tactile Feedback system 2 failure leading to loss of redundancy of the Tactile Feedback System. |
| TF 1+2 Fail | TF Bank Limit Protection and Overspeed Protection not available in MAU 1 and MAU 2. Loss of both Tactile Feedback Systems - loss of function. |
| TSC Fail | The Touch Screen Controller is off or has failed. Make sure that the TSC is turned on using the TSC dimming knob on the display reversionary control panel. |
| TSC Fan Fail | One or both of the two internal TSC fans have failed. Unless TSC Fail shows, no flight crew action is required. Touch screen may be hot. If TSC is not required, turn it off temporarily using the TSC dimming knob on the display reversionary control panel. |
| U | |
| UMS Databus Fail | When shown in flight: communication failure between DCPPUs and/or input databus failure. Maintenance required. |
| V | |
| VSA Unavailable | Required parameter levels not available leading to loss of VSA. |



Table 3B-ACL-1: Advisory Crew Alerting System Messages (continued from previous page)

| CAS message: | Meaning, effects and possible actions: |
|--------------------|---|
| W | |
| WAI Sensor Degrade | Any of the WAI temperature and pressure monitoring sensor, bleed air pressure sensor, or engine N1 fan speed signals is invalid. (Partial) loss WAI system monitoring and/or loss of capability to determine WAI system monitoring zone (climb, hold, or flight idle). While flying in icing conditions, check left wing upper surface regularly for unusual ice accumulation. Report to maintenance and refer to (M)MEL. |
| WOW Degrade | Weight on Wheel switch state mismatch. Gear will extend normally but retraction is NOT possible anymore. |
| WSHLD Heat Degrade | Failure of a windshield electrical heater power supply. Seek maintenance. |
| Y | |
| Yaw Damper 1 Fail | AFCS Yaw Damper 1 system failure leading to loss of redundancy. |
| Yaw Damper 2 Fail | AFCS Yaw Damper 2 system failure leading to loss of redundancy. |



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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3B-ACE Advanced Cockpit Environment (ACE)

AIOP 1B Fail

3B-ACE-01

AIOP 1B Card Failure leading to loss of Mach Trim, Stick Pusher, AP 1+2, AT, YD 1, FD 1, Rudder Bias 1 and FMS 1. **L FADEC Fail** and **R FADEC Fail** CAS message may be displayed due to loss of autothrottle.

Note

AP disconnects and is unavailable. FD reverts to ROL and PIT/ALT.

1. Aircraft..... Continue flight manually
Consider descending and remaining below 30,000 ft due to loss of YD redundancy
2. Airspeed..... Do not exceed M 0.71
Maintain airspeed above 150 KIAS above FL 200
For approach and landing, use reference speeds according to weight and configuration
3. Pilot PFD Controller..... If using FMS 1 select FMS 2

----- END -----

[INDEX](#)

AIOP 2B Fail

3B-ACE-02

AIOP 2B Card Failure leading to loss of Mach Trim, Stick Pusher, AP 1+2, YD 2, FD 2, Rudder Bias 2 and FMS 2.

Note

AP disconnects and is unavailable. FD reverts to ROL and PIT/ALT.

1. Aircraft..... Continue flight manually
Consider descending and remaining below 30,000 ft due to loss of YD redundancy

Continued on next page



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

AIOP 2B Fail

3B-ACE-02

continued

2. Airspeed..... Do not exceed M 0.71
Maintain airspeed above 150 KIAS above FL 200
For approach and landing, use reference speeds according to weight and configuration
3. Pilot PFD Controller..... If using FMS 2 select FMS 1

----- END -----

[INDEX](#)



3B-AFCS Autopilot

Flight CTRL A+B Fail

3B-AFCS-01

Both Flight Controller channels have failed in flight. Autopilot, Flight Director, Autothrottles, Altitude Alerter, Heading Select and Yaw Damper are lost.

In flight:

1. ECB synoptic..... Use CCD or joystick to highlight the appropriate ECB
Select STATUS softkey to view tripped ECBs, then select ALL softkey
Cycle FGP CH B ECB out for five sec then back IN
2. Aircraft..... Continue flight manually

----- END -----

[INDEX](#)

Yaw Damper 1 Fail

Yaw Damper 2 Fail

3B-AFCS-02

The indicated yaw damper has failed and aircraft is below 30,000 ft. This message will turn Amber when aircraft climbs above 30,000 ft.

1. Aircraft..... Remain below 30,000 ft
due to loss of YD redundancy

----- END -----

[INDEX](#)



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

This Page Intentionally Left Blank



3B-ECS ECS and Pneumatics

GND COOL Fan Fail

3B-ECS-01

Dual Heat Exchanger fan fault. This fan provides cooling on the ground only. To prevent overheating, switch bleeds to OFF.

On-ground only:

CAUTION

**Selecting ECS BLEED OFF results in a total loss of air inflow into the cabin.
The Vapor Cycle System will still provide cooling and air circulation.**

1. Thrust Levers..... Idle
2. ECS BLEED selector..... OFF

Note

Try to reset the system by setting the Heat / Cool softkey to OFF and then back to AUTO. If the CAS message is removed, continue with normal system operation.

If above reset procedure is unsuccessful:

3. Aircraft..... Seek maintenance

----- END -----

[INDEX](#)

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

This Page Intentionally Left Blank



3B-FCTL Flight Controls

Flaps Inhibit

3B-FCTL-01

On-ground

1. FLAP lever..... Confirm the lever is in a defined position detent
IF FLAP movement was attempted on BAT power or in QPM:
2. FLAP lever..... Return to previous position
Do not move FLAP lever until one GEN operating and NOT in QPM

--- END ---

[INDEX](#)

In-flight:

- IF FLAP lever not in a detent:
1. FLAP lever..... Return to a detent position
IF extension or retraction commanded above V_{FO} :
 1. Aircraft..... Reduce speed to below V_{FO}
 2. FLAP lever..... Move out of detent and then back into desired detent

----- END -----

[INDEX](#)

Rudder Limiter Open

3B-FCTL-02

CAUTION

With flaps UP, move rudder with caution when high deflections required and limit rudder pedal input to less than 2/3 of a full pedal input.

Rudder limiter remains in its maximum open position allowing full rudder travel.

----- END -----

[INDEX](#)

STAB Trim Degrade

3B-FCTL-03

The primary stab trim is only operational for manual trim at the low rate. Pitch trim compensations are operating normally.

One of the following has occurred:

- MAU1 or MAU2 is off
- DCPU 1A is off
- LH Bus Failure

Continued on next page



STAB Trim Degrade

3B-FCTL-03

continued

1. Yoke mounted trim switch..... Use to trim the aircraft
Expect longer trim inputs at low airspeed

----- END -----

[INDEX](#)



3B-SCL Status CAS List

Table 3B-SCL-1: Status CAS Messages

| CAS message: | Meaning, effects and possible actions: |
|-----------------------------|---|
| A | |
| AGM 1 DB Fail | Database Fail. |
| AGM 1 DB Old | RAAS, Navigation or Charts Database out of date. |
| AGM1/FMS1 GFP INOP | No Graphical Flight Planning due to AGM or MAU failure. |
| AGM1/FMS1+2 GFP INOP | No Graphical Flight Planning due to AGM or MAU failure. |
| AGM1/FMS2 GFP INOP | No Graphical Flight Planning due to AGM or MAU failure. |
| AGM 1+2 DB Fail | Database Fail. |
| AGM 1+2 DB Old | RAAS, Navigation or Charts Database out of date. |
| AGM 2 DB Fail | Database Fail. |
| AGM 2 DB Old | RAAS, Navigation or Charts Database out of date. |
| AGM2/FMS1 GFP INOP | No Graphical Flight Planning due to AGM or MAU failure. |
| AGM2/FMS1+2 GFP INOP | No Graphical Flight Planning due to AGM or MAU failure. |
| AGM2/FMS2 GFP INOP | No Graphical Flight Planning due to AGM or MAU failure. |



Table 3B-SCL-1: Status CAS Messages (continued from previous page)

| CAS message: | Meaning, effects and possible actions: |
|---|---|
| Aircraft Exceedance (APEX Build 5.0 and higher) | <p>Displayed on ground only. Is meant as a reminder for the flight crew after landing for reporting that the following aircraft limitations may have been exceeded:</p> <ul style="list-style-type: none"> - Airspeed limitations exceeded by >5 KIAS - Load limitations exceeded, including flaps - Flap operation above 20,000 ft - Rudder position exceedance based on airspeed and altitude, see "Maximum Operating Maneuvering Speed (Rudder)" in Section 2 Limitations of the AFM - Hard landing based >720 ft / min rate of descent at 3 ft. Check hard landing indicator ring as primary mean to confirm hard landing. <p>If above exceedances happened, check the ACMF reports to verify if maintenance is required. For more information about aircraft exceedance reporting, refer to the FCOM.</p> |
| B | |
| BAT 1 Fail | Ni-Cd Battery: Mid point voltage out of limits. Maintenance required. |
| | Li-Ion Battery: Battery capacity degradation approaching unacceptable limits (5% remaining) or internal service monitor triggered. Maintenance required. |
| BAT 2 Fail | Ni-Cd Battery: Mid point voltage out of limits. Maintenance required. |



Table 3B-SCL-1: Status CAS Messages (continued from previous page)

| CAS message: | Meaning, effects and possible actions: |
|-----------------------------|--|
| | Li-Ion Battery: Battery capacity degradation approaching unacceptable limits (5% remaining) or internal service monitor triggered. Maintenance required. |
| Bleed Sensor Degrade | Bleed Air Temperature monitors disagree. Maintenance required. |
| | C |
| Check Brakes | A mechanical malfunction or a monitor system failure. Log problem for post flight maintenance. |
| Crew Event Store | Displayed on ground only. Is meant as a reminder for the flight crew after landing for reporting. Flight crew initiated event recording is available for download. |
| CVR Erase | On ground Flight Crew Erase in progress. |
| CVR Fail | CVR failed. Report to maintenance and refer to (M)MEL. |
| CVR+FDR Fail | CVR and FDR failed. Report to maintenance and refer to (M)MEL. |
| | E |
| ECB 1 DB Error | Incorrect ECB database. |
| ECB 1+2 DB Error | Incorrect ECB database. |
| ECB 2 DB Error | Incorrect ECB database. |
| ELEC Maintenance | Electrical Fault. Maintenance required. |
| ENG Exceedance | UMS recognition that any engine warning has been triggered and recorded. Maintenance required. |
| Event | Flight Crew pushed the event button on the MFC/TSC. Data recording initiated for 100 seconds (70 prior and 30 post the event) with a frequency of 10 Hz. Additional to a standard event report, system event reports will be recorded in case a related CAS message is active while pressing the Event button. If the workload allows it, it is recommended to press the Event button in case of any abnormal behaviour. |



Table 3B-SCL-1: Status CAS Messages (continued from previous page)

| CAS message: | Meaning, effects and possible actions: |
|-----------------------------|---|
| F | |
| FDR Fail | FDR failed. Report to maintenance and refer to (M)MEL. |
| Flap OVRD Active | Flap Override selected for EGPWF. |
| Function Unavailable | Flight Crew pushed a hardware button on the MFC which function is optional and not available. To confirm button push is functional but not the labelled function. |
| G | |
| G/S INHB Active | Glide slope inhibited for EGPWF while flying backcourse approach. |
| Gear CTRL Fail | Loss of redundancy in the landing gear control system. Maintenance required. |
| L | |
| L FADEC TLD | FADEC has determined specific faults exist that reduce reliability. If a "TIME LIMITED DISPATCH" annunciation is present on any engine at the scheduled maintenance inspection, dispatch of the aircraft is not allowed until the fault is corrected and cleared in accordance with the Williams International Maintenance documentation. If the "TIME LIMITED DISPATCH" annunciation is detected between the scheduled engine maintenance intervals, the aircraft may be dispatched until the next scheduled maintenance interval is reached, or within 120 calendar days, whichever occurs first. |



Table 3B-SCL-1: Status CAS Messages (continued from previous page)

| CAS message: | Meaning, effects and possible actions: |
|-----------------------|---|
| M | |
| Maintenance | <p>On ground, minor system fault(s) is (are) present to any of the following systems and equipment:</p> <ul style="list-style-type: none">- Bleed Air System- Brakes- Central Maintenance System- CVFDR- Doors- Engines- Fire Protection- Fuel System- Ice Protection System- Landing Gear- Oxygen System- Secondary Flight Control System (Stabilizer (Pitch) Trim and Spoilers)- Utility Management System. <p>All faults associated with this status CAS message have no safety effect. Report to maintenance and refer to (M)MEL.</p> |
| N | |
| NTO Exceedance | Flight Crew used Throttle Lever Angle forward of Normal Takeoff detent. Time Limited Dispatch for a maximum of 3 flights. |



Table 3B-SCL-1: Status CAS Messages (continued from previous page)

| CAS message: | Meaning, effects and possible actions: |
|---------------------------|---|
| | R |
| R FADEC TLD | FADEC has determined specific faults exist that reduce reliability. If a "TIME LIMITED DISPATCH" annunciation is present on any engine at the scheduled maintenance inspection, dispatch of the aircraft is not allowed until the fault is corrected and cleared in accordance with the Williams International Maintenance documentation. If the "TIME LIMITED DISPATCH" annunciation is detected between the scheduled engine maintenance intervals, the aircraft may be dispatched until the next scheduled maintenance interval is reached, or within 120 calendar days, whichever occurs first. |
| RAAS Inhibit | RAAS inhibit selected by pilot. |
| | S |
| SATCOM 1 Connected | SATCOM function not available. |
| SATCOM 1 No Data | SATCOM data transmission function not available or degraded. |
| SATCOM 1 No Voice | SATCOM voice transmission function not available or degraded. |
| | T |
| TAWS Steep APR | The TAWS Steep Approach mode was selected and desensitized Mode 1 Excessive Descent Rates apply. |
| TERR INHB Active | Terrain Inhibit selected by pilot. |
| TLA Rigging Active | FADEC has been set to rigging mode. Ground Maintenance Only. |
| | U |
| | W |
| WAI Degrade | Loss of redundancy in control input and monitor input signals, IPS alternate power source selected or IPS alternate power source BIT failed. No pilot action required. Report to maintenance and refer to (M)MEL. |



Table 3B-SCL-1: Status CAS Messages (continued from previous page)

| CAS message: | Meaning, effects and possible actions: |
|-----------------------------|---|
| WSHLD Sensor Degrade | A control or monitor temperature sensor signal failure. Maintenance required. |



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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3B-FML FAS Message List

| FAS Message | Procedure |
|-----------------------------|-----------|
| A | |
| ATT FAIL | 3B-FAS-01 |
| B | |
| BARO? | 3B-FAS-02 |
| C | |
| CAB PRESS | 3B-FAS-03 |
| CABIN ALT | 3B-FAS-04 |
| CONFIG FAIL | 3B-FAS-05 |
| G | |
| GEAR | 3B-FAS-06 |
| GND PROX / PULL UP | 3B-FAS-07 |
| H | |
| HDG FAIL | 3B-FAS-08 |
| HDG? | 3B-FAS-09 |
| I | |
| IAS? and / or ALT? | 3B-FAS-10 |
| ICE | 3B-FAS-11 |
| ICE | 3B-FAS-12 |
| N | |
| NO TAKEOFF | 3B-FAS-13 |
| O | |
| OVERSPEED | 3B-FAS-14 |
| P | |
| PITCH? | 3B-FAS-15 |
| R | |
| RA FAIL | 3B-FAS-16 |
| RAD | 3B-FAS-17 |
| ROLL? | 3B-FAS-18 |
| S | |
| STALL | 3B-FAS-19 |
| T | |
| TCAS Resolution Advisory | 3B-FAS-20 |
| X | |
| X Replaces Airspeed Display | 3B-FAS-21 |
| X Replaces Altitude Display | 3B-FAS-22 |



Section 3B - Advisory, Status and FAS Messages (Authority approved)
FAS Message List

| FAS Message | Procedure |
|-----------------------------------|-----------|
| X Replaces Vertical Speed Display | 3B-FAS-23 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

PC24-A-15-48-0910-00A-0141-A



3B-FAS FAS Messages

ATT FAIL

3B-FAS-01

Attitude data is invalid, a red X is displayed over the aircraft symbol, pitch tape, roll-pointer and slip-skid indicator are removed.

1. Remaining Attitude Indicators..... Use ESIS or off-side PFD
2. ATT 1 Fail - 3A-ACE-23..... Accomplish
- ATT 2 Fail - 3A-ACE-25..... Accomplish
- ATT 1+2 Fail - 3A-ACE-24..... Accomplish

----- END -----

[INDEX](#)

BARO?

3B-FAS-02

Pilot PFD and Copilot PFD Altimeter settings are different.

1. BARO..... Enter correct altimeter setting in both Altimeters and ESIS
2. ADHRS push button on PFD Controller..... If required, push and select opposite side ADS

----- END -----

[INDEX](#)

CAB PRESS

3B-FAS-03

Aircraft on ground after landing with cabin pressurized and more than 0,07 psi ΔP indicated. Continuous voice callout "CABIN"

1. MFD System Environment window..... Check
2. CPCS DUMP pushbutton..... Push to DUMP

Note

When aircraft interior has been cold soaked on ground this warning may appear, and may even appear when the cabin door is open or CPCS DUMP has been pushed. Once the cabin temperature increases, the warning should be extinguished. Consider using the AURAL warning disable to cancel alerts. Reset the CPCS DUMP pushbutton once the warning is extinguished.

----- END -----

[INDEX](#)

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



CABIN ALT

3B-FAS-04

This FAS annunciation appears in conjunction with the **CABIN ALTITUDE** CAS message.

1. Cabin Altitude - 3-ECS-01..... Accomplish

----- END -----

[INDEX](#)

CONFIG FAIL

3B-FAS-05

ACE™ system software is in wrong configuration. This caution will only appear on ground.

On ground only:

1. Aircraft..... Maintenance required

----- END -----

[INDEX](#)

GEAR

3B-FAS-06

Gear is not down and locked
with either:

- Flaps 33°, or
- Airspeed below 129 KIAS and at least one throttle of a running engine below approach thrust.

Continuous voice callout "GEAR"

1. LG handle..... DN

----- END -----

[INDEX](#)

GND PROX / PULL UP

3B-FAS-07

Hard EGPWS alert accompanied by "PULL UP, PULL UP" audio.

1. Autopilot..... Use yoke quick disconnect if AP engaged
2. Aircraft pitch..... Rotate initially to 15° pitch NU
3. Thrust levers..... Fully forward, set ATR
IF alert still present:
4. Aircraft pitch..... Rotate to maximum NU pitch, respect stick shaker, avoid pusher activation

When clear of terrain, follow standard missed approach procedure, remaining clear of terrain.

----- END -----

[INDEX](#)

**HDG FAIL****3B-FAS-08**

Heading data is invalid

Heading displays are removed, and the heading, course selection and DME distance, readout and identifier are replaced with amber dashes.

1. ADHRS pushbutton on PFD..... Push and select opposite side Controller ATT / HDG
2. Heading..... Crosscheck with ESIS

----- END -----

[INDEX](#)**HDG?****3B-FAS-09**

Heading data miscompares more than 6°.

1. Heading..... Crosscheck with ESIS
2. ADHRS pushbutton on PFD If required, Push and select opposite side Controller..... ATT / HDG and confirm reading to ESIS

----- END -----

[INDEX](#)**IAS? and / or ALT?****3B-FAS-10**

Airspeed / barometric altitudes miscompare between ADC 1 + 2 by >10 KIAS / 200 ft.

IF one of the three pitot static systems has failed:

CAUTION**A failed pitot static system may cause erroneous altitude and airspeed indications.**

1. Airspeed and Altitude..... Crosscheck PFD with ESIS and Copilot PFD and discard erroneous data
Above FL 200, maintain airspeed above 150 KIAS
2. Baro setting..... Check correct setting on ESIS, Pilot PFD and Copilot PFD

Erroneous pitot / static system can be determined:

3. Pilot..... Report to ATC
Report different altitude readings to ATC and that transponder altitude readout might be wrong. Ask for altitude block clearance and vacate RVSM airspace
4. THRUST levers..... If practical, set Long Range Cruise thrust according to FCOM Performance and cross check given IAS against cockpit indications

Continued on next page



| IAS? and / or ALT? | 3B-FAS-10 |
|--|---|
| continued | |
| 5. ADHRS push button on PFD Controller..... | If determined which source is correct, select correct ADS onto both PFDs |
| 6. L / R FD couple arrow on Flight Controller..... | Check FD couple arrow pointing toward the pilot flying PFD |
| 7. Aircraft..... | Land as soon as practical |
| <i>Erroneous system cannot be determined:</i> | |
| 8. Cruise and descent..... | Only Use known power settings and aircraft attitudes |
| --- END --- | |
| INDEX | |
| <i>Below 10,000 ft:</i> | |
| 8. Depressurize aircraft..... | Select CPCS Mode switch to MANUAL and Manual Control switch to CLIMB When cabin pressure differential approaches zero: |
| 9. CPCS DUMP pushbutton..... | Push to DUMP |
| 10. Altitude..... | Use cabin altimeter to give approximate aircraft altitude |
| 11. Approach..... | Center PFD AOA DSB pointer |
| 12. Aircraft..... | Land as soon as practical |
| ----- END ----- | |
| INDEX | |

| ICE | 3B-FAS-11 |
|---|------------------|
| Stall warning and protection system is operating in ICE Mode 2 using elevated shaker / pusher and LSA speeds due to failure of the WAI in icing conditions. | |
| 1. WAI Fail - 3A-IPS-09 | Accomplish |
| ----- END ----- | |
| INDEX | |

**ICE****3B-FAS-12**

Stall warning and protection system is operating in ICE Mode 1, using elevated shaker / pusher and LSA speeds.

If the ice detectors do not detect ice, AND icing conditions are NOT expected until touchdown, Flaps 33° may be used with the white PFD ICE message displayed. In this case, the Flaps 33° ICE mode 1 performance tables should be used for calculations.

If during approach and landing, the ice detectors detect ice, OR, icing conditions are expected, Flaps 33° must NOT be used. In this case, Flaps 15° should be used for landing and the Flaps 15° ICE mode 1 performance tables should be used for calculations.

If the pilot has commanded ICE mode 1, then Flaps 33° should only be used if the pilot is confident that there is no residual ice anywhere on the aircraft. If the pilot has any doubt as to the presence of residual ice in this case, Flaps 15° should be used for landing.

----- END -----

[INDEX](#)

NO TAKEOFF**3B-FAS-13**

Aircraft configuration not set for Takeoff and thrust levers advanced to TO thrust.
Continuous voice callout "NO TAKEOFF".

- | | |
|---------------------------------------|---|
| 1. Flaps..... | Confirm Set Flaps 8 or Flaps 15 |
| 2. Aileron, Rudder, Stabilizer Trim.. | Confirm set green range |
| 3. BRAKE synoptic..... | Confirm PARK / EMER brake pressure in green range |
| 4. PARK / EMER brake..... | Confirm released |
| 5. QPM..... | Confirm OFF |
| 6. Thrust Levers..... | Confirm set at T / O, not at MCT |

----- END -----

[INDEX](#)

OVERSPEED**3B-FAS-14**

Aircraft IAS above actual speed limit. Continuous voice callout "SPEED".

- | | |
|------------------|-----------------|
| 1. Aircraft..... | Reduce airspeed |
|------------------|-----------------|

----- END -----

[INDEX](#)

PITCH?**3B-FAS-15**

- | | |
|--|---|
| 1. Pitch..... | Crosscheck with ESIS, Copilot PFD and Pilot PFD |
| 2. ADHRS pushbutton on PFD Controller..... | If required, push and select opposite ATT / HDG |

----- END -----

[INDEX](#)



RA FAIL

3B-FAS-16

TCAS II Resolution Advisory capability has failed.

1. TCAS Mode..... TA ONLY then back to TA / RA
IF message remains:
2. TCAS Mode..... Set TA ONLY to prevent spurious RA activations

----- END -----

[INDEX](#)

RAD

3B-FAS-17

Radar Altimeter data has become invalid.

1. Altitude data..... Use BARO Altimeter Indicators

----- END -----

[INDEX](#)

ROLL?

3B-FAS-18

1. Roll..... Crosscheck with ESIS, Copilot PFD and Pilot PFD
2. ADHRS push button on PFD Controller..... If required, push and select opposite ATT / HDG

----- END -----

[INDEX](#)

STALL

3B-FAS-19

Speed is below safe operational speed. Continuous voice callout "STALL" and active SHAKER.

1. Aircraft..... Recover from stall / Reduce Angle of Attack

----- END -----

[INDEX](#)



TCAS Resolution Advisory

3B-FAS-20

Accompanied by audio commands for climb, descend, level off or maintain vertical speed.

1. Autopilot..... Use yoke quick disconnect if AP engaged
 2. Aircraft attitude..... Immediately comply with RA commands indicated on the PFD
 3. ATC Inform of TCAS RA
- When clear of conflict:
4. Aircraft..... Return to previously assigned altitude and advise ATC

-----END-----

[INDEX](#)

X Replaces Airspeed Display

3B-FAS-21

Airspeed Tape data has become invalid.

1. Airspeed data..... Use ESIS
2. ADHRS push button on PFD Push and select opposite side ADS Controller.

-----END-----

[INDEX](#)

X Replaces Altitude Display

3B-FAS-22

Altitude Tape data has become invalid.

1. Altitude data..... Use ESIS
2. ADHRS push button on PFD Push and select opposite side ADS Controller.

-----END-----

[INDEX](#)

X Replaces Vertical Speed Display

3B-FAS-23

Vertical Speed Tape data has become invalid.

1. Vertical Speed data..... Use ESIS
2. ADHRS push button on PFD Push and select opposite side ADS Controller.

-----END-----

[INDEX](#)



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

This Page Intentionally Left Blank



SECTION 4

Normal Procedures (Authority approved)

Table of Contents

| Subject | | Page |
|----------------|---|--------------|
| General | | |
| 1 | General | 4-1-1 |
| 2 | Work Distribution | 4-1-1 |
| 3 | Normal Operations – Philosophy and Assumption | 4-1-2 |
| 4-NPL | Normal Procedures List | 4-2-1 |
| 4-PF | Preflight | 4-3-1 |
| 4-PF-01 | Exterior Preflight Inspection | 4-3-1 |
| 4-PF-02 | Refueling | 4-3-5 |
| 4-PF-03 | Cabin / Cockpit Preparation | 4-3-7 |
| 4-PF-04 | Before Engine Start | 4-3-9 |
| 4-PF-05 | Transit Check | 4-3-13 |
| 4-PF-06 | Engine Start | 4-3-15 |
| 4-PF-07 | Taxi and Before Departure Check | 4-3-18 |
| 4-PF-08 | Line Up | 4-3-19 |
| 4-IF | Inflight | 4-4-1 |
| 4-IF-01 | Climb | 4-4-1 |
| 4-IF-02 | Cruise within RVSM Airspace | 4-4-2 |
| 4-IF-03 | Descent | 4-4-2 |
| 4-IF-04 | Approach | 4-4-3 |
| 4-IF-05 | Final Check | 4-4-4 |
| 4-AL | After Landing | 4-5-1 |
| 4-AL-01 | After Landing | 4-5-1 |
| 4-AL-02 | Shutdown | 4-5-2 |
| 4-SC | Securing | 4-6-1 |
| 4-SC-01 | Securing | 4-6-1 |
| 4-QS | Quick Start / QPM | 4-7-1 |
| 4-QS-01 | Before Engine Start (Quick Start) | 4-7-1 |
| 4-QS-02 | Engine Start (Quick Start) | 4-7-3 |



Section 4 - Normal Procedures (Authority approved)

Table of Contents

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

This Page Intentionally Left Blank



General

1 General

The main objective of the Normal Procedure Checklist is to establish and explain the action to be taken in connection with each item of the Checklist or ECL.

The Captain is performing the Preflight Inspection, which includes a check of the general aircraft condition (e.g. snow, frost, damage, leakage) and in addition supervises the fueling process. He is responsible to set or remove the chocks and to secure the aircraft with the parking brake. Furthermore the Captain shall liaise with the passengers and make sure that they receive an appropriate briefing about the flight, the aircraft and the associated emergency procedure.

In addition the Captain is responsible for the correct loading and securing of cargo / baggage and the correct seating of the passengers according to the load sheet.

Note

The work distribution above is a guideline and can anytime be superseded by the Captain. It is a proposal from Pilatus Aircraft Ltd. and it is up to the operator to be adapted to their own procedure.

2 Work Distribution

2.1 General

CAUTION

Be aware that any movement of the aileron either with the yoke or with the surface itself will deploy / stow the roll spoilers whilst the aircraft is under power and the flaps are set to 8° or more.

As a general rule, unless otherwise stated, the CAS indication is the master regarding system status. System synoptic and system summary are for information only.

PIC Pilot in command; Pilot normally occupying the left hand seat

2.2 Memory Items

A memory item is a check for an abnormal or emergency situation that requires immediate action and is therefore carried out from memory, without prior reference to a checklist. Memory items are executed by heart without referring to a checklist. A specific checklist may be required to complete the action if the memory items cover only the initial actions. Memory Items are denoted by a solid red box around specific challenge and response items.



3 **Normal Operations – Philosophy and Assumption**

The purpose of normal procedures is to ensure that the aircraft is in a condition suitable for flight and that the cockpit controls are configured correctly during all phases of flight. Supplementary procedures are procedures which are normal to use when certain conditions exist, such as cold weather.

The use of normal procedures assumes the following:

- Pilots or crews are properly trained and qualified
- All systems are operating normally
- Automation is utilized as fully as possible.

Normal procedures also assume that coordination with ground crew occurs prior to engine starting and aircraft movement, where required.

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

**4-NPL Normal Procedures List**

| Procedure Title | Procedure |
|-----------------------------------|-----------|
| A | |
| After Landing | 4-AL-01 |
| Approach | 4-IF-04 |
| B | |
| Before Engine Start | 4-PF-04 |
| Before Engine Start (Quick Start) | 4-QS-01 |
| C | |
| Cabin / Cockpit Preparation | 4-PF-03 |
| Climb | 4-IF-01 |
| Cruise within RVSM Airspace | 4-IF-02 |
| D | |
| Descent | 4-IF-03 |
| E | |
| Engine Start | 4-PF-06 |
| Engine Start (Quick Start) | 4-QS-02 |
| Exterior Preflight Inspection | 4-PF-01 |
| F | |
| Final Check | 4-IF-05 |
| L | |
| Line Up | 4-PF-08 |
| R | |
| Refueling | 4-PF-02 |
| S | |
| Securing | 4-SC-01 |
| Shutdown | 4-AL-02 |
| T | |
| Taxi and Before Departure Check | 4-PF-07 |
| Transit Check | 4-PF-05 |



Section 4 - Normal Procedures (Authority approved) Normal Procedures List

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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PC24-AA15-30-0400-00A-014H-A



4-PF Preflight

Exterior Preflight Inspection

4-PF-01

Prior to Exterior Inspection:

1. Batteries..... Connected
2. Engine Covers..... Removed
3. Pitot / AOA Covers..... Removed
4. Cargo (cargo tie down kit installed)..... Check that cargo is located against retainer angles installed on seat rails
5. Straps (cargo tie down kit installed)..... Check that straps are tight and are placed according to the installation instructions in the FCOM

--- END ---

[INDEX](#)

Aircraft Exterior Inspection:

LEFT NOSE and FWD FUSELAGE

1. FWD Door Seal..... Checked
2. LH Windscreen / Side Window... Checked
3. LH AOA Vane..... Checked / Free
4. RVSM Critical Area around LH Pitot / Static Tube..... Checked / Clear

Note

The RVSM critical area is an area 24 in (0.6 meter) FWD and 12 in (0.3 meter) above, below and AFT of the pitot / static tube.

If any defect (refer to RVSM section of [Limitations](#)) in the RVSM critical area is identified, only flights outside RVSM airspace are permitted.

5. LH Pitot / Static Tube..... Checked / Clear
6. Emergency Ventilation Inlet..... Stowed
7. LH FWD Door Bay..... Closed

NOSE

8. Nosewheel Tire..... Check condition and proper inflation
9. Nose Gear and Gear Door..... Checked
IF Stone Guard installed (factory option)
10. Stone Guard..... Checked and securely fastened
Quick-Release Pins..... Installed and locked
11. Shimmy Damper..... Check for leakage
12. Tell-Tale Wedge..... Check both "green" and no "red" area

Continued on next page



Exterior Preflight Inspection

4-PF-01

continued

- | | |
|-----------------|---------------------|
| 13. Chocks..... | All removed |
| 14. Radome..... | Secure / No Defects |

RIGHT NOSE and FWD FUSELAGE

- | | |
|---|-----------------|
| 15. Oxygen Discharge Disc..... | Checked |
| 16. Oxygen Bottle Contents..... | Checked |
| 17. RH Windscreen / Side Window... | Checked |
| 18. RVSM Critical Area around RH Pitot / Static Tube..... | Checked / Clear |

Note

The RVSM critical area is an area 24 in (0.6 meter) FWD and 12 in (0.3 meter) above, below and AFT of the pitot / static tube.

If any defect (refer to RVSM section of [Limitations](#)) in the RVSM critical area is identified, only flights outside RVSM airspace are permitted.

- | | |
|---------------------------------|-------------------|
| 19. RH Pitot / Static Tube..... | Checked / Clear |
| 20. RH AOA Vane..... | Checked / Free |
| 21. RH Lower Fuselage..... | Condition Checked |
| 22. Refuel Panel..... | Checked / Secured |

Note

Refueling and defueling procedures are contained in the Handling Service and Maintenance Section of the FCOM.

RIGHT FUSELAGE

- | | |
|----------------------------|-------------------|
| 23. RH Lower Fuselage..... | Condition Checked |
|----------------------------|-------------------|

RIGHT WING

- | | |
|--|-------------------------------------|
| 24. RH Landing Light..... | Checked |
| 25. RH Wing Root / Fairing..... | Checked |
| 26. RH Wing Leading Edge..... | Checked free of Frost, Ice and Snow |
| 27. RH Fuel Cap..... | Secure |
| 28. RH Wing - Upper / Lower Surface..... | Checked free of Frost, Ice and Snow |
| 29. RH NACA Vent..... | Checked |
| 30. RH Wing tip / Light Lens..... | Checked |
| 31. RH Aileron / Aileron Balance Tab | Checked |
| 32. RH Static Dischargers..... | Checked |
| 33. RH Flap Fairings..... | Checked |

Continued on next page

**Exterior Preflight Inspection****4-PF-01**

continued

| | | |
|-----|---|--|
| 34. | RH Spoiler Panels..... | Condition / Flush |
| 35. | RH Main Gear and Gear Door.... | Checked |
| | | Visual check of hard landing indicator |
| 36. | RH Tires..... | Check condition and proper inflation |
| 37. | RH Brake Assembly / Brake Wear Indication..... | Checked |
| 38. | RH Flap..... | Checked |
| 39. | RH Fuel Tank Drains (2x lowest part of the wing)..... | Sample and Secure |

RIGHT AFT FUSELAGE / ENGINES

| | | |
|-----|---------------------------------|---|
| 40. | Emergency Exit..... | Checked |
| 41. | RH Windows..... | Checked |
| 42. | RH Upper Cowling..... | Check Overpressure Relief Door fully closed |
| 43. | RH Generator Cooling Inlet..... | Checked / Clear |
| 44. | RH Engine Inlet..... | Checked (as visible) |
| 45. | RH Tt2 Probe..... | Check clear and no damage |
| 46. | RH Engine Fan..... | Checked (as visible), if OAT \leq 0 °C Rotate Free |
| 47. | RH Lower Cowling..... | Open and check for leakage |
| 48. | RH Engine Drain Mast..... | Check No Dripping and No Blockage |
| 49. | RH Engine Tailpipe..... | Checked |

TAIL

| | | |
|-----|--|------------------------------|
| 50. | RH Vertical Stab / Rudder / Rudder Tab..... | Checked |
| 51. | RH Horizontal Stabilizer / Boots / Elevator / Balance Tab..... | Checked |
| 52. | Outflow Valve / Louvres..... | OPEN / Clear |
| 53. | Static Dischargers..... | Checked |
| 54. | Dorsal and Ventral Fairings / Tail Strike Protector..... | Checked |
| 55. | Aft Equipment Bay..... | Visual Inspection and closed |
| 56. | LH Horizontal Stabilizer / Boots / Elevator / Balance Tab..... | Checked |

Continued on next page



| Exterior Preflight Inspection | | 4-PF-01 |
|--------------------------------------|--|---|
| continued | | |
| 57. | LH Horizontal Stabilizer Pitch Trim..... | Check visually: Stabilizer Trim Mark within green range |
| 58. | LH Vertical Stab / Rudder..... | Checked |
| LEFT AFT FUSELAGE / ENGINES | | |
| 59. | LH Engine Tailpipe..... | Checked |
| 60. | LH Lower Cowling..... | Open and check for leakage |
| 61. | LH Engine Drain Mast..... | Check No Dripping and No Blockage |
| 62. | LH Engine Inlet..... | Checked (as visible) |
| 63. | LH Engine Fan..... | Checked (as visible), if OAT \leq 0 °C Rotate Free |
| 64. | LH Generator Cooling Inlet..... | Checked / Clear |
| 65. | LH Tt2 Probe..... | Check clear and no damage |
| 66. | LH Upper Cowling..... | Check Overpressure Relief Door fully closed |
| 67. | External Power Door..... | Closed / As Required |
| 68. | Cargo / Luggage..... | Checked / Secured |
| 69. | Cargo door / Seal..... | Closed 9 green / Checked |
| 70. | LH Windows..... | Checked |
| 71. | Emergency Exit..... | Checked |
| LEFT WING | | |
| 72. | LH Flap..... | Checked |
| 73. | LH Tires..... | Check condition and proper inflation |
| 74. | LH Brake Assembly / Brake Wear Indication..... | Checked |
| 75. | LH Main Gear and Gear Door..... | Checked Visual check of hard landing indicator |
| 76. | LH Spoiler Panels..... | Condition / Flush |
| 77. | LH Flap ACT Fairings..... | Checked |
| 78. | LH Aileron / Aileron Tab..... | Checked |
| 79. | LH Static Dischargers..... | Checked |
| 80. | LH Wing tip / Light Lens..... | Checked |
| 81. | LH NACA Vent..... | Checked |
| 82. | LH Wing - Upper / Lower Surface..... | Checked free of Frost, Ice and Snow |

Continued on next page



| Exterior Preflight Inspection | | 4-PF-01 |
|---------------------------------|---|-------------------------------------|
| continued | | |
| 83. | LH Fuel Cap..... | Secure |
| 84. | LH Wing Leading Edge..... | Checked free of Frost, Ice and Snow |
| 85. | LH Wing Root / Fairing..... | Checked |
| 86. | LH Landing Light..... | Checked |
| 87. | LH Fuel Tank Drains (2x lowest part of the wing)..... | Sample and Secure |
| 88. | Fuel Shroud Drain..... | Checked, no leakage |
| LEFT FUSELAGE | | |
| 89. | Hydraulic Bay..... | Checked / No Leaks |
| 90. | LH Lower Fuselage..... | Condition checked |
| PRE FLIGHT INSPECTION COMPLETED | | |
| ----- END ----- | | INDEX |

| Refueling | | 4-PF-02 |
|--|--|---------|
| CAUTION | | |
| If the PWR - Refuel / Defuel switch remains ON, Battery 1 will deplete. | | |
| <p>By switching on the PWR - Refuel / Defuel Switch on the external refueling panel, the DCPU 3 and 4 will be powered through the BATTERY DIRECT BUS.</p> <ol style="list-style-type: none"> 1. Fuel Truck / Station..... Ground <ul style="list-style-type: none"> - <i>Bonding points are located on the nose wheel strut left and right and on the two wings lower outer sections</i> 2. Refuel Panel..... Open 3. PWR - Refuel / Defuel Switch.... ON <ul style="list-style-type: none"> - <i>Wait until refuel panel indications are available (about 45 sec)</i> - <i>Perform LAMP test and confirm all displays are illuminated</i> | | |
| Note | | |
| <p>UMS Build 8.1 and below (MSN 101 - 290 pre SB 42-020): Switching BAT 2 to ON while the fuel gauging system is powered via the external fuel panel can trigger a R Bleed Off /Fail CAS if the engine is subsequently started. If this CAS occurs after engine start, shut down engines and cycle all aircraft electrical power to reset.</p> | | |
| <i>Continued on next page</i> | | |

**4-PF-02****Refueling**

continued

4. Fuel Quantity..... Select Amount

- Preselect amount for next flight either in the cockpit on the fuel synoptic page or the refueling panel itself

Note

Preselected value will be memorized through power cycles.

5. Fuel Hose..... Ground, connect and start fuelling

6. Shutoff Test..... ON

- Check that refuelling stops with test switch held in SHUT OFF position.
- If the test is not successful, a fail condition will be generated and displayed on the refuel panel. No further pressure refuelling can take place.

7. Refuelling "COMPLETE" on Display..... Check and Compare Fuel

- Check actual FOB against selected value
- Compare FOB before and after refuelling against uplift
- Disconnect fuel hose and ground

8. PWR - Refuel / Defuel Switch..... OFF

9. Refuel Panel..... Close

10. Fuel Truck / Station..... Disconnect Ground and Remove

FUELING COMPLETED

----- END -----

[INDEX](#)



Cabin / Cockpit Preparation

4-PF-03

Cabin Preparation

To be performed on first flight of the day, or when crew has left the aircraft unattended, crew change or maintenance action has occurred.

1. Emergency Equipment..... Secured

| Equipment | Location |
|---|---|
| Cabin Fire Extinguisher | In front of / behind right divider wall |
| Portable Oxygen Cylinder Assembly (factory option) | Behind right divider wall |
| | |

2. Cabin Fire Extinguisher..... Pressure checked
3. Portable Oxygen Cylinder Assembly (factory option)..... Pressure checked

To be performed before every flight.

4. Baggage..... Secured / stowed
5. Overwing Emergency Exit..... Lock pin removed, exit checked and locked

For flights above 10,000 ft altitude:

6. Passenger Oxygen Masks..... Stowed

CABIN PREPARATION COMPLETED

Cockpit Preparation

To be performed on first flight of the day, or when crew has left the aircraft unattended, crew change or maintenance action has occurred.

7. Emergency Equipment..... Secured

| Equipment | Location |
|---------------------------|-----------------------------------|
| Smoke Goggles | Behind left seat, upper box |
| Crash Axe | Behind left seat, on top of box |
| Cockpit Fire Extinguisher | Behind right seat |
| Flashlights | Left and right cockpit side panel |

8. Cockpit Fire Extinguisher..... Pressure checked

Continued on next page



| Cabin / Cockpit Preparation | | 4-PF-03 |
|---|---|--|
| continued | | |
| 9. | Aircraft Documents / Log..... | On Board / Checked |
| | – <i>Check required documents and certificates are on board</i> | |
| | – <i>Check aircraft log / technical log for release and accumulated time matches Hobbs meter</i> | |
| 10. | Flight Control Lock..... | Removed |
| | – <i>Check that the rudder control lock mechanism disengages</i> | |
| | – <i>Use in gusty wind conditions as required</i> | |
| 11. | Emergency Lights..... | Armed |
| 12. | ELT..... | Armed |
| 13. | Mechanical Circuit Breakers..... | Checked IN |
| | – <i>If a CB has tripped and is OUT, only one reset is allowed</i> | |
| CAUTION | | |
| Setting the PAX OXY switch to ON will deploy the passenger masks | | |
| 14. | PAX OXY..... | AUTO / OFF |
| | – <i>May be switched OFF if no PAX onboard, to prevent drainage of oxygen bottle due to leakage</i> | |
| 15. | Landing Gear Lever..... | DOWN |
| 16. | Main OXYGEN..... | Push ON |
| 17. | WINDSHIELD rotary selector..... | Select AUTO HI |
| 18. | BLEED rotary selector..... | BOTH |
| 19. | IPS Mode rotary selector..... | AUTO |
| 20. | Display Reversion Control..... | AGM NORM / ON |
| 21. | AIRBRAKE lever..... | IN |
| | – <i>Check the lever position matches the position of the airbrakes</i> | |
| 22. | EMER Handles..... | Stowed |
| 23. | EMER COM 1..... | Guarded |
| 24. | MIC Selector..... | Set |
| | – <i>Select left side for single pilot operation</i> | |
| 25. | SWPS ICE OVRD..... | Guarded (push button) / AUTO (rotary selector) |
| 26. | WS EMER PWR..... | Guarded |

Continued on next page



4-PF-03

Cabin / Cockpit Preparation

continued

27. FLAPS EMER PWR..... Guarded
28. FLAPS..... Verify
 - *Flap lever position matches with actual flap position*
29. CPCS..... AUTO
30. CPCS DUMP..... Guarded
31. MFC / TSC..... Set
 - *Set the WX rotary selector to STBY*
32. LH / RH ENG ISOL Switches..... Guarded
33. GEN 1 / GEN 2..... ON
34. NAV / LOGO Light..... NAV

COCKPIT PREPARATION COMPLETED

----- END -----

[INDEX](#)

4-PF-04

Before Engine Start

1. BAT 1..... ON
 - - *For Ni-Cd: check minimum 22 V for engine start.*
 - *For Li-Ion: check that SOC is green for engine start.*
2. ATIS / ATC Clearance..... Received
3. FMS Data..... Inserted
 - *Insert and program all available data*

Continued on next page

**Before Engine Start****4-PF-04**

continued

IF BAT 1 voltage shows:

4. BAT 2..... ON

Note

Wait until BAT 1 voltage reading is shown before switching BAT 2 ON to reduce the number of CAS messages during aircraft power-up.

Note

Selecting BAT 2 ON causes the system to enter Pre-Start Mode and will deplete BAT 1 more rapidly. Select BAT 2 ON only when ready to start the engine and when ready to accomplish the remaining checklist steps in an expeditious manner.

- Do a check of the battery status:
 - *For Ni-Cd: check minimum 23.5 V for engine start*
 - *For Li-Ion: check that SOC is green for engine start.*
5. CVR TEST / ERASE..... PRESS
- *Press the TEST button for at least 5 seconds to initiate self-test, check ON light illuminated*
 - *Check no CVR or FDR related messages on CAS*
6. COCKPIT LAMP TEST..... PRESS

| Location | | Light (Pushbuttons illuminated) |
|--|-----|---|
| LH Panel | (2) | CVR TEST / ERASE, AURAL DISABLE |
| FWD Panel | (8) | Master Warning, Master Caution, FIRE XTING, ENG ISOL (all x2) |
| Pedestal | (6) | SEC STAB TRIM, EMER COM 1, WS EMER PWR, SWPS ICE OVRD, FLAPS EMER PWR, DUMP |
| OVHD Panel | (2) | BUS TIE, EXT PWR |
| Check all pushbuttons are initially dark and illuminate whilst pressing the LAMP TEST button and go dark again when releasing the button | | |

Continued on next page

**Before Engine Start****4-PF-04**

continued

Note

The hydraulic pump of the brake system starts if the Park / Emergency system pressure falls below 2,800 PSI and the main system pressure is below 2,700 PSI. If the main system pressure is above 2,700 PSI, push and release toe brakes until the hydraulic pump starts.

7. Park Brake..... Check / ON
 - Set and release the Park Brake until the Park / Emergency System pressure falls below 2,800 PSI. Check that the pump starts (Pump symbol on the Brakes synoptic page changes from white to green)
 - Check that the Park / Emergency System is recharged to above 2,850 PSI. Check that the pump stops (Pump symbol changes from green to white)
8. ESIS..... Checked
 - Check alignment, units and BARO settings / altitudes
9. System Synoptic ECB..... Checked
 - Search for FAILED, TRIPPED or LOCKED ECBs
10. System Synoptic ENG..... Checked
 - Check FADEC channels green
 - No other amber X's
 - Extinguishers FULL

*** * Both Pilots at Station * ***

11. Preflight Inspection..... Complete
12. System Synoptic FUEL..... Checked
 - Check quantity and distribution
 - Softkey settings check 3x AUTO + X-FEED CLOSE
 - Endurance amber dashes

Continued on next page



Before Engine Start

4-PF-04

continued

13. Loadsheet / Takeoff data..... Checked / Inserted
 - Check loadsheet data against AFM / GURU calculation
 - Insert figures for Cruise Speed, Cruise Fuel Flow, Initial Cruise Altitude
 - Insert actual figures for BEW, fuel, passengers, cargo and crosscheck gross weight
 - Insert Vspds for expected runway, Trans Alt, V_{REF} for returning to land
14. COM / NAV..... Set / Checked
 - Set appropriate COM frequencies and select correct microphone selector buttons on audio panel(s)
 - Set and check appropriate NAV sources and frequencies for expected departure / return to land
15. Oxygen Masks..... Checked
 - 1 Use the onside headset and adjust volume
 - 2 Push and hold the PRESS TO TEST AND RESET button
 - 3 After 1 sec the blinker must turn from yellow to black
 - 4 Holding the PRESS TO TEST AND RESET button, push the red TEST button on the mask regulator
 - 5 Check that the blinker turns yellow and confirm noise in headset
 - 6 Release both test buttons
 - 7 Confirm blinker turns and remains black

Continued on next page



Before Engine Start

4-PF-04

continued

16. PAX Briefing / Cabin / Cockpit..... Done / Secured / Stowed
Brief as necessary:
- *Seat belt instruction*
 - *Procedure for on ground emergency*
 - *Door operation including emergency exits*
 - *Location and use of emergency oxygen*
 - *Location and use of life vests*
 - *Loose items in the cabin / cockpit need to be secured / stowed during takeoff and landing.*
- Check:*
- *Wardrobe or forward galley, avionic rack, toilet divider closed and secured*
 - *Toilet stowed*
 - *Cabin seats in upright position, tables stowed, drawers closed*
 - *Baggage, cargo and loose items in the cabin / cockpit secured / stowed.*
17. Cabin Signs..... ON
18. Start-up Clearance..... Received

READY FOR ENGINE START

----- END -----

[INDEX](#)

Transit Check

4-PF-05

1. Flight Control Lock..... Removed
 - *Check that the rudder control lock mechanism disengages*
 - *Use in gusty wind conditions as required*
2. Main OXYGEN..... Push ON
3. Park Brake..... Set
4. NAV Light..... NAV
5. BAT 1..... ON
 - - *For Ni-Cd: check minimum 22 V for engine start.*
 - *For Li-Ion: check that SOC is green for engine start.*

Continued on next page



Transit Check

4-PF-05

continued

6. ATIS / ATC Clearance..... Received
7. FMS Data..... Inserted
 - *Insert and program all available data*

IF BAT 1 voltage shows:

8. BAT 2..... ON

Note

Wait until BAT 1 voltage reading is shown before switching BAT 2 ON to reduce the number of CAS messages during aircraft power-up.

Note

Selecting BAT 2 ON causes the system to enter Pre-Start Mode and will deplete BAT 1 more rapidly. Select BAT 2 ON only when ready to start the engine and when ready to accomplish the remaining checklist steps in an expeditious manner.

- Do a check of the battery status:
 - *For Ni-Cd: check minimum 23.5 V for engine start*
 - *For Li-Ion: check that SOC is green for engine start.*

* * Both Pilots at Station * *

9. Preflight Inspection..... Completed
10. System Synoptic FUEL..... Checked
 - *Check quantity and distribution*
11. Loadsheets / Takeoff data..... Checked / Inserted
 - *Check loadsheet data against AFM / GURU calculation*
 - *Insert figures for Cruise Speed, Cruise Fuel Flow, Initial Cruise Altitude*
 - *Insert actual figures for BEW, fuel, passengers, cargo and crosscheck gross weight*
 - *Insert Vspds for expected runway, Trans Alt, V_{REF} for returning to land*

Continued on next page



Transit Check

4-PF-05

continued

12. COM / NAV..... Set / Checked
 - Set appropriate COM frequencies and select correct microphone selector buttons on audio panel(s)
 - Set and check appropriate NAV sources and frequencies for expected departure / return to land
13. PAX Briefing / Cabin..... Done / Secured / Stowed
Brief as necessary:
 - Seat belt instruction
 - Procedure for on ground emergency
 - Door operation including emergency exits
 - Location and use of emergency oxygen
 - Location and use of life vests
 - Loose items in the cabin / cockpit need to be secured / stowed during takeoff and landing.
Check:
 - Wardrobe or forward galley, avionic rack, toilet divider closed and secured
 - Toilet stowed
 - Cabin seats in upright position, tables stowed, drawers closed
 - Baggage, cargo and loose items in the cabin / cockpit secured / stowed.
14. Cabin Signs..... ON
15. Start-up Clearance..... Received

READY FOR ENGINE START

----- END -----

[INDEX](#)

Engine Start

4-PF-06

1. CAS..... Checked
 - Review CAS messages and their consequences
2. Beacon..... ON
3. Thrust Levers..... Idle

Continued on next page



Engine Start

4-PF-06

continued

4. Batteries..... Checked

Check Volt indications:

- For Ni-Cd:
 - BAT 1 minimum 22.0 V
 - BAT 2 minimum 23.5 V
- For Li-Ion:
 - BAT 1 and BAT 2 SOC green

5. RH Engine..... Start

To start the RH Engine:

- 1 R Engine switch rotate to RUN
- 2 Confirm R Booster pump running and no FUEL PRESSURE CAS messages appear
- 3 R START Press

Monitor start sequence as follows:

- 1 When pressing start button, "START" will appear "ON" on the PFD
- 2 At about 10%, N2 "START" and "IGN" is illuminated in inverse video. Check N1 is increasing
- 3 Observe light-up and engine parameters until "IDL" is reached
- 4 Depending on ambient conditions "START" and "IGN" extinguish at approximately 45 to 50% of N2

Approximate GND IDLE values

| | |
|------|---------------|
| N1: | 25% |
| ITT: | 400 °C |
| N2: | Minimum 53.4% |
| FF: | 160-180 lb |

Confirm GEN 2 takes over and is supplying the aircraft

Note

If TAT or reported OAT is <10 °C and visible signs of moisture are present, then set the IPS rotary switch to AUTO / NAI.

Note

For QPM, refer to AFM section 4A Quiet Power Mode Procedures and AFM section 2 Engine Starting Limitations.

Continued on next page



Engine Start

4-PF-06

continued

6. GPU..... Disconnect
 - Check that the **GPU Connected** message disappears when GPU was used
7. Flaps..... 8° / 15°
 - Confirm Flaps setting by checking lever position and SYS SUM indication

Note

If taxiing in slush conditions, keep the flaps retracted until reaching the active runway.

8. Trim..... Set
 - Set the correct pitch value in accordance with CG calculation, in order to check both trim switches periodically.
9. Flight Controls..... Checked
 - Conduct the flight controls check
 - During aileron check, confirm the deployment of roll-assist panels when control wheel rotation is more than 27°.
10. Avionics..... Set
LH and RH cockpit displays, set / adjust / check:
 - ESIS BARO set / brightness / units
 - PFD OVRLY, BARO Set, NAV SEL , Bearing Pointers, HSI, DME
 - Flight controller couple selection L / R
 - MFD INAV settings, FMW waypoints, charts
11. Doors / Chocks..... Closed / Removed
12. LH Engine..... Start
 - Start LH engine in accordance with RH engine procedure above.
13. System Synoptic ECS..... AUTO / As required
 - Check indicated oxygen quantity
14. CAS..... Checked
 - Review CAS messages and their consequences
15. All Clear Signal..... Received

READY FOR TAXI

----- END -----

[INDEX](#)



Taxi and Before Departure Check

4-PF-07

CAUTION

If EMER brake is used during taxi out, bring the aircraft to a complete stop before commencing take off to ensure PARK / EMER brake accumulator is recharged to >2,850 psi.

1. Brakes..... Checked
 - Release Park Brake
 - Check toe brakes on each side
2. Flight Instruments..... Checked
 - QNH set, compare altitude of PFD and ESIS displays within 30 ft of the airfield elevation, and within 40 ft of each other
 - Check and compare ESIS and PFD displays for attitude, bank, heading, turn direction, and vertical speed
3. System Summary Windows..... All Reviewed
Systematically review each summary page window:

| | |
|----------------|---|
| Configuration: | Check lever and Flaps position 8° / 15° for takeoff Check Airbrake lever stowed and no Air Brake or LIFT DUMP indication |
| Trim: | Confirm trim setting for TO |
| Electrical: | Confirm both batteries charging below 50 A and decreasing |
| Environmental: | Check DEST ELEV mode (DEST 4 letter code and elevation) Set CAB LO if required |
| Fuel | Check fuel is balanced, no PUMP message displayed Check TOTAL QTY / USED for sufficient remaining quantity for remainder of flight |

4. IPS..... As Required
 - IPS AUTO or as required by WX conditions
 - Check all five probe heaters green on synoptic page

Continued on next page



| Taxi and Before Departure Check | | 4-PF-07 |
|---|--------------------------|--|
| continued | | |
| 5. | ATC Clearance / FMA..... | Checked |
| | - | <i>Recheck RWY, active leg and SID including altitude constraints on waypoints list</i> |
| | - | <i>Confirm FMA setting NAV / HDG / TRK and GA Mode, Cleared Altitude, FMS or Manual Speed, AT or manual thrust departure</i> |
| | - | <i>Recheck ATC transponder code and setting according clearance</i> |
| 6. | Takeoff Briefing..... | Completed |
| | - | <i>Go through the TO sequence and recalls mass, runway and WX condition</i> |
| | - | <i>Recheck V-speeds and confirm displayed on PFD</i> |
| | - | <i>Review actions before and after V₁ in case of engine failure, including OEI contingency procedure</i> |
| 7. | Cabin..... | Ready |
| | - | <i>Check that all passengers are seated and secured</i> |
| | - | <i>Confirm seat belt sign is on</i> |
| TAXI AND BEFORE DEPARTURE CHECK COMPLETED | | |
| ----- END ----- | | INDEX |

| Line Up | | 4-PF-08 |
|-------------------------------|---------------------------|---|
| 1. | System Summary / CAS..... | No change |
| | - | <i>No Red or Amber CAS messages</i> |
| | - | <i>No Takeoff CONFIG CAS message displayed</i> |
| | - | <i>The following parameters are taken into account for the Takeoff warning:</i> |
| | 1 | <i>Parking Brake is released</i> |
| | 2 | <i>Set to Flaps 8° / 15° as required</i> |
| | 3 | <i>Trim setting within green range</i> |
| | 4 | <i>Rudder lock released</i> |
| | 5 | <i>EMER Brake pressure above 2,750 psi</i> |
| | 6 | <i>Thrust Lever at MCT for 2 seconds or more.</i> |
| <i>Continued on next page</i> | | |



Line Up

4-PF-08

continued

2. Lights..... As Required
 - When lining up or crossing active RWY switch STROBE and RECOG on
 - When cleared for Takeoff switch LANDING on
3. WX Radar..... As Required
 - Depending on weather situation, the WX Radar may be switched on already on the runway in order to check outbound climb path for adverse weather like CB

READY FOR DEPARTURE

----- END -----

[INDEX](#)



4-IF Inflight

| Climb | 4-IF-01 |
|-----------------------|--|
| 1. Gear..... | UP - Confirm lever up and lights out on System Summary page |
| 2. Yaw Damper..... | ON - Confirm on FMA |
| 3. FLAPS..... | UP - Confirm lever at 0° and indication on System Summary page |
| 4. Thrust..... | MCT - Thrust levers back to MCT gate within five minutes after setting T/O - Verify MCT indications on both engine PFD indications |
| 5. CPCS..... | Checked - Check on System Summary page that CPCS starts pressurizing |
| 6. IPS..... | As Required - If deemed necessary, system can be operated also manually |
| 7. Altimeters..... | Standard / As Required - Set altimeters to QNE 1013 hPa / 29.92 in Hg when passing transition altitude and compare indications |
| 8. Lights..... | As Required |
| 9. Cabin Signs..... | As Required |
| CLIMB CHECK COMPLETED | |
| ----- END ----- | |
| INDEX | |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Cruise within RVSM Airspace

4-IF-02

1. Cross-check altimeters Maximum differences 200 ft
 - *Ensure all altimeter baro-settings are set to STD*
2. Altimeters..... Record indicated altitudes
 - *Record pilot, copilot and ESIS readings in the flight plan master log upon entering RVSM airspace and each hour thereafter while in RVSM airspace for contingency situations*
3. Autopilot / Altitude hold..... Verify within ±65 ft
 - *The flight director couple select switch (L / R) ensures that the autopilot and transponder are coupled to the same ADC*

CRUISE WITHIN RVSM AIRSPACE CHECK COMPLETED

----- END -----

[INDEX](#)

Descent

4-IF-03

1. ATIS..... Received
2. CPCS..... Checked
 - *On System Summary page, check the correct destination and runway elevation*
3. IPS / SWPS ICE MODE OVRD... As Required
 - DEFOG to HI if additional defogging is required
 - The following text is valid for aircraft with SWPS ICE MODE rotary selector installed (MSN 101 - 130 post SB 31-003, and MSN 131 - UP):

If ICE Mode 1 is set and the PIC determines that the wing and horizontal stabilizer are free of ice, consider resetting to ICE Mode 0 by holding the SWPS ICE MODE rotary selector to RESET for more than 2 seconds and confirming that the white ICE caption on the PFD has been removed.
4. System Synoptic FUEL..... Checked
 - *Check fuel state and system status*
 - *Compare fuel used vs Fuel on Board*
 - *Calculate fuel required for the remainder of the flight*
 - *Check X-FEED closed*

Continued on next page



| Descent | 4-IF-03 |
|------------------------------|---|
| continued | |
| 5. System Summary / CAS..... | Reviewed |
| | <ul style="list-style-type: none">- Check aircraft status, CAS messages and their consequences for approach and landing |
| 6. Briefing..... | Completed |
| DESCENT CHECK COMPLETED | |
| ----- END ----- | |
| INDEX | |

| Approach | 4-IF-04 |
|--|--|
| 1. Altimeters..... | Set |
| | <ul style="list-style-type: none">- When passing transition level, set all altimeters to QNH and compare values |
| 2. System Summary IPS..... | Rechecked |
| | <ul style="list-style-type: none">- Check system working as expected- Reconsider flaps setting for landing according ice accretion observed |
| 3. Final V_{REF} | Calculated |
| | <ul style="list-style-type: none">- Calculate Final V_{REF} in accordance with AFM or GURU and insert value into the FMS- Confirm and crosscheck the value on the PFD- Calculated V_{REF} should match ± 1 kt with DSB. |
| Note | |
| For a standard approach, the minimum speed with airbrake extended is the sum of the reference speed appropriate for the actual aircraft configuration and ice mode defined in the performance tables for airbrake IN, and the speed increment of 6 kt accounting for the airbrake extension. | |
| 4. Lights..... | As Required |
| Continued on next page | |



Approach

4-IF-04

continued

5. Cabin / Signs..... Secured / ON
 - Crew shoulder harness secured
 - Cabin loose articles secured, tables stowed, seats upright, lavatory secured
 - Seat belt sign ON, all passengers seated and secured

APPROACH CHECK COMPLETED

----- END -----

[INDEX](#)

Final Check

4-IF-05

1. Landing Gear..... Down
 - Check lever position and 3 greens on System Summary page
2. Flaps..... As Required
 - Check lever position and flaps set according to the briefing
3. Airbrake..... In
 - Check lever position and no **Air Brake** CAS message
4. CPCS..... Checked
 - Check on System Summary page that the cabin Δ PRESS is below 0.7 psi and decreasing
5. AP / AT / YD..... OFF
 - Check AP, YD and AT are switched off, confirm on FMA

FINAL CHECK COMPLETED

----- END -----

[INDEX](#)



4-AL After Landing

| After Landing | 4-AL-01 |
|--|--|
| 1. Ground Spoilers..... | Stowed <ul style="list-style-type: none">- Stow spoilers by slowly moving one or both thrust levers out of idle position until the green LIFT DUMP annunciation is removed. |
| 2. Flaps / Trims..... | UP / Set <ul style="list-style-type: none">- Set Flaps 0° for taxi to avoid FOD and increase ground clearance- Set AIL TRIM and RUD TRIM to neutral / green band- Set STAB TRIM to 2.0° Aircraft Nose Up (if a subsequent takeoff is anticipated without shutdown / preflight inspection, set STAB TRIM to calculated position for departure) |
| Note | |
| If approach was flown in icing condition or if runway is covered with slush or snow, do not retract flaps until they are checked to be clear of ice. | |
| 3. Lights..... | As required |
| AFTER LANDING CHECK COMPLETED | |
| ----- END ----- | |
| INDEX | |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Shutdown

4-AL-02

1. Park Brake..... Set
2. Cabin..... Check Depressurized
 - *Check cabin depressurized, Δ PRESS 0.00 (± 0.07) psi*
3. IPS Mode rotary selector..... AUTO
4. LH and RH ENG..... OFF
 - *Check both thrust levers idle, engine at or near idle for 2 minutes before shutdown*
5. External Lights..... As Required
6. Cabin Signs..... OFF
7. Fuel Quantity / Aircraft Log..... Checked / Completed
 - *Check difference between calculated and actual FOB*
 - *Close aircraft log and compare accumulated flight time with Hobbs meter*
8. Main Oxygen..... Pull OFF
IF N2 is less than 2% (LH and RH engine):
9. Batteries / GPU..... OFF / Disconnected
 - *To make the aircraft powerless, press GPU button in the overhead panel for more than five seconds*

Note

Turning off aircraft electrical power to the FADEC system while the engine is running and turning may generate a No Dispatch fault message.

SHUTDOWN COMPLETED

----- END -----

[INDEX](#)



4-SC Securing

| Securing | 4-SC-01 |
|--|-------------|
| 1. Flight Control Lock..... | Installed |
| 2. Wheel Chocks / Parking Brake... | As required |
| IF in freezing conditions or freezing conditions are forecast while the aircraft is secured: | |
| 3. Securing Aircraft for Cold Weather Parking - 4A-CW-15.... | Accomplish |
| 4. Tail Stand..... | As required |
| 5. External Covers..... | As required |
| SECURING COMPLETED | |
| ----- END ----- | |
| INDEX | |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 4 - Normal Procedures (Authority approved) Securing

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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**4-QS Quick Start / QPM****Note**

Cabin / Cockpit Preparation - 4-PF-03 must be completed before starting these procedures.

Note

For QPM, refer to AFM section 4A Quiet Power Mode Procedures and AFM section 2 Engine Starting Limitations.

Before Engine Start (Quick Start)**4-QS-01**

1. BAT 1..... ON

Note

Wait until BAT 1 voltage reading is shown before switching BAT 2 ON to reduce the number of CAS messages during aircraft power-up.

Note

Selecting BAT 2 ON causes the system to enter Pre-Start Mode and will deplete BAT 1 more rapidly. Select BAT 2 ON only when ready to start the engine and when ready to accomplish the remaining checklist steps in an expeditious manner.

IF BAT 1 voltage shows:

2. BAT 2..... ON

– Do a check of the battery status:

- *For Ni-Cd: Check minimum 22.0 V for BAT 1 and 23.5 V for BAT 2 for engine start.*
- *For Li-Ion: Check that SOC is green for engine start.*

3. QPM start clearance..... Received

4. CVR TEST / ERASE..... PRESS

- *Press the TEST button for at least 5 seconds to initiate self-test, check ON light illuminated*
- *Check no CVR or FDR related messages on CAS*

Continued on next page

Contents**Front Matter****Introduction****Limitations****Procedures****Performance****W & B**

**Before Engine Start (Quick Start)****4-QS-01**

continued

5. COCKPIT LAMP TEST..... PRESS

| Location | | Light (Pushbuttons illuminated) |
|--|-----|---|
| LH Panel | (2) | CVR TEST / ERASE, AURAL DISABLE |
| FWD Panel | (8) | Master Warning, Master Caution, FIRE XTING, ENG ISOL (all x2) |
| Pedestal | (6) | SEC STAB TRIM, EMER COM 1, WS EMER PWR, SWPS ICE OVRD, FLAPS EMER PWR, DUMP |
| OVHD Panel | (2) | BUS TIE, EXT PWR |
| Check all pushbuttons are initially dark and illuminate whilst pressing the LAMP TEST button and go dark again when releasing the button | | |

Note

The hydraulic pump of the brake system starts if the Park / Emergency system pressure falls below 2,800 PSI and the main system pressure is below 2,700 PSI. If the main system pressure is above 2,700 PSI, push and release toe brakes until the hydraulic pump starts.

6. Park Brake..... Check / ON

- Set and release the Park Brake until the Park / Emergency System pressure falls below 2,800 PSI. Check that the pump starts (Pump symbol on the Brakes synoptic page changes from white to green)
- Check that the Park / Emergency System is recharged to above 2,800 PSI. Check that the pump stops (Pump symbol changes from green to white)

7. System Synoptic ECB..... Checked

- Search for FAILED, TRIPPED or LOCKED ECBs

8. System Synoptic ENG..... Checked

- Check FADEC channels green
- No other amber X's
- Extinguishers FULL
- Check CAS and confirm no Oil LVL Low CAS present

READY FOR ENGINE START

----- END -----

[INDEX](#)

**Engine Start (Quick Start)****4-QS-02**

1. CAS..... Checked
 - Confirm no Oil LVL Low CAS present
2. Beacon..... ON
3. Thrust Levers..... Idle
4. Batteries..... Checked

Check Volt indications:

- For Ni-Cd:
 - BAT 1 minimum 22.0 V
 - BAT 2 minimum 23.5 V.
- For Li-Ion:
 - BAT 1 and BAT 2 SOC green.

Continued on next page

**Engine Start (Quick Start)****4-QS-02**

continued

5. RH Engine..... Start

To start the RH Engine:

- 1 R Engine switch rotate to RUN
- 2 Confirm R Booster pump running and no FUEL PRESSURE CAS messages appear
- 3 R START Press

Monitor start sequence as follows:

- 1 When pressing start button, "START" will appear "ON" on the PFD
- 2 At about 10%, N2 "START" and "IGN" is illuminated in inverse video. Check N1 is increasing
- 3 Observe light-up and engine parameters until "IDL" is reached
- 4 Depending on ambient conditions "START" and "IGN" extinguish at approximately 45 to 50% of N2

Approximate GND IDLE values

| | |
|------|---------------|
| N1: | 25% |
| ITT: | 400 °C |
| N2: | Minimum 53.4% |
| FF: | 160-180 lb |

Confirm GEN 2 takes over and is supplying the aircraft

Note

If TAT or reported OAT is <10 °C and visible signs of moisture are present, then set the IPS rotary switch to AUTO / NAI.

Note

For QPM, refer to AFM section 4A Quiet Power Mode Procedures and AFM section 2 Engine Starting Limitations.

6. GPU..... Disconnect

- Check that the **GPU Connected** message disappears when GPU was used

Continued on next page

**Engine Start (Quick Start)****4-QS-02**

continued

7. Flaps..... 8° / 15°

- *Confirm Flaps setting by checking lever position and SYS SUM indication*

Note

If taxiing in slush conditions, keep the flaps retracted until reaching the active runway.

8. Trim..... Set

- *Set the correct pitch value in accordance with CG calculation, in order to check both trim switches periodically.*

9. Flight Controls..... Checked

- *Conduct the flight controls check*
- *During aileron check, confirm the deployment of roll-assist panels when control wheel rotation is more than 27°.*

10. RH Engine..... Check stabilized at Idle for 2 minutes.

11. QPM Softkey..... Press

12. ATIS / ATC Clearance..... Received

13. FMS Data..... Inserted

14. ESIS..... Checked

*** * Both Pilots at Station * ***

15. Preflight Inspection..... Complete

16. System Synoptic FUEL..... Checked

17. Loadsheet / Takeoff data..... Checked / Inserted

18. COM / NAV..... Set / Checked

19. Oxygen Masks..... Checked

20. PAX Briefing / Cabin..... Done / Secured / Stowed

21. Cabin Signs..... ON

22. Avionics..... Set

23. Doors / Chocks..... Closed / Removed

24. Start-up Clearance..... Received

25. QPM Softkey..... Press

26. LH Engine..... Start

Continued on next page

**Engine Start (Quick Start)****4-QS-02**

continued

- | | | |
|-----|--------------------------|--------------------|
| 27. | System Synoptic ECS..... | AUTO / As required |
| 28. | CAS..... | Checked |
| 29. | All Clear Signal..... | Received |

READY FOR TAXI

Continue with normal Checklist "Taxi and Before Departure"

----- END -----

[INDEX](#)



SECTION 4A

Additional Normal Procedures (Authority approved)

Table of Contents

| Subject | | Page |
|---------------------------------|---|---------------|
| General | | |
| 1 | Cold Weather Operations | 4A-1-1 |
| 2 | Oxygen Planning | 4A-1-1 |
| 3 | High Altitude | 4A-1-1 |
| 4 | Crosswind Operations | 4A-1-1 |
| 4A-ANPL | Additional Normal Procedures List | 4A-2-1 |
| Cold Weather Information | | |
| 1 | General | 4A-3-1 |
| 2 | Fuel Booster Pump Operation | 4A-3-1 |
| 3 | Periodic Visual Inspections after Using SAE 1428 / 1 Type II, III or IV Fluids) | 4A-3-2 |
| 4 | Tire Inflation | 4A-3-2 |
| 4A-CW | Cold Weather Procedures | 4A-4-1 |
| 4A-CW-01 | Before Spraying Fluid | 4A-4-1 |
| 4A-CW-02 | Deicing with SAE 1424 / 1 Type I Fluid | 4A-4-2 |
| 4A-CW-03 | Deicing and Anti-icing with SAE 1428 / 1 Type II, III or IV Fluids | 4A-4-4 |
| 4A-CW-04 | After Deicing and Anti-icing | 4A-4-6 |
| 4A-CW-05 | Exterior Preflight Inspection (Cold Weather) | 4A-4-7 |
| 4A-CW-06 | Cockpit Preparation (Cold Weather) | 4A-4-7 |
| 4A-CW-07 | Before Engine Start (Cold Weather) | 4A-4-8 |
| 4A-CW-08 | Engine Start (Cold Weather) (by Fuel Collector Tank Method) | 4A-4-9 |
| 4A-CW-09 | Engine Start (Cold Weather) (by Engine Inlet Fuel Temperature Sensor Method) | 4A-4-11 |
| 4A-CW-10 | Taxi, Before Departure | 4A-4-14 |
| 4A-CW-11 | Takeoff, Climb | 4A-4-14 |
| 4A-CW-12 | Cruise, Descent | 4A-4-15 |
| 4A-CW-13 | Holding, Approach | 4A-4-15 |
| 4A-CW-14 | Landing | 4A-4-16 |
| 4A-CW-15 | Securing Aircraft for Cold Weather Parking | 4A-4-18 |
| Crosswind Information | | |
| | | 4A-5-1 |



| Subject | | Page |
|------------------------------------|--|---------------|
| Oxygen Planning Information | | 4A-6-1 |
| 1 | General | 4A-6-1 |
| 2 | Determination of Required Oxygen Quantity for Dispatch | 4A-6-1 |
| 3 | Crew oxygen mask folding and stowing instructions | 4A-6-7 |
| 4A-QP | Quiet Power Mode Procedures | 4A-7-1 |
| 4A-QP-01 | Quiet Power Mode Operation | 4A-7-1 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



General

1 Cold Weather Operations

This section contains the procedures and information specific to Cold Weather Operations. Refer to [Cold Weather Information](#) and [Cold Weather Procedures](#) for further guidance.

Cold weather operations cover the following operating conditions:

- Deicing / anti-icing of accumulated of frost, ice or snow on the exterior aircraft surfaces
- Ground cold soaking of the aircraft (prolonged exposure to freezing conditions).

2 Oxygen Planning

This section contains the procedures and information specific to Oxygen Planning. Refer to [Oxygen Planning Information](#) for further guidance.

3 High Altitude

When flying at High Altitude, on slow throttle retards as well as when landing gear is extended, expect minor engine surge. This kind of instabilities are not presenting any danger to the engine and can be tolerated.

4 Crosswind Operations

This section contains the procedures and information specific to Crosswind Operations. Refer to [Crosswind Information](#) for further guidance.



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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4A-ANPL Additional Normal Procedures List

| Procedure Title | Procedure |
|--|-----------|
| A | |
| After Deicing and Anti-icing | 4A-CW-04 |
| B | |
| Before Engine Start (Cold Weather) | 4A-CW-07 |
| Before Spraying Fluid | 4A-CW-01 |
| C | |
| Cockpit Preparation (Cold Weather) | 4A-CW-06 |
| Cruise, Descent | 4A-CW-12 |
| D | |
| Deicing and Anti-icing with SAE 1428 / 1 Type II, III or IV Fluids | 4A-CW-03 |
| Deicing with SAE 1424 / 1 Type I Fluid | 4A-CW-02 |
| E | |
| Engine Start (Cold Weather) (by Engine Inlet Fuel Temperature Sensor Method) | 4A-CW-09 |
| Engine Start (Cold Weather) (by Fuel Collector Tank Method) | 4A-CW-08 |
| Exterior Preflight Inspection (Cold Weather) | 4A-CW-05 |
| H | |
| Holding, Approach | 4A-CW-13 |
| L | |
| Landing | 4A-CW-14 |
| Q | |
| Quiet Power Mode Operation | 4A-QP-01 |
| S | |
| Securing Aircraft for Cold Weather Parking | 4A-CW-15 |
| T | |
| Takeoff, Climb | 4A-CW-11 |
| Taxi, Before Departure | 4A-CW-10 |



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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Cold Weather Information

Note

For Flight Operation in Icing Conditions refer to AFM Chapter 5, Operation on Contaminated Runways.

1 General

Ice accumulates on the aircraft with air temperatures below freezing level and if there is precipitation or condensation. Any form of moisture can furthermore lead to thin layers of ice or frost in such conditions. If the aircraft is cold-soaked there is also ice accumulation possible on all surfaces; this is especially the case after the aircraft is flown at very low temperatures or refueled with very cold fuel. If the aircraft is exposed to cold weather the covers shall be mounted to prevent ice and snow formation, particularly in the engines.

2 Fuel Booster Pump Operation

Monitor for the following CAS messages during continuous booster pump operation in fuel cold soak conditions (fuel tank temperature -20 °C and below):

- L Fuel IMP Bypass
- R Fuel IMP Bypass
- L+R Fuel IMP Bypass
- L Oil TEMP High
- R Oil TEMP High
- L Oil TEMP High
- R Oil TEMP High
- L+R Oil TEMP High
- L Oil PRESS Low
- R Oil PRESS Low
- L Oil PRESS Low
- R Oil PRESS Low
- L+R Oil PRESS Low

If one of these CAS messages is shown, then switch off the fuel booster pump.



Section 4A - Additional Normal Procedures (Authority approved) Periodic Visual Inspections after Using SAE 1428 / 1 Type II, III or IV Fluids)

3 Periodic Visual Inspections after Using SAE 1428 / 1 Type II, III or IV Fluids)

Operators who use SAE Type II, III or IV anti-icing fluids are recommended to carry out periodic visual inspections for anti-icing fluid residues.

The visual inspections must be done in these locations:

- Along the wing rear spar area with flaps extended
- Around the perimeter of the aileron surface
- Gaps around the elevator and elevator trim tab
- Gaps around the rudder and rudder trim tab
- Primary flight control system components in the rear fuselage.

Any identified residues must be removed by cleaning with warm water or an approved fluid.

The operator must determine the frequency of the visual inspections as follows:

- Based on the found residues in previous visual inspections
- After a maximum of three applications of SAE Type II, III or IV anti-icing fluids. But if the aircraft is washed, or if SAE Type I fluid is used for deicing, the frequency of the visual inspections may be reduced.

4 Tire Inflation

If the ground operating temperature is expected to drop by 15 °C or more, or if at the arrival airport the ground operating temperature is lower than the departure airport outside air temperature on ground by 15 °C or more, it is recommended to overinflate the tires. The tire inflate procedure is contained in the Handling Service and Maintenance Section of the FCOM.



4A-CW Cold Weather Procedures

Before Spraying Fluid

4A-CW-01

CAUTION

No deicing or anti-icing fluid shall be sprayed on pitot / static and angle of attack probes, cockpit windows, the intakes of the engine and Cabin Pressurization Control System / Environmental Control System.

CAUTION

Nose cone / Radome must be free of deicing and anti-icing fluid residue prior to departure. Fluid can blowback onto windshield during taxi or takeoff.

CAUTION

Do not move any surfaces if they are not free of ice. Keep spoilers retracted during deicing and anti-icing. Set flaps to maximum 8 degrees or fully retracted, based on ice and frost contamination present. When starting engines before deicing and anti-icing, defer flap extension and flight control check until deicing is completed.

CAUTION

The flight crew must check that there are no ice ridges on the lower nose fuselage, in front of the pitot static probes. If ice ridges are present, the flight crew must ensure that the nose is completely free of ice ridges before commencing the flight.

Note

It is the responsibility of the pilot to decide the method of deicing and anti-icing of the aircraft and communicate the procedures with the ground crew.

Note

Deicing and anti-icing before engine start is preferred.

IF engines not running:

1. All panels..... Closed
2. All covers..... Removed
3. Doors..... Closed

Continued on next page

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Before Spraying Fluid

4A-CW-01

continued

4. Deicing and anti-icing..... Perform

Note

Perform deicing with SAE 1424 / 1 Type I fluid in accordance with [Deicing with SAE 1424 / 1 Type I Fluid - 4A-CW-02](#).

Note

Perform deicing and anti-icing with SAE 1428 / 1 Type II, III or IV fluids in accordance with [Deicing and Anti-icing with SAE 1428 / 1 Type II, III or IV Fluids - 4A-CW-03](#)

IF engines running:

5. Checklists..... Perform engine start checklist
6. Communication..... Establish COM with ground crew
7. Engine Bleed..... Off
8. ECS..... Heat/Cool OFF or HEAT
9. Deicing and anti-icing..... Perform

Note

Perform deicing with SAE 1424 / 1 Type I fluid in accordance with [Deicing with SAE 1424 / 1 Type I Fluid - 4A-CW-02](#).

Note

Perform deicing and anti-icing with SAE 1428 / 1 Type II, III or IV fluids in accordance with [Deicing and Anti-icing with SAE 1428 / 1 Type II, III or IV Fluids - 4A-CW-03](#)

----- END -----

[INDEX](#)

Deicing with SAE 1424 / 1 Type I Fluid

4A-CW-02

Spray fluid as follows (refer to Fig. 4A-CW-1):

- Deice all contaminated areas
- Spray fluid from the front to the back
- Start with spraying fluid on the left wing, such that new frost or ice that is forming can be seen from the pilot's position
- Ensure that both sides of the aircraft are being deiced, regardless of possible dry surfaces due to unequal sun exposure.

Continued on next page



Contents

Front Matter

Introduction

Limitations

Procedures

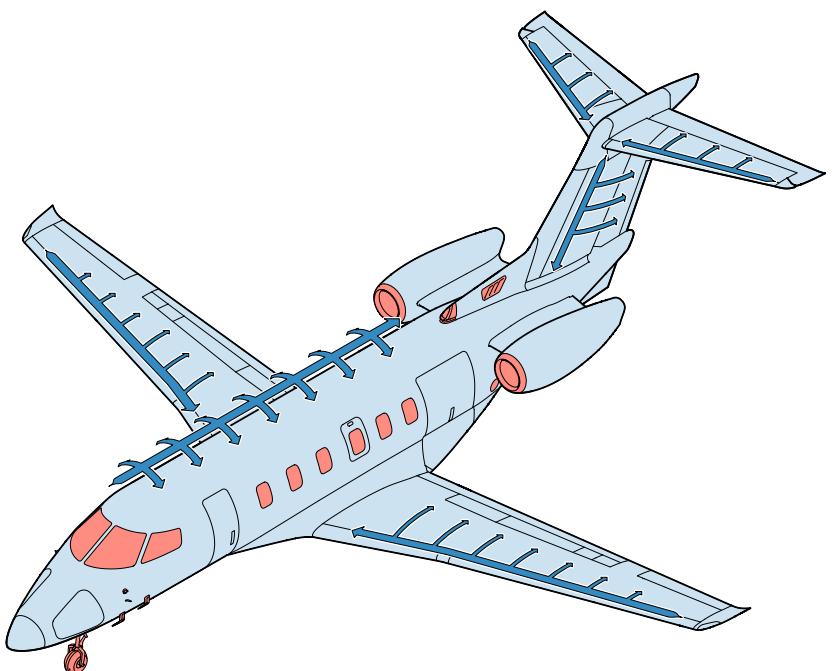
Performance

W & B

Deicing with SAE 1424 / 1 Type I Fluid

4A-CW-02

continued



AVOID DIRECT SPRAYING OF DEICING FLUID ON THE FOLLOWING AREAS :

ENGINE INLETS

BRAKES

RAM AIR INLETS

WINDSHIELD

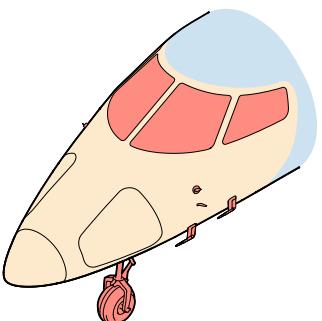
WHEELS

PITOT - STATIC PROBES

CABIN WINDOWS

ICE DETECTORS

AOA SENSORS



- APPLY DEICING FLUID TO THESE AREAS
- DO NOT APPLY DEICING FLUID TO THESE AREAS
- REMOVE DEICING FLUID FROM THIS AREA BEFORE TAXIING OR TAKEOFF

Figure 4A-CW-1: Essential Aircraft Deicing Areas



Deicing with SAE 1424 / 1 Type I Fluid

4A-CW-02

continued

----- END -----

[INDEX](#)

Deicing and Anti-icing with SAE 1428 / 1 Type II, III or IV Fluids

4A-CW-03

CAUTION

With thickened fluid on the lifting and control surfaces, anticipate a slower than normal pitch rotation that may need to be compensated by increased pull force. The elevator authority will return to normal shortly after takeoff.

Holdover time starts at the beginning of the latest deicing and anti-icing application performed. Holdover time tables shall be kept current. Holdover timetables are estimates and vary depending on many factors such as temperature, precipitation rate and type, wind and airplane skin temperature.

Deicing and anti-icing can be performed in a one step or a two step procedure:

- One-step procedure: both deicing and anti-icing are performed with Type II, III or IV fluid.
- Two-step procedure: deicing is performed with Type I fluid in accordance with section [Deicing with SAE 1424 / 1 Type I Fluid - 4A-CW-02](#), followed by the anti-icing with Type II, III or IV fluid.

Spray fluid as follows (refer to Fig. 4A-CW-2):

- As a minimum, deice all lifting and control surface areas
- Spray fluid from the front to the back
- Start with spraying fluid on the left wing, such that new frost or ice that is forming can be seen from the pilot's position
- Ensure that both sides of the aircraft are being deiced, regardless of possible dry surfaces due to unequal sun exposure.

After deicing and anti-icing the aircraft with Type II, III or IV fluids:

- Use the IPS ON performance data of the FCOM
- To determine the correct take-off field length, multiply the IPS ON takeoff field length with a factor of 1.10.

Continued on next page



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

Deicing and Anti-icing with SAE 1428 / 1 Type II, III or IV Fluids

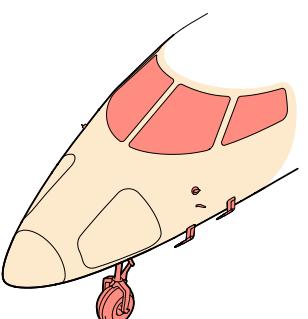
4A-CW-03

continued



AVOID DIRECT SPRAYING OF DEICING FLUID ON THE FOLLOWING AREAS :

| | | |
|---------------|---------------|-----------------------|
| ENGINE INLETS | BRAKES | RAM AIR INLETS |
| WINDSHIELD | WHEELS | PITOT - STATIC PROBES |
| CABIN WINDOWS | ICE DETECTORS | AOA SENSORS |



- APPLY
DEICING / ANTI - ICING
FLUID TO THESE AREAS
- DO NOT APPLY
DEICING / ANTI - ICING
FLUID TO THESE AREAS
- REMOVE
DEICING / ANTI - ICING
FLUID FROM THIS AREA
BEFORE TAXIING OR
TAKEOFF

Figure 4A-CW-2: Essential Aircraft Deicing And Anti-icing Areas



**Deicing and Anti-icing with SAE 1428 / 1 Type II,
III or IV Fluids** 4A-CW-03

continued

----- END -----

[INDEX](#)

After Deicing and Anti-icing 4A-CW-04

CAUTION

Run the ECS and Vapor Cycle System in AUTO mode after deicing on the ground to ensure that no ingested deicing fluid is released into the cabin.

Note

Deicing fluid type 1 has a very limited holdover time.

Note

Deicing fluids may create a noticeable smell in the cabin, as fluid can be carried into the cabin through the engine bleed air system. Defer bleed activation to avoid bleed system contamination.

1. After deicing..... Check surfaces clear
Check Probes and pitot static system free of fluid
Check AOA sensors free
Perform an extended control surfaces check including horizontal stabilizer, spoilers and flaps
2. Flaps..... Full cycle
Takeoff position
3. Flight Controls..... Check
4. Engine bleed..... BOTH
5. ECS..... As required, all AUTO
6. Checklist..... Perform taxi and before departure check

----- END -----

[INDEX](#)



Exterior Preflight Inspection (Cold Weather)

4A-CW-05

The following additional information should be considered during Exterior Preflight Inspection in cold weather.

Note

If the outside air temperature on ground drops 15 °C or more, the tires may be underinflated. If the outside air temperature on ground rises 15 °C or more, the tires may be overinflated. Tire pressure is dependent on tire temperature. A decrease in tire temperature will result in a decrease of tire pressure. An increase in tire temperature will result in an increase of tire pressure.

----- END -----

[INDEX](#)

Cockpit Preparation (Cold Weather)

4A-CW-06

The following additional information should be considered during Cockpit Preparation in cold weather.

CAUTION

Cycling aircraft electrical power requires a minimum power-up time of 30 seconds. Repeated resets with less than 30 second power-up time may lead to a latched FADEC Fail, which requires maintenance action.

Note

After ground cold soak, at extreme low outside air temperature, Electronic Circuit Breakers (ECBs) may trip, when applying power. Allow equipment to warm up and cycle power.

----- END -----

[INDEX](#)



Before Engine Start (Cold Weather)

4A-CW-07

The following additional information should be considered during Before Engine Start in cold weather.

CAUTION

Cycling aircraft electrical power requires a minimum power-up time of 30 seconds. Repeated resets with less than 30 second power-up time may lead to a latched FADEC Fail, which requires maintenance action.

Note

After ground cold soak, at extreme low outside air temperature, Electronic Circuit Breakers (ECBs) may trip, when applying power. Allow equipment to warm up and cycle power.

Note

After ground cold soak, at extreme low outside air temperature, the LH Electronic Standby Instrument System (ESIS) and, if installed, the RH ESIS may not align at first attempt. Allow equipment to warm up and cycle power.

Note

After ground cold soak, the Preflight Check of the Crew Oxygen Masks should be deferred until the cockpit temperature is $\geq -12^{\circ}\text{C}$.

Note

After ground cold soak, the Crew Oxygen Masks may not seal properly until the cockpit temperature is $\geq -7^{\circ}\text{C}$.

----- END -----

[INDEX](#)



Engine Start (Cold Weather) (by Fuel Collector Tank Method)

4A-CW-08

CAUTION

Ice crystals can block fuel flow in the fuel delivery system by accumulating on the fuel filter.

The warm-up procedure makes sure to heat the engine inlet fuel temperature to consistently higher than 0 °C, which melts ice crystals present in the fuel.

CAUTION

- No takeoff before the fuel warm-up procedure is accomplished in accordance with the warm-up [Table 4A-CW-1](#)
- Minimum oil temperature for engine start is -40 °C
- Minimum Ni-Cd battery temperature for battery engine starts is -20 °C
- Minimum Li-Ion battery temperature for battery engine starts is -5 °C
- Minimum oil temperature for N2 >80% or QPM operation is 10 °C.

CAUTION

QPM operation is not authorized with Ice Protection System Mode switch in AUTO / NAI.

CAUTION

After ground cold soak, at extreme low outside air temperature, the bleed air shut off valves may not open immediately after engine start. If the shut off valves do not open, allow time for them to warm-up.

Once the bleed air shut off valves open, maintain N2 <68% for two minutes to allow downstream pressure regulation valves to warm-up.

AUTO / NAI: set the IPS Mode switch to AUTO / NAI after engine start if TAT <10 °C AND visible moisture is present, or with ice / snow / frozen precipitation visible on airframe.

If the FUEL Synoptic collector tank temperature indicates <-10 °C, perform the following steps to warm up the fuel delivered to the engine (engine inlet fuel temperature) prior to take-off:

- 1 Start engine to warm up the engine oil to above 10 °C, with N2 below 80%.
- 2 Continue engine oil warm up with N2 set as desired until engine oil temperature is above 27 °C.
- 3 To ensure the engine inlet fuel temperature is above 0 °C, read the current Fuel Collector Tank temperature, then set desired N2 for the time that is specified in [Table 4A-CW-1](#).

Continued on next page

**Engine Start (Cold Weather) (by Fuel Collector Tank Method)****4A-CW-08**

continued

Table 4A-CW-1: Estimated Time Duration (Minutes) with engines at % N2 to warm up fuel delivered to the engine to above freezing

| Fuel Collector Tank Temperature (°C) | Time Duration (min) | | | | |
|--------------------------------------|---------------------|--------|--------|--------|--------|
| | 70% N2 | 75% N2 | 80% N2 | 85% N2 | 90% N2 |
| -11 | 0.6 | 0.5 | 0.3 | 0.2 | 0.2 |
| -12 | 1.2 | 0.9 | 0.6 | 0.5 | 0.4 |
| -13 | 1.9 | 1.4 | 1 | 0.7 | 0.6 |
| -14 | 2.5 | 1.8 | 1.3 | 0.9 | 0.7 |
| -15 | 3.1 | 2.3 | 1.6 | 1.2 | 0.9 |
| -16 | 3.7 | 2.7 | 1.9 | 1.4 | 1.1 |
| -17 | 4.3 | 3.2 | 2.2 | 1.6 | 1.3 |
| -18 | 4.9 | 3.6 | 2.5 | 1.9 | 1.5 |
| -19 | 5.6 | 4.1 | 2.9 | 2.1 | 1.7 |
| -20 | 6.2 | 4.5 | 3.2 | 2.3 | 1.8 |
| -21 | 11.4 | 8.1 | 5.9 | 4.2 | 3.1 |
| -22 | 12.4 | 8.8 | 6.4 | 4.6 | 3.4 |
| -23 | 13.4 | 9.5 | 6.9 | 5 | 3.7 |
| -24 | 14.5 | 10.3 | 7.5 | 5.4 | 4 |
| -25 | 15.5 | 11 | 8 | 5.8 | 4.3 |
| -26 | 16.5 | 11.7 | 8.5 | 6.1 | 4.5 |
| -27 | 17.6 | 12.5 | 9.1 | 6.5 | 4.8 |
| -28 | 18.6 | 13.2 | 9.6 | 6.9 | 5.1 |
| -29 | 19.6 | 13.9 | 10.1 | 7.3 | 5.4 |
| -30 | 20.7 | 14.7 | 10.7 | 7.7 | 5.7 |
| -31 | | | 13.1 | 9.4 | 6.9 |
| -32 | | | 15.7 | 11.2 | 8.2 |
| -33 | | | 19.6 | 13.9 | 10.1 |
| -34 | | | 24.8 | 17.5 | 12.6 |
| -35 | | | 30.9 | 21.7 | 15.6 |
| -36 | | | 37.4 | 26.3 | 18.8 |
| -37 | | | 45 | 31.5 | 22.5 |
| -38 | | | 46.7 | 32.7 | 23.3 |
| -39 | | | 48.3 | 33.8 | 24.2 |
| -40 | | | 50 | 35 | 25 |

Increase N2 to
≥80%

----- END -----

[INDEX](#)



Engine Start (Cold Weather) (by Engine Inlet Fuel Temperature Sensor Method)

4A-CW-09

CAUTION

Ice crystals can block fuel flow in the fuel delivery system by accumulating on the fuel filter.

The warm-up procedure makes sure to heat the engine inlet fuel temperature to consistently higher than 0 °C, which melts ice crystals present in the fuel.

CAUTION

- No takeoff before engine inlet fuel temperature is above 0 °C
- Minimum oil temperature for engine start is -40 °C
- Minimum Ni-Cd battery temperature for battery engine starts is -20 °C
- Minimum Li-Ion battery temperature for battery engine starts is -5 °C
- Minimum oil temperature for N2 >80% or QPM operation is 10 °C.

CAUTION

QPM operation is not authorized with Ice Protection System Mode switch in AUTO / NAI.

CAUTION

After ground cold soak, at extreme low outside air temperature, the bleed air shut off valves may not open immediately after engine start. If the shut off valves do not open, allow time for them to warm-up.

Once the bleed air shut off valves open, maintain N2 <68% for two minutes to allow downstream pressure regulation valves to warm-up.

Note

This procedure is valid for all PC-24 aircraft with an engine inlet fuel temperature sensor installed (factory option, MSN 212 - UP post SB 73-002).

AUTO / NAI: set the IPS Mode switch to AUTO / NAI after engine start if TAT <10 °C AND visible moisture is present, or with ice / snow / frozen precipitation visible on airframe.

If the FUEL Synoptic collector tank temperature indicates <-10 °C, perform the following steps to warm up the fuel delivered to the engine (engine inlet fuel temperature >0 °C) prior to take-off:

- 1 Start engine to warm up the engine oil to above 10 °C, with N2 below 80%.
- 2 Continue warm up with N2 set as desired until engine inlet fuel temperature is above 0 °C.

Continued on next page



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

Engine Start (Cold Weather) (by Engine Inlet Fuel Temperature Sensor Method)

4A-CW-09

continued

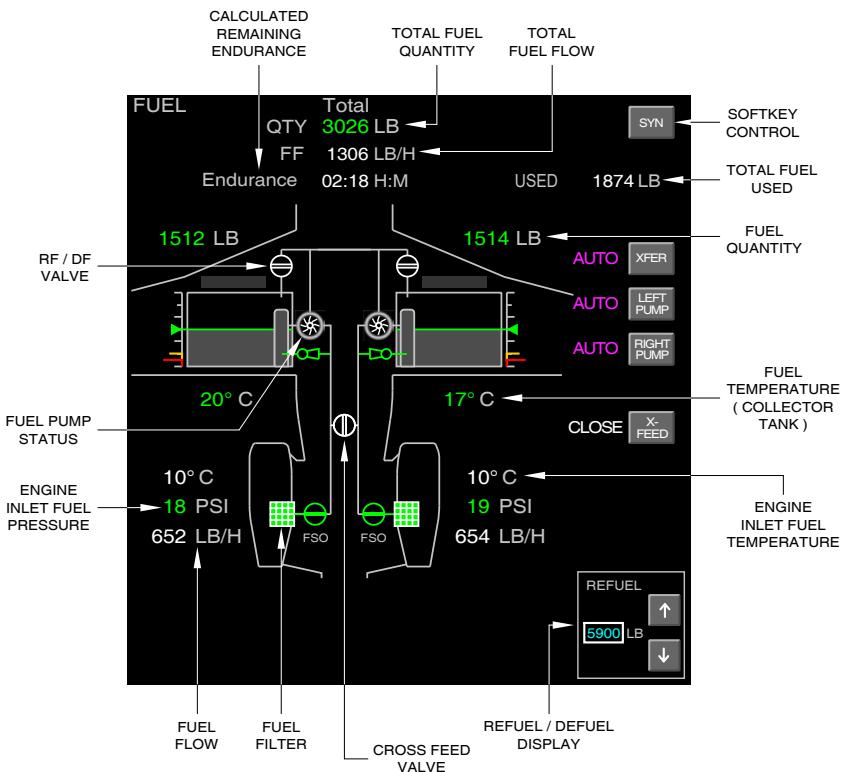


Figure 4A-CW-3: Fuel Synoptic Page - General Layout (Engine Inlet Temperature Sensor)



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

**Engine Start (Cold Weather) (by Engine Inlet
Fuel Temperature Sensor Method)**

4A-CW-09

continued

----- END -----

[INDEX](#)



Taxi, Before Departure

4A-CW-10

Taxi on slippery aprons and taxiways requires special attention, especially with aft CG. Due to the nature of the nose wheel steering with a free castoring mode, plan ahead when turning on narrow spots. Preferably select a spot where parking and maneuvering can be achieved without using the free castoring angles. Make frequent brake checks and gently heat up the brakes to avoid freeze lock after takeoff.

Ice Shedding Procedure

When operating the engines at idle on the ground with OAT 10 °C or less, and in freezing fog, falling snow, or blowing snow, accomplish the following ice shedding procedure once every 15 minutes, or any time engine vibration is felt by the pilot:

1

Note

Prior to taxi, allow the cockpit and cabin to warm to an ambient temperature of >-12 °C. Cockpit and cabin warming can be facilitated by applying increased engine power without moving the aircraft and after completion of the engine oil warming procedure in accordance with the "Engine Start (Cold Weather)" procedure.

Smoothly increase both N1 and N2 speeds to at or above 85%

2 Maintain N1 and N2 speeds, at or above 85% for 10 sec and monitor engine instruments and vibrations

3 Set both thrust levers to IDLE.

4 IF aligned for takeoff:

Set TO, confirm takeoff thrust available, no vibrations and release brakes.

IF operation on contaminated aprons and taxiways:

- Delay deployment of flaps until holding short of the runway
- A full control sweep, takeoff flap setting and re-checking of stabilizer trim is recommended shortly before departure in these conditions.

----- END -----

[INDEX](#)

Takeoff, Climb

4A-CW-11

Ice shedding procedure for takeoff:

- 1 Smoothly increase both N1 and N2 speeds to at or above 85%
- 2 Maintain N1 and N2 speeds, at or above 85% for 10 sec and monitor engine instruments and vibration
- 3 Set TO, confirm takeoff thrust available, no vibrations and release brakes.

For Departure, the IPS MODE switch shall normally be in the AUTO position, allowing for a fully automatic operation of the IPS system once airborne. NAI is a sub-mode of AUTO, allowing for operation of Nacelle Anti-ice on ground. If icing conditions are anticipated

Continued on next page



Takeoff, Climb

4A-CW-11

continued

immediately after lift off, IPS MODE ALL ON may be selected for departure, for operation of the WAI and Horizontal Stabilizer Deice boots independently of the Ice Detection System. If takeoff on contaminated runway:

- Consider a delayed gear retraction to allow shedding of contamination from the landing gear assembly.

----- END -----

[INDEX](#)

Cruise, Descent

4A-CW-12

Note

Use of the airbrakes is not limited in icing conditions.

In icing conditions, avoid operating at idle power settings with amber caution

IPS Low Energy for longer than required for speed reduction.

During an ice encounter in flight, with the ice detectors detecting ice for more than 70 seconds, ICE Mode 1 is latched for the rest of the flight.

The following text is valid for aircraft with SWPS ICE MODE rotary selector installed (MSN 101 - 130 post SB 31-003, and MSN 131 - UP):

If the pilot is confident that there is no residual ice on the wings as determined by visual inspection and sustained operation outside of icing conditions with TAT >10 °C, the SWPS ICE MODE rotary selector can be used to reset ICE Mode 1 to ICE Mode 0.

----- END -----

[INDEX](#)

Holding, Approach

4A-CW-13

CAUTION

Cold temperature correction can always be applied when published intermediate approach altitudes are followed. However not all countries authorize hot temperature corrections, and therefore Air Traffic Control must be notified and clearance to deviate must be obtained before using the "HOT&COLD" TComp function of the Flight Management System. Refer to the Honeywell Advanced Cockpit Environment pilot's guide for further details.

The recommended holding speed in icing conditions is 160 KIAS with Flaps retracted. If possible do not exceed 175 KIAS while holding in icing.

In case of ice accumulating on the landing gear during approach, be aware that a GEAR MISMATCH Caution may be triggered at retraction during missed approach, and be prepared for the associated procedure.

For approach, delay use of flaps as long as practical to avoid ice accretion.

Flying in cold temperatures can significantly reduce the terrain clearance calculated for standard ISA conditions. The [Table 4A-CW-2](#) and [Table 4A-CW-3](#) below show how many

Continued on next page



Holding, Approach

4A-CW-13

continued

feet LOWER than indicated (and thus closer to terrain or obstacles) the airplane will fly for a given OAT below ISA, assuming an airport altitude of 0 ft.

Table 4A-CW-2: Altitude Correction in Very Cold Temperatures for Height AAE: 200 - 800 FT

| Airport OAT | | Height AAE (ft) | | | | | | |
|-------------|-----|-----------------|-----|-----|-----|-----|-----|-----|
| °C | °F | 200 | 300 | 400 | 500 | 600 | 700 | 800 |
| 10 | 50 | 10 | 10 | 10 | 10 | 20 | 20 | 20 |
| 0 | 32 | 20 | 20 | 30 | 30 | 40 | 40 | 50 |
| -10 | 14 | 20 | 30 | 40 | 50 | 60 | 70 | 80 |
| -20 | -4 | 30 | 50 | 60 | 70 | 90 | 100 | 120 |
| -30 | -22 | 40 | 60 | 80 | 100 | 120 | 130 | 150 |
| -40 | -40 | 50 | 80 | 100 | 120 | 150 | 170 | 190 |
| -50 | -58 | 60 | 90 | 120 | 150 | 180 | 210 | 240 |

Table 4A-CW-3: Altitude Correction in Very Cold Temperatures for Height AAE: 900 - 5,000 FT

| Airport OAT | | Height AAE (ft) | | | | | | |
|-------------|-----|-----------------|-------|-------|-------|-------|-------|-------|
| °C | °F | 900 | 1,000 | 1,500 | 2,000 | 3,000 | 4,000 | 5,000 |
| 10 | 50 | 20 | 20 | 30 | 40 | 60 | 80 | 90 |
| 0 | 32 | 50 | 60 | 90 | 120 | 170 | 230 | 280 |
| -10 | 14 | 90 | 100 | 150 | 200 | 290 | 390 | 490 |
| -20 | -4 | 130 | 140 | 210 | 280 | 420 | 570 | 710 |
| -30 | -22 | 170 | 190 | 280 | 380 | 570 | 760 | 950 |
| -40 | -40 | 220 | 240 | 360 | 480 | 720 | 970 | 1,220 |
| -50 | -58 | 270 | 300 | 450 | 590 | 890 | 1,200 | 1,500 |

The PC-24 ACE FMS system allows compensation for the height loss in very cold temperatures by adding the appropriate increment to all database arrival waypoints with an altitude constraint below 15,000 ft. This function can be selected on the FMS arrival TCOMP tab by setting the TCOMP window to "COLD" and inserting the reported airport temperature in the DEST OAT window. Additionally, a TCOMP Calculator window is available to calculate an appropriate correction to be applied to DA or MDA.

----- END -----

[INDEX](#)

Landing

4A-CW-14

On contaminated runways, Flaps 33° is recommended for Required Runway Length considerations.

Anti-skid is inhibited below 10 kt. On a slippery runway, decelerate to taxi speed before attempting a turn onto a taxiway.

Continued on next page



Landing

4A-CW-14

continued

If snow or ice contamination is suspected, delay the retraction of landing flaps until an inspection is possible at the parking stand.

For taxi after landing with TAT<10 °C and visible moisture, keep IPS MODE switch to AUTO / NAI until just before engine shutdown, to prevent ice accretion on the nacelle inlet.

----- END -----

[INDEX](#)



Securing Aircraft for Cold Weather Parking

4A-CW-15

Note

Consider to store the aircraft in a heated hangar if in freezing conditions or freezing conditions are forecast and prompt water waste system operation during next flight is anticipated.

Note

Consider to store the aircraft in a heated hangar if in freezing conditions or freezing conditions are forecast with temperatures < -15 °C.

Note

For aircraft equipped with the optional Cold Weather Kit, consider to heat the cockpit and cabin with a domestic fan heater if in freezing conditions or freezing conditions are forecast with temperatures < -15 °C.

IF in freezing conditions (< 0 °C) or freezing conditions are forecast while aircraft is secured:

1. Wheel Chocks..... Installed
2. Park Brake..... Released
3. LH Engine Fan..... Check Free, and no water in lower part of Engine Inlet
4. RH Engine Fan..... Check Free, and no water in lower part of Engine Inlet
5. External Covers..... Installed
6. Water and Waste System..... Drained
7. Water Tank..... Removed
8. Galley - Refreshments..... Removed
9. First Aid Kit (if installed)..... Removed
10. Crew Oxygen Masks..... Removed (if forecast temperature is < -15 °C)
11. Protective Breathing Equipment (if installed)..... Removed (if forecast temperature is < -29 °C)
12. Life Raft (if installed)..... Removed (if forecast temperature is < -30 °C)
13. Life Vests (if installed)..... Removed (if forecast temperature is < -30 °C)

----- END -----

[INDEX](#)



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

Crosswind Information

CAUTION

During takeoff in crosswinds above typically 25 knots, expect possible temporary “Pusher Fail” amber CAS, aural “Stall” callout and / or short shaker activation below typically 50 KIAS. This is due to asymmetric flow over the L/R AOA vanes. All spurious indications caused by crosswind induced AOA mismatch should be cleared without pilot action by typically 60 KIAS.

CAUTION

The main gear door will touch the ground at 7° angle of bank, with wheel and strut fully compressed.



Section 4A - Additional Normal Procedures (Authority approved) Crosswind Information

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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PC24-AA15-30-0414-00A-131A-A



Oxygen Planning Information

1 General

The Oxygen quantity available for normal (crew) and abnormal (crew and passengers) use is displayed (in liters) on the ECS synoptic page:

- Quantities below 680 liters will be displayed in RED to indicate they fall below the minimum quantity for dispatch. This quantity is defined under 14 CFR 25.1439 as protective breathing supply and therefore required for any type of flight
- Between 680 and 1380 liters, oxygen quantities are displayed in AMBER, to signify that the type and duration of flight has to be considered to dispatch in accordance with the applicable regulation
- Above 1380 liters, a GREEN quantity display indicates that sufficient oxygen is present for the most limiting decompression scenario (excluding additional limitations for MEA / Terrain) of either FAR Part 91, 135 or EU-OPS for cruise at FL 450 with two pilots and 10 passengers. This scenario includes allowances for normal system leakage, oxygen mask testing, possible inaccuracy in quantity measurement, supplemental crew use during cruise flight and a general safety margin. For additional oxygen requirement due to terrain, refer to [Determination of Required Oxygen Quantity for Dispatch](#).

2 Determination of Required Oxygen Quantity for Dispatch

The crew mask mode control selector has three positions as shown in [Table 4A-6-1](#).

Table 4A-6-1: Crew Mask Functions by Mode Selected

| Mode Selection | Function |
|----------------|---|
| N (Normal) | In Normal mode, the user breathes a diluted oxygen supply consisting of a mixture of cabin air and oxygen. The quantity of cabin air that flows through is adjusted by the mask regulator itself and drops to zero above 35000 ft (10668 m). |
| 100% | In 100% mode, the diluter function of the mask is cancelled and the user breathes 100% pure oxygen at all times, regardless of aircraft altitude. |
| EMGCY | In EMGCY mode, the user breathes 100% pure oxygen with permanent positive pressure to protect against smoke and toxic fumes by helping to minimize inwards leakage into the mask, or to supply the required partial pressure of oxygen to maintain consciousness at high altitude, or both. |

Note

In any of the modes listed in [Table 4A-6-1](#), oxygen flow is supplied according to cabin altitude.



Section 4A - Additional Normal Procedures (Authority approved) Determination of Required Oxygen Quantity for Dispatch

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

When worn in absence of smoke and/or fumes, the mask control selector should be switched to N (Normal) for preservation of oxygen. [Table 4A-6-3](#), [Table 4A-6-4](#), [Table 4A-6-5](#) and [Table 4A-6-6](#) show the consumption difference between N (Normal) mode compared to 100% mode.

The tables below can be used to determine the minimum dispatch oxygen quantity required:

- For all possible crew / passenger loads, to satisfy the pre-flight requirements of the regulation applicable to the operator
- To determine additional oxygen required for a flight where terrain limitations preclude an immediate descent to 10000 ft or below in case of decompression.

[Table 4A-6-2](#) shows the total oxygen quantity required for an emergency descent from FL 450 to FL 100 with a given number of crew and passengers. Crew oxygen mask settings are assumed to be at 100% for the descent.

[Table 4A-6-3](#), [Table 4A-6-4](#), [Table 4A-6-5](#) and [Table 4A-6-6](#) show the oxygen consumption in liters per minute at altitudes between 10000 ft and 25000 ft in level flight for a given number of passengers and crew.

Table 4A-6-2: Emergency Descent Oxygen Consumption

| Descent Rate: 7000 Feet Per Minute FL 450 - FL 100: Five minutes | | | |
|---|-----|-------------------------|-------------------------|
| Crew | Pax | Norm (O_2 in liters) | 100% (O_2 in liters) |
| 1 | 0 | - | 32 |
| | 1 | - | 52 |
| | 2 | - | 73 |
| | 3 | - | 93 |
| | 4 | - | 114 |
| | 5 | - | 135 |
| | 6 | - | 155 |
| | 7 | - | 176 |
| | 8 | - | 196 |
| | 9 | - | 217 |
| 2 | 10 | - | 238 |
| | 0 | - | 63 |
| | 1 | - | 83 |
| | 2 | - | 104 |
| | 3 | - | 125 |
| | 4 | - | 145 |
| | 5 | - | 166 |
| | 6 | - | 186 |
| | 7 | - | 207 |
| | 8 | - | 228 |
| | 9 | - | 248 |
| | 10 | - | 269 |



Section 4A - Additional Normal Procedures (Authority approved) Determination of Required Oxygen Quantity for Dispatch

Table 4A-6-3: Oxygen Consumption l/min 10000 ft

| Pressure Altitude: 10000 Feet | | | |
|-------------------------------|-----------|-------------------------|-------------------------|
| Crew (Norm) | 2.5 l/min | Crew (100%) 12.0 l/min | Pax 4.3 l/min |
| Crew | Pax | Norm (O_2 in liters) | 100% (O_2 in liters) |
| 1 | 0 | 2.5 | 12.0 |
| | 1 | 6.7 | 16.2 |
| | 2 | 11.0 | 20.5 |
| | 3 | 15.2 | 24.7 |
| | 4 | 19.5 | 29.0 |
| | 5 | 23.8 | 33.3 |
| | 6 | 28.0 | 37.5 |
| | 7 | 32.3 | 41.8 |
| | 8 | 36.5 | 46.0 |
| | 9 | 40.8 | 50.3 |
| | 10 | 45.1 | 54.6 |
| | 11 | 49.3 | 58.8 |
| | 12 | 53.6 | 63.1 |
| | 13 | 57.8 | 67.3 |
| 2 | 0 | 4.9 | 23.9 |
| | 1 | 9.1 | 28.1 |
| | 2 | 13.4 | 32.4 |
| | 3 | 17.6 | 36.6 |
| | 4 | 21.9 | 40.9 |
| | 5 | 26.2 | 45.2 |
| | 6 | 30.4 | 49.4 |
| | 7 | 34.7 | 53.7 |
| | 8 | 38.9 | 57.9 |
| | 9 | 43.2 | 62.2 |
| | 10 | 47.5 | 66.5 |
| | 11 | 51.7 | 70.7 |
| | 12 | 56.0 | 75.0 |
| | 13 | 60.2 | 79.2 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 4A - Additional Normal Procedures (Authority approved) Determination of Required Oxygen Quantity for Dispatch

Table 4A-6-4: Oxygen Consumption l/min 15000 ft

| Pressure Altitude: 15000 Feet | | | |
|-------------------------------|-----------|-------------------------|-------------------------|
| Crew (Norm) | 2.6 l/min | Crew (100%) 9.6 l/min | Pax 4.2 l/min |
| Crew | Pax | Norm (O_2 in liters) | 100% (O_2 in liters) |
| 1 | 0 | 2.6 | 9.6 |
| | 1 | 6.8 | 13.7 |
| | 2 | 10.9 | 17.9 |
| | 3 | 15.1 | 22.0 |
| | 4 | 19.2 | 26.2 |
| | 5 | 23.4 | 30.4 |
| | 6 | 27.6 | 34.5 |
| | 7 | 31.7 | 38.7 |
| | 8 | 35.9 | 42.8 |
| | 9 | 40.0 | 47.0 |
| | 10 | 44.2 | 51.2 |
| | 11 | 48.4 | 55.3 |
| | 12 | 52.5 | 59.5 |
| | 13 | 56.7 | 63.6 |
| 2 | 0 | 5.2 | 19.1 |
| | 1 | 9.3 | 23.2 |
| | 2 | 13.5 | 27.4 |
| | 3 | 17.6 | 31.5 |
| | 4 | 21.8 | 35.7 |
| | 5 | 26.0 | 39.9 |
| | 6 | 30.1 | 44.0 |
| | 7 | 34.3 | 48.2 |
| | 8 | 38.4 | 52.3 |
| | 9 | 42.6 | 56.5 |
| | 10 | 46.8 | 60.7 |
| | 11 | 50.9 | 64.8 |
| | 12 | 55.1 | 69.0 |
| | 13 | 59.2 | 73.1 |



Section 4A - Additional Normal Procedures (Authority approved) Determination of Required Oxygen Quantity for Dispatch

Table 4A-6-5: Oxygen consumption l/min 20000 ft

| Pressure Altitude: 20,000 Feet | | | |
|--------------------------------|-----------|---------------------------------|---------------|
| Crew (Norm) | 3.3 l/min | Crew (100%) | 7.7 l/min |
| Crew | Pax | Norm (O ₂ in liters) | Pax 4.1 l/min |
| 1 | 0 | 3.3 | 7.7 |
| | 1 | 7.4 | 11.7 |
| | 2 | 11.5 | 15.8 |
| | 3 | 15.5 | 19.9 |
| | 4 | 19.6 | 24.0 |
| | 5 | 23.7 | 28.1 |
| | 6 | 27.8 | 32.1 |
| | 7 | 31.9 | 36.2 |
| | 8 | 35.9 | 40.3 |
| | 9 | 40.0 | 44.4 |
| | 10 | 44.1 | 48.5 |
| | 11 | 48.2 | 52.5 |
| | 12 | 52.3 | 56.6 |
| | 13 | 56.3 | 60.7 |
| 2 | 0 | 6.5 | 15.3 |
| | 1 | 10.6 | 19.3 |
| | 2 | 14.7 | 23.4 |
| | 3 | 18.8 | 27.5 |
| | 4 | 22.9 | 31.6 |
| | 5 | 26.9 | 35.7 |
| | 6 | 31.0 | 39.7 |
| | 7 | 35.1 | 43.8 |
| | 8 | 39.2 | 47.9 |
| | 9 | 43.3 | 52.0 |
| | 10 | 47.3 | 56.1 |
| | 11 | 51.4 | 60.1 |
| | 12 | 55.5 | 64.2 |
| | 13 | 59.6 | 68.3 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 4A - Additional Normal Procedures (Authority approved) Determination of Required Oxygen Quantity for Dispatch

Table 4A-6-6: Oxygen consumption l/min 25000 ft

| Pressure Altitude: 25000 Feet | | | |
|-------------------------------|-----------|-------------------------|-------------------------|
| Crew (Norm) | 5.1 l/min | Crew (100%) 6.0 l/min | Pax 4.0 l/min |
| Crew | Pax | Norm (O_2 in liters) | 100% (O_2 in liters) |
| 1 | 0 | 5.1 | 6.0 |
| | 1 | 9.1 | 10.0 |
| | 2 | 13.1 | 14.0 |
| | 3 | 17.1 | 18.0 |
| | 4 | 21.1 | 22.0 |
| | 5 | 25.1 | 26.0 |
| | 6 | 29.1 | 30.0 |
| | 7 | 33.2 | 34.0 |
| | 8 | 37.2 | 38.0 |
| | 9 | 41.2 | 42.0 |
| | 10 | 45.2 | 46.1 |
| | 11 | 49.2 | 50.1 |
| | 12 | 53.2 | 54.1 |
| | 13 | 57.2 | 58.1 |
| 2 | 0 | 10.1 | 11.9 |
| | 1 | 14.1 | 15.9 |
| | 2 | 18.1 | 19.9 |
| | 3 | 22.1 | 23.9 |
| | 4 | 26.2 | 27.9 |
| | 5 | 30.2 | 31.9 |
| | 6 | 34.2 | 35.9 |
| | 7 | 38.2 | 39.9 |
| | 8 | 42.2 | 43.9 |
| | 9 | 46.2 | 47.9 |
| | 10 | 50.2 | 52.0 |
| | 11 | 54.2 | 56.0 |
| | 12 | 58.2 | 60.0 |
| | 13 | 62.2 | 64.0 |

Example: to determine the additional amount of oxygen required for a flight where en route MEA / MORA restricts immediate descent to 10000 ft in case of decompression.

Conditions: two pilots, 10 passengers. In case of decompression at the most critical point, a 12 min intermediate cruise segment at 17000 ft (MEA) is required before descent to 10000 ft is possible. For the duration of this segment, the crew oxygen mask settings are set at 100% oxygen.

- 1 In Table 4A-6-4, (Oxygen Consumption at 15000 ft), determine the quantity per minute required for two crew (100% O_2) and 10 passengers at 17000 ft and multiply by the number of minutes required: 60.7 liters per minute X 12 = 728 liters.
- 2 Add this figure to the most restrictive decompression scenario for dispatch (1380 liters, green band on ECS synoptic display): 1380 liters + 728 liters = 2108 liters required pre-flight for dispatch.

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



3 Crew oxygen mask folding and stowing instructions

CAUTION

Do not fold / stow the mask in any other way than the one described below. Doing so may cause damage to the harness and / or lead to difficulties in donning the mask the next time it is needed.

Fold and stow the crew oxygen mask as follows:

- 1 Set the regulator in 100% mode
- 2 Remove the mask by pressing and holding the red tabs
- 3 Open the stowage box doors
- 4 Fold the mask over the face piece, see the pictures 1 until 5 in [Fig. 4A-6-1](#)
- 5 Put the mask in the stowage box, see the pictures 1 until 6 in [Fig. 4A-6-2](#).



Section 4A - Additional Normal Procedures (Authority approved) Crew oxygen mask folding and stowing instructions

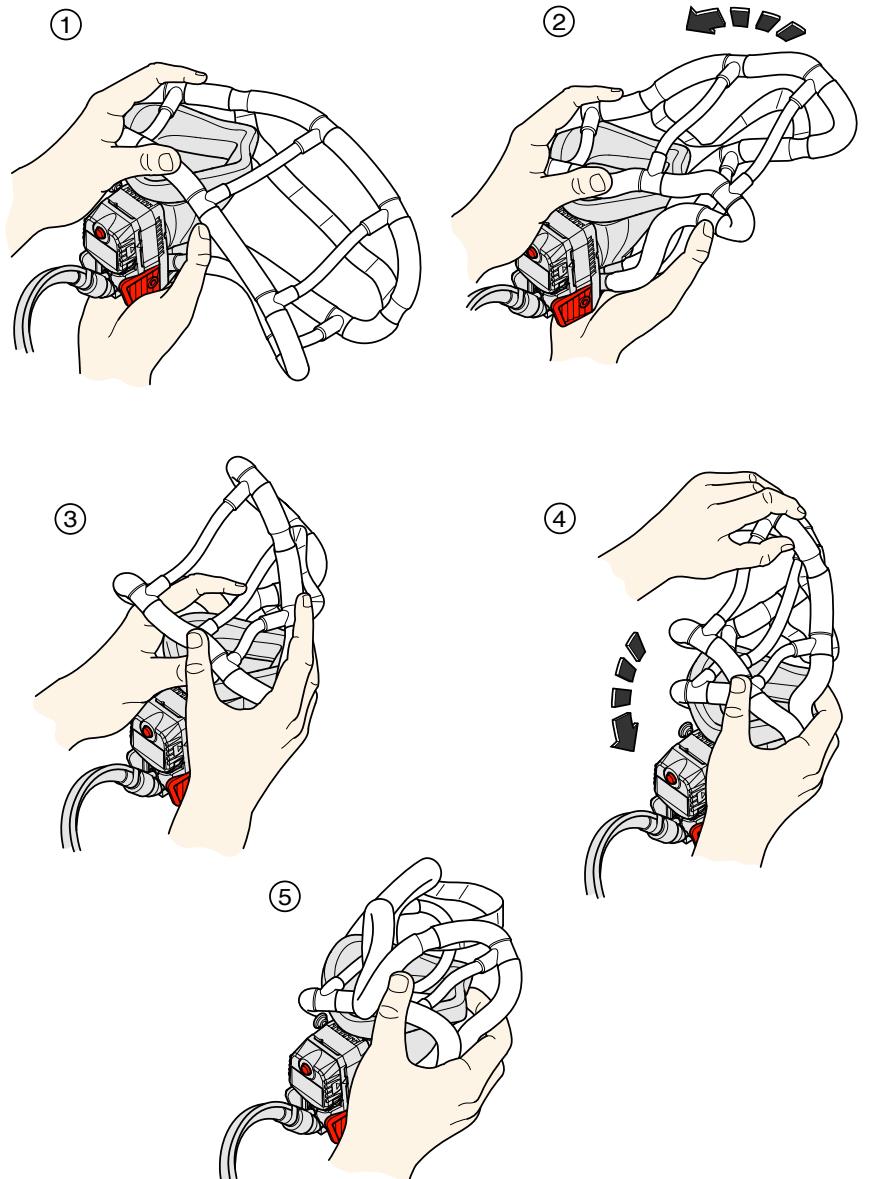
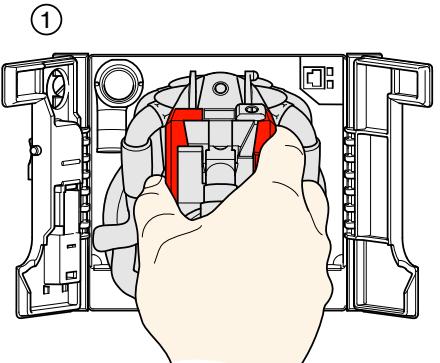


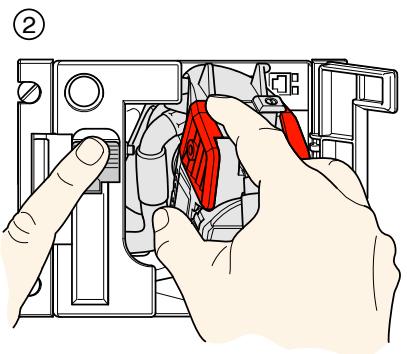
Figure 4A-6-1: Crew Oxygen Mask - Folding



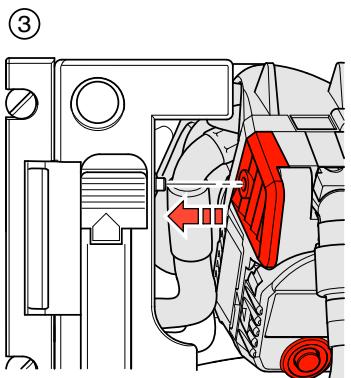
Section 4A - Additional Normal Procedures (Authority approved) Crew oxygen mask folding and stowing instructions



Coil the oxygen - supply hose into the bottom of the stowage box and slide the mask into the box



Close the left door.
Press the PRESS TO TEST AND RESET button on the left door



Insert the left red tab in the locking pin

Figure 4A-6-2: Crew Oxygen Mask - Stowing (Sheet 1 of 2)



Section 4A - Additional Normal Procedures (Authority approved) Crew oxygen mask folding and stowing instructions

Contents

Front Matter

Introduction

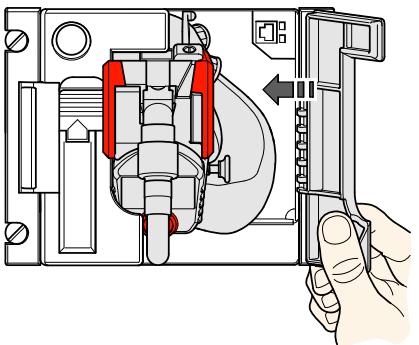
Limitations

Procedures

Performance

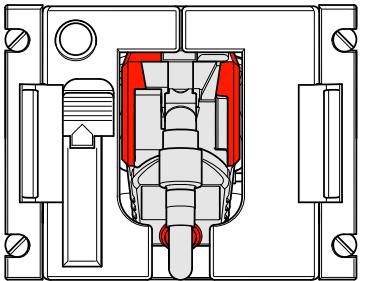
W & B

(4)



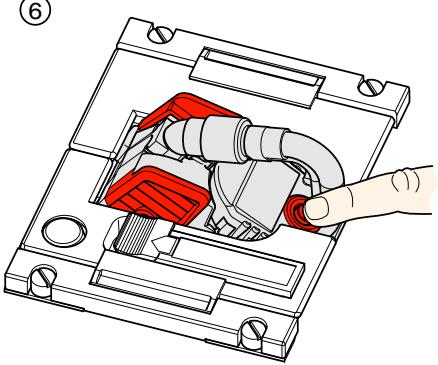
Close the right door making sure neither the hose nor the harness gets caught

(5)



Check whether the doors, red tabs, hose and harness are in the correct position

(6)



To reset the system, press and then release the PRESS TO TEST button on the regulator

Figure 4A-6-2: Crew Oxygen Mask - Stowing (Sheet 2 of 2)



4A-QP Quiet Power Mode Procedures

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

Quiet Power Mode Operation

4A-QP-01

CAUTION

Do not operate Nacelle Anti-Ice during Quiet Power Mode operation.

Note

Quiet Power Mode is only permitted if all the requirements of AFM section 2 Engine Starting Limitations are fulfilled.

To engage QPM:

1. Normal Checklist..... Accomplish until:
Normal Checklist ENGINE START: RH Engine "START" step
or
Normal Checklist SHUTDOWN: LH Engine "OFF" step
2. RH Engine..... Check Stabilized at Idle for 2 minutes
3. QPM Softkey..... Press

Note

During Quiet Power Mode operation, thrust lever must remain at IDLE, and the right GEN load must not exceed 250 A.

--- END ---

[INDEX](#)

For Second Engine Start:

1. QPM Softkey..... Press to exit
2. Normal Checklist ENGINE START..... Resume at: GPU "Disconnect" step

--- END ---

[INDEX](#)

For Shutdown:

1. QPM Softkey..... Press to exit
2. RH Engine..... Check stabilized at Idle for 2 minutes
3. Normal Checklist SHUTDOWN... Resume at: RH Engine "OFF" step

----- END -----

[INDEX](#)



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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PC-24
THE CRYSTAL CLASS

EASA Approved Airplane Flight Manual

MSN 101 and up – Report number 02371

VOLUME 2 (Including sections 5 and 6)

Manufacturer's Serial Number: _____ Registration Number: _____

EASA Type Certification No: EASA.A.594

FAA Type Certification No: A00072CE

Pilatus Aircraft Ltd., CH-6370 Stans, Switzerland

APPROVED IN THE COMMUTER CATEGORY BASED ON CS-23 THROUGH AMENDMENT 3.

THIS DOCUMENT MUST BE CARRIED IN THE AIRPLANE AT ALL TIMES.

THE MATERIAL REQUIRED TO BE FURNISHED TO THE PILOT BY THE EASA TYPE CERTIFICATION BASIS AND ADDITIONAL INFORMATION PROVIDED BY THE MANUFACTURER AND CONSTITUTE THE EASA APPROVED AIRPLANE FLIGHT MANUAL (AFM).

This Manual is also FAA approved for U.S. registered aircraft in accordance with FAR 21.29.

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SECTION 5

Performance, Cockpit Handbook (Authority approved)

Table of Contents

| Subject | | Page |
|--|--|-------------|
| Introduction | | |
| 1 | General | 5-1-1 |
| 2 | Compliance And Limitations | 5-1-1 |
| 3 | Data Basis | 5-1-1 |
| 4 | Contents Of This Section | 5-1-1 |
| 5 | Performance Data Presentations | 5-1-2 |
| Performance Information | | |
| 1 | Standard Performance Conditions | 5-2-1 |
| 2 | Variable Performance Factors | 5-2-1 |
| 3 | Noise Levels | 5-2-2 |
| 4 | Performance Information | 5-2-3 |
| Standard Conversions | | |
| 1 | Standard Conversions | 5-3-1 |
| 2 | PFD Calibration Information | 5-3-7 |
| 3 | ESIS Calibration Information | 5-3-7 |
| Stall Speeds And Buffet Margin | | |
| 1 | Stall Speeds | 5-4-1 |
| 2 | Buffet Onset | 5-4-4 |
| Aircraft Classification Number | | |
| 1 | Aircraft Classification Number | 5-5-1 |
| 2 | Pavement Type Code | 5-5-1 |
| 3 | Determination of Allowed Operation on Runway | 5-5-2 |
| Takeoff Performance | | |
| Takeoff Thrust Settings | | 5-6-1-1 |
| Takeoff, Dry Runway, No Slope, Flaps 15, IPS OFF | | 5-6-2-1 |
| Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON | | 5-6-3-1 |
| Takeoff, Dry Runway, Slope Adjustment, Flaps 15 | | 5-6-4-1 |
| Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF | | 5-6-5-1 |
| Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON | | 5-6-6-1 |



| Subject | Page |
|--|-----------------|
| Takeoff, Dry Runway, Slope Adjustment, Flaps 8 | 5-6-7-1 |
| Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF | 5-6-8-1 |
| Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON | 5-6-9-1 |
| Takeoff, Wet Runway, Slope Adjustment, Flaps 15 | 5-6-10-1 |
| Takeoff, Wet Runway, No Slope, Flaps 8, IPS OFF | 5-6-11-1 |
| Takeoff, Wet Runway, No Slope, Flaps 8, IPS ON | 5-6-12-1 |
| Takeoff, Wet Runway, Slope Adjustment, Flaps 8 | 5-6-13-1 |
| Climb Performance | 5-7-1-1 |
| Maximum Continuous Thrust | 5-7-1-1 |
| Obstacle Clearance - Takeoff Flight Path | 5-7-2-1 |
| First Segment Climb, Flaps 8 | 5-7-3-1 |
| First Segment Climb, Flaps 15 | 5-7-4-1 |
| Second Segment Climb, Flaps 8 | 5-7-5-1 |
| Second Segment Climb, Flaps 15 | 5-7-6-1 |
| Initial Climb, Climb Gradient | 5-7-7-1 |
| Enroute Climb Gradient, OEI | 5-7-8-1 |
| Enroute Rate of Climb, OEI | 5-7-9-1 |
| Cruise Climb, AEO, IPS OFF | 5-7-10-1 |
| Cruise Climb, AEO, IPS ON | 5-7-11-1 |
| Cruise Climb, AEO, NAI ON | 5-7-12-1 |
| Holding Performance | 5-8-1-1 |
| Holding, IPS OFF / ON | 5-8-1-1 |
| Approach Climb Performance | 5-9-1-1 |
| Approach Climb | 5-9-1-1 |
| Landing Performance | 5-10-1-1 |
| Landing Information | 5-10-1-1 |
| Landing, Dry Runway, Flaps 33, Landing Field Length Required, Ice Mode 0 | 5-10-2-1 |
| Landing, Dry Runway, Flaps 33, Landing Field Length Required, Ice Mode 1 | 5-10-3-1 |
| Landing, Dry Runway, Flaps 33, Landing Distance, Ice Mode 0 | 5-10-4-1 |
| Landing, Dry Runway, Flaps 33, Landing Distance, Ice Mode 1 | 5-10-5-1 |
| Landing, Dry Runway, Flaps 15, Landing Field Length Required, Ice Mode 0 | 5-10-6-1 |
| Landing, Dry Runway, Flaps 15, Landing Field Length Required, Ice Mode 1 | 5-10-7-1 |
| Landing, Dry Runway, Flaps 15, Landing Distance, Ice Mode 0 | 5-10-8-1 |
| Landing, Dry Runway, Flaps 15, Landing Distance, Ice Mode 1 | 5-10-9-1 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



| Subject | Page |
|--|-------------|
| Landing, Wet Runway, Flaps 33, Landing Field Length Required, Ice Mode 0 | 5-10-10-1 |
| Landing, Wet Runway, Flaps 33, Landing Field Length Required, Ice Mode 1 | 5-10-11-1 |
| Landing, Wet Runway, Flaps 33, Landing Distance, Ice Mode 0 | 5-10-12-1 |
| Landing, Wet Runway, Flaps 33, Landing Distance, Ice Mode 1 | 5-10-13-1 |
| Landing, Wet Runway, Flaps 15, Landing Field Length Required, Ice Mode 0 | 5-10-14-1 |
| Landing, Wet Runway, Flaps 15, Landing Field Length Required, Ice Mode 1 | 5-10-15-1 |
| Landing, Wet Runway, Flaps 15, Landing Distance, Ice Mode 0 | 5-10-16-1 |
| Landing, Wet Runway, Flaps 15, Landing Distance, Ice Mode 1 | 5-10-17-1 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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Introduction

1 General

This section contains all the required information and instructions necessary to conduct the performance planning required to support safe and efficient operation the PC-24 airplane. The contents of this section do not reflect any performance data associated with any AFM supplements. Refer to the Supplements section of this AFM for performance information contained in supplements.

The performance information contained in this section is presented for the purpose of:

- Compliance with the appropriate performance criteria and certification requirements of EASA CS-23 Amendment 3 and applicable special conditions.
- Providing performance information for flight planning.

2 Compliance And Limitations

The PC-24 complies with the performance requirements of EASA CS-23 for Commuter category airplanes. All operations must be conducted in accordance with the limitations contained in [Limitations](#) of the AFM.

3 Data Basis

Performance data contained in this section is produced from flight test data to which engineering calculations are applied to analytically expand the data for various parameters, such as weight, altitude, temperature. This data does not account for many factors the pilot in command must evaluate prior to each takeoff, including but not limited to:

- Pilot recency of experience and proficiency
- Runway surfaces or slopes beyond those defined in this section
- Non-standard aerodynamic factors which may vary from flight to flight including (but not limited to):
 - Skin roughness resulting from such things as chipped paint
 - Worn gap seals

When required, the performance data specifies the configuration of the aircraft and appropriate systems such as the IPS. Information and instructions detailing the derivation of required performance information are located at the beginning of each performance subsection.

4 Contents Of This Section

This section contains simplified approved performance information extracted at reduced granularity from FCOM Performance Data information that meets certification requirements for the Pilatus PC-24. It contains all the required information and instructions as well as performance data necessary for the pilot to plan and conduct safe and efficient operations throughout entire performance envelope of the airplane.

The contents of this section are arranged in a logical order that mirrors the progression of preflight performance planning steps as well as the order of progression of a flight operation itself to support quick, accurate, and intuitive pre-flight performance planning activities as well as In Flight contingency performance planning as may be required to support continued operations in changing or unexpected conditions.



The order in which performance data is presented is identical in the AFM Cockpit Handbook Volume 2 and the FCOM Performance Data, and parallels the order in which the data is normally applicable during a flight.

5 Performance Data Presentations

Approved AFM performance data for the PC-24 is presented in the following publications:

- AFM Cockpit Handbook Volume 2
- FCOM Performance Data
- QRH Quick Reference Handbook

5.1 Granularity of Performance Information

The term granularity describes the fineness or coarseness of the level of detail in each of the above listed reference sources. The contents of the FCOM Performance Data is published directly from a 'master data set' from which all other data presentations are extracted. When data is extracted at a coarser granularities the usability of the information is simplified without affecting the accuracy of the data.

5.1.1 AFM Cockpit Handbook Volume 2

The AFM Cockpit Handbook contains a simplified data set extracted from the contents of the FCOM Performance Data at medium level of granularity so that the total volume of information it contains is reduced without affecting the accuracy or usability of the data. The reduced quantity of data promotes and facilitates rapid access to sufficiently detailed information to support the majority of expected operations, thereby reducing in flight pilot workload.

5.1.2 FCOM Performance Data

The FCOM Performance Data contains all the approved performance data published by Pilatus Aircraft, Limited for the PC-24 aircraft. Its contents are the finest granularity of data available.

Note

The data contained in the FCOM Performance Data does not include performance information contained in flight manual supplements which may be applicable to a particular aircraft.

5.1.3 Quick Reference Handbook

The QRH contains a basic data set extracted from the contents of the FCOM Performance Data at low level of granularity so that the total volume of information it contains is reduced without affecting the accuracy or usability of the data. The reduced quantity of data promotes and facilitates rapid access to sufficiently detailed information to support the majority of expected operations where the QRH is the applicable document for use, thereby reducing in flight pilot workload.



Performance Information

1 Standard Performance Conditions

This paragraph contains the standard conditions incorporated into the determination of performance for the PC-24.

1.1 Altitude

All altitudes contained in this section are pressure altitudes. Pressure altitude is the altitude displayed by the altimeter when it is set to standard pressure (29.92 in Hg [1013 hPa]). When a pressure altitude reading is below the lowest altitude shown in this performance data, use the performance information contained in the lowest altitude shown.

1.2 Airspeed

All airspeeds contained in this section are indicated airspeed expressed in knots (KIAS). The PFD corrects both position and instrument errors. Therefore, its reading does not need to be corrected for any further airspeed calibration (IAS is equal to CAS). The ESIS however, is affected by some residual position error, and needs to be corrected by the airspeed and altitude calibration correction in [ESIS Calibration Information](#).

1.3 Temperature

All temperatures are specified in degrees Celsius. When a temperature reading is below the lowest temperature shown in a performance table or chart, ensure that the temperature reading is within the operating temperature envelope limitations listed in Section 2, Limitations, and use the lowest temperature shown in the chart or table.

2 Variable Performance Factors

The performance tables and charts account for certain variable factors that may affect the performance of the aircraft. Unless otherwise indicated these factors are as follows:

2.1 Environmental Control System Controls

- Bleed rotary switch (CPCS panel): BOTH
- De Humid soft key (ECS Synoptic page): OFF (VCS off)
- Heaters (ECS Manual Override Control Panel): ON

2.2 Ice Protection System

The IPS is assumed to be in one of three possible states: IPS OFF, IPS ON, or NAI ON. Tabulated data sets are given for the IPS OFF and IPS ON.

Except for the AEO cruise climb tables and the Maximum Continuous Thrust charts which each contain dedicated NAI ON information, performance charts and tables present performance data in terms of IPS OFF or IPS ON. Adjustments that account for the bleed air consumption associated with NAI ON are given at the top of each IPS OFF table or chart, and are applied to the performance data derived from those charts and tables.



2.3 Wind Information

The following assumptions are made with regard to wind:

- Adjustments for the effects of wind on performance is presented in the charts and tables where applicable.
- Factors of 50% headwind component and 150% tailwind component have been applied in accordance with certification requirements.
- Values of wind included in takeoff and landing performance are tower winds read at 32 ft 10 in above the runway surface.
- Satisfactory controllability and engine handling during take-off and landing has been demonstrated for the following crosswinds:

| Phase | Flap | Crosswind (kt) |
|-----------------|------|-----------------|
| Takeoff | 8 | 30 (gusting 40) |
| | 15 | |
| Approach / Land | 15 | 30 (gusting 40) |
| | 33 | 25 (gusting 30) |

2.4 Runway Information

All runways are assumed to be paved. Performance information is separated into dry and wet runway conditions. Within each of these conditions level runway data is presented. For takeoffs, level runway data is adjusted for the effects of runway slope with a slope correction chart, and for landings, level runway landing data is adjusted for the effects of runway slope and wind using factors listed in the header of each table.

3 Noise Levels

The EPNLs listed in [Table 5-2-1](#) demonstrate the compliance of the PC-24, equipped with Williams International FJ44-4A-QPM engines with the noise limits contained in EASA CS-36 Chapter 4.

The following noise levels comply with part 36, Appendix B, Stage 4 maximum noise level requirements and were obtained by analysis of approved data from noise tests conducted under the provisions of part 36, Amendment 36-31. The noise measurement and evaluation procedures used to obtain these noise levels are considered by the FAA to be equivalent to the Chapter 4 noise level required by the International Civil Aviation Organization (ICAO) in Annex 16, Volume I, Appendix 2, Amendment 7, effective March 21, 2002.

Table 5-2-1: PC-24 Noise Levels

| Condition | EPNL, EPNdB | | | |
|---------------------|----------------------|----------------------|----------------------|----------------|
| | PC-24 ⁽¹⁾ | PC-24 ⁽²⁾ | PC-24 ⁽³⁾ | Annex 16 Limit |
| Flyover (Flaps 15) | 77.5 | 78.2 | 79.2 | 89.0 |
| Lateral (Flaps 15) | 90.9 | 90.4 | 90.3 | 94.0 |
| Approach (Flaps 33) | 91.5 | 92.0 | 92.1 | 98.0 |



Table 5-2-1: PC-24 Noise Levels (continued from previous page)

| Condition | EPNL, EPNdB | | | |
|---|----------------------|----------------------|----------------------|----------------|
| | PC-24 ⁽¹⁾ | PC-24 ⁽²⁾ | PC-24 ⁽³⁾ | Annex 16 Limit |
| Footnotes: | | | | |
| (1) Aircraft with MTOW of 8005 kg and MLW of 7370 kg (Configuration for initial TC, no longer applicable) | | | | |
| (2) Aircraft with MTOW of 8300 kg and MLW of 7665 kg (MSN 101 - 500) | | | | |
| (3) Aircraft with MTOW of 8500 kg and MLW of 7865 kg (MSN 501 - up) | | | | |

No determination has been made by EASA or the FAA that the noise levels of this aircraft are, or should be, acceptable or unacceptable for operations at, into, or out of, any airport.

4 Performance Information

This paragraph contains information and instructions applicable to the performance data contained in this section.

The performance data contained in the AFM Cockpit Handbook Volume 2 is a simplified data set extracted from the data contained in the FCOM Performance Data. Selected field elevations, temperature break points and aircraft weights are presented which enable performance planning in sufficient detail to meet the requirements of a majority of flight operations. However, when a greater level of detail is required for flight planning or when a planned flight contains conditions that are outside the scope of the simplified data set, pilots must determine aircraft performance from the contents of the FCOM Performance Data.

4.1 Presentation Types

Performance data for the PC-24 is presented using a combination of tabulated data and charts.

4.2 Usage of Tables

Interpolation of tabulated performance data, or use of the next higher weight, altitude or temperature in lieu of interpolation is approved.

Data outside the operational envelope of the aircraft may appear in tabulated data, however it is presented for interpolation purposes only.

Extrapolation of performance data beyond any limitation listed in Section 2, Limitations, of this AFM is prohibited.

4.3 Use of Charts

Chart information is presented for the range of normal operation of the aircraft. Each type of chart is presented with an example of correct usage consisting of a textual description of the example at the top of the chart, and red lines depicting the operation of the example in the chart area.

Data outside the operational envelope of the aircraft is not included in data presented in chart form, and extrapolation beyond the limits of any chart is prohibited.



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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Standard Conversions

1 Standard Conversions

CELSIUS - FAHRENHEIT TEMPERATURE CONVERSION

EXAMPLE:
CELSIUS: 15°C
FAHRENHEIT: 59°F

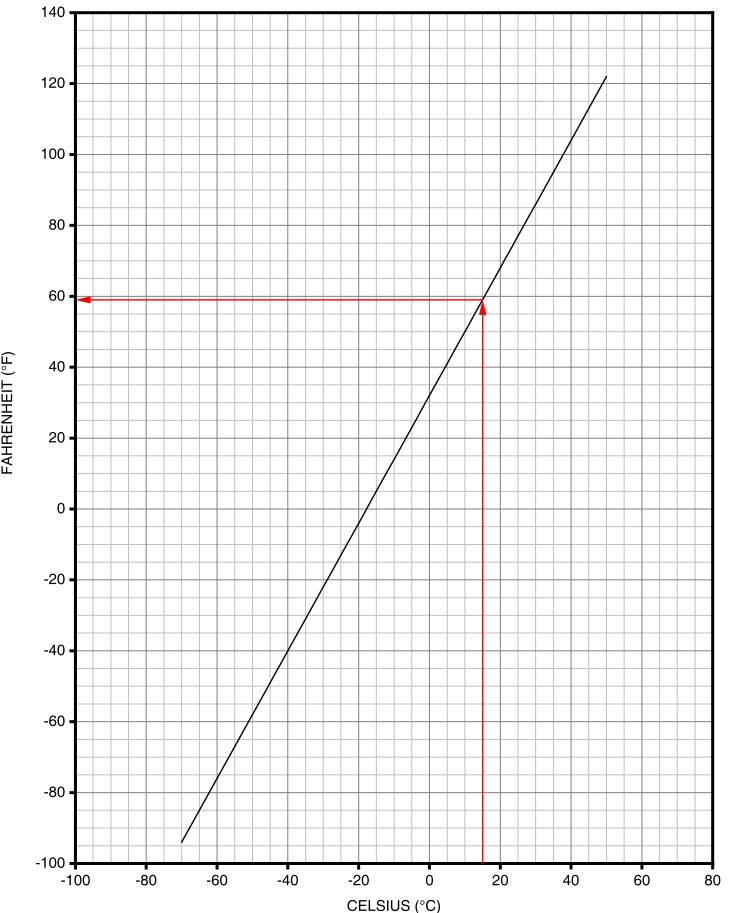


Figure 5-3-1: Celsius-Fahrenheit Temperature Conversion

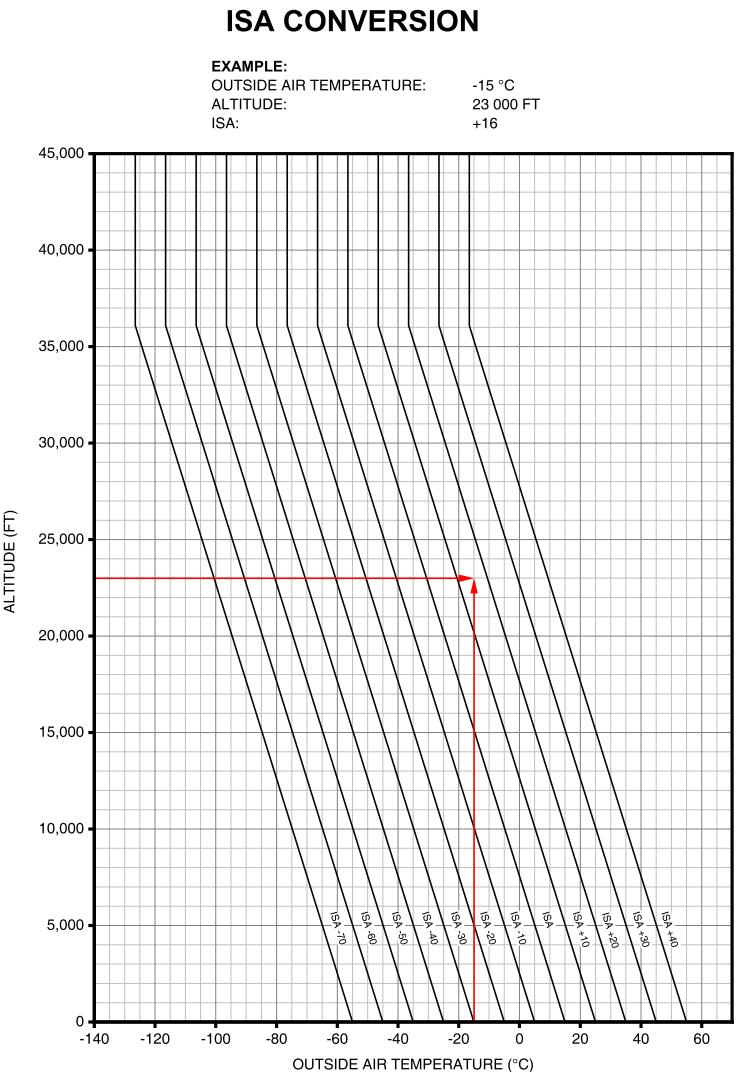


Figure 5-3-2: ISA Conversion



EXAMPLE:

| | |
|--|---------|
| 1. Temperature | -40°C |
| 2. Runway Elevation | 8000 FT |
| 3. Desired Geometric Height Above Runway | 4000 FT |
| 4. Corrected Altitude Above Runway | 4700 FT |

Note: Indicated altitude for obstacle clearance or Decision Height (or Minimum Descent Altitude) may be determined by adding the Corrected Altitude Above Runway from this chart to the Runway Elevation and applying the appropriate altitude position correction. This assumes that the altimeter is set to the local altimeter setting (QNH).

**GEOMETRIC HEIGHT CORRECTION
FOR
BELOW STANDARD TEMPERATURE**

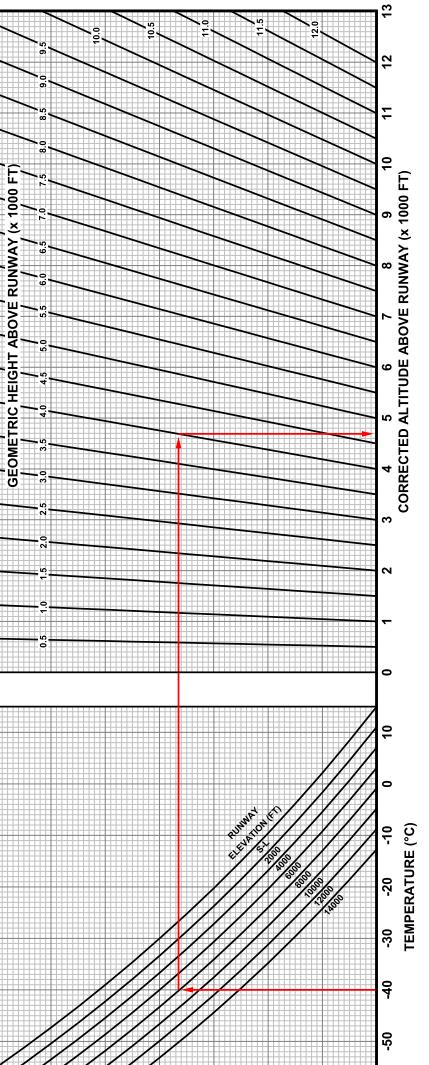


Figure 5-3-3: Cold Weather Temperature Correction

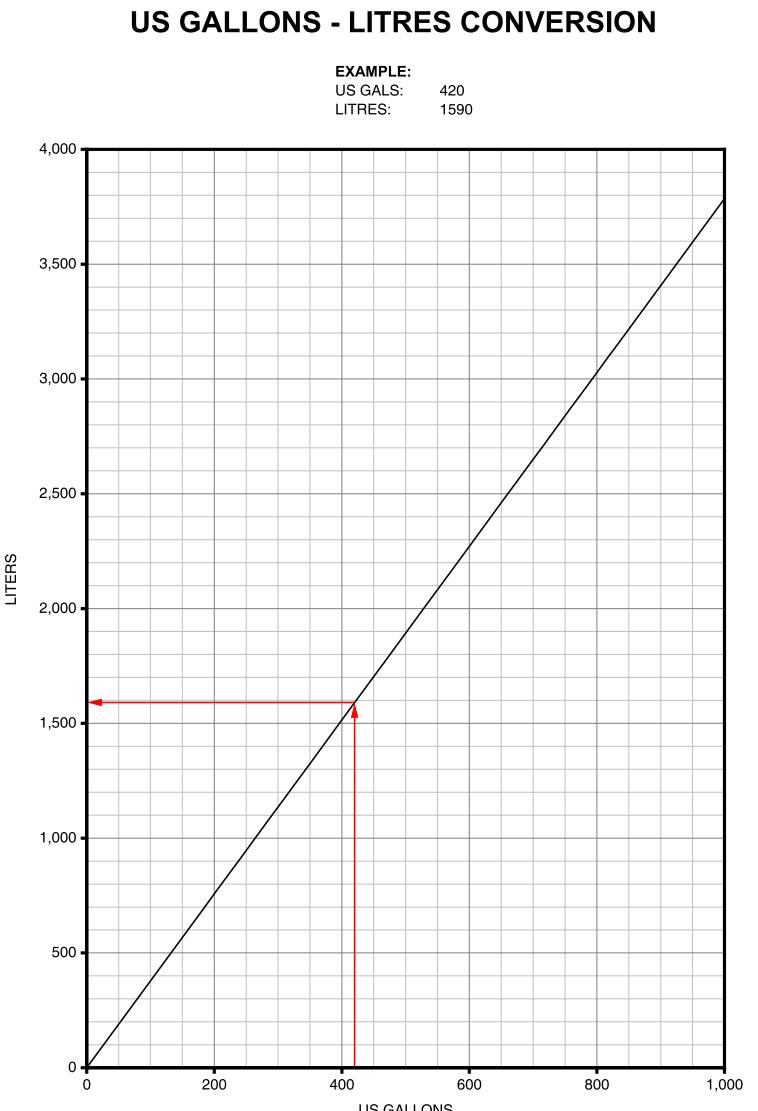


Figure 5-3-4: U.S. Gallons-Liters Conversion



FEET - METERS CONVERSION

EXAMPLE:
DISTANCE 2'690 FT
DISTANCE: 820 M

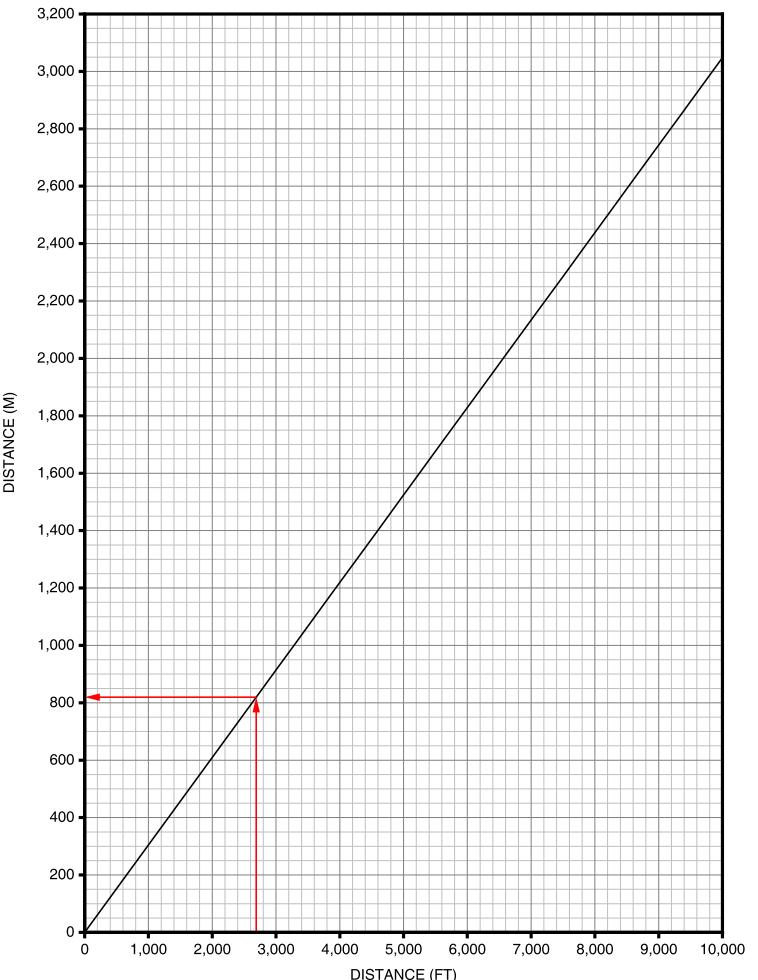


Figure 5-3-5: Feet-Meters Conversion



TAKEOFF AND LANDING CROSSWIND COMPONENT

EXAMPLE:

WIND SPEED: 31 KNOTS
WIND DIRECTION: 40°
CROSSWIND COMPONENT: 20 KNOTS
HEADWIND COMPONENT: 24 KNOTS

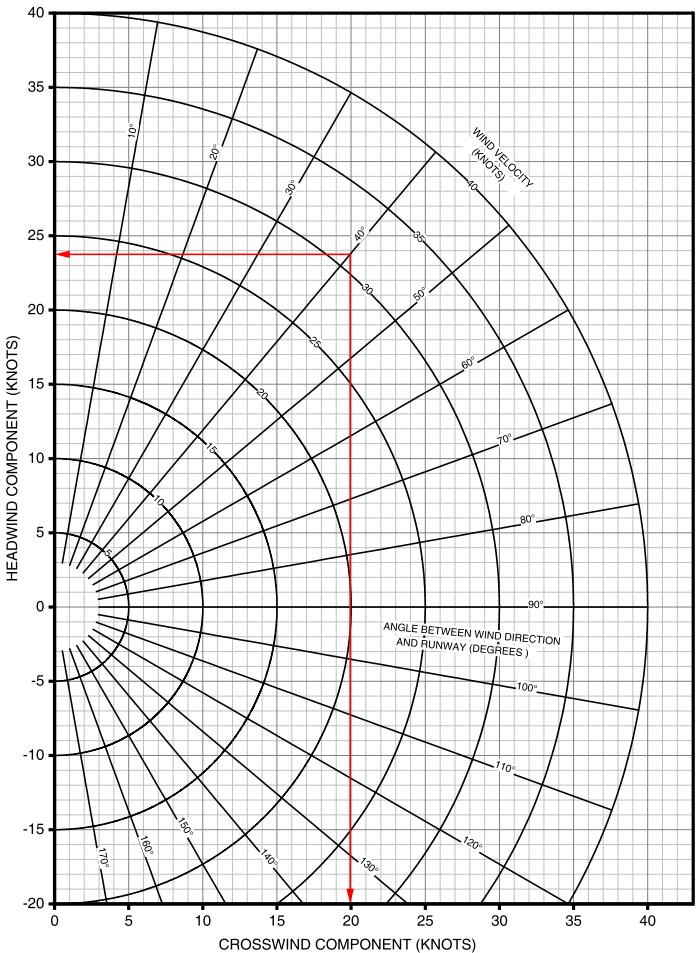


Figure 5-3-6: Takeoff and Landing Crosswind Component



2 PFD Calibration Information

Note

Airspeed corrections are not required for the Pilot and Copilot PFDs on the PC-24.

Note

Mach number corrections are not required for the Pilot and Copilot PFDs on the PC-24.

Note

Altimeter corrections are not required for the Pilot and Copilot PFDs on the PC-24.

3 ESIS Calibration Information

Note

Mach number corrections are not required for the Standby Mach indication (ESIS) when the landing gear is retracted.

Note

When the Landing gear is extended the following correction applies: Indicated Mach number + 0.01 Mach = Corrected Mach number.

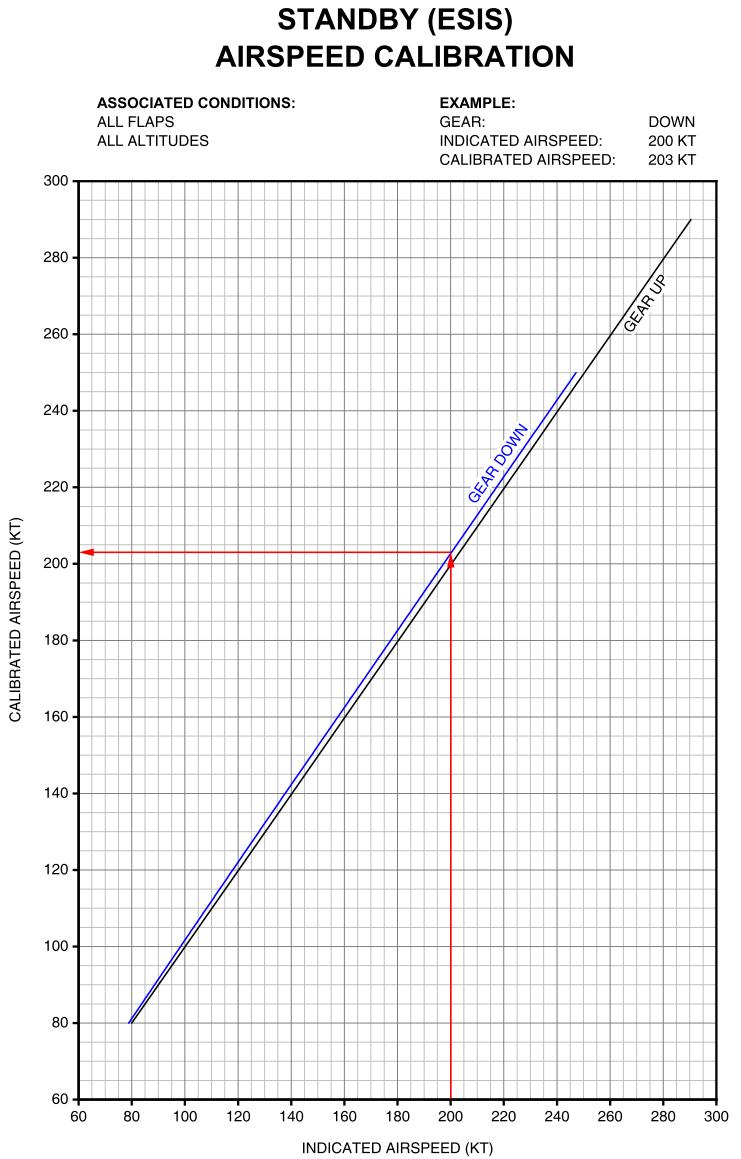


Figure 5-3-7: Standby (ESIS) Airspeed Calibration



STANDBY (ESIS) ALTITUDE CORRECTION

CORRECTED ALTITUDE = INDICATED ALTITUDE + ALTITUDE CORRECTION

EXAMPLE:

| | |
|--------------------------------|-----------|
| INDICATED ALTITUDE: | 41,000 FT |
| INDICATED AIRSPEED: | 225 KT |
| ALTITUDE CORRECTION GEAR UP: | 33 FT |
| ALTITUDE CORRECTION GEAR DOWN: | -220 FT |

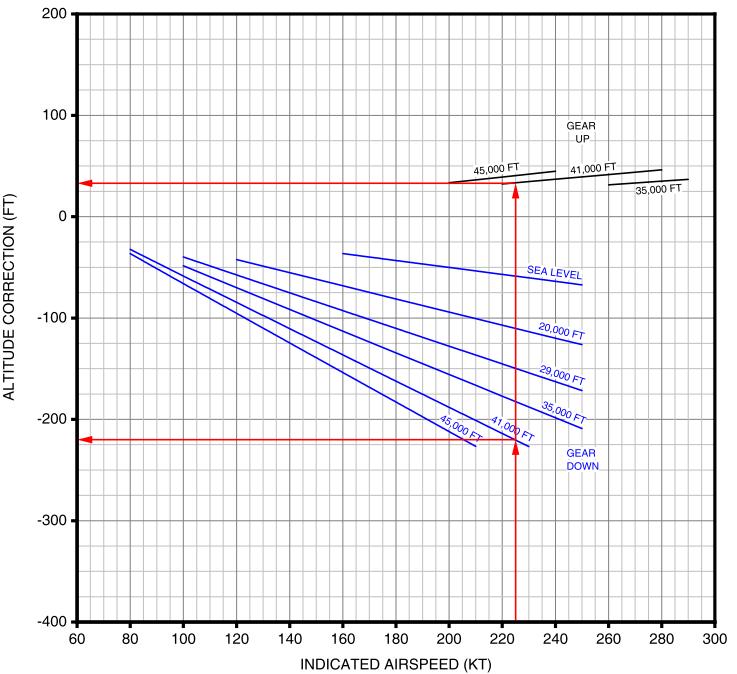


Figure 5-3-8: Standby (ESIS) Altitude Correction



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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STALL SPEED - ICE MODE 0

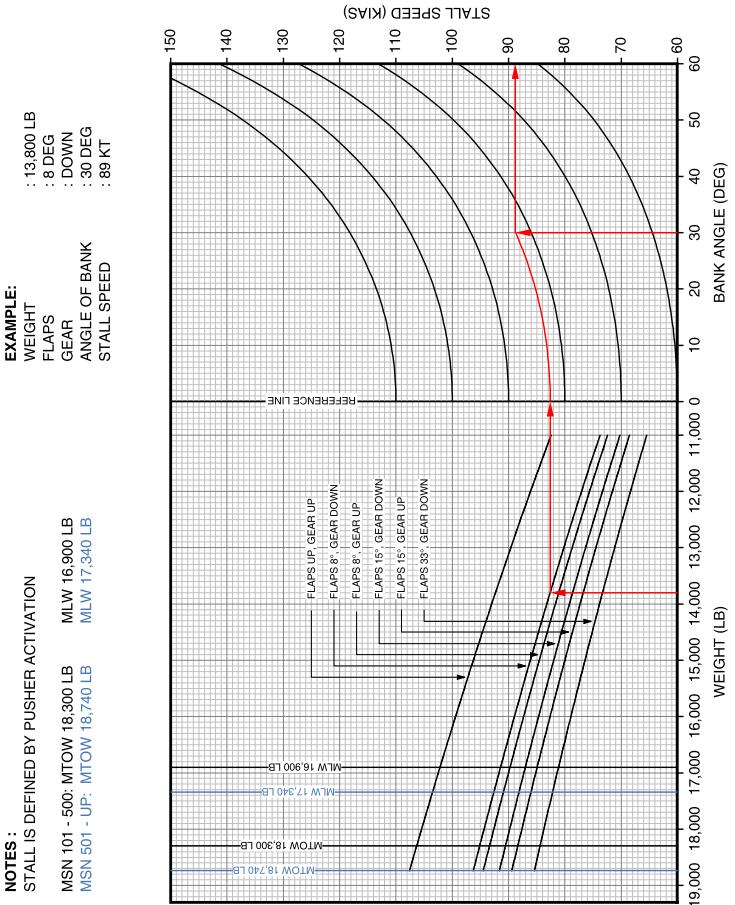


Figure 5-4-1: Stall Speeds - KIAS - Ice Mode 0



STALL SPEED - ICE MODE 1

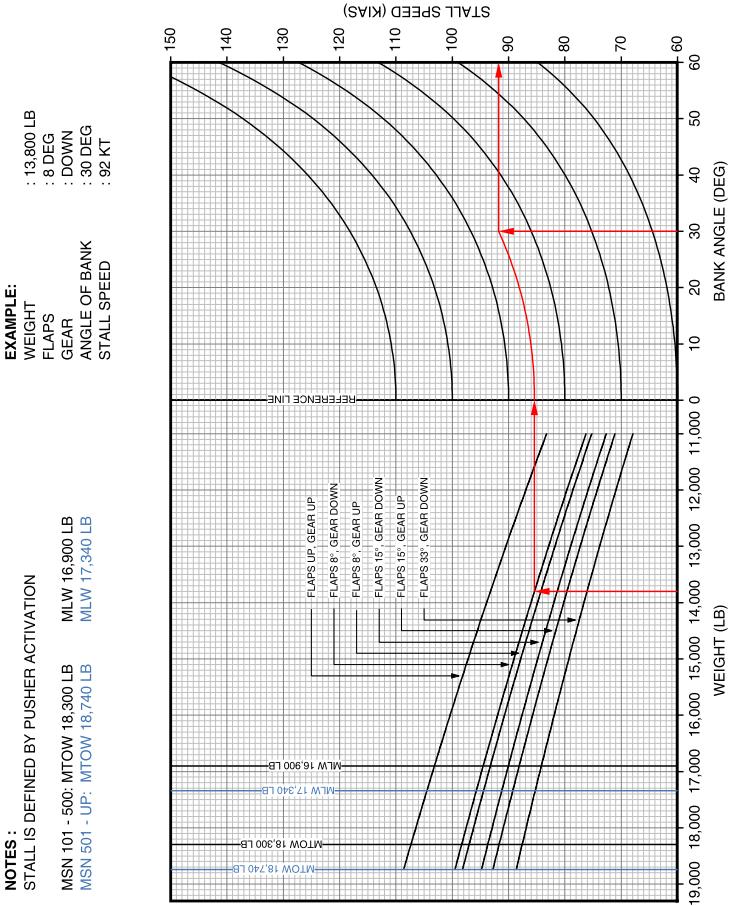


Figure 5-4-2: Stall Speeds - KIAS - Ice Mode 1



STALL SPEED - ICE MODE 2

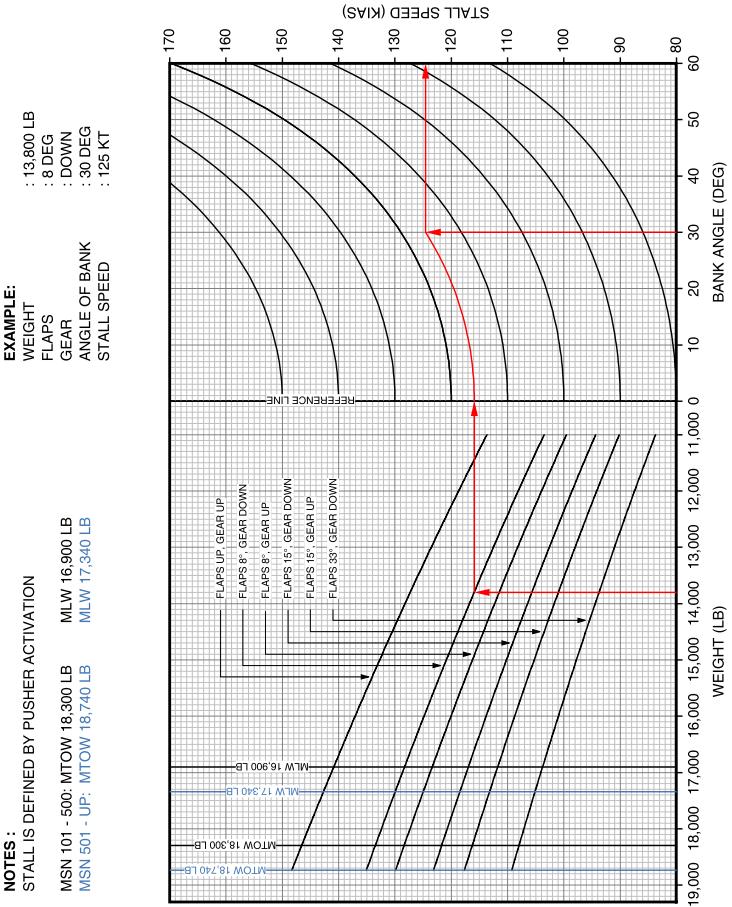


Figure 5-4-3: Stall Speeds - KIAS - Ice Mode 2



2

Buffet Onset

BUFFET ONSET LOAD FACTOR

ASSOCIATED CONDITIONS:
FORWARD CG
CRUISE CONFIGURATION

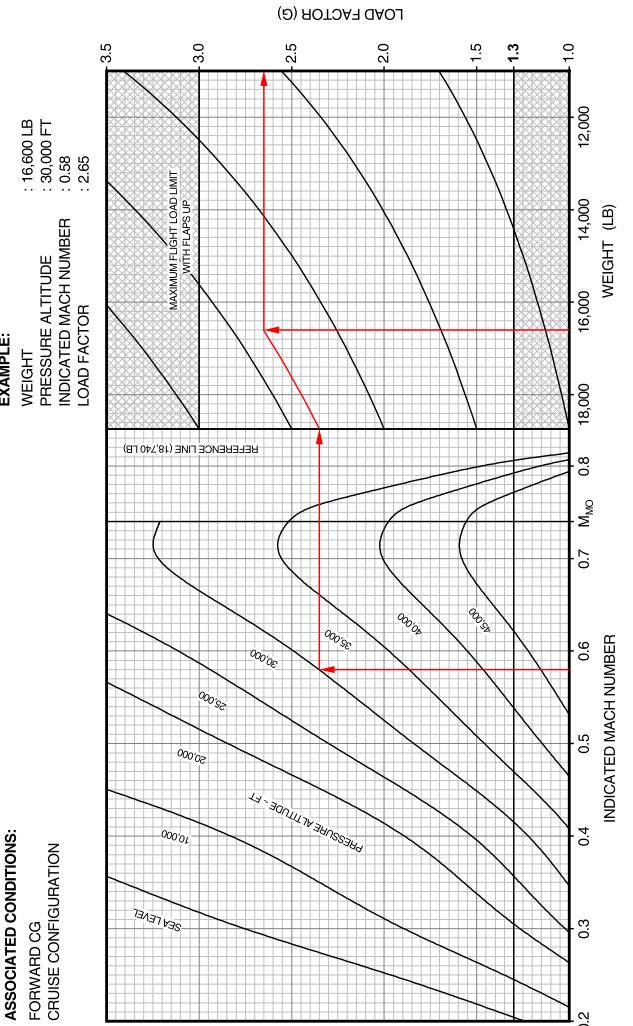


Figure 5-4-4: Buffet Onset Load Factor - G



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

Note

The maximum cruise configuration flight load limit is prescribed in [Flight Maneuver Load Factor Limits](#) in the Limitations section of the AFM.



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Aircraft Classification Number

1 Aircraft Classification Number

Aircraft Classification Number (ACN) expresses the relative effect of an aircraft on a pavement for a specific standard subgrade strength.

Aircraft can operate without restrictions on a certain pavement if both following conditions are fulfilled:

- ACN is equal to or lower than the Pavement Classification Number (PCN), and,
- Main gear tyre pressure is below the tyre pressure limit.

For more information, refer to [Determination of Allowed Operation on Runway](#).

2 Pavement Type Code

Pavement Type Code expresses the bearing strength of a pavement for unrestricted operation.

Pavement Type Code consists of five quantities:

| Pavement Type Code | |
|---|---|
| Pavement Classification Number (PCN) | A number expressing the bearing strength of a pavement for unrestricted operation |
| Pavement Type | F (Flexible pavement, for example asphalt) R (Rigid pavement, for example concrete) |
| Subgrade Strength | A (high subgrade strength) B (medium subgrade strength) C (low subgrade strength) D (ultra low subgrade strength) |
| Tyre Pressure Limit | W (no tyre pressure limit) X (tyre pressure limited to 218 psi) Y (tyre pressure limited to 145 psi) Z (tyre pressure limited to 73 psi) |
| <p style="text-align: center;">Note</p> <p>The PC-24 nose and main gear tyres have a service pressure of 58 respectively 73 psi (loaded). Therefore the PC-24 will never be tyre pressure limited.</p> | |
| PCN Evaluation Method | T (technical evaluation) U (using aircraft experience) |

An example of a Pavement Type Code is: PCN 20 / F / C / Y / T.



3 Determination of Allowed Operation on Runway

To determine if an aircraft can operate without restrictions on a pavement, do as follows:

- 1 From the Pavement Type Code, determine the:
 - Pavement Classification Number (PCN)
 - Pavement Type
 - Subgrade Strength
 - Tyre Pressure Limit
 - PCN Evaluation Method.
- 2 Determine the Aircraft Classification Number (ACN) as follows:
 - Determine the maximum operating weight of the aircraft
 - Depending on the pavement type, go to the appropriate chart [Fig. 5-5-1](#) or [Fig. 5-5-2](#).
 - Navigate to the weight on the horizontal axis
 - Navigate upwards to the appropriate Subgrade Strength line
 - Navigate to the left to the vertical axis to find the ACN
- 3 Determine the main gear tyre pressure
- 4 Aircraft can operate without restrictions on the pavement if the ACN is equal to or lower than the PCN, and, the main gear tyre pressure is below the tyre pressure limit.
- 5 If the ACN is higher than the PCN, either reduce the aircraft operating weight until the ACN is equal to or lower than the PCN, or, contact the airport authorities for a possible exemption.



AIRCRAFT CLASSIFICATION NUMBER - FLEXIBLE PAVEMENT

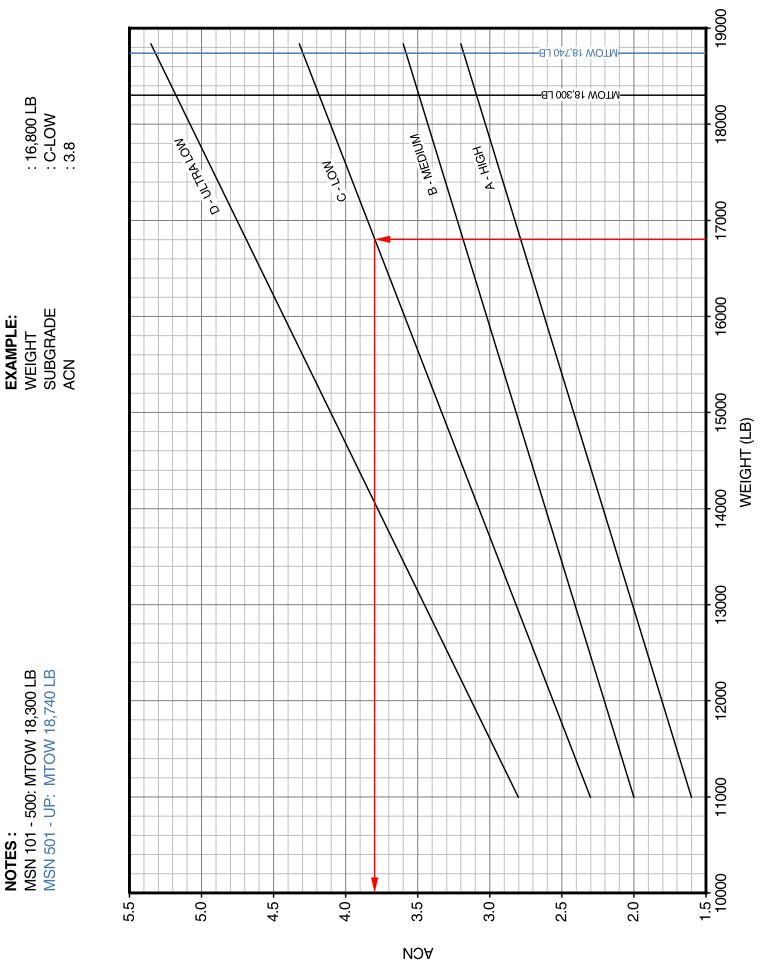


Figure 5-5-1: Aircraft Classification Number - Flexible Pavement



AIRCRAFT CLASSIFICATION NUMBER - RIGID PAVEMENT

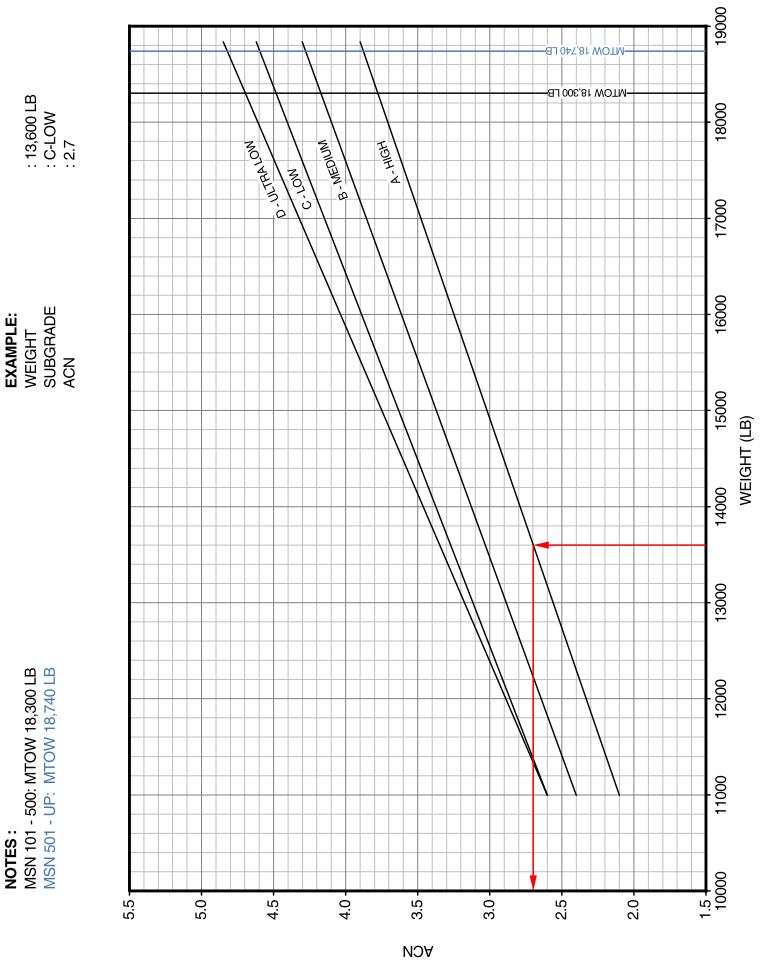


Figure 5-5-2: Aircraft Classification Number - Rigid Pavement



3.1 Example

Note

This example uses different values than depicted in the figures above.

The example below describes how to determine if an aircraft can operate without restrictions on a pavement given the following conditions:

- Pavement Type Code for a paved runway = PCN 20 / R / D / Y / T
- Aircraft weight = 15,000 lb
- Main gear tyre pressure = 73 psi.

To determine if an aircraft can operate without restrictions on the pavement, do as follows:

- 1 Pavement Type Code says that the Pavement Classification Number is 20, for a rigid pavement (R), with ultra low subgrade strength (D), with 145 psi tyre pressure limit (Y) and the method of PCN evaluation is a technical evaluation (T)
- 2 Determine the ACN as follows:
 - The aircraft operating weight is given: 15,000 lb
 - Go to [Fig. 5-5-2](#), navigate to Weight = 15,000 lb on the horizontal axis, navigate upwards to the "D - ULTRA LOW" subgrade strength line, and then navigate to the left to the vertical axis to find the Aircraft Classification Number.
The result: ACN is: 3.7.
- 3 The main gear tyre pressure is given: 73 psi
- 4 ACN of 3.7 is lower than the given PCN of 20. The main gear tyre pressure of 73 psi is below the tyre pressure limit of 145 psi. This means that the aircraft can operate without restrictions on the pavement.



Section 5 - Performance, Cockpit Handbook (Authority approved)

Determination of Allowed Operation on Runway

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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Takeoff Thrust Settings

1 Takeoff Thrust Settings

Determine takeoff thrust settings using the charts contained in this paragraph.

Note

When a takeoff is performed with the IPS ON, only the NAI is functioning during the ground roll, and HSDI bleed air consumption is negligible. The WAI does not affect engine thrust until the aircraft leaves the ground and transitions to its operational state.

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

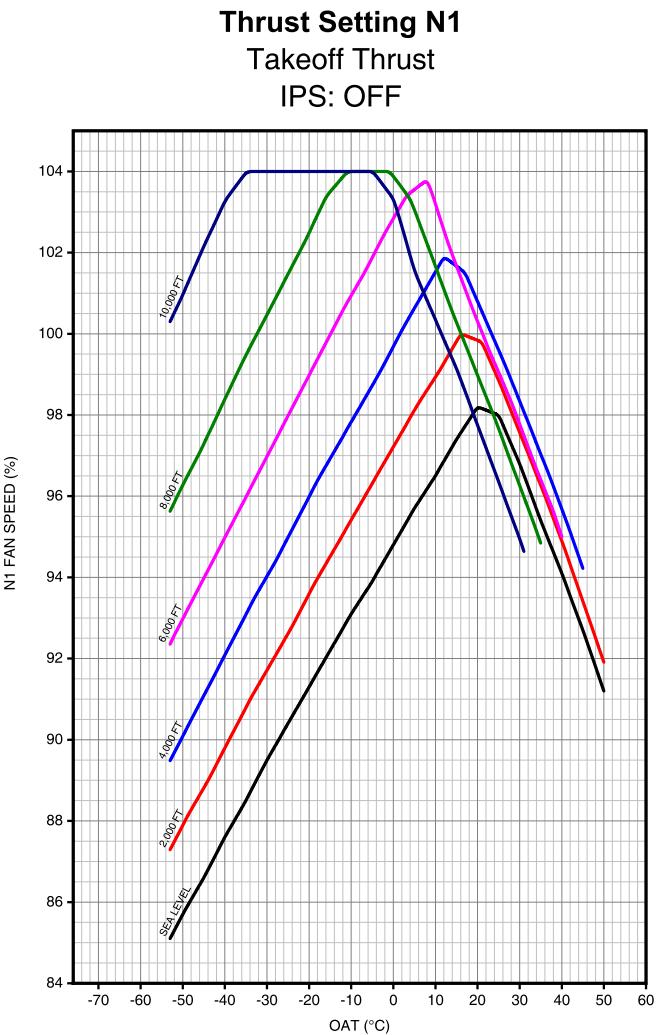


Figure 5-TO-1-1: Takeoff Thrust - N1% - IPS OFF



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

Thrust Setting N1

Takeoff Thrust

IPS: ON

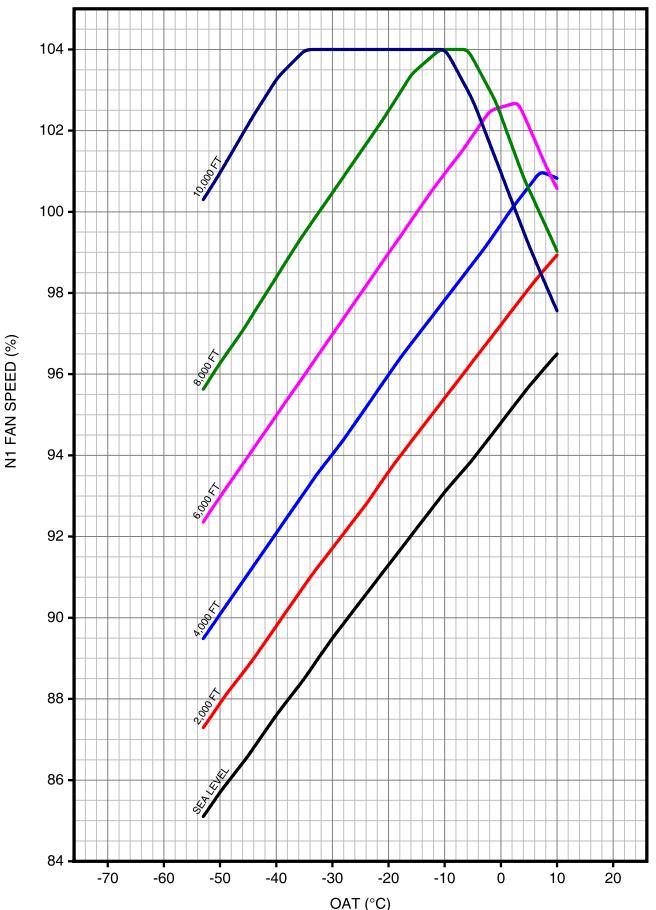


Figure 5-TO-1-2: Takeoff Thrust - N1% - IPS ON



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

This Page Intentionally Left Blank



Takeoff, Dry Runway, No Slope, Flaps 15, IPS OFF

1 Pressure Altitude: Sea level

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: Sea level | | | | | | | | | | | | |
|------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|----------------|------------------|----------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R | V _{LOF} | V ₂ |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | KIAS | KIAS | KIAS |
| 18,740 | -54 | 3,100 | 98 | 2,460 | 98 | 2,260 | 98 | 2,070 | 98 | 98 | 104 | 107 |
| | -10 | 3,540 | 98 | 2,840 | 98 | 2,630 | 98 | 2,430 | 98 | 98 | 104 | 107 |
| | 0 | 3,660 | 98 | 2,940 | 98 | 2,720 | 98 | 2,510 | 98 | 98 | 105 | 108 |
| | 10 | 3,760 | 98 | 3,040 | 98 | 2,820 | 98 | 2,610 | 98 | 98 | 105 | 108 |
| | 20 | 3,880 | 98 | 3,150 | 98 | 2,910 | 98 | 2,700 | 98 | 98 | 105 | 108 |
| | 30 | 4,630 | 98 | 3,770 | 98 | 3,510 | 98 | 3,250 | 98 | 98 | 105 | 107 |
| | 40 | 6,230 | 98 | 5,120 | 98 | 4,770 | 98 | 4,430 | 98 | 98 | 105 | 107 |
| | 50 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 2,970 | 96 | 2,350 | 97 | 2,150 | 97 | 1,970 | 97 | 97 | 103 | 107 |
| | -10 | 3,410 | 96 | 2,720 | 96 | 2,530 | 96 | 2,320 | 96 | 96 | 103 | 106 |
| | 0 | 3,510 | 96 | 2,820 | 96 | 2,590 | 96 | 2,400 | 96 | 96 | 103 | 106 |
| | 10 | 3,620 | 96 | 2,910 | 96 | 2,700 | 96 | 2,500 | 96 | 96 | 103 | 106 |
| | 20 | 3,730 | 96 | 3,010 | 96 | 2,780 | 96 | 2,580 | 96 | 96 | 103 | 106 |
| | 30 | 4,380 | 96 | 3,570 | 96 | 3,330 | 96 | 3,090 | 96 | 96 | 103 | 105 |
| | 40 | 5,810 | 97 | 4,780 | 97 | 4,470 | 97 | 4,150 | 97 | 97 | 103 | 105 |
| | 50 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 2,880 | 94 | 2,250 | 95 | 2,080 | 95 | 1,890 | 95 | 95 | 102 | 105 |
| | -10 | 3,300 | 94 | 2,620 | 96 | 2,420 | 96 | 2,230 | 96 | 96 | 103 | 106 |
| | 0 | 3,400 | 94 | 2,690 | 96 | 2,490 | 96 | 2,300 | 96 | 96 | 103 | 106 |
| | 10 | 3,500 | 94 | 2,780 | 96 | 2,580 | 96 | 2,380 | 96 | 96 | 103 | 106 |
| | 20 | 3,610 | 94 | 2,870 | 95 | 2,670 | 95 | 2,470 | 95 | 95 | 103 | 105 |
| | 30 | 4,170 | 96 | 3,400 | 95 | 3,160 | 95 | 2,920 | 96 | 96 | 102 | 105 |
| | 40 | 5,460 | 96 | 4,480 | 96 | 4,170 | 96 | 3,880 | 96 | 96 | 102 | 104 |
| | 50 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 2,630 | 90 | 2,020 | 92 | 1,850 | 92 | 1,690 | 92 | 92 | 100 | 103 |
| | -10 | 3,000 | 90 | 2,340 | 92 | 2,150 | 92 | 1,980 | 92 | 92 | 100 | 103 |
| | 0 | 3,090 | 90 | 2,420 | 92 | 2,220 | 93 | 2,050 | 93 | 93 | 100 | 103 |
| | 10 | 3,180 | 90 | 2,500 | 92 | 2,290 | 92 | 2,120 | 92 | 93 | 100 | 103 |
| | 20 | 3,280 | 90 | 2,580 | 92 | 2,370 | 92 | 2,190 | 93 | 93 | 100 | 103 |
| | 30 | 3,690 | 93 | 2,990 | 93 | 2,770 | 93 | 2,560 | 93 | 93 | 100 | 102 |
| | 40 | 4,660 | 93 | 3,810 | 93 | 3,530 | 93 | 3,270 | 93 | 93 | 99 | 102 |
| | 50 | 6,290 | 93 | 5,320 | 93 | 4,970 | 93 | 4,640 | 93 | 93 | 99 | 101 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 15, IPS OFF

| Pressure Altitude: Sea level | | | | | | | | | | | | |
|-------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,560 | 90 | 1,880 | 90 | 1,670 | 90 | 1,520 | 90 | 91 | 98 | 102 |
| | -10 | 2,920 | 90 | 2,190 | 90 | 1,970 | 90 | 1,780 | 90 | 90 | 98 | 101 |
| | 0 | 3,000 | 90 | 2,260 | 90 | 2,030 | 90 | 1,840 | 90 | 90 | 98 | 101 |
| | 10 | 3,090 | 90 | 2,330 | 90 | 2,100 | 90 | 1,910 | 90 | 90 | 98 | 101 |
| | 20 | 3,170 | 90 | 2,400 | 90 | 2,170 | 90 | 1,970 | 90 | 90 | 98 | 101 |
| | 30 | 3,360 | 89 | 2,650 | 89 | 2,450 | 89 | 2,260 | 89 | 90 | 97 | 100 |
| | 40 | 4,130 | 89 | 3,340 | 89 | 3,100 | 89 | 2,860 | 89 | 90 | 96 | 99 |
| | 50 | 5,600 | 88 | 4,560 | 88 | 4,250 | 88 | 3,930 | 88 | 90 | 96 | 98 |
| 15,000 | -54 | 2,510 | 91 | 1,840 | 91 | 1,650 | 91 | 1,460 | 91 | 91 | 99 | 102 |
| | -10 | 2,860 | 90 | 2,140 | 90 | 1,930 | 90 | 1,730 | 90 | 91 | 99 | 102 |
| | 0 | 2,940 | 90 | 2,220 | 90 | 1,990 | 90 | 1,790 | 90 | 90 | 99 | 102 |
| | 10 | 3,020 | 90 | 2,280 | 90 | 2,060 | 90 | 1,850 | 90 | 90 | 99 | 102 |
| | 20 | 3,110 | 90 | 2,360 | 90 | 2,130 | 90 | 1,910 | 90 | 90 | 99 | 102 |
| | 30 | 3,280 | 89 | 2,500 | 89 | 2,260 | 89 | 2,030 | 89 | 90 | 97 | 100 |
| | 40 | 3,550 | 89 | 2,860 | 89 | 2,650 | 89 | 2,440 | 89 | 89 | 96 | 98 |
| | 50 | 4,520 | 89 | 3,670 | 89 | 3,400 | 89 | 3,140 | 89 | 89 | 95 | 97 |
| 14,000 | -54 | 2,470 | 91 | 1,820 | 91 | 1,630 | 91 | 1,440 | 91 | 91 | 99 | 103 |
| | -10 | 2,810 | 90 | 2,110 | 90 | 1,900 | 90 | 1,700 | 90 | 91 | 99 | 103 |
| | 0 | 2,890 | 90 | 2,180 | 90 | 1,960 | 90 | 1,760 | 90 | 91 | 99 | 102 |
| | 10 | 2,960 | 90 | 2,250 | 90 | 2,030 | 90 | 1,820 | 90 | 91 | 99 | 102 |
| | 20 | 3,050 | 90 | 2,310 | 90 | 2,090 | 90 | 1,880 | 90 | 90 | 99 | 102 |
| | 30 | 3,210 | 90 | 2,440 | 90 | 2,210 | 90 | 1,990 | 90 | 90 | 97 | 100 |
| | 40 | 3,440 | 89 | 2,610 | 89 | 2,370 | 89 | 2,170 | 89 | 89 | 96 | 98 |
| | 50 | 3,870 | 89 | 3,120 | 89 | 2,890 | 89 | 2,670 | 89 | 89 | 95 | 96 |
| 13,000 | -54 | 2,430 | 91 | 1,790 | 91 | 1,610 | 91 | 1,430 | 91 | 92 | 99 | 104 |
| | -10 | 2,760 | 91 | 2,080 | 91 | 1,870 | 91 | 1,680 | 91 | 91 | 99 | 103 |
| | 0 | 2,840 | 91 | 2,140 | 91 | 1,940 | 91 | 1,740 | 91 | 91 | 99 | 103 |
| | 10 | 2,910 | 90 | 2,210 | 90 | 2,000 | 90 | 1,800 | 90 | 91 | 99 | 103 |
| | 20 | 2,990 | 90 | 2,270 | 90 | 2,060 | 90 | 1,860 | 90 | 91 | 99 | 103 |
| | 30 | 3,140 | 90 | 2,390 | 90 | 2,170 | 90 | 1,950 | 90 | 90 | 98 | 101 |
| | 40 | 3,350 | 89 | 2,540 | 89 | 2,310 | 89 | 2,070 | 89 | 90 | 96 | 98 |
| | 50 | 3,630 | 89 | 2,770 | 89 | 2,550 | 89 | 2,350 | 89 | 89 | 94 | 96 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 15, IPS OFF

2 Pressure Altitude: 1,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 1,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|-----|-----|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | | | |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | V _R KIAS | | |
| 18,740 | -54 | 3,180 | 98 | 2,530 | 98 | 2,330 | 98 | 2,140 | 98 | 98 | 104 | 107 |
| | -10 | 3,650 | 98 | 2,930 | 98 | 2,720 | 98 | 2,510 | 98 | 98 | 105 | 108 |
| | 0 | 3,770 | 98 | 3,030 | 98 | 2,810 | 98 | 2,600 | 98 | 98 | 105 | 108 |
| | 10 | 3,880 | 98 | 3,140 | 98 | 2,910 | 98 | 2,690 | 98 | 98 | 105 | 108 |
| | 20 | 4,090 | 98 | 3,320 | 98 | 3,090 | 98 | 2,860 | 98 | 98 | 105 | 107 |
| | 30 | 5,080 | 98 | 4,150 | 98 | 3,870 | 98 | 3,590 | 98 | 98 | 105 | 107 |
| | 40 | - | - | - | - | - | - | - | - | - | - | |
| | 50 | - | - | - | - | - | - | - | - | - | - | |
| 18,300 | -54 | 3,050 | 96 | 2,420 | 97 | 2,220 | 96 | 2,040 | 96 | 97 | 103 | 106 |
| | -10 | 3,500 | 95 | 2,790 | 96 | 2,590 | 96 | 2,390 | 96 | 96 | 103 | 106 |
| | 0 | 3,610 | 95 | 2,890 | 96 | 2,680 | 96 | 2,470 | 96 | 96 | 103 | 106 |
| | 10 | 3,720 | 95 | 2,980 | 96 | 2,770 | 96 | 2,560 | 96 | 96 | 103 | 106 |
| | 20 | 3,890 | 96 | 3,150 | 96 | 2,930 | 96 | 2,710 | 96 | 96 | 103 | 106 |
| | 30 | 4,750 | 97 | 3,900 | 97 | 3,620 | 96 | 3,360 | 96 | 97 | 103 | 105 |
| | 40 | 6,460 | 97 | 5,340 | 97 | 5,000 | 97 | 4,650 | 97 | 97 | 103 | 105 |
| | 50 | - | - | - | - | - | - | - | - | - | - | |
| 18,000 | -54 | 2,960 | 94 | 2,320 | 95 | 2,140 | 95 | 1,960 | 95 | 95 | 102 | 105 |
| | -10 | 3,390 | 94 | 2,690 | 96 | 2,490 | 96 | 2,300 | 96 | 96 | 103 | 106 |
| | 0 | 3,490 | 94 | 2,780 | 96 | 2,570 | 96 | 2,370 | 96 | 96 | 103 | 106 |
| | 10 | 3,600 | 94 | 2,870 | 95 | 2,660 | 95 | 2,460 | 96 | 96 | 103 | 106 |
| | 20 | 3,760 | 95 | 3,030 | 95 | 2,810 | 95 | 2,600 | 95 | 95 | 103 | 105 |
| | 30 | 4,530 | 96 | 3,710 | 96 | 3,450 | 95 | 3,200 | 95 | 96 | 102 | 105 |
| | 40 | 6,090 | 96 | 5,020 | 96 | 4,680 | 96 | 4,360 | 96 | 96 | 102 | 104 |
| | 50 | - | - | - | - | - | - | - | - | - | - | |
| 17,000 | -54 | 2,700 | 90 | 2,080 | 92 | 1,910 | 92 | 1,740 | 92 | 93 | 100 | 103 |
| | -10 | 3,090 | 90 | 2,410 | 92 | 2,220 | 93 | 2,040 | 93 | 93 | 100 | 103 |
| | 0 | 3,180 | 90 | 2,500 | 92 | 2,290 | 92 | 2,110 | 92 | 93 | 100 | 103 |
| | 10 | 3,280 | 90 | 2,580 | 92 | 2,370 | 93 | 2,190 | 93 | 93 | 100 | 103 |
| | 20 | 3,410 | 90 | 2,710 | 92 | 2,500 | 93 | 2,300 | 92 | 93 | 100 | 103 |
| | 30 | 3,970 | 93 | 3,230 | 93 | 3,000 | 93 | 2,780 | 93 | 93 | 100 | 102 |
| | 40 | 5,140 | 93 | 4,210 | 93 | 3,920 | 93 | 3,640 | 93 | 93 | 99 | 102 |
| | 50 | - | - | - | - | - | - | - | - | - | - | |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 15, IPS OFF

| Pressure Altitude: 1,000 feet | | | | | | | | | | | | |
|--------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,630 | 90 | 1,930 | 90 | 1,730 | 90 | 1,570 | 90 | 91 | 98 | 102 |
| | -10 | 3,000 | 90 | 2,260 | 90 | 2,030 | 90 | 1,840 | 90 | 90 | 98 | 101 |
| | 0 | 3,090 | 90 | 2,330 | 90 | 2,100 | 90 | 1,900 | 90 | 90 | 98 | 101 |
| | 10 | 3,180 | 90 | 2,400 | 90 | 2,170 | 90 | 1,970 | 90 | 90 | 98 | 101 |
| | 20 | 3,280 | 90 | 2,490 | 90 | 2,260 | 90 | 2,070 | 90 | 90 | 98 | 101 |
| | 30 | 3,560 | 89 | 2,860 | 89 | 2,650 | 89 | 2,450 | 89 | 90 | 97 | 100 |
| | 40 | 4,530 | 89 | 3,680 | 89 | 3,420 | 89 | 3,170 | 89 | 90 | 96 | 99 |
| 15,000 | 50 | - | - | - | - | - | - | - | - | - | - | - |
| | -54 | 2,580 | 90 | 1,900 | 90 | 1,700 | 90 | 1,510 | 91 | 91 | 99 | 102 |
| | -10 | 2,940 | 90 | 2,220 | 90 | 2,000 | 90 | 1,790 | 90 | 90 | 99 | 102 |
| | 0 | 3,030 | 90 | 2,280 | 90 | 2,060 | 90 | 1,850 | 90 | 90 | 99 | 102 |
| | 10 | 3,110 | 90 | 2,360 | 90 | 2,130 | 90 | 1,920 | 90 | 90 | 99 | 102 |
| | 20 | 3,200 | 90 | 2,440 | 90 | 2,210 | 90 | 1,990 | 90 | 90 | 98 | 102 |
| | 30 | 3,400 | 89 | 2,600 | 89 | 2,380 | 89 | 2,170 | 89 | 90 | 97 | 100 |
| 14,000 | 40 | 3,820 | 89 | 3,100 | 89 | 2,870 | 89 | 2,650 | 89 | 89 | 95 | 98 |
| | 50 | 5,010 | 89 | 4,090 | 89 | 3,800 | 89 | 3,520 | 89 | 89 | 95 | 97 |
| | -54 | 2,530 | 91 | 1,870 | 91 | 1,680 | 91 | 1,490 | 91 | 91 | 99 | 103 |
| | -10 | 2,890 | 90 | 2,180 | 90 | 1,970 | 90 | 1,760 | 90 | 91 | 99 | 103 |
| | 0 | 2,960 | 90 | 2,250 | 90 | 2,030 | 90 | 1,820 | 90 | 91 | 99 | 102 |
| | 10 | 3,050 | 90 | 2,310 | 90 | 2,100 | 90 | 1,890 | 90 | 91 | 99 | 102 |
| | 20 | 3,140 | 90 | 2,390 | 90 | 2,170 | 90 | 1,950 | 90 | 90 | 99 | 102 |
| 13,000 | 30 | 3,320 | 90 | 2,530 | 90 | 2,290 | 90 | 2,080 | 90 | 90 | 97 | 100 |
| | 40 | 3,580 | 89 | 2,760 | 89 | 2,520 | 89 | 2,330 | 89 | 89 | 95 | 98 |
| | 50 | 4,220 | 89 | 3,430 | 89 | 3,180 | 89 | 2,940 | 89 | 89 | 94 | 96 |
| | -54 | 2,490 | 91 | 1,850 | 91 | 1,660 | 91 | 1,470 | 91 | 92 | 99 | 104 |
| | -10 | 2,840 | 91 | 2,140 | 91 | 1,940 | 91 | 1,740 | 91 | 91 | 99 | 103 |
| | 0 | 2,910 | 90 | 2,210 | 90 | 2,000 | 90 | 1,800 | 90 | 91 | 99 | 103 |
| | 10 | 2,980 | 90 | 2,280 | 90 | 2,060 | 90 | 1,860 | 90 | 91 | 99 | 103 |
| 12,000 | 20 | 3,080 | 90 | 2,350 | 90 | 2,130 | 90 | 1,930 | 90 | 91 | 99 | 103 |
| | 30 | 3,240 | 90 | 2,480 | 90 | 2,250 | 90 | 2,030 | 90 | 90 | 97 | 100 |
| | 40 | 3,480 | 89 | 2,650 | 89 | 2,400 | 89 | 2,170 | 89 | 90 | 96 | 98 |
| | 50 | 3,790 | 89 | 2,950 | 89 | 2,740 | 89 | 2,520 | 89 | 89 | 94 | 96 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 15, IPS OFF

3 Pressure Altitude: 2,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 2,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,260 | 98 | 2,610 | 98 | 2,400 | 98 | 2,210 | 98 | 98 | 104 | 107 |
| | -10 | 3,760 | 98 | 3,030 | 98 | 2,810 | 98 | 2,590 | 98 | 98 | 105 | 108 |
| | 0 | 3,870 | 98 | 3,130 | 98 | 2,910 | 98 | 2,690 | 98 | 98 | 105 | 108 |
| | 10 | 4,000 | 98 | 3,240 | 98 | 3,010 | 98 | 2,780 | 98 | 98 | 105 | 108 |
| | 20 | 4,350 | 98 | 3,550 | 98 | 3,290 | 98 | 3,060 | 98 | 98 | 105 | 108 |
| | 30 | 5,580 | 98 | 4,580 | 98 | 4,270 | 98 | 3,960 | 98 | 98 | 105 | 107 |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| | 50 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 3,140 | 96 | 2,490 | 96 | 2,300 | 96 | 2,110 | 96 | 96 | 103 | 106 |
| | -10 | 3,600 | 95 | 2,870 | 96 | 2,660 | 96 | 2,460 | 96 | 96 | 103 | 106 |
| | 0 | 3,700 | 95 | 2,970 | 96 | 2,750 | 96 | 2,550 | 96 | 96 | 103 | 106 |
| | 10 | 3,820 | 95 | 3,070 | 96 | 2,840 | 96 | 2,640 | 96 | 96 | 103 | 106 |
| | 20 | 4,080 | 96 | 3,340 | 96 | 3,110 | 96 | 2,880 | 96 | 96 | 103 | 106 |
| | 30 | 5,160 | 97 | 4,250 | 96 | 3,960 | 97 | 3,680 | 96 | 97 | 103 | 105 |
| | 40 | 7,220 | 97 | 6,000 | 97 | 5,620 | 97 | 5,240 | 97 | 97 | 103 | 105 |
| | 50 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,040 | 94 | 2,390 | 95 | 2,200 | 95 | 2,020 | 95 | 95 | 102 | 105 |
| | -10 | 3,490 | 94 | 2,770 | 96 | 2,570 | 96 | 2,370 | 96 | 96 | 103 | 106 |
| | 0 | 3,590 | 94 | 2,860 | 95 | 2,660 | 95 | 2,460 | 95 | 96 | 103 | 106 |
| | 10 | 3,710 | 94 | 2,960 | 95 | 2,750 | 95 | 2,540 | 95 | 95 | 103 | 105 |
| | 20 | 3,950 | 95 | 3,210 | 95 | 2,990 | 95 | 2,770 | 95 | 95 | 103 | 105 |
| | 30 | 4,930 | 96 | 4,050 | 96 | 3,770 | 96 | 3,500 | 96 | 96 | 102 | 104 |
| | 40 | 6,810 | 96 | 5,630 | 96 | 5,260 | 96 | 4,910 | 96 | 96 | 102 | 104 |
| | 50 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 2,770 | 90 | 2,130 | 93 | 1,960 | 92 | 1,800 | 92 | 93 | 100 | 103 |
| | -10 | 3,170 | 90 | 2,490 | 92 | 2,290 | 92 | 2,110 | 92 | 93 | 100 | 103 |
| | 0 | 3,270 | 90 | 2,580 | 92 | 2,360 | 93 | 2,180 | 93 | 93 | 100 | 103 |
| | 10 | 3,370 | 90 | 2,660 | 92 | 2,450 | 93 | 2,260 | 93 | 93 | 100 | 103 |
| | 20 | 3,570 | 91 | 2,850 | 93 | 2,640 | 93 | 2,440 | 93 | 93 | 100 | 103 |
| | 30 | 4,280 | 93 | 3,500 | 93 | 3,250 | 93 | 3,020 | 93 | 93 | 100 | 102 |
| | 40 | 5,660 | 93 | 4,650 | 93 | 4,360 | 93 | 4,050 | 93 | 93 | 99 | 101 |
| | 50 | - | - | - | - | - | - | - | - | - | - | - |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 15, IPS OFF

| Pressure Altitude: 2,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,700 | 90 | 1,990 | 90 | 1,780 | 90 | 1,620 | 90 | 91 | 98 | 102 |
| | -10 | 3,090 | 90 | 2,320 | 90 | 2,100 | 90 | 1,900 | 90 | 90 | 98 | 101 |
| | 0 | 3,180 | 90 | 2,400 | 90 | 2,170 | 90 | 1,970 | 90 | 90 | 98 | 101 |
| | 10 | 3,260 | 90 | 2,480 | 90 | 2,240 | 90 | 2,040 | 90 | 90 | 98 | 101 |
| | 20 | 3,380 | 89 | 2,580 | 89 | 2,370 | 89 | 2,180 | 89 | 90 | 98 | 100 |
| | 30 | 3,810 | 89 | 3,090 | 89 | 2,870 | 89 | 2,660 | 89 | 90 | 97 | 99 |
| | 40 | 4,970 | 89 | 4,060 | 89 | 3,780 | 89 | 3,500 | 89 | 90 | 97 | 99 |
| | 50 | 6,730 | 90 | 5,970 | 88 | 5,560 | 88 | 5,180 | 88 | 90 | 97 | 98 |
| 15,000 | -54 | 2,650 | 90 | 1,960 | 90 | 1,750 | 90 | 1,560 | 90 | 91 | 99 | 102 |
| | -10 | 3,020 | 90 | 2,280 | 90 | 2,060 | 90 | 1,850 | 90 | 90 | 99 | 102 |
| | 0 | 3,110 | 90 | 2,360 | 90 | 2,130 | 90 | 1,920 | 90 | 90 | 99 | 102 |
| | 10 | 3,190 | 90 | 2,430 | 90 | 2,200 | 90 | 1,980 | 90 | 90 | 99 | 102 |
| | 20 | 3,310 | 90 | 2,520 | 90 | 2,290 | 90 | 2,070 | 90 | 90 | 98 | 101 |
| | 30 | 3,530 | 89 | 2,720 | 89 | 2,510 | 89 | 2,320 | 89 | 89 | 96 | 98 |
| | 40 | 4,120 | 89 | 3,350 | 89 | 3,110 | 89 | 2,880 | 89 | 89 | 95 | 97 |
| | 50 | 5,550 | 88 | 4,560 | 88 | 4,240 | 88 | 3,940 | 88 | 89 | 95 | 96 |
| 14,000 | -54 | 2,600 | 91 | 1,930 | 91 | 1,730 | 91 | 1,540 | 91 | 91 | 99 | 103 |
| | -10 | 2,960 | 90 | 2,240 | 90 | 2,030 | 90 | 1,820 | 90 | 91 | 99 | 102 |
| | 0 | 3,040 | 90 | 2,320 | 90 | 2,100 | 90 | 1,890 | 90 | 90 | 99 | 102 |
| | 10 | 3,130 | 90 | 2,390 | 90 | 2,160 | 90 | 1,950 | 90 | 90 | 99 | 102 |
| | 20 | 3,240 | 90 | 2,480 | 90 | 2,250 | 90 | 2,030 | 90 | 90 | 98 | 101 |
| | 30 | 3,440 | 89 | 2,630 | 89 | 2,390 | 89 | 2,170 | 89 | 90 | 97 | 99 |
| | 40 | 3,730 | 89 | 2,920 | 89 | 2,700 | 89 | 2,500 | 89 | 89 | 95 | 97 |
| | 50 | 4,610 | 88 | 3,760 | 88 | 3,500 | 88 | 3,230 | 88 | 89 | 94 | 95 |
| 13,000 | -54 | 2,550 | 91 | 1,900 | 91 | 1,700 | 91 | 1,520 | 91 | 91 | 99 | 104 |
| | -10 | 2,910 | 90 | 2,210 | 90 | 2,000 | 90 | 1,800 | 90 | 91 | 99 | 103 |
| | 0 | 2,990 | 90 | 2,280 | 90 | 2,060 | 90 | 1,860 | 90 | 91 | 99 | 103 |
| | 10 | 3,070 | 90 | 2,350 | 90 | 2,130 | 90 | 1,930 | 90 | 91 | 99 | 103 |
| | 20 | 3,170 | 90 | 2,430 | 90 | 2,210 | 90 | 2,000 | 90 | 90 | 99 | 102 |
| | 30 | 3,350 | 89 | 2,580 | 89 | 2,340 | 89 | 2,120 | 89 | 90 | 97 | 99 |
| | 40 | 3,610 | 89 | 2,760 | 89 | 2,510 | 89 | 2,270 | 89 | 89 | 95 | 97 |
| | 50 | 3,950 | 89 | 3,160 | 89 | 2,930 | 89 | 2,710 | 89 | 89 | 94 | 95 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 15, IPS OFF

4 Pressure Altitude: 3,000 feet

| Associated Conditions | | | | | | | | | | | | | | |
|---|--|--|--|--|----------------------|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | | | | | Lift Dump: Operative | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | |

| Pressure Altitude: 3,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|---------------|-------------|---------------|-------------|---------------|-------------|---------------|---------------|-------------------|---------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V_2 KIAS |
| Weight LB | OAT °C | Dist. FT | V_1 KIAS | Dist. FT | V_1 KIAS | Dist. FT | V_1 KIAS | Dist. FT | V_1 KIAS | | | |
| 18,740 | -54 | 3,350 | 98 | 2,680 | 98 | 2,480 | 98 | 2,270 | 98 | 98 | 104 | 107 |
| | -10 | 3,860 | 98 | 3,120 | 98 | 2,890 | 98 | 2,680 | 98 | 98 | 105 | 108 |
| | 0 | 3,990 | 98 | 3,230 | 98 | 3,000 | 98 | 2,770 | 98 | 98 | 105 | 108 |
| | 10 | 4,120 | 98 | 3,340 | 98 | 3,120 | 98 | 2,880 | 98 | 98 | 105 | 108 |
| | 20 | 4,710 | 98 | 3,860 | 98 | 3,600 | 98 | 3,350 | 98 | 98 | 105 | 108 |
| | 30 | 6,180 | 98 | 5,100 | 98 | 4,760 | 98 | 4,430 | 98 | 98 | 105 | 107 |
| | 40 | - | - | - | - | - | - | - | - | - | - | |
| | 47 | - | - | - | - | - | - | - | - | - | - | |
| 18,300 | -54 | 3,220 | 96 | 2,560 | 96 | 2,360 | 96 | 2,170 | 96 | 96 | 103 | 106 |
| | -10 | 3,690 | 95 | 2,960 | 96 | 2,750 | 96 | 2,540 | 96 | 96 | 103 | 106 |
| | 0 | 3,810 | 95 | 3,050 | 96 | 2,840 | 96 | 2,630 | 96 | 96 | 103 | 106 |
| | 10 | 3,930 | 95 | 3,170 | 96 | 2,940 | 96 | 2,730 | 96 | 96 | 104 | 106 |
| | 20 | 4,390 | 96 | 3,610 | 96 | 3,370 | 96 | 3,130 | 96 | 96 | 103 | 106 |
| | 30 | 5,690 | 97 | 4,700 | 97 | 4,390 | 96 | 4,090 | 97 | 97 | 103 | 105 |
| | 40 | - | - | - | - | - | - | - | - | - | - | |
| | 47 | - | - | - | - | - | - | - | - | - | - | |
| 18,000 | -54 | 3,130 | 94 | 2,460 | 96 | 2,270 | 96 | 2,090 | 96 | 96 | 103 | 106 |
| | -10 | 3,590 | 94 | 2,850 | 95 | 2,640 | 96 | 2,450 | 96 | 96 | 103 | 106 |
| | 0 | 3,700 | 94 | 2,940 | 95 | 2,740 | 95 | 2,530 | 95 | 95 | 103 | 106 |
| | 10 | 3,810 | 94 | 3,050 | 95 | 2,830 | 95 | 2,630 | 95 | 95 | 103 | 105 |
| | 20 | 4,220 | 95 | 3,460 | 95 | 3,230 | 95 | 3,000 | 95 | 95 | 102 | 105 |
| | 30 | 5,420 | 96 | 4,460 | 96 | 4,170 | 96 | 3,880 | 96 | 96 | 102 | 104 |
| | 40 | - | - | - | - | - | - | - | - | - | - | |
| | 47 | - | - | - | - | - | - | - | - | - | - | |
| 17,000 | -54 | 2,850 | 90 | 2,200 | 92 | 2,020 | 93 | 1,850 | 93 | 93 | 100 | 103 |
| | -10 | 3,270 | 90 | 2,570 | 92 | 2,360 | 93 | 2,180 | 93 | 93 | 100 | 103 |
| | 0 | 3,360 | 90 | 2,660 | 92 | 2,440 | 92 | 2,250 | 92 | 93 | 100 | 103 |
| | 10 | 3,470 | 90 | 2,750 | 92 | 2,530 | 92 | 2,340 | 92 | 93 | 100 | 103 |
| | 20 | 3,780 | 92 | 3,050 | 93 | 2,830 | 93 | 2,640 | 93 | 93 | 100 | 103 |
| | 30 | 4,650 | 93 | 3,820 | 93 | 3,550 | 93 | 3,300 | 93 | 93 | 100 | 102 |
| | 40 | 6,290 | 93 | 5,250 | 93 | 4,890 | 93 | 4,570 | 93 | 93 | 100 | 101 |
| | 47 | - | - | - | - | - | - | - | - | - | - | |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 15, IPS OFF

| Pressure Altitude: 3,000 feet | | | | | | | | | | | | |
|--------------------------------------|-----|----------------------|-------------------|---------------------|-------------------------------|---------------------|-------------------------------|---------------------|-------------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| | | Weight LB | OAT °C | Dist. FT | V₁ KIAS | Dist. FT | V₁ KIAS | Dist. FT | V₁ KIAS | | | |
| 16,000 | -54 | 2,770 | 90 | 2,060 | 90 | 1,840 | 90 | 1,670 | 90 | 91 | 98 | 102 |
| | -10 | 3,170 | 90 | 2,400 | 90 | 2,170 | 90 | 1,960 | 90 | 90 | 98 | 101 |
| | 0 | 3,260 | 90 | 2,480 | 90 | 2,240 | 90 | 2,030 | 90 | 90 | 98 | 101 |
| | 10 | 3,350 | 89 | 2,560 | 90 | 2,320 | 90 | 2,100 | 90 | 90 | 98 | 101 |
| | 20 | 3,500 | 89 | 2,710 | 89 | 2,510 | 89 | 2,330 | 89 | 90 | 98 | 100 |
| | 30 | 4,120 | 89 | 3,370 | 89 | 3,130 | 89 | 2,900 | 89 | 90 | 97 | 99 |
| | 40 | 5,510 | 88 | 4,520 | 89 | 4,220 | 89 | 3,910 | 89 | 90 | 97 | 99 |
| | 47 | 6,840 | 89 | 6,000 | 88 | 5,610 | 88 | 5,230 | 88 | 90 | 97 | 98 |
| 15,000 | -54 | 2,720 | 90 | 2,020 | 90 | 1,810 | 90 | 1,620 | 90 | 91 | 99 | 102 |
| | -10 | 3,100 | 90 | 2,350 | 90 | 2,130 | 90 | 1,920 | 90 | 90 | 99 | 102 |
| | 0 | 3,200 | 90 | 2,430 | 90 | 2,210 | 90 | 1,980 | 90 | 90 | 99 | 102 |
| | 10 | 3,290 | 90 | 2,510 | 90 | 2,280 | 90 | 2,060 | 90 | 90 | 99 | 102 |
| | 20 | 3,420 | 89 | 2,620 | 89 | 2,380 | 89 | 2,160 | 90 | 90 | 98 | 100 |
| | 30 | 3,680 | 89 | 2,890 | 89 | 2,690 | 89 | 2,490 | 89 | 89 | 96 | 98 |
| | 40 | 4,480 | 89 | 3,660 | 89 | 3,410 | 89 | 3,160 | 89 | 89 | 95 | 97 |
| | 47 | 5,590 | 88 | 4,590 | 88 | 4,280 | 88 | 3,980 | 88 | 88 | 95 | 96 |
| 14,000 | -54 | 2,670 | 91 | 1,990 | 91 | 1,790 | 91 | 1,590 | 91 | 91 | 99 | 103 |
| | -10 | 3,040 | 90 | 2,310 | 90 | 2,100 | 90 | 1,890 | 90 | 91 | 99 | 102 |
| | 0 | 3,130 | 90 | 2,390 | 90 | 2,170 | 90 | 1,950 | 90 | 90 | 99 | 102 |
| | 10 | 3,220 | 90 | 2,470 | 90 | 2,240 | 90 | 2,020 | 90 | 90 | 99 | 102 |
| | 20 | 3,350 | 90 | 2,570 | 90 | 2,340 | 90 | 2,110 | 90 | 90 | 98 | 101 |
| | 30 | 3,570 | 89 | 2,740 | 89 | 2,490 | 89 | 2,270 | 89 | 90 | 96 | 99 |
| | 40 | 3,930 | 89 | 3,140 | 89 | 2,920 | 89 | 2,700 | 89 | 89 | 95 | 97 |
| | 47 | 4,640 | 88 | 3,790 | 88 | 3,520 | 88 | 3,270 | 88 | 89 | 94 | 95 |
| 13,000 | -54 | 2,620 | 91 | 1,960 | 91 | 1,760 | 91 | 1,570 | 91 | 91 | 99 | 104 |
| | -10 | 2,990 | 90 | 2,280 | 90 | 2,060 | 90 | 1,860 | 90 | 91 | 99 | 103 |
| | 0 | 3,070 | 90 | 2,350 | 90 | 2,130 | 90 | 1,920 | 90 | 91 | 99 | 103 |
| | 10 | 3,150 | 90 | 2,420 | 90 | 2,200 | 90 | 1,990 | 90 | 91 | 99 | 103 |
| | 20 | 3,280 | 90 | 2,520 | 90 | 2,290 | 90 | 2,070 | 90 | 90 | 98 | 102 |
| | 30 | 3,470 | 89 | 2,680 | 89 | 2,430 | 89 | 2,210 | 89 | 90 | 97 | 99 |
| | 40 | 3,760 | 89 | 2,890 | 89 | 2,640 | 89 | 2,400 | 89 | 89 | 95 | 97 |
| | 47 | 4,010 | 89 | 3,190 | 89 | 2,960 | 89 | 2,740 | 89 | 89 | 94 | 95 |



5 Pressure Altitude: 4,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 4,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,450 | 98 | 2,760 | 98 | 2,550 | 98 | 2,350 | 98 | 98 | 105 | 108 |
| | -10 | 3,980 | 97 | 3,220 | 98 | 2,980 | 98 | 2,770 | 98 | 98 | 105 | 108 |
| | 0 | 4,110 | 98 | 3,330 | 98 | 3,100 | 98 | 2,870 | 98 | 98 | 105 | 108 |
| | 10 | 4,270 | 98 | 3,470 | 98 | 3,230 | 98 | 3,000 | 98 | 98 | 105 | 108 |
| | 20 | 5,150 | 98 | 4,240 | 98 | 3,950 | 98 | 3,680 | 98 | 98 | 105 | 107 |
| | 30 | 6,940 | 99 | 5,740 | 98 | 5,370 | 98 | 5,010 | 98 | 99 | 105 | 107 |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| | 45 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 3,300 | 95 | 2,620 | 97 | 2,430 | 97 | 2,230 | 97 | 97 | 103 | 106 |
| | -10 | 3,810 | 95 | 3,060 | 96 | 2,840 | 96 | 2,640 | 96 | 96 | 103 | 106 |
| | 0 | 3,930 | 95 | 3,160 | 96 | 2,940 | 96 | 2,730 | 96 | 96 | 103 | 106 |
| | 10 | 4,070 | 95 | 3,290 | 96 | 3,070 | 96 | 2,850 | 96 | 96 | 104 | 106 |
| | 20 | 4,810 | 96 | 3,970 | 96 | 3,710 | 97 | 3,450 | 96 | 97 | 104 | 106 |
| | 30 | 6,370 | 97 | 5,290 | 97 | 4,950 | 97 | 4,630 | 97 | 97 | 103 | 105 |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| | 45 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,210 | 94 | 2,530 | 96 | 2,340 | 96 | 2,150 | 96 | 96 | 103 | 106 |
| | -10 | 3,690 | 94 | 2,940 | 95 | 2,730 | 95 | 2,530 | 95 | 95 | 103 | 106 |
| | 0 | 3,800 | 94 | 3,040 | 95 | 2,830 | 95 | 2,620 | 95 | 95 | 103 | 106 |
| | 10 | 3,940 | 94 | 3,160 | 95 | 2,940 | 95 | 2,730 | 95 | 95 | 103 | 106 |
| | 20 | 4,580 | 95 | 3,780 | 95 | 3,530 | 95 | 3,280 | 95 | 95 | 103 | 105 |
| | 30 | 6,010 | 96 | 4,980 | 96 | 4,650 | 96 | 4,350 | 96 | 96 | 103 | 104 |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| | 45 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 2,920 | 90 | 2,270 | 92 | 2,080 | 93 | 1,920 | 93 | 93 | 100 | 103 |
| | -10 | 3,360 | 90 | 2,650 | 92 | 2,440 | 92 | 2,250 | 92 | 93 | 100 | 103 |
| | 0 | 3,460 | 90 | 2,740 | 92 | 2,520 | 92 | 2,330 | 92 | 92 | 100 | 103 |
| | 10 | 3,580 | 90 | 2,840 | 92 | 2,620 | 92 | 2,420 | 93 | 93 | 100 | 103 |
| | 20 | 4,050 | 93 | 3,300 | 93 | 3,070 | 93 | 2,850 | 93 | 93 | 100 | 102 |
| | 30 | 5,100 | 93 | 4,200 | 93 | 3,920 | 93 | 3,650 | 93 | 93 | 100 | 102 |
| | 40 | 7,030 | 93 | 5,990 | 93 | 5,600 | 93 | 5,220 | 93 | 93 | 100 | 101 |
| | 45 | - | - | - | - | - | - | - | - | - | - | - |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 15, IPS OFF

| Pressure Altitude: 4,000 feet | | | | | | | | | | | | |
|--------------------------------------|-------------------|---------------------|-------------------------------|---------------------|-------------------------------|---------------------|-------------------------------|---------------------|-------------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V₁ KIAS | Dist. FT | V₁ KIAS | Dist. FT | V₁ KIAS | Dist. FT | V₁ KIAS | | | |
| 16,000 | -54 | 2,850 | 90 | 2,120 | 90 | 1,900 | 90 | 1,730 | 90 | 90 | 98 | 102 |
| | -10 | 3,260 | 90 | 2,480 | 90 | 2,240 | 90 | 2,030 | 90 | 90 | 98 | 101 |
| | 0 | 3,360 | 89 | 2,560 | 89 | 2,320 | 89 | 2,100 | 89 | 90 | 98 | 101 |
| | 10 | 3,450 | 89 | 2,640 | 89 | 2,400 | 89 | 2,180 | 89 | 90 | 98 | 101 |
| | 20 | 3,660 | 89 | 2,930 | 89 | 2,720 | 89 | 2,520 | 89 | 90 | 97 | 100 |
| | 30 | 4,520 | 89 | 3,690 | 89 | 3,440 | 89 | 3,190 | 89 | 90 | 97 | 99 |
| | 40 | 6,170 | 88 | 5,090 | 88 | 4,750 | 88 | 4,430 | 88 | 90 | 97 | 99 |
| | 45 | - | - | - | - | - | - | - | - | - | - | - |
| 15,000 | -54 | 2,790 | 90 | 2,090 | 90 | 1,870 | 90 | 1,670 | 90 | 91 | 99 | 102 |
| | -10 | 3,200 | 90 | 2,430 | 90 | 2,200 | 90 | 1,980 | 90 | 90 | 99 | 102 |
| | 0 | 3,290 | 90 | 2,510 | 90 | 2,280 | 90 | 2,060 | 90 | 90 | 99 | 102 |
| | 10 | 3,370 | 90 | 2,590 | 90 | 2,350 | 90 | 2,130 | 90 | 90 | 99 | 101 |
| | 20 | 3,550 | 89 | 2,730 | 89 | 2,480 | 89 | 2,270 | 89 | 90 | 97 | 99 |
| | 30 | 3,880 | 89 | 3,130 | 89 | 2,910 | 89 | 2,690 | 89 | 89 | 96 | 98 |
| | 40 | 4,930 | 88 | 4,040 | 88 | 3,770 | 88 | 3,500 | 88 | 89 | 95 | 97 |
| | 45 | 5,820 | 88 | 4,800 | 88 | 4,480 | 88 | 4,170 | 88 | 88 | 95 | 96 |
| 14,000 | -54 | 2,740 | 90 | 2,050 | 90 | 1,850 | 90 | 1,650 | 90 | 91 | 99 | 103 |
| | -10 | 3,130 | 90 | 2,390 | 90 | 2,170 | 90 | 1,950 | 90 | 90 | 99 | 102 |
| | 0 | 3,220 | 90 | 2,470 | 90 | 2,240 | 90 | 2,020 | 90 | 90 | 99 | 102 |
| | 10 | 3,310 | 90 | 2,540 | 90 | 2,310 | 90 | 2,090 | 90 | 90 | 99 | 102 |
| | 20 | 3,470 | 89 | 2,670 | 89 | 2,430 | 89 | 2,200 | 89 | 90 | 98 | 100 |
| | 30 | 3,710 | 89 | 2,860 | 89 | 2,610 | 89 | 2,400 | 89 | 89 | 96 | 97 |
| | 40 | 4,210 | 89 | 3,410 | 89 | 3,170 | 89 | 2,940 | 89 | 89 | 95 | 96 |
| | 45 | 4,810 | 88 | 3,940 | 88 | 3,670 | 88 | 3,410 | 88 | 89 | 94 | 95 |
| 13,000 | -54 | 2,700 | 91 | 2,020 | 91 | 1,820 | 91 | 1,630 | 91 | 91 | 99 | 104 |
| | -10 | 3,070 | 90 | 2,350 | 90 | 2,130 | 90 | 1,920 | 90 | 91 | 99 | 103 |
| | 0 | 3,150 | 90 | 2,430 | 90 | 2,200 | 90 | 1,990 | 90 | 91 | 99 | 103 |
| | 10 | 3,240 | 90 | 2,500 | 90 | 2,270 | 90 | 2,060 | 90 | 90 | 99 | 103 |
| | 20 | 3,390 | 90 | 2,620 | 90 | 2,390 | 90 | 2,160 | 90 | 90 | 98 | 100 |
| | 30 | 3,610 | 89 | 2,790 | 89 | 2,540 | 89 | 2,300 | 89 | 89 | 96 | 98 |
| | 40 | 3,920 | 89 | 3,030 | 89 | 2,800 | 89 | 2,570 | 89 | 89 | 95 | 96 |
| | 45 | 4,110 | 88 | 3,290 | 88 | 3,060 | 88 | 2,830 | 88 | 89 | 94 | 95 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 15, IPS OFF

6 Pressure Altitude: 5,000 feet

| Associated Conditions | | | | | | | | | | | | | | |
|---|--|--|--|--|----------------------|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | | | | | Lift Dump: Operative | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | |

| Pressure Altitude: 5,000 feet | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|----------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | KIAS |
| 18,740 | -54 | 3,550 | 98 | 2,840 | 98 | 2,630 | 98 | 2,420 | 98 | 98 |
| | -10 | 4,100 | 97 | 3,320 | 98 | 3,090 | 98 | 2,870 | 98 | 98 |
| | 0 | 4,240 | 98 | 3,440 | 98 | 3,200 | 98 | 2,960 | 98 | 98 |
| | 10 | 4,450 | 98 | 3,640 | 98 | 3,400 | 98 | 3,160 | 98 | 98 |
| | 20 | 5,680 | 98 | 4,690 | 98 | 4,380 | 98 | 4,090 | 98 | 98 |
| | 30 | 7,840 | 99 | 6,510 | 99 | 6,100 | 99 | 5,710 | 98 | 99 |
| | 40 | - | - | - | - | - | - | - | - | - |
| | 42 | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 3,400 | 95 | 2,700 | 96 | 2,490 | 97 | 2,300 | 97 | 97 |
| | -10 | 3,930 | 95 | 3,170 | 96 | 2,940 | 96 | 2,730 | 96 | 96 |
| | 0 | 4,060 | 95 | 3,270 | 96 | 3,050 | 96 | 2,830 | 96 | 96 |
| | 10 | 4,230 | 96 | 3,470 | 96 | 3,230 | 96 | 3,010 | 96 | 96 |
| | 20 | 5,300 | 96 | 4,400 | 97 | 4,110 | 97 | 3,840 | 97 | 97 |
| | 30 | 7,180 | 97 | 5,990 | 97 | 5,620 | 97 | 5,270 | 97 | 97 |
| | 40 | - | - | - | - | - | - | - | - | - |
| | 42 | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,290 | 94 | 2,610 | 96 | 2,410 | 96 | 2,220 | 96 | 96 |
| | -10 | 3,800 | 94 | 3,030 | 95 | 2,820 | 95 | 2,620 | 95 | 95 |
| | 0 | 3,920 | 94 | 3,130 | 95 | 2,920 | 95 | 2,710 | 95 | 95 |
| | 10 | 4,090 | 94 | 3,320 | 95 | 3,080 | 95 | 2,870 | 95 | 95 |
| | 20 | 5,020 | 96 | 4,160 | 96 | 3,880 | 95 | 3,610 | 95 | 96 |
| | 30 | 6,700 | 96 | 5,580 | 96 | 5,230 | 96 | 4,890 | 96 | 96 |
| | 40 | - | - | - | - | - | - | - | - | - |
| | 42 | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,000 | 90 | 2,340 | 92 | 2,150 | 92 | 1,980 | 92 | 92 |
| | -10 | 3,450 | 90 | 2,740 | 92 | 2,520 | 92 | 2,320 | 93 | 93 |
| | 0 | 3,560 | 90 | 2,830 | 92 | 2,610 | 92 | 2,410 | 92 | 93 |
| | 10 | 3,700 | 90 | 2,960 | 92 | 2,730 | 92 | 2,530 | 92 | 93 |
| | 20 | 4,360 | 93 | 3,590 | 93 | 3,350 | 93 | 3,110 | 93 | 93 |
| | 30 | 5,650 | 93 | 4,660 | 93 | 4,370 | 93 | 4,060 | 93 | 93 |
| | 40 | - | - | - | - | - | - | - | - | - |
| | 42 | - | - | - | - | - | - | - | - | - |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 15, IPS OFF

| Pressure Altitude: 5,000 feet | | | | | | | | | | | | |
|--------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,930 | 90 | 2,190 | 90 | 1,970 | 90 | 1,780 | 90 | 90 | 98 | 102 |
| | -10 | 3,350 | 89 | 2,560 | 90 | 2,320 | 90 | 2,100 | 90 | 90 | 98 | 101 |
| | 0 | 3,450 | 89 | 2,640 | 89 | 2,400 | 89 | 2,170 | 89 | 90 | 98 | 101 |
| | 10 | 3,550 | 89 | 2,730 | 89 | 2,480 | 89 | 2,270 | 89 | 90 | 98 | 101 |
| | 20 | 3,880 | 89 | 3,180 | 89 | 2,960 | 89 | 2,740 | 89 | 90 | 97 | 100 |
| | 30 | 4,970 | 89 | 4,080 | 89 | 3,810 | 89 | 3,550 | 89 | 90 | 97 | 99 |
| | 40 | 6,980 | 88 | 5,780 | 88 | 5,400 | 88 | 5,040 | 88 | 90 | 97 | 99 |
| | 42 | - | - | - | - | - | - | - | - | - | - | - |
| 15,000 | -54 | 2,870 | 90 | 2,150 | 90 | 1,940 | 90 | 1,730 | 90 | 91 | 99 | 102 |
| | -10 | 3,280 | 90 | 2,510 | 90 | 2,280 | 90 | 2,060 | 90 | 90 | 99 | 102 |
| | 0 | 3,380 | 90 | 2,590 | 90 | 2,360 | 90 | 2,130 | 90 | 90 | 99 | 102 |
| | 10 | 3,480 | 89 | 2,680 | 90 | 2,430 | 90 | 2,200 | 90 | 90 | 98 | 101 |
| | 20 | 3,690 | 89 | 2,850 | 89 | 2,600 | 89 | 2,400 | 89 | 89 | 97 | 99 |
| | 30 | 4,150 | 89 | 3,390 | 89 | 3,160 | 89 | 2,930 | 89 | 89 | 96 | 98 |
| | 40 | 5,450 | 88 | 4,490 | 88 | 4,190 | 88 | 3,900 | 88 | 89 | 95 | 97 |
| | 42 | 5,890 | 88 | 4,860 | 88 | 4,540 | 88 | 4,230 | 88 | 89 | 95 | 97 |
| 14,000 | -54 | 2,810 | 90 | 2,120 | 90 | 1,910 | 90 | 1,710 | 90 | 91 | 99 | 103 |
| | -10 | 3,210 | 90 | 2,460 | 90 | 2,240 | 90 | 2,020 | 90 | 90 | 99 | 102 |
| | 0 | 3,310 | 90 | 2,550 | 90 | 2,310 | 90 | 2,100 | 90 | 90 | 99 | 102 |
| | 10 | 3,400 | 90 | 2,620 | 90 | 2,390 | 90 | 2,170 | 90 | 90 | 99 | 102 |
| | 20 | 3,610 | 89 | 2,780 | 89 | 2,540 | 89 | 2,300 | 89 | 90 | 97 | 99 |
| | 30 | 3,880 | 89 | 2,990 | 89 | 2,760 | 89 | 2,560 | 89 | 89 | 96 | 97 |
| | 40 | 4,560 | 88 | 3,740 | 88 | 3,490 | 88 | 3,240 | 88 | 89 | 95 | 96 |
| | 42 | 4,860 | 88 | 4,000 | 88 | 3,720 | 88 | 3,460 | 88 | 89 | 95 | 96 |
| 13,000 | -54 | 2,770 | 91 | 2,090 | 91 | 1,880 | 91 | 1,680 | 91 | 91 | 99 | 103 |
| | -10 | 3,160 | 90 | 2,420 | 90 | 2,200 | 90 | 1,990 | 90 | 91 | 99 | 103 |
| | 0 | 3,240 | 90 | 2,500 | 90 | 2,280 | 90 | 2,060 | 90 | 90 | 99 | 103 |
| | 10 | 3,330 | 90 | 2,570 | 90 | 2,350 | 90 | 2,130 | 90 | 90 | 99 | 103 |
| | 20 | 3,520 | 89 | 2,720 | 89 | 2,480 | 89 | 2,250 | 89 | 90 | 97 | 100 |
| | 30 | 3,760 | 89 | 2,910 | 89 | 2,650 | 89 | 2,400 | 89 | 89 | 96 | 98 |
| | 40 | 4,100 | 89 | 3,200 | 89 | 2,980 | 89 | 2,760 | 89 | 89 | 94 | 95 |
| | 42 | 4,190 | 89 | 3,330 | 89 | 3,100 | 89 | 2,880 | 89 | 89 | 94 | 95 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 15, IPS OFF

7

Pressure Altitude: 6,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 6,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,660 | 98 | 2,930 | 98 | 2,720 | 98 | 2,510 | 98 | 98 | 105 | 108 |
| | -10 | 4,240 | 97 | 3,430 | 98 | 3,190 | 98 | 2,970 | 98 | 98 | 105 | 108 |
| | 0 | 4,450 | 98 | 3,640 | 98 | 3,390 | 98 | 3,150 | 98 | 98 | 105 | 108 |
| | 10 | 4,960 | 98 | 4,080 | 98 | 3,810 | 98 | 3,550 | 98 | 98 | 105 | 108 |
| | 20 | 6,570 | 98 | 5,430 | 98 | 5,080 | 98 | 4,740 | 98 | 98 | 105 | 107 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 3,500 | 95 | 2,790 | 96 | 2,580 | 96 | 2,390 | 96 | 96 | 103 | 106 |
| | -10 | 4,050 | 95 | 3,260 | 96 | 3,040 | 96 | 2,820 | 96 | 96 | 104 | 106 |
| | 0 | 4,220 | 96 | 3,440 | 96 | 3,210 | 96 | 2,990 | 96 | 96 | 104 | 106 |
| | 10 | 4,620 | 96 | 3,830 | 96 | 3,570 | 96 | 3,330 | 96 | 96 | 104 | 106 |
| | 20 | 6,030 | 97 | 5,010 | 96 | 4,700 | 97 | 4,390 | 97 | 97 | 104 | 106 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,390 | 94 | 2,690 | 96 | 2,490 | 96 | 2,300 | 96 | 96 | 103 | 106 |
| | -10 | 3,920 | 94 | 3,130 | 95 | 2,920 | 95 | 2,700 | 95 | 95 | 103 | 106 |
| | 0 | 4,090 | 95 | 3,300 | 95 | 3,080 | 95 | 2,860 | 95 | 95 | 103 | 106 |
| | 10 | 4,440 | 95 | 3,660 | 95 | 3,420 | 95 | 3,180 | 95 | 95 | 103 | 105 |
| | 20 | 5,730 | 96 | 4,750 | 96 | 4,440 | 96 | 4,140 | 96 | 96 | 103 | 105 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,090 | 90 | 2,420 | 92 | 2,220 | 93 | 2,040 | 93 | 93 | 100 | 103 |
| | -10 | 3,560 | 90 | 2,830 | 92 | 2,610 | 92 | 2,410 | 92 | 93 | 100 | 103 |
| | 0 | 3,700 | 90 | 2,950 | 92 | 2,730 | 92 | 2,530 | 92 | 93 | 100 | 103 |
| | 10 | 3,970 | 92 | 3,220 | 93 | 3,000 | 93 | 2,790 | 93 | 93 | 100 | 103 |
| | 20 | 4,910 | 93 | 4,050 | 93 | 3,790 | 93 | 3,530 | 93 | 93 | 100 | 102 |
| | 30 | 6,590 | 93 | 5,470 | 93 | 5,120 | 93 | 4,790 | 93 | 93 | 100 | 102 |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| 16,000 | -54 | 3,010 | 90 | 2,260 | 90 | 2,040 | 90 | 1,840 | 90 | 90 | 98 | 101 |
| | -10 | 3,450 | 89 | 2,640 | 89 | 2,400 | 89 | 2,170 | 89 | 90 | 98 | 101 |
| | 0 | 3,550 | 89 | 2,730 | 89 | 2,480 | 89 | 2,270 | 89 | 90 | 98 | 101 |
| | 10 | 3,700 | 89 | 2,890 | 89 | 2,660 | 89 | 2,470 | 89 | 90 | 98 | 101 |
| | 20 | 4,360 | 89 | 3,580 | 89 | 3,340 | 89 | 3,110 | 89 | 90 | 97 | 99 |
| | 30 | 5,760 | 88 | 4,750 | 88 | 4,440 | 88 | 4,130 | 88 | 90 | 97 | 99 |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 15, IPS OFF

| Pressure Altitude: 6,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 15,000 | -54 | 2,950 | 90 | 2,220 | 90 | 2,000 | 90 | 1,790 | 90 | 90 | 99 | 102 |
| | -10 | 3,380 | 90 | 2,590 | 90 | 2,360 | 90 | 2,130 | 90 | 90 | 99 | 102 |
| | 0 | 3,480 | 90 | 2,680 | 90 | 2,440 | 90 | 2,210 | 90 | 90 | 98 | 101 |
| | 10 | 3,620 | 89 | 2,800 | 89 | 2,540 | 89 | 2,310 | 89 | 90 | 98 | 101 |
| | 20 | 3,890 | 89 | 3,070 | 89 | 2,860 | 89 | 2,650 | 89 | 89 | 96 | 99 |
| | 30 | 4,680 | 89 | 3,850 | 89 | 3,590 | 89 | 3,340 | 89 | 89 | 95 | 97 |
| | 40 | 6,420 | 88 | 5,320 | 88 | 4,980 | 88 | 4,640 | 88 | 88 | 95 | 96 |
| 14,000 | -54 | 2,890 | 90 | 2,180 | 90 | 1,970 | 90 | 1,770 | 90 | 91 | 99 | 103 |
| | -10 | 3,310 | 90 | 2,550 | 90 | 2,310 | 90 | 2,100 | 90 | 90 | 99 | 102 |
| | 0 | 3,400 | 90 | 2,630 | 90 | 2,390 | 90 | 2,170 | 90 | 90 | 99 | 102 |
| | 10 | 3,530 | 90 | 2,740 | 90 | 2,500 | 90 | 2,260 | 90 | 90 | 98 | 101 |
| | 20 | 3,780 | 89 | 2,930 | 89 | 2,680 | 89 | 2,430 | 89 | 89 | 96 | 99 |
| | 30 | 4,150 | 89 | 3,300 | 89 | 3,080 | 89 | 2,850 | 89 | 89 | 95 | 97 |
| | 40 | 5,260 | 88 | 4,330 | 88 | 4,040 | 88 | 3,760 | 88 | 89 | 95 | 96 |
| 13,000 | -54 | 2,840 | 91 | 2,150 | 91 | 1,940 | 91 | 1,740 | 91 | 91 | 99 | 103 |
| | -10 | 3,240 | 90 | 2,500 | 90 | 2,280 | 90 | 2,060 | 90 | 91 | 99 | 103 |
| | 0 | 3,340 | 90 | 2,580 | 90 | 2,350 | 90 | 2,130 | 90 | 90 | 99 | 103 |
| | 10 | 3,460 | 90 | 2,680 | 90 | 2,450 | 90 | 2,220 | 90 | 90 | 98 | 102 |
| | 20 | 3,690 | 89 | 2,860 | 89 | 2,610 | 89 | 2,370 | 89 | 90 | 97 | 99 |
| | 30 | 3,980 | 89 | 3,090 | 89 | 2,820 | 89 | 2,570 | 89 | 89 | 95 | 97 |
| | 40 | 4,410 | 88 | 3,550 | 88 | 3,300 | 88 | 3,070 | 89 | 89 | 94 | 95 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 15, IPS OFF

8

Pressure Altitude: 7,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 7,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,840 | 98 | 3,080 | 98 | 2,850 | 98 | 2,640 | 98 | 98 | 105 | 108 |
| | -10 | 4,520 | 98 | 3,690 | 98 | 3,440 | 98 | 3,190 | 98 | 98 | 105 | 108 |
| | 0 | 4,890 | 98 | 4,030 | 98 | 3,760 | 98 | 3,500 | 98 | 98 | 106 | 108 |
| | 10 | 5,660 | 98 | 4,670 | 98 | 4,370 | 98 | 4,070 | 98 | 98 | 105 | 108 |
| | 20 | 7,770 | 99 | 6,450 | 99 | 6,040 | 99 | 5,650 | 99 | 99 | 106 | 107 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 38 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 3,610 | 95 | 2,890 | 96 | 2,670 | 96 | 2,480 | 96 | 96 | 103 | 106 |
| | -10 | 4,210 | 96 | 3,410 | 96 | 3,190 | 96 | 2,960 | 96 | 96 | 104 | 106 |
| | 0 | 4,460 | 96 | 3,700 | 96 | 3,460 | 96 | 3,220 | 96 | 96 | 104 | 106 |
| | 10 | 5,130 | 97 | 4,250 | 96 | 3,970 | 96 | 3,710 | 96 | 97 | 104 | 106 |
| | 20 | 6,890 | 97 | 5,750 | 97 | 5,400 | 97 | 5,040 | 97 | 97 | 104 | 106 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 38 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,490 | 94 | 2,760 | 96 | 2,560 | 96 | 2,370 | 96 | 96 | 103 | 106 |
| | -10 | 4,080 | 94 | 3,290 | 95 | 3,070 | 95 | 2,850 | 95 | 95 | 103 | 106 |
| | 0 | 4,320 | 95 | 3,550 | 95 | 3,310 | 95 | 3,090 | 95 | 95 | 103 | 105 |
| | 10 | 4,920 | 96 | 4,060 | 95 | 3,800 | 96 | 3,540 | 96 | 96 | 103 | 105 |
| | 20 | 6,540 | 96 | 5,450 | 96 | 5,110 | 96 | 4,770 | 96 | 96 | 103 | 105 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 38 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,180 | 90 | 2,490 | 92 | 2,290 | 92 | 2,100 | 92 | 92 | 100 | 103 |
| | -10 | 3,690 | 90 | 2,950 | 92 | 2,720 | 92 | 2,520 | 92 | 93 | 100 | 103 |
| | 0 | 3,900 | 91 | 3,140 | 93 | 2,930 | 93 | 2,720 | 93 | 93 | 100 | 103 |
| | 10 | 4,320 | 93 | 3,540 | 93 | 3,310 | 93 | 3,080 | 93 | 93 | 100 | 103 |
| | 20 | 5,560 | 93 | 4,600 | 93 | 4,320 | 93 | 4,020 | 93 | 93 | 100 | 102 |
| | 30 | 7,530 | 93 | 6,450 | 93 | 6,070 | 93 | 5,690 | 93 | 93 | 100 | 102 |
| | 38 | - | - | - | - | - | - | - | - | - | - | - |
| 16,000 | -54 | 3,090 | 90 | 2,340 | 90 | 2,110 | 90 | 1,900 | 90 | 90 | 98 | 101 |
| | -10 | 3,550 | 89 | 2,730 | 89 | 2,490 | 89 | 2,260 | 89 | 90 | 98 | 101 |
| | 0 | 3,680 | 89 | 2,830 | 89 | 2,600 | 89 | 2,410 | 89 | 90 | 98 | 100 |
| | 10 | 3,890 | 89 | 3,150 | 89 | 2,940 | 89 | 2,730 | 89 | 90 | 97 | 100 |
| | 20 | 4,940 | 88 | 4,060 | 89 | 3,790 | 89 | 3,530 | 89 | 90 | 97 | 99 |
| | 30 | 6,690 | 88 | 5,540 | 88 | 5,190 | 88 | 4,840 | 88 | 90 | 97 | 99 |
| | 38 | - | - | - | - | - | - | - | - | - | - | - |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 15, IPS OFF

| Pressure Altitude: 7,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 15,000 | -54 | 3,030 | 90 | 2,290 | 90 | 2,070 | 90 | 1,860 | 90 | 90 | 99 | 102 |
| | -10 | 3,480 | 89 | 2,680 | 90 | 2,440 | 90 | 2,210 | 90 | 90 | 98 | 101 |
| | 0 | 3,600 | 89 | 2,780 | 89 | 2,530 | 89 | 2,300 | 89 | 90 | 98 | 101 |
| | 10 | 3,780 | 89 | 2,940 | 89 | 2,680 | 89 | 2,430 | 89 | 89 | 97 | 99 |
| | 20 | 4,180 | 89 | 3,400 | 89 | 3,170 | 89 | 2,950 | 89 | 89 | 96 | 98 |
| | 30 | 5,320 | 88 | 4,380 | 88 | 4,090 | 88 | 3,810 | 88 | 89 | 95 | 97 |
| | 38 | - | - | - | - | - | - | - | - | - | - | - |
| 14,000 | -54 | 2,980 | 90 | 2,250 | 90 | 2,040 | 90 | 1,830 | 90 | 91 | 99 | 103 |
| | -10 | 3,400 | 90 | 2,630 | 90 | 2,400 | 90 | 2,170 | 90 | 90 | 99 | 102 |
| | 0 | 3,510 | 90 | 2,720 | 90 | 2,480 | 90 | 2,250 | 90 | 90 | 98 | 101 |
| | 10 | 3,700 | 89 | 2,870 | 89 | 2,620 | 89 | 2,380 | 89 | 90 | 97 | 100 |
| | 20 | 4,000 | 89 | 3,100 | 89 | 2,830 | 89 | 2,620 | 89 | 89 | 96 | 97 |
| | 30 | 4,530 | 88 | 3,700 | 88 | 3,450 | 88 | 3,210 | 88 | 89 | 95 | 96 |
| | 38 | 5,710 | 88 | 4,710 | 88 | 4,400 | 88 | 4,100 | 88 | 88 | 94 | 96 |
| 13,000 | -54 | 2,920 | 90 | 2,220 | 90 | 2,010 | 90 | 1,810 | 90 | 91 | 99 | 103 |
| | -10 | 3,340 | 90 | 2,590 | 90 | 2,350 | 90 | 2,130 | 90 | 90 | 99 | 103 |
| | 0 | 3,440 | 90 | 2,670 | 90 | 2,440 | 90 | 2,210 | 90 | 90 | 99 | 102 |
| | 10 | 3,620 | 89 | 2,810 | 89 | 2,570 | 89 | 2,330 | 89 | 90 | 98 | 100 |
| | 20 | 3,870 | 89 | 3,010 | 89 | 2,750 | 89 | 2,500 | 89 | 89 | 96 | 98 |
| | 30 | 4,220 | 89 | 3,280 | 89 | 3,020 | 89 | 2,790 | 89 | 89 | 94 | 96 |
| | 38 | 4,650 | 88 | 3,790 | 88 | 3,520 | 88 | 3,280 | 88 | 89 | 93 | 95 |



9 Pressure Altitude: 8,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 8,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|----------------|-----|-----|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R | | |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | KIAS | | |
| 18,740 | -54 | 4,020 | 97 | 3,240 | 98 | 3,000 | 98 | 2,780 | 98 | 98 | 105 | 108 |
| | -10 | 4,950 | 98 | 4,080 | 98 | 3,810 | 98 | 3,550 | 98 | 98 | 106 | 108 |
| | 0 | 5,510 | 98 | 4,550 | 98 | 4,260 | 98 | 3,980 | 98 | 98 | 105 | 108 |
| | 10 | 6,570 | 98 | 5,430 | 98 | 5,090 | 98 | 4,740 | 98 | 98 | 106 | 108 |
| | 20 | - | - | - | - | - | - | - | - | - | - | |
| | 30 | - | - | - | - | - | - | - | - | - | - | |
| | 35 | - | - | - | - | - | - | - | - | - | - | |
| 18,300 | -54 | 3,720 | 95 | 2,970 | 96 | 2,750 | 96 | 2,550 | 96 | 96 | 103 | 106 |
| | -10 | 4,460 | 96 | 3,690 | 96 | 3,440 | 96 | 3,200 | 96 | 96 | 104 | 106 |
| | 0 | 4,930 | 96 | 4,090 | 96 | 3,830 | 96 | 3,570 | 96 | 96 | 104 | 106 |
| | 10 | 5,800 | 97 | 4,840 | 97 | 4,520 | 96 | 4,220 | 96 | 97 | 104 | 106 |
| | 20 | - | - | - | - | - | - | - | - | - | - | |
| | 30 | - | - | - | - | - | - | - | - | - | - | |
| | 35 | - | - | - | - | - | - | - | - | - | - | |
| 18,000 | -54 | 3,600 | 94 | 2,860 | 96 | 2,650 | 96 | 2,450 | 96 | 96 | 103 | 106 |
| | -10 | 4,310 | 95 | 3,540 | 95 | 3,310 | 95 | 3,080 | 95 | 95 | 103 | 105 |
| | 0 | 4,730 | 95 | 3,920 | 95 | 3,660 | 95 | 3,410 | 95 | 95 | 103 | 105 |
| | 10 | 5,570 | 96 | 4,620 | 96 | 4,330 | 96 | 4,040 | 95 | 96 | 103 | 105 |
| | 20 | - | - | - | - | - | - | - | - | - | - | |
| | 30 | - | - | - | - | - | - | - | - | - | - | |
| | 35 | - | - | - | - | - | - | - | - | - | - | |
| 17,000 | -54 | 3,280 | 90 | 2,580 | 92 | 2,370 | 92 | 2,190 | 93 | 93 | 100 | 103 |
| | -10 | 3,890 | 91 | 3,130 | 93 | 2,910 | 93 | 2,710 | 93 | 93 | 101 | 103 |
| | 0 | 4,190 | 92 | 3,430 | 93 | 3,200 | 93 | 2,980 | 93 | 93 | 100 | 103 |
| | 10 | 4,820 | 93 | 3,990 | 93 | 3,730 | 93 | 3,470 | 93 | 93 | 100 | 102 |
| | 20 | 6,480 | 93 | 5,390 | 93 | 5,060 | 93 | 4,720 | 93 | 93 | 100 | 102 |
| | 30 | - | - | - | - | - | - | - | - | - | - | |
| | 35 | - | - | - | - | - | - | - | - | - | - | |
| 16,000 | -54 | 3,200 | 90 | 2,420 | 90 | 2,190 | 90 | 1,970 | 90 | 90 | 98 | 101 |
| | -10 | 3,690 | 89 | 2,850 | 89 | 2,600 | 89 | 2,410 | 89 | 90 | 98 | 101 |
| | 0 | 3,840 | 89 | 3,050 | 89 | 2,850 | 89 | 2,640 | 89 | 90 | 98 | 100 |
| | 10 | 4,290 | 89 | 3,530 | 89 | 3,290 | 89 | 3,060 | 89 | 90 | 97 | 100 |
| | 20 | 5,660 | 88 | 4,660 | 88 | 4,360 | 88 | 4,060 | 88 | 90 | 97 | 99 |
| | 30 | - | - | - | - | - | - | - | - | - | - | |
| | 35 | - | - | - | - | - | - | - | - | - | - | |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 15, IPS OFF

| Pressure Altitude: 8,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 15,000 | -54 | 3,130 | 90 | 2,380 | 90 | 2,150 | 90 | 1,930 | 90 | 90 | 99 | 102 |
| | -10 | 3,610 | 89 | 2,780 | 89 | 2,540 | 89 | 2,300 | 89 | 90 | 98 | 101 |
| | 0 | 3,760 | 89 | 2,920 | 89 | 2,660 | 89 | 2,420 | 89 | 90 | 98 | 100 |
| | 10 | 4,010 | 89 | 3,130 | 89 | 2,860 | 89 | 2,660 | 89 | 89 | 97 | 99 |
| | 20 | 4,650 | 88 | 3,820 | 89 | 3,560 | 89 | 3,320 | 89 | 89 | 96 | 98 |
| | 30 | 6,130 | 88 | 5,080 | 88 | 4,750 | 88 | 4,430 | 88 | 88 | 95 | 97 |
| | 35 | - | - | - | - | - | - | - | - | - | - | - |
| 14,000 | -54 | 3,070 | 90 | 2,330 | 90 | 2,110 | 90 | 1,900 | 90 | 91 | 99 | 103 |
| | -10 | 3,530 | 90 | 2,730 | 90 | 2,490 | 90 | 2,260 | 90 | 90 | 98 | 101 |
| | 0 | 3,680 | 89 | 2,860 | 89 | 2,600 | 89 | 2,370 | 89 | 90 | 98 | 101 |
| | 10 | 3,900 | 89 | 3,030 | 89 | 2,770 | 89 | 2,520 | 89 | 89 | 97 | 99 |
| | 20 | 4,250 | 89 | 3,330 | 89 | 3,100 | 89 | 2,880 | 89 | 89 | 95 | 97 |
| | 30 | 5,130 | 88 | 4,220 | 88 | 3,940 | 88 | 3,660 | 88 | 89 | 95 | 96 |
| | 35 | 6,000 | 88 | 4,960 | 88 | 4,640 | 88 | 4,320 | 88 | 88 | 94 | 95 |
| 13,000 | -54 | 3,010 | 90 | 2,300 | 90 | 2,080 | 90 | 1,880 | 90 | 91 | 99 | 103 |
| | -10 | 3,450 | 90 | 2,680 | 90 | 2,450 | 90 | 2,220 | 90 | 90 | 99 | 102 |
| | 0 | 3,600 | 90 | 2,790 | 90 | 2,550 | 90 | 2,320 | 90 | 90 | 98 | 101 |
| | 10 | 3,790 | 89 | 2,960 | 89 | 2,710 | 89 | 2,460 | 89 | 90 | 97 | 100 |
| | 20 | 4,110 | 89 | 3,200 | 89 | 2,920 | 89 | 2,660 | 89 | 89 | 95 | 97 |
| | 30 | 4,510 | 88 | 3,550 | 88 | 3,300 | 88 | 3,070 | 88 | 89 | 94 | 95 |
| | 35 | 4,810 | 88 | 3,950 | 88 | 3,680 | 88 | 3,430 | 88 | 88 | 93 | 94 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 15, IPS OFF

10 Pressure Altitude: 9,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 9,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,250 | 98 | 3,440 | 98 | 3,200 | 98 | 2,970 | 98 | 98 | 105 | 108 |
| | -20 | 5,020 | 98 | 4,150 | 98 | 3,870 | 98 | 3,600 | 98 | 98 | 106 | 108 |
| | -10 | 5,570 | 98 | 4,600 | 98 | 4,310 | 98 | 4,020 | 98 | 98 | 106 | 108 |
| | 0 | 6,290 | 98 | 5,200 | 98 | 4,860 | 98 | 4,540 | 98 | 98 | 106 | 108 |
| | 10 | 7,730 | 99 | 6,400 | 98 | 6,000 | 98 | 5,600 | 98 | 99 | 106 | 108 |
| | 20 | - | - | - | - | - | - | - | - | - | - | - |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 33 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 3,920 | 95 | 3,150 | 96 | 2,930 | 96 | 2,710 | 96 | 96 | 103 | 106 |
| | -20 | 4,560 | 96 | 3,770 | 96 | 3,520 | 96 | 3,280 | 96 | 96 | 104 | 106 |
| | -10 | 5,020 | 96 | 4,150 | 96 | 3,890 | 96 | 3,630 | 96 | 97 | 104 | 106 |
| | 0 | 5,620 | 96 | 4,670 | 96 | 4,380 | 96 | 4,090 | 96 | 96 | 104 | 106 |
| | 10 | 6,810 | 97 | 5,680 | 97 | 5,320 | 97 | 4,990 | 97 | 97 | 104 | 106 |
| | 20 | - | - | - | - | - | - | - | - | - | - | - |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 33 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,810 | 94 | 3,030 | 95 | 2,820 | 95 | 2,610 | 95 | 95 | 103 | 106 |
| | -20 | 4,390 | 95 | 3,600 | 95 | 3,360 | 95 | 3,130 | 95 | 95 | 103 | 105 |
| | -10 | 4,790 | 95 | 3,970 | 95 | 3,710 | 95 | 3,460 | 95 | 95 | 103 | 105 |
| | 0 | 5,350 | 96 | 4,450 | 96 | 4,160 | 95 | 3,890 | 96 | 96 | 103 | 105 |
| | 10 | 6,510 | 96 | 5,420 | 96 | 5,080 | 96 | 4,750 | 96 | 96 | 103 | 105 |
| | 20 | - | - | - | - | - | - | - | - | - | - | - |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 33 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,460 | 90 | 2,740 | 92 | 2,510 | 92 | 2,320 | 92 | 93 | 100 | 103 |
| | -20 | 3,970 | 91 | 3,180 | 93 | 2,970 | 93 | 2,760 | 93 | 93 | 100 | 103 |
| | -10 | 4,260 | 92 | 3,480 | 93 | 3,240 | 93 | 3,020 | 93 | 93 | 100 | 103 |
| | 0 | 4,670 | 93 | 3,860 | 93 | 3,600 | 93 | 3,360 | 93 | 93 | 100 | 103 |
| | 10 | 5,590 | 93 | 4,630 | 93 | 4,340 | 93 | 4,050 | 93 | 93 | 100 | 102 |
| | 20 | 7,680 | 93 | 6,410 | 93 | 6,020 | 93 | 5,630 | 93 | 93 | 100 | 102 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 33 | - | - | - | - | - | - | - | - | - | - | - |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 15, IPS OFF

| Pressure Altitude: 9,000 feet | | | | | | | | | | | | |
|--------------------------------------|-------------------|---------------------|-------------------------------|---------------------|-------------------------------|---------------------|-------------------------------|---------------------|-------------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V₁ KIAS | Dist. FT | V₁ KIAS | Dist. FT | V₁ KIAS | Dist. FT | V₁ KIAS | | | |
| 16,000 | -54 | 3,350 | 90 | 2,550 | 90 | 2,310 | 90 | 2,090 | 90 | 90 | 98 | 101 |
| | -20 | 3,760 | 89 | 2,900 | 89 | 2,650 | 89 | 2,450 | 89 | 90 | 98 | 101 |
| | -10 | 3,920 | 89 | 3,090 | 89 | 2,880 | 89 | 2,680 | 89 | 90 | 98 | 100 |
| | 0 | 4,170 | 89 | 3,420 | 89 | 3,190 | 89 | 2,970 | 89 | 90 | 97 | 100 |
| | 10 | 4,950 | 88 | 4,080 | 88 | 3,800 | 88 | 3,540 | 88 | 90 | 97 | 99 |
| | 20 | 6,630 | 88 | 5,490 | 88 | 5,130 | 88 | 4,800 | 88 | 90 | 97 | 99 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 33 | - | - | - | - | - | - | - | - | - | - | - |
| 15,000 | -54 | 3,290 | 90 | 2,510 | 90 | 2,270 | 90 | 2,040 | 90 | 90 | 99 | 102 |
| | -20 | 3,670 | 89 | 2,840 | 89 | 2,590 | 89 | 2,340 | 89 | 90 | 98 | 101 |
| | -10 | 3,840 | 89 | 2,970 | 89 | 2,710 | 89 | 2,460 | 89 | 90 | 98 | 100 |
| | 0 | 4,010 | 89 | 3,120 | 89 | 2,850 | 89 | 2,610 | 89 | 89 | 97 | 99 |
| | 10 | 4,330 | 89 | 3,460 | 89 | 3,220 | 89 | 3,000 | 89 | 89 | 96 | 98 |
| | 20 | 5,330 | 88 | 4,400 | 88 | 4,110 | 88 | 3,830 | 88 | 88 | 95 | 97 |
| | 30 | 7,200 | 88 | 6,090 | 88 | 5,710 | 88 | 5,330 | 88 | 88 | 95 | 96 |
| | 33 | - | - | - | - | - | - | - | - | - | - | - |
| 14,000 | -54 | 3,220 | 90 | 2,460 | 90 | 2,230 | 90 | 2,010 | 90 | 90 | 99 | 102 |
| | -20 | 3,600 | 90 | 2,780 | 90 | 2,540 | 90 | 2,300 | 90 | 90 | 98 | 101 |
| | -10 | 3,750 | 89 | 2,910 | 89 | 2,650 | 89 | 2,410 | 89 | 90 | 98 | 100 |
| | 0 | 3,910 | 89 | 3,050 | 89 | 2,790 | 89 | 2,540 | 89 | 89 | 97 | 99 |
| | 10 | 4,200 | 89 | 3,270 | 89 | 2,990 | 89 | 2,720 | 89 | 89 | 96 | 98 |
| | 20 | 4,660 | 88 | 3,770 | 88 | 3,520 | 88 | 3,270 | 88 | 89 | 95 | 96 |
| | 30 | 6,000 | 88 | 4,960 | 88 | 4,640 | 88 | 4,320 | 88 | 88 | 95 | 95 |
| | 33 | 6,600 | 88 | 5,500 | 88 | 5,150 | 88 | 4,800 | 88 | 88 | 94 | 95 |
| 13,000 | -54 | 3,160 | 90 | 2,420 | 90 | 2,190 | 90 | 1,980 | 90 | 91 | 99 | 103 |
| | -20 | 3,520 | 90 | 2,740 | 90 | 2,490 | 90 | 2,260 | 90 | 90 | 99 | 102 |
| | -10 | 3,660 | 90 | 2,850 | 90 | 2,600 | 90 | 2,370 | 90 | 90 | 98 | 101 |
| | 0 | 3,830 | 89 | 2,980 | 89 | 2,730 | 89 | 2,480 | 89 | 90 | 97 | 100 |
| | 10 | 4,080 | 89 | 3,180 | 89 | 2,910 | 89 | 2,650 | 89 | 89 | 96 | 98 |
| | 20 | 4,440 | 88 | 3,470 | 88 | 3,170 | 88 | 2,910 | 88 | 89 | 95 | 96 |
| | 30 | 4,950 | 88 | 4,020 | 88 | 3,750 | 88 | 3,490 | 88 | 88 | 93 | 94 |
| | 33 | 5,230 | 88 | 4,320 | 88 | 4,030 | 88 | 3,750 | 88 | 88 | 93 | 94 |



11 Pressure Altitude: 10,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 10,000 feet | | | | | | | | | | | | |
|--------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,600 | 98 | 3,760 | 98 | 3,500 | 98 | 3,250 | 98 | 98 | 105 | 108 |
| | -10 | 6,310 | 98 | 5,240 | 98 | 4,890 | 98 | 4,570 | 98 | 98 | 106 | 108 |
| | 0 | 7,180 | 98 | 5,980 | 98 | 5,600 | 98 | 5,220 | 98 | 98 | 106 | 108 |
| | 10 | 9,020 | 98 | 7,490 | 98 | 7,020 | 98 | 6,570 | 98 | 98 | 106 | 108 |
| | 20 | - | - | - | - | - | - | - | - | - | - | - |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 31 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 4,190 | 96 | 3,430 | 96 | 3,190 | 96 | 2,960 | 96 | 96 | 103 | 106 |
| | -10 | 5,690 | 96 | 4,730 | 96 | 4,440 | 96 | 4,140 | 96 | 97 | 104 | 106 |
| | 0 | 6,430 | 96 | 5,360 | 96 | 5,040 | 96 | 4,700 | 96 | 96 | 104 | 106 |
| | 10 | 7,950 | 97 | 6,650 | 97 | 6,250 | 97 | 5,850 | 97 | 97 | 104 | 106 |
| | 20 | - | - | - | - | - | - | - | - | - | - | - |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 31 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 4,070 | 95 | 3,300 | 95 | 3,070 | 95 | 2,850 | 95 | 95 | 103 | 105 |
| | -10 | 5,380 | 95 | 4,480 | 95 | 4,190 | 96 | 3,910 | 95 | 96 | 103 | 105 |
| | 0 | 6,090 | 96 | 5,060 | 96 | 4,750 | 96 | 4,440 | 96 | 96 | 103 | 105 |
| | 10 | 7,570 | 96 | 6,310 | 96 | 5,920 | 96 | 5,560 | 96 | 96 | 103 | 105 |
| | 20 | - | - | - | - | - | - | - | - | - | - | - |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 31 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,690 | 91 | 2,920 | 92 | 2,720 | 92 | 2,520 | 92 | 93 | 100 | 103 |
| | -10 | 4,700 | 93 | 3,900 | 93 | 3,640 | 93 | 3,380 | 93 | 93 | 100 | 103 |
| | 0 | 5,270 | 93 | 4,350 | 93 | 4,070 | 93 | 3,800 | 93 | 93 | 100 | 103 |
| | 10 | 6,450 | 93 | 5,370 | 93 | 5,010 | 93 | 4,700 | 93 | 93 | 100 | 102 |
| | 20 | 9,110 | 93 | 7,660 | 93 | 7,180 | 93 | 6,750 | 93 | 93 | 101 | 102 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 31 | - | - | - | - | - | - | - | - | - | - | - |
| 16,000 | -54 | 3,530 | 89 | 2,690 | 90 | 2,440 | 90 | 2,250 | 90 | 90 | 98 | 101 |
| | -10 | 4,190 | 89 | 3,450 | 89 | 3,220 | 89 | 2,990 | 89 | 90 | 98 | 100 |
| | 0 | 4,680 | 89 | 3,860 | 89 | 3,610 | 89 | 3,350 | 89 | 90 | 97 | 100 |
| | 10 | 5,670 | 88 | 4,680 | 88 | 4,370 | 88 | 4,090 | 88 | 90 | 98 | 100 |
| | 20 | 7,780 | 88 | 6,470 | 88 | 6,060 | 88 | 5,660 | 88 | 90 | 98 | 99 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 31 | - | - | - | - | - | - | - | - | - | - | - |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 15, IPS OFF

| Pressure Altitude: 10,000 feet | | | | | | | | | | | | |
|--------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 15,000 | -54 | 3,450 | 90 | 2,640 | 90 | 2,390 | 90 | 2,160 | 90 | 90 | 98 | 101 |
| | -10 | 4,060 | 89 | 3,180 | 89 | 2,900 | 89 | 2,640 | 89 | 89 | 97 | 99 |
| | 0 | 4,290 | 89 | 3,340 | 89 | 3,110 | 89 | 2,890 | 89 | 89 | 97 | 99 |
| | 10 | 4,740 | 88 | 3,900 | 88 | 3,630 | 88 | 3,390 | 88 | 89 | 96 | 98 |
| | 20 | 6,140 | 88 | 5,090 | 88 | 4,750 | 88 | 4,430 | 88 | 88 | 95 | 97 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 31 | - | - | - | - | - | - | - | - | - | - | - |
| 14,000 | -54 | 3,380 | 90 | 2,590 | 90 | 2,350 | 90 | 2,120 | 90 | 90 | 99 | 102 |
| | -10 | 3,990 | 89 | 3,110 | 89 | 2,830 | 89 | 2,580 | 89 | 90 | 97 | 100 |
| | 0 | 4,170 | 89 | 3,260 | 89 | 2,980 | 89 | 2,730 | 89 | 89 | 97 | 99 |
| | 10 | 4,530 | 89 | 3,540 | 89 | 3,240 | 89 | 3,000 | 89 | 89 | 96 | 97 |
| | 20 | 5,210 | 88 | 4,290 | 88 | 4,010 | 88 | 3,730 | 88 | 88 | 95 | 96 |
| | 30 | 7,040 | 88 | 5,840 | 88 | 5,470 | 88 | 5,100 | 88 | 88 | 95 | 95 |
| | 31 | - | - | - | - | - | - | - | - | - | - | - |
| 13,000 | -54 | 3,310 | 90 | 2,550 | 90 | 2,320 | 90 | 2,090 | 90 | 91 | 99 | 102 |
| | -10 | 3,890 | 89 | 3,030 | 89 | 2,780 | 89 | 2,530 | 89 | 90 | 98 | 100 |
| | 0 | 4,060 | 89 | 3,190 | 89 | 2,920 | 89 | 2,660 | 89 | 89 | 97 | 99 |
| | 10 | 4,390 | 89 | 3,430 | 89 | 3,140 | 89 | 2,860 | 89 | 89 | 96 | 98 |
| | 20 | 4,800 | 88 | 3,760 | 88 | 3,450 | 88 | 3,210 | 88 | 89 | 94 | 96 |
| | 30 | 5,500 | 88 | 4,570 | 88 | 4,250 | 88 | 3,950 | 88 | 88 | 93 | 94 |
| | 31 | - | - | - | - | - | - | - | - | - | - | - |



Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON

1 Pressure Altitude: Sea level

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: Sea level | | | | | | | | | | | | |
|------------------------------|------------|----------|---------------------|----------|---------------------|----------|---------------------|----------|---------------------|------------------|----------------|-----|
| Wind Factor: | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R | V _{LOF} | V ₂ | |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | KIAS | KIAS | |
| 18,740 | -54 | 3,240 | 101 | 2,590 | 101 | 2,390 | 101 | 2,190 | 101 | 101 | 107 | 110 |
| | -50 | 3,280 | 101 | 2,620 | 101 | 2,420 | 101 | 2,220 | 101 | 101 | 107 | 110 |
| | -40 | 3,400 | 101 | 2,710 | 101 | 2,500 | 101 | 2,300 | 101 | 101 | 107 | 110 |
| | -30 | 3,520 | 101 | 2,810 | 101 | 2,600 | 101 | 2,390 | 101 | 102 | 107 | 110 |
| | -20 | 3,630 | 101 | 2,910 | 102 | 2,700 | 102 | 2,480 | 102 | 102 | 108 | 111 |
| | -10 | 3,740 | 101 | 3,000 | 102 | 2,780 | 102 | 2,570 | 102 | 102 | 108 | 111 |
| | 0 | 3,850 | 101 | 3,110 | 102 | 2,880 | 102 | 2,660 | 102 | 102 | 108 | 111 |
| | 10 | 3,970 | 101 | 3,200 | 101 | 2,980 | 101 | 2,760 | 102 | 102 | 108 | 111 |
| 18,300 | -54 | 3,080 | 98 | 2,400 | 99 | 2,220 | 99 | 2,020 | 99 | 99 | 105 | 108 |
| | -50 | 3,120 | 98 | 2,440 | 99 | 2,250 | 99 | 2,050 | 99 | 99 | 105 | 108 |
| | -40 | 3,220 | 98 | 2,520 | 99 | 2,320 | 99 | 2,130 | 99 | 99 | 105 | 108 |
| | -30 | 3,320 | 98 | 2,600 | 99 | 2,400 | 99 | 2,210 | 99 | 99 | 105 | 108 |
| | -20 | 3,410 | 97 | 2,680 | 99 | 2,480 | 99 | 2,280 | 99 | 99 | 105 | 108 |
| | -10 | 3,520 | 97 | 2,770 | 99 | 2,550 | 99 | 2,360 | 99 | 99 | 106 | 108 |
| | 0 | 3,620 | 97 | 2,860 | 99 | 2,630 | 99 | 2,440 | 99 | 99 | 106 | 108 |
| | 10 | 3,730 | 97 | 2,950 | 99 | 2,730 | 99 | 2,520 | 99 | 99 | 105 | 108 |
| 18,000 | -54 | 2,980 | 97 | 2,320 | 99 | 2,130 | 99 | 1,940 | 99 | 99 | 105 | 108 |
| | -50 | 3,020 | 96 | 2,350 | 99 | 2,160 | 99 | 1,970 | 99 | 99 | 105 | 108 |
| | -40 | 3,120 | 96 | 2,430 | 99 | 2,230 | 99 | 2,040 | 99 | 99 | 105 | 108 |
| | -30 | 3,220 | 96 | 2,520 | 98 | 2,300 | 99 | 2,120 | 99 | 99 | 105 | 107 |
| | -20 | 3,310 | 96 | 2,600 | 98 | 2,380 | 99 | 2,190 | 99 | 99 | 105 | 107 |
| | -10 | 3,410 | 96 | 2,680 | 98 | 2,460 | 99 | 2,270 | 99 | 99 | 105 | 107 |
| | 0 | 3,510 | 96 | 2,770 | 98 | 2,550 | 98 | 2,350 | 99 | 99 | 105 | 107 |
| | 10 | 3,620 | 96 | 2,860 | 98 | 2,630 | 98 | 2,420 | 99 | 99 | 105 | 107 |
| 17,000 | -54 | 2,710 | 92 | 2,090 | 95 | 1,890 | 95 | 1,730 | 95 | 96 | 102 | 105 |
| | -50 | 2,750 | 92 | 2,120 | 95 | 1,930 | 95 | 1,760 | 96 | 96 | 102 | 105 |
| | -40 | 2,840 | 92 | 2,190 | 94 | 2,000 | 95 | 1,820 | 95 | 96 | 102 | 105 |
| | -30 | 2,930 | 92 | 2,270 | 94 | 2,070 | 95 | 1,880 | 95 | 96 | 102 | 105 |
| | -20 | 3,020 | 92 | 2,350 | 94 | 2,140 | 95 | 1,950 | 95 | 96 | 102 | 105 |
| | -10 | 3,100 | 92 | 2,430 | 94 | 2,230 | 95 | 2,040 | 96 | 96 | 102 | 105 |
| | 0 | 3,190 | 92 | 2,510 | 94 | 2,300 | 95 | 2,110 | 96 | 96 | 102 | 105 |
| | 10 | 3,290 | 92 | 2,590 | 94 | 2,380 | 95 | 2,180 | 96 | 96 | 102 | 105 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON

| Pressure Altitude: Sea level | | | | | | | | | | | | |
|------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,560 | 90 | 1,890 | 90 | 1,730 | 90 | 1,580 | 90 | 92 | 99 | 102 |
| | -50 | 2,590 | 90 | 1,930 | 90 | 1,760 | 90 | 1,610 | 90 | 93 | 99 | 102 |
| | -40 | 2,680 | 90 | 1,990 | 90 | 1,830 | 90 | 1,680 | 90 | 93 | 99 | 102 |
| | -30 | 2,760 | 90 | 2,060 | 90 | 1,900 | 90 | 1,730 | 90 | 92 | 100 | 103 |
| | -20 | 2,840 | 90 | 2,130 | 90 | 1,970 | 90 | 1,800 | 90 | 93 | 100 | 103 |
| | -10 | 2,930 | 90 | 2,210 | 90 | 2,030 | 90 | 1,860 | 90 | 92 | 100 | 103 |
| | 0 | 3,000 | 90 | 2,280 | 90 | 2,100 | 90 | 1,930 | 90 | 92 | 100 | 103 |
| 15,000 | 10 | 3,090 | 90 | 2,350 | 90 | 2,170 | 90 | 2,010 | 90 | 92 | 100 | 103 |
| | -54 | 2,510 | 91 | 1,850 | 91 | 1,650 | 91 | 1,460 | 91 | 91 | 99 | 102 |
| | -50 | 2,540 | 91 | 1,870 | 91 | 1,670 | 91 | 1,480 | 91 | 91 | 99 | 102 |
| | -40 | 2,630 | 90 | 1,950 | 90 | 1,740 | 90 | 1,550 | 90 | 91 | 99 | 102 |
| | -30 | 2,710 | 90 | 2,010 | 90 | 1,810 | 90 | 1,610 | 90 | 91 | 99 | 102 |
| | -20 | 2,790 | 90 | 2,080 | 90 | 1,870 | 90 | 1,670 | 90 | 91 | 99 | 102 |
| | -10 | 2,860 | 90 | 2,150 | 90 | 1,930 | 90 | 1,730 | 90 | 91 | 99 | 102 |
| 14,000 | 0 | 2,950 | 90 | 2,220 | 90 | 2,000 | 90 | 1,790 | 90 | 90 | 99 | 102 |
| | 10 | 3,020 | 90 | 2,290 | 90 | 2,070 | 90 | 1,850 | 90 | 90 | 98 | 102 |
| | -54 | 2,470 | 91 | 1,820 | 91 | 1,630 | 91 | 1,440 | 91 | 91 | 99 | 103 |
| | -50 | 2,500 | 91 | 1,850 | 91 | 1,650 | 91 | 1,470 | 91 | 91 | 99 | 103 |
| | -40 | 2,580 | 91 | 1,910 | 91 | 1,710 | 91 | 1,530 | 91 | 91 | 99 | 103 |
| | -30 | 2,650 | 91 | 1,980 | 91 | 1,780 | 91 | 1,590 | 91 | 91 | 99 | 103 |
| | -20 | 2,730 | 90 | 2,050 | 90 | 1,840 | 90 | 1,650 | 90 | 91 | 99 | 103 |
| 13,000 | -10 | 2,810 | 90 | 2,110 | 90 | 1,900 | 90 | 1,710 | 90 | 91 | 99 | 102 |
| | 0 | 2,890 | 90 | 2,180 | 90 | 1,960 | 90 | 1,770 | 90 | 91 | 99 | 102 |
| | 10 | 2,960 | 90 | 2,250 | 90 | 2,030 | 90 | 1,830 | 90 | 91 | 99 | 102 |
| | -54 | 2,430 | 91 | 1,800 | 91 | 1,610 | 91 | 1,430 | 91 | 92 | 99 | 104 |
| | -50 | 2,460 | 91 | 1,820 | 91 | 1,630 | 91 | 1,450 | 91 | 92 | 99 | 104 |
| | -40 | 2,540 | 91 | 1,890 | 91 | 1,690 | 91 | 1,510 | 91 | 92 | 99 | 104 |
| | -30 | 2,610 | 91 | 1,950 | 91 | 1,750 | 91 | 1,570 | 91 | 91 | 99 | 103 |
| 12,000 | -20 | 2,690 | 91 | 2,020 | 91 | 1,810 | 91 | 1,620 | 91 | 91 | 99 | 103 |
| | -10 | 2,760 | 91 | 2,080 | 91 | 1,880 | 91 | 1,680 | 91 | 91 | 99 | 103 |
| | 0 | 2,840 | 91 | 2,150 | 91 | 1,940 | 91 | 1,740 | 91 | 91 | 99 | 103 |
| | 10 | 2,910 | 90 | 2,210 | 90 | 2,000 | 90 | 1,800 | 90 | 91 | 99 | 103 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON

2 Pressure Altitude: 1,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 1,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,340 | 101 | 2,660 | 101 | 2,460 | 101 | 2,260 | 101 | 101 | 107 | 110 |
| | -50 | 3,380 | 101 | 2,700 | 101 | 2,490 | 101 | 2,290 | 101 | 101 | 107 | 110 |
| | -40 | 3,510 | 101 | 2,800 | 101 | 2,590 | 101 | 2,390 | 101 | 102 | 107 | 110 |
| | -30 | 3,620 | 101 | 2,900 | 102 | 2,690 | 102 | 2,480 | 102 | 102 | 108 | 111 |
| | -20 | 3,730 | 101 | 3,000 | 102 | 2,780 | 102 | 2,560 | 102 | 102 | 108 | 111 |
| | -10 | 3,850 | 101 | 3,090 | 102 | 2,870 | 102 | 2,660 | 102 | 102 | 108 | 111 |
| | 0 | 3,970 | 101 | 3,200 | 101 | 2,970 | 101 | 2,750 | 102 | 102 | 108 | 111 |
| | 10 | 4,090 | 101 | 3,310 | 101 | 3,080 | 101 | 2,860 | 101 | 101 | 108 | 111 |
| 18,300 | -54 | 3,160 | 98 | 2,470 | 99 | 2,280 | 99 | 2,090 | 99 | 99 | 105 | 108 |
| | -50 | 3,200 | 98 | 2,500 | 99 | 2,310 | 99 | 2,120 | 99 | 99 | 105 | 108 |
| | -40 | 3,300 | 98 | 2,590 | 99 | 2,390 | 99 | 2,200 | 99 | 99 | 105 | 108 |
| | -30 | 3,410 | 97 | 2,680 | 99 | 2,470 | 99 | 2,280 | 99 | 99 | 106 | 108 |
| | -20 | 3,510 | 97 | 2,770 | 99 | 2,550 | 99 | 2,360 | 99 | 99 | 106 | 108 |
| | -10 | 3,620 | 97 | 2,860 | 99 | 2,630 | 99 | 2,440 | 99 | 99 | 106 | 108 |
| | 0 | 3,730 | 97 | 2,950 | 99 | 2,720 | 99 | 2,520 | 99 | 99 | 106 | 108 |
| | 10 | 3,840 | 97 | 3,050 | 99 | 2,810 | 99 | 2,600 | 99 | 99 | 106 | 108 |
| 18,000 | -54 | 3,060 | 96 | 2,390 | 99 | 2,190 | 99 | 2,010 | 99 | 99 | 105 | 108 |
| | -50 | 3,100 | 96 | 2,420 | 99 | 2,220 | 99 | 2,040 | 99 | 99 | 105 | 108 |
| | -40 | 3,200 | 96 | 2,510 | 98 | 2,300 | 99 | 2,110 | 99 | 99 | 105 | 108 |
| | -30 | 3,300 | 96 | 2,590 | 98 | 2,380 | 99 | 2,190 | 99 | 99 | 105 | 107 |
| | -20 | 3,410 | 96 | 2,680 | 98 | 2,460 | 99 | 2,260 | 99 | 99 | 105 | 107 |
| | -10 | 3,510 | 96 | 2,770 | 98 | 2,540 | 98 | 2,340 | 99 | 99 | 105 | 107 |
| | 0 | 3,610 | 96 | 2,860 | 98 | 2,620 | 98 | 2,420 | 99 | 99 | 105 | 107 |
| | 10 | 3,720 | 96 | 2,950 | 98 | 2,720 | 98 | 2,500 | 98 | 99 | 105 | 107 |
| 17,000 | -54 | 2,790 | 92 | 2,150 | 94 | 1,960 | 95 | 1,780 | 96 | 96 | 102 | 105 |
| | -50 | 2,820 | 92 | 2,180 | 94 | 1,980 | 95 | 1,810 | 96 | 96 | 102 | 105 |
| | -40 | 2,910 | 92 | 2,260 | 94 | 2,060 | 95 | 1,880 | 95 | 96 | 102 | 105 |
| | -30 | 3,000 | 92 | 2,340 | 94 | 2,140 | 95 | 1,960 | 96 | 96 | 102 | 105 |
| | -20 | 3,090 | 92 | 2,430 | 94 | 2,220 | 95 | 2,040 | 96 | 96 | 102 | 105 |
| | -10 | 3,190 | 92 | 2,510 | 94 | 2,300 | 95 | 2,110 | 96 | 96 | 102 | 105 |
| | 0 | 3,280 | 92 | 2,590 | 94 | 2,380 | 95 | 2,180 | 96 | 96 | 102 | 105 |
| | 10 | 3,380 | 92 | 2,670 | 94 | 2,460 | 94 | 2,260 | 95 | 96 | 102 | 105 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON

| Pressure Altitude: 1,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,630 | 90 | 1,960 | 90 | 1,790 | 90 | 1,640 | 90 | 92 | 99 | 102 |
| | -50 | 2,670 | 90 | 1,980 | 90 | 1,820 | 90 | 1,660 | 90 | 92 | 99 | 102 |
| | -40 | 2,750 | 90 | 2,060 | 90 | 1,890 | 90 | 1,730 | 90 | 92 | 99 | 103 |
| | -30 | 2,830 | 90 | 2,120 | 90 | 1,960 | 90 | 1,800 | 90 | 92 | 99 | 102 |
| | -20 | 2,920 | 90 | 2,200 | 90 | 2,030 | 90 | 1,860 | 90 | 92 | 100 | 102 |
| | -10 | 3,000 | 90 | 2,270 | 90 | 2,100 | 90 | 1,930 | 90 | 92 | 100 | 102 |
| | 0 | 3,090 | 90 | 2,350 | 90 | 2,170 | 90 | 2,010 | 90 | 92 | 100 | 102 |
| | 10 | 3,180 | 90 | 2,430 | 90 | 2,250 | 90 | 2,080 | 90 | 92 | 100 | 102 |
| 15,000 | -54 | 2,580 | 90 | 1,900 | 90 | 1,700 | 90 | 1,510 | 91 | 91 | 99 | 102 |
| | -50 | 2,610 | 90 | 1,930 | 90 | 1,730 | 90 | 1,540 | 90 | 91 | 99 | 102 |
| | -40 | 2,700 | 90 | 2,000 | 90 | 1,800 | 90 | 1,600 | 90 | 91 | 99 | 102 |
| | -30 | 2,780 | 90 | 2,070 | 90 | 1,860 | 90 | 1,660 | 90 | 91 | 99 | 102 |
| | -20 | 2,860 | 90 | 2,140 | 90 | 1,930 | 90 | 1,730 | 90 | 91 | 99 | 102 |
| | -10 | 2,950 | 90 | 2,220 | 90 | 2,000 | 90 | 1,790 | 90 | 90 | 98 | 102 |
| | 0 | 3,030 | 90 | 2,290 | 90 | 2,070 | 90 | 1,850 | 90 | 90 | 99 | 102 |
| | 10 | 3,110 | 90 | 2,360 | 90 | 2,130 | 90 | 1,920 | 90 | 90 | 99 | 102 |
| 14,000 | -54 | 2,530 | 91 | 1,880 | 91 | 1,680 | 91 | 1,490 | 91 | 91 | 99 | 103 |
| | -50 | 2,570 | 91 | 1,900 | 91 | 1,700 | 91 | 1,520 | 91 | 91 | 99 | 103 |
| | -40 | 2,650 | 91 | 1,970 | 91 | 1,770 | 91 | 1,580 | 91 | 91 | 99 | 103 |
| | -30 | 2,730 | 90 | 2,040 | 90 | 1,840 | 90 | 1,640 | 90 | 91 | 99 | 103 |
| | -20 | 2,810 | 90 | 2,110 | 90 | 1,900 | 90 | 1,700 | 90 | 91 | 99 | 102 |
| | -10 | 2,890 | 90 | 2,180 | 90 | 1,970 | 90 | 1,760 | 90 | 91 | 99 | 102 |
| | 0 | 2,960 | 90 | 2,250 | 90 | 2,030 | 90 | 1,830 | 90 | 91 | 99 | 102 |
| | 10 | 3,050 | 90 | 2,320 | 90 | 2,100 | 90 | 1,890 | 90 | 90 | 99 | 102 |
| 13,000 | -54 | 2,490 | 91 | 1,850 | 91 | 1,660 | 91 | 1,470 | 91 | 92 | 99 | 104 |
| | -50 | 2,520 | 91 | 1,880 | 91 | 1,680 | 91 | 1,500 | 91 | 92 | 99 | 104 |
| | -40 | 2,600 | 91 | 1,940 | 91 | 1,750 | 91 | 1,560 | 91 | 91 | 99 | 103 |
| | -30 | 2,680 | 91 | 2,010 | 91 | 1,810 | 91 | 1,620 | 91 | 91 | 99 | 103 |
| | -20 | 2,760 | 91 | 2,080 | 91 | 1,870 | 91 | 1,680 | 91 | 91 | 99 | 103 |
| | -10 | 2,840 | 91 | 2,140 | 91 | 1,940 | 91 | 1,740 | 91 | 91 | 99 | 103 |
| | 0 | 2,910 | 90 | 2,210 | 90 | 2,000 | 90 | 1,800 | 90 | 91 | 99 | 103 |
| | 10 | 2,990 | 90 | 2,280 | 90 | 2,060 | 90 | 1,860 | 90 | 91 | 99 | 103 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON

3 Pressure Altitude: 2,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 2,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,420 | 101 | 2,750 | 101 | 2,540 | 101 | 2,340 | 101 | 101 | 107 | 110 |
| | -50 | 3,490 | 101 | 2,780 | 101 | 2,570 | 101 | 2,370 | 101 | 102 | 107 | 110 |
| | -40 | 3,610 | 101 | 2,890 | 102 | 2,670 | 102 | 2,460 | 102 | 102 | 108 | 111 |
| | -30 | 3,730 | 101 | 2,990 | 102 | 2,770 | 102 | 2,560 | 102 | 102 | 108 | 111 |
| | -20 | 3,840 | 101 | 3,090 | 102 | 2,870 | 102 | 2,650 | 102 | 102 | 108 | 111 |
| | -10 | 3,960 | 101 | 3,190 | 101 | 2,970 | 102 | 2,750 | 102 | 102 | 108 | 111 |
| | 0 | 4,090 | 101 | 3,300 | 101 | 3,070 | 101 | 2,840 | 101 | 101 | 108 | 111 |
| | 10 | 4,220 | 101 | 3,420 | 101 | 3,180 | 101 | 2,960 | 101 | 101 | 108 | 111 |
| 18,300 | -54 | 3,250 | 98 | 2,540 | 99 | 2,350 | 99 | 2,150 | 99 | 99 | 105 | 108 |
| | -50 | 3,290 | 98 | 2,580 | 99 | 2,380 | 99 | 2,190 | 99 | 99 | 105 | 108 |
| | -40 | 3,390 | 98 | 2,670 | 99 | 2,460 | 99 | 2,270 | 99 | 99 | 106 | 108 |
| | -30 | 3,500 | 97 | 2,760 | 99 | 2,550 | 99 | 2,350 | 99 | 99 | 106 | 108 |
| | -20 | 3,610 | 97 | 2,850 | 99 | 2,630 | 99 | 2,430 | 99 | 99 | 106 | 108 |
| | -10 | 3,720 | 97 | 2,940 | 99 | 2,720 | 99 | 2,510 | 99 | 99 | 105 | 108 |
| | 0 | 3,830 | 97 | 3,040 | 99 | 2,800 | 99 | 2,590 | 99 | 99 | 106 | 108 |
| | 10 | 3,950 | 97 | 3,160 | 99 | 2,920 | 100 | 2,700 | 100 | 100 | 106 | 108 |
| 18,000 | -54 | 3,150 | 96 | 2,460 | 99 | 2,260 | 99 | 2,070 | 99 | 99 | 105 | 108 |
| | -50 | 3,190 | 96 | 2,490 | 98 | 2,290 | 99 | 2,100 | 99 | 99 | 105 | 108 |
| | -40 | 3,290 | 96 | 2,580 | 98 | 2,370 | 99 | 2,180 | 99 | 99 | 105 | 107 |
| | -30 | 3,400 | 96 | 2,670 | 98 | 2,450 | 99 | 2,260 | 99 | 99 | 105 | 107 |
| | -20 | 3,500 | 96 | 2,760 | 98 | 2,540 | 98 | 2,340 | 99 | 99 | 105 | 107 |
| | -10 | 3,610 | 96 | 2,850 | 98 | 2,620 | 98 | 2,420 | 99 | 99 | 105 | 107 |
| | 0 | 3,720 | 96 | 2,950 | 98 | 2,710 | 98 | 2,500 | 99 | 99 | 105 | 107 |
| | 10 | 3,830 | 96 | 3,050 | 97 | 2,800 | 98 | 2,580 | 98 | 99 | 105 | 107 |
| 17,000 | -54 | 2,870 | 92 | 2,220 | 94 | 2,020 | 95 | 1,840 | 96 | 96 | 102 | 105 |
| | -50 | 2,900 | 92 | 2,250 | 94 | 2,050 | 95 | 1,870 | 96 | 96 | 102 | 105 |
| | -40 | 3,000 | 92 | 2,330 | 94 | 2,130 | 95 | 1,940 | 95 | 96 | 102 | 105 |
| | -30 | 3,090 | 92 | 2,420 | 94 | 2,220 | 95 | 2,030 | 96 | 96 | 102 | 105 |
| | -20 | 3,180 | 92 | 2,500 | 94 | 2,300 | 95 | 2,100 | 96 | 96 | 102 | 105 |
| | -10 | 3,280 | 92 | 2,580 | 94 | 2,380 | 95 | 2,180 | 96 | 96 | 102 | 105 |
| | 0 | 3,380 | 92 | 2,670 | 94 | 2,460 | 94 | 2,250 | 95 | 96 | 102 | 105 |
| | 10 | 3,480 | 92 | 2,760 | 94 | 2,540 | 94 | 2,340 | 95 | 96 | 102 | 105 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON

| Pressure Altitude: 2,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,700 | 90 | 2,010 | 90 | 1,850 | 90 | 1,700 | 90 | 93 | 99 | 102 |
| | -50 | 2,740 | 90 | 2,050 | 90 | 1,880 | 90 | 1,720 | 90 | 92 | 100 | 102 |
| | -40 | 2,820 | 90 | 2,120 | 90 | 1,950 | 90 | 1,790 | 90 | 92 | 100 | 103 |
| | -30 | 2,910 | 90 | 2,200 | 90 | 2,020 | 90 | 1,860 | 90 | 92 | 100 | 103 |
| | -20 | 3,000 | 90 | 2,270 | 90 | 2,090 | 90 | 1,930 | 90 | 92 | 100 | 103 |
| | -10 | 3,090 | 90 | 2,350 | 90 | 2,170 | 90 | 2,000 | 90 | 92 | 100 | 103 |
| | 0 | 3,180 | 90 | 2,430 | 90 | 2,250 | 90 | 2,080 | 90 | 92 | 100 | 103 |
| | 10 | 3,270 | 90 | 2,510 | 90 | 2,330 | 90 | 2,150 | 90 | 92 | 100 | 103 |
| 15,000 | -54 | 2,650 | 90 | 1,960 | 90 | 1,760 | 90 | 1,560 | 90 | 91 | 99 | 102 |
| | -50 | 2,680 | 90 | 1,990 | 90 | 1,780 | 90 | 1,590 | 90 | 91 | 99 | 102 |
| | -40 | 2,770 | 90 | 2,070 | 90 | 1,860 | 90 | 1,650 | 90 | 91 | 99 | 102 |
| | -30 | 2,860 | 90 | 2,140 | 90 | 1,920 | 90 | 1,720 | 90 | 91 | 99 | 102 |
| | -20 | 2,940 | 90 | 2,210 | 90 | 1,990 | 90 | 1,790 | 90 | 90 | 99 | 102 |
| | -10 | 3,020 | 90 | 2,290 | 90 | 2,070 | 90 | 1,850 | 90 | 90 | 98 | 102 |
| | 0 | 3,110 | 90 | 2,360 | 90 | 2,130 | 90 | 1,920 | 90 | 90 | 98 | 102 |
| | 10 | 3,200 | 90 | 2,430 | 90 | 2,200 | 90 | 1,980 | 90 | 90 | 98 | 101 |
| 14,000 | -54 | 2,600 | 91 | 1,930 | 91 | 1,730 | 91 | 1,540 | 91 | 91 | 99 | 103 |
| | -50 | 2,640 | 91 | 1,960 | 91 | 1,760 | 91 | 1,570 | 91 | 91 | 99 | 103 |
| | -40 | 2,720 | 90 | 2,030 | 90 | 1,820 | 90 | 1,630 | 91 | 91 | 99 | 103 |
| | -30 | 2,800 | 90 | 2,100 | 90 | 1,900 | 90 | 1,700 | 90 | 91 | 99 | 102 |
| | -20 | 2,880 | 90 | 2,180 | 90 | 1,960 | 90 | 1,760 | 90 | 91 | 99 | 102 |
| | -10 | 2,960 | 90 | 2,250 | 90 | 2,030 | 90 | 1,820 | 90 | 91 | 99 | 102 |
| | 0 | 3,050 | 90 | 2,320 | 90 | 2,100 | 90 | 1,890 | 90 | 90 | 99 | 102 |
| | 10 | 3,130 | 90 | 2,390 | 90 | 2,170 | 90 | 1,950 | 90 | 90 | 99 | 102 |
| 13,000 | -54 | 2,560 | 91 | 1,910 | 91 | 1,710 | 91 | 1,520 | 91 | 91 | 99 | 104 |
| | -50 | 2,590 | 91 | 1,930 | 91 | 1,730 | 91 | 1,550 | 91 | 91 | 99 | 103 |
| | -40 | 2,670 | 91 | 2,000 | 91 | 1,800 | 91 | 1,610 | 91 | 91 | 99 | 103 |
| | -30 | 2,750 | 91 | 2,070 | 91 | 1,870 | 91 | 1,670 | 91 | 91 | 99 | 103 |
| | -20 | 2,830 | 91 | 2,140 | 91 | 1,930 | 91 | 1,740 | 91 | 91 | 99 | 103 |
| | -10 | 2,910 | 90 | 2,210 | 90 | 2,000 | 90 | 1,800 | 90 | 91 | 99 | 103 |
| | 0 | 2,990 | 90 | 2,280 | 90 | 2,060 | 90 | 1,860 | 90 | 91 | 99 | 103 |
| | 10 | 3,070 | 90 | 2,350 | 90 | 2,130 | 90 | 1,930 | 90 | 91 | 99 | 103 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON

4 Pressure Altitude: 3,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 3,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,540 | 101 | 2,820 | 101 | 2,610 | 101 | 2,400 | 101 | 102 | 107 | 110 |
| | -50 | 3,590 | 101 | 2,870 | 102 | 2,660 | 102 | 2,440 | 101 | 102 | 108 | 111 |
| | -40 | 3,710 | 101 | 2,980 | 102 | 2,760 | 102 | 2,550 | 102 | 102 | 108 | 111 |
| | -30 | 3,830 | 101 | 3,080 | 102 | 2,860 | 102 | 2,650 | 102 | 102 | 108 | 111 |
| | -20 | 3,960 | 101 | 3,190 | 101 | 2,960 | 102 | 2,740 | 102 | 102 | 108 | 111 |
| | -10 | 4,080 | 101 | 3,290 | 101 | 3,060 | 101 | 2,840 | 101 | 101 | 108 | 111 |
| | 0 | 4,210 | 101 | 3,400 | 101 | 3,170 | 101 | 2,950 | 101 | 101 | 108 | 111 |
| | 10 | 4,380 | 101 | 3,590 | 101 | 3,350 | 101 | 3,110 | 101 | 101 | 108 | 111 |
| 18,300 | -54 | 3,330 | 98 | 2,620 | 99 | 2,410 | 99 | 2,220 | 99 | 99 | 105 | 108 |
| | -50 | 3,380 | 98 | 2,650 | 99 | 2,440 | 99 | 2,260 | 99 | 99 | 105 | 108 |
| | -40 | 3,490 | 97 | 2,740 | 99 | 2,540 | 99 | 2,340 | 99 | 99 | 105 | 108 |
| | -30 | 3,600 | 97 | 2,840 | 99 | 2,620 | 99 | 2,420 | 99 | 99 | 106 | 108 |
| | -20 | 3,710 | 97 | 2,940 | 99 | 2,710 | 99 | 2,510 | 99 | 99 | 106 | 108 |
| | -10 | 3,830 | 97 | 3,040 | 99 | 2,790 | 99 | 2,590 | 99 | 99 | 106 | 108 |
| | 0 | 3,940 | 97 | 3,150 | 99 | 2,910 | 100 | 2,700 | 100 | 100 | 106 | 108 |
| | 10 | 4,080 | 97 | 3,290 | 99 | 3,050 | 99 | 2,820 | 100 | 100 | 106 | 108 |
| 18,000 | -54 | 3,230 | 96 | 2,530 | 98 | 2,320 | 99 | 2,140 | 99 | 99 | 105 | 107 |
| | -50 | 3,270 | 96 | 2,560 | 98 | 2,350 | 99 | 2,170 | 99 | 99 | 105 | 107 |
| | -40 | 3,390 | 96 | 2,660 | 98 | 2,440 | 99 | 2,240 | 99 | 99 | 105 | 107 |
| | -30 | 3,490 | 96 | 2,750 | 98 | 2,520 | 98 | 2,320 | 99 | 99 | 105 | 107 |
| | -20 | 3,600 | 96 | 2,850 | 98 | 2,610 | 98 | 2,410 | 99 | 99 | 105 | 107 |
| | -10 | 3,710 | 96 | 2,940 | 97 | 2,710 | 98 | 2,490 | 99 | 99 | 105 | 107 |
| | 0 | 3,820 | 96 | 3,040 | 97 | 2,800 | 98 | 2,580 | 99 | 99 | 105 | 107 |
| | 10 | 3,970 | 96 | 3,170 | 98 | 2,930 | 98 | 2,700 | 99 | 99 | 105 | 107 |
| 17,000 | -54 | 2,940 | 92 | 2,290 | 94 | 2,090 | 95 | 1,900 | 96 | 96 | 102 | 105 |
| | -50 | 2,980 | 92 | 2,320 | 94 | 2,130 | 95 | 1,930 | 96 | 96 | 102 | 105 |
| | -40 | 3,080 | 92 | 2,410 | 94 | 2,210 | 95 | 2,020 | 96 | 96 | 102 | 105 |
| | -30 | 3,180 | 92 | 2,490 | 94 | 2,290 | 95 | 2,100 | 96 | 96 | 102 | 105 |
| | -20 | 3,270 | 92 | 2,580 | 94 | 2,370 | 95 | 2,170 | 95 | 96 | 102 | 105 |
| | -10 | 3,380 | 92 | 2,670 | 94 | 2,450 | 94 | 2,250 | 95 | 96 | 102 | 105 |
| | 0 | 3,480 | 92 | 2,750 | 94 | 2,540 | 94 | 2,330 | 95 | 96 | 102 | 105 |
| | 10 | 3,590 | 92 | 2,870 | 94 | 2,640 | 94 | 2,430 | 95 | 96 | 102 | 105 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON

| Pressure Altitude: 3,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,780 | 90 | 2,070 | 90 | 1,910 | 90 | 1,750 | 90 | 92 | 99 | 102 |
| | -50 | 2,810 | 90 | 2,110 | 90 | 1,940 | 90 | 1,780 | 90 | 92 | 100 | 102 |
| | -40 | 2,900 | 90 | 2,180 | 90 | 2,020 | 90 | 1,850 | 90 | 92 | 100 | 102 |
| | -30 | 2,990 | 90 | 2,260 | 90 | 2,090 | 90 | 1,920 | 90 | 92 | 100 | 102 |
| | -20 | 3,080 | 90 | 2,340 | 90 | 2,160 | 90 | 2,000 | 90 | 92 | 100 | 103 |
| | -10 | 3,170 | 90 | 2,420 | 90 | 2,240 | 90 | 2,070 | 90 | 92 | 100 | 103 |
| | 0 | 3,270 | 90 | 2,510 | 90 | 2,330 | 90 | 2,150 | 90 | 92 | 100 | 103 |
| 15,000 | 10 | 3,360 | 89 | 2,620 | 89 | 2,430 | 89 | 2,250 | 89 | 92 | 100 | 103 |
| | -54 | 2,720 | 90 | 2,020 | 90 | 1,810 | 90 | 1,620 | 90 | 91 | 99 | 102 |
| | -50 | 2,760 | 90 | 2,060 | 90 | 1,840 | 90 | 1,650 | 90 | 91 | 99 | 102 |
| | -40 | 2,840 | 90 | 2,130 | 90 | 1,920 | 90 | 1,710 | 90 | 91 | 99 | 102 |
| | -30 | 2,930 | 90 | 2,210 | 90 | 1,990 | 90 | 1,780 | 90 | 90 | 99 | 102 |
| | -20 | 3,020 | 90 | 2,280 | 90 | 2,060 | 90 | 1,850 | 90 | 90 | 99 | 102 |
| | -10 | 3,110 | 90 | 2,360 | 90 | 2,130 | 90 | 1,920 | 90 | 90 | 99 | 102 |
| 14,000 | 0 | 3,200 | 90 | 2,440 | 90 | 2,210 | 90 | 1,990 | 90 | 90 | 99 | 102 |
| | 10 | 3,290 | 90 | 2,520 | 90 | 2,280 | 90 | 2,060 | 90 | 90 | 98 | 102 |
| | -54 | 2,670 | 91 | 1,990 | 91 | 1,790 | 91 | 1,590 | 91 | 91 | 99 | 103 |
| | -50 | 2,710 | 90 | 2,020 | 90 | 1,820 | 91 | 1,620 | 91 | 91 | 99 | 103 |
| | -40 | 2,790 | 90 | 2,100 | 90 | 1,880 | 90 | 1,690 | 90 | 91 | 99 | 102 |
| | -30 | 2,880 | 90 | 2,170 | 90 | 1,950 | 90 | 1,760 | 90 | 91 | 99 | 102 |
| | -20 | 2,960 | 90 | 2,240 | 90 | 2,030 | 90 | 1,820 | 90 | 91 | 99 | 102 |
| 13,000 | -10 | 3,050 | 90 | 2,320 | 90 | 2,100 | 90 | 1,890 | 90 | 90 | 99 | 102 |
| | 0 | 3,130 | 90 | 2,390 | 90 | 2,170 | 90 | 1,950 | 90 | 90 | 99 | 102 |
| | 10 | 3,220 | 90 | 2,470 | 90 | 2,240 | 90 | 2,030 | 90 | 90 | 99 | 102 |
| | -54 | 2,620 | 91 | 1,960 | 91 | 1,760 | 91 | 1,570 | 91 | 91 | 99 | 103 |
| | -50 | 2,660 | 91 | 1,990 | 91 | 1,790 | 91 | 1,600 | 91 | 91 | 99 | 103 |
| | -40 | 2,740 | 91 | 2,060 | 91 | 1,860 | 91 | 1,670 | 91 | 91 | 99 | 103 |
| | -30 | 2,830 | 91 | 2,130 | 91 | 1,930 | 91 | 1,730 | 91 | 91 | 99 | 103 |
| 12,000 | -20 | 2,910 | 90 | 2,210 | 90 | 1,990 | 90 | 1,800 | 90 | 91 | 99 | 103 |
| | -10 | 2,990 | 90 | 2,280 | 90 | 2,060 | 90 | 1,860 | 90 | 91 | 99 | 103 |
| | 0 | 3,080 | 90 | 2,350 | 90 | 2,130 | 90 | 1,920 | 90 | 91 | 99 | 103 |
| | 10 | 3,160 | 90 | 2,430 | 90 | 2,200 | 90 | 1,990 | 90 | 91 | 99 | 103 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON

5 Pressure Altitude: 4,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 4,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,640 | 101 | 2,920 | 102 | 2,700 | 102 | 2,490 | 102 | 102 | 108 | 111 |
| | -50 | 3,690 | 101 | 2,960 | 102 | 2,740 | 102 | 2,530 | 102 | 102 | 108 | 111 |
| | -40 | 3,810 | 101 | 3,060 | 102 | 2,840 | 102 | 2,630 | 102 | 102 | 108 | 111 |
| | -30 | 3,940 | 101 | 3,170 | 101 | 2,940 | 102 | 2,720 | 102 | 102 | 108 | 111 |
| | -20 | 4,070 | 100 | 3,280 | 101 | 3,050 | 101 | 2,820 | 101 | 101 | 108 | 111 |
| | -10 | 4,200 | 100 | 3,390 | 101 | 3,160 | 101 | 2,930 | 101 | 101 | 108 | 111 |
| | 0 | 4,340 | 100 | 3,510 | 101 | 3,270 | 101 | 3,040 | 101 | 101 | 108 | 111 |
| | 10 | 4,600 | 101 | 3,890 | 101 | 3,630 | 101 | 3,380 | 101 | 101 | 108 | 110 |
| 18,300 | -54 | 3,430 | 97 | 2,680 | 99 | 2,480 | 99 | 2,290 | 99 | 99 | 106 | 108 |
| | -50 | 3,470 | 97 | 2,730 | 99 | 2,520 | 99 | 2,320 | 99 | 99 | 106 | 108 |
| | -40 | 3,580 | 97 | 2,830 | 99 | 2,600 | 99 | 2,410 | 99 | 99 | 105 | 108 |
| | -30 | 3,700 | 97 | 2,930 | 99 | 2,700 | 99 | 2,490 | 99 | 99 | 106 | 108 |
| | -20 | 3,820 | 97 | 3,030 | 99 | 2,790 | 99 | 2,580 | 99 | 99 | 106 | 108 |
| | -10 | 3,930 | 97 | 3,140 | 99 | 2,910 | 99 | 2,680 | 100 | 100 | 106 | 108 |
| | 0 | 4,050 | 97 | 3,250 | 99 | 3,000 | 99 | 2,780 | 100 | 100 | 106 | 108 |
| | 10 | 4,250 | 98 | 3,490 | 99 | 3,250 | 100 | 3,020 | 100 | 100 | 106 | 108 |
| 18,000 | -54 | 3,320 | 96 | 2,600 | 98 | 2,390 | 99 | 2,200 | 99 | 99 | 105 | 107 |
| | -50 | 3,370 | 96 | 2,640 | 98 | 2,420 | 99 | 2,230 | 99 | 99 | 105 | 107 |
| | -40 | 3,480 | 96 | 2,740 | 98 | 2,520 | 98 | 2,310 | 99 | 99 | 105 | 107 |
| | -30 | 3,590 | 96 | 2,840 | 98 | 2,610 | 98 | 2,400 | 99 | 99 | 105 | 107 |
| | -20 | 3,710 | 96 | 2,930 | 97 | 2,700 | 98 | 2,480 | 99 | 99 | 105 | 107 |
| | -10 | 3,820 | 96 | 3,030 | 97 | 2,790 | 98 | 2,570 | 98 | 99 | 105 | 107 |
| | 0 | 3,930 | 96 | 3,140 | 97 | 2,890 | 98 | 2,660 | 98 | 99 | 105 | 107 |
| | 10 | 4,180 | 97 | 3,350 | 98 | 3,110 | 98 | 2,890 | 99 | 99 | 105 | 107 |
| 17,000 | -54 | 3,020 | 92 | 2,360 | 94 | 2,160 | 95 | 1,970 | 96 | 96 | 102 | 105 |
| | -50 | 3,060 | 92 | 2,390 | 94 | 2,190 | 95 | 2,010 | 96 | 96 | 102 | 105 |
| | -40 | 3,160 | 92 | 2,480 | 94 | 2,280 | 95 | 2,090 | 96 | 96 | 102 | 105 |
| | -30 | 3,270 | 92 | 2,570 | 94 | 2,360 | 94 | 2,170 | 95 | 96 | 102 | 105 |
| | -20 | 3,370 | 92 | 2,660 | 94 | 2,450 | 94 | 2,240 | 95 | 96 | 102 | 105 |
| | -10 | 3,470 | 92 | 2,750 | 94 | 2,530 | 94 | 2,330 | 95 | 96 | 102 | 105 |
| | 0 | 3,570 | 92 | 2,840 | 94 | 2,620 | 94 | 2,410 | 95 | 96 | 102 | 105 |
| | 10 | 3,730 | 92 | 3,020 | 94 | 2,790 | 95 | 2,580 | 95 | 96 | 102 | 104 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON

| Pressure Altitude: 4,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,850 | 90 | 2,140 | 90 | 1,970 | 90 | 1,810 | 90 | 92 | 100 | 103 |
| | -50 | 2,890 | 90 | 2,170 | 90 | 2,000 | 90 | 1,840 | 90 | 92 | 100 | 102 |
| | -40 | 2,990 | 90 | 2,250 | 90 | 2,080 | 90 | 1,910 | 90 | 92 | 100 | 103 |
| | -30 | 3,080 | 90 | 2,330 | 90 | 2,160 | 90 | 1,990 | 90 | 92 | 100 | 103 |
| | -20 | 3,170 | 90 | 2,420 | 90 | 2,240 | 90 | 2,060 | 90 | 92 | 100 | 103 |
| | -10 | 3,270 | 90 | 2,500 | 90 | 2,320 | 90 | 2,140 | 90 | 92 | 100 | 103 |
| | 0 | 3,360 | 89 | 2,590 | 89 | 2,400 | 89 | 2,220 | 89 | 92 | 100 | 103 |
| | 10 | 3,450 | 89 | 2,790 | 89 | 2,590 | 89 | 2,400 | 89 | 92 | 99 | 102 |
| 15,000 | -54 | 2,800 | 90 | 2,090 | 90 | 1,870 | 90 | 1,670 | 90 | 91 | 99 | 102 |
| | -50 | 2,830 | 90 | 2,120 | 90 | 1,910 | 90 | 1,700 | 90 | 91 | 99 | 102 |
| | -40 | 2,920 | 90 | 2,200 | 90 | 1,980 | 90 | 1,770 | 90 | 90 | 99 | 102 |
| | -30 | 3,010 | 90 | 2,280 | 90 | 2,060 | 90 | 1,840 | 90 | 90 | 99 | 102 |
| | -20 | 3,110 | 90 | 2,360 | 90 | 2,130 | 90 | 1,920 | 90 | 90 | 99 | 102 |
| | -10 | 3,200 | 90 | 2,430 | 90 | 2,200 | 90 | 1,990 | 90 | 90 | 99 | 102 |
| | 0 | 3,290 | 90 | 2,510 | 90 | 2,280 | 90 | 2,060 | 90 | 90 | 99 | 102 |
| | 10 | 3,380 | 90 | 2,610 | 90 | 2,370 | 90 | 2,140 | 90 | 90 | 98 | 100 |
| 14,000 | -54 | 2,750 | 90 | 2,050 | 90 | 1,850 | 90 | 1,650 | 90 | 91 | 99 | 103 |
| | -50 | 2,780 | 90 | 2,080 | 90 | 1,880 | 90 | 1,680 | 90 | 91 | 99 | 103 |
| | -40 | 2,870 | 90 | 2,160 | 90 | 1,950 | 90 | 1,750 | 90 | 91 | 99 | 102 |
| | -30 | 2,950 | 90 | 2,240 | 90 | 2,020 | 90 | 1,820 | 90 | 91 | 99 | 102 |
| | -20 | 3,050 | 90 | 2,310 | 90 | 2,100 | 90 | 1,880 | 90 | 91 | 99 | 102 |
| | -10 | 3,130 | 90 | 2,390 | 90 | 2,170 | 90 | 1,950 | 90 | 90 | 99 | 102 |
| | 0 | 3,220 | 90 | 2,470 | 90 | 2,240 | 90 | 2,020 | 90 | 90 | 99 | 102 |
| | 10 | 3,310 | 90 | 2,560 | 90 | 2,320 | 90 | 2,100 | 90 | 90 | 98 | 101 |
| 13,000 | -54 | 2,700 | 91 | 2,020 | 91 | 1,820 | 91 | 1,630 | 91 | 91 | 99 | 103 |
| | -50 | 2,730 | 91 | 2,050 | 91 | 1,850 | 91 | 1,660 | 91 | 91 | 99 | 103 |
| | -40 | 2,820 | 91 | 2,130 | 91 | 1,920 | 91 | 1,730 | 91 | 91 | 99 | 103 |
| | -30 | 2,900 | 90 | 2,200 | 90 | 1,990 | 90 | 1,790 | 90 | 91 | 99 | 103 |
| | -20 | 2,990 | 90 | 2,280 | 90 | 2,060 | 90 | 1,860 | 90 | 91 | 99 | 103 |
| | -10 | 3,080 | 90 | 2,350 | 90 | 2,130 | 90 | 1,920 | 90 | 91 | 99 | 103 |
| | 0 | 3,160 | 90 | 2,430 | 90 | 2,200 | 90 | 1,990 | 90 | 91 | 99 | 103 |
| | 10 | 3,250 | 90 | 2,510 | 90 | 2,280 | 90 | 2,070 | 90 | 90 | 98 | 102 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON

6 Pressure Altitude: 5,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 5,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,740 | 101 | 2,990 | 102 | 2,780 | 102 | 2,570 | 102 | 102 | 108 | 111 |
| | -50 | 3,790 | 101 | 3,040 | 102 | 2,820 | 102 | 2,600 | 102 | 102 | 108 | 111 |
| | -40 | 3,920 | 101 | 3,150 | 102 | 2,930 | 102 | 2,700 | 102 | 102 | 108 | 111 |
| | -30 | 4,050 | 100 | 3,260 | 101 | 3,040 | 101 | 2,810 | 101 | 101 | 108 | 111 |
| | -20 | 4,190 | 100 | 3,380 | 101 | 3,150 | 101 | 2,920 | 101 | 101 | 108 | 111 |
| | -10 | 4,320 | 100 | 3,500 | 101 | 3,250 | 101 | 3,030 | 101 | 101 | 108 | 111 |
| | 0 | 4,470 | 100 | 3,620 | 101 | 3,380 | 101 | 3,140 | 101 | 101 | 108 | 111 |
| | 10 | 4,880 | 101 | 4,250 | 101 | 3,970 | 101 | 3,700 | 101 | 101 | 108 | 110 |
| 18,300 | -54 | 3,520 | 97 | 2,770 | 99 | 2,550 | 99 | 2,350 | 99 | 99 | 106 | 108 |
| | -50 | 3,570 | 97 | 2,810 | 99 | 2,590 | 99 | 2,390 | 99 | 99 | 106 | 108 |
| | -40 | 3,680 | 97 | 2,910 | 99 | 2,690 | 99 | 2,480 | 99 | 99 | 106 | 108 |
| | -30 | 3,810 | 97 | 3,020 | 99 | 2,780 | 99 | 2,570 | 99 | 99 | 106 | 108 |
| | -20 | 3,920 | 97 | 3,130 | 99 | 2,900 | 99 | 2,670 | 99 | 100 | 106 | 108 |
| | -10 | 4,050 | 97 | 3,240 | 99 | 3,000 | 99 | 2,770 | 100 | 100 | 106 | 108 |
| | 0 | 4,170 | 97 | 3,350 | 98 | 3,100 | 99 | 2,860 | 100 | 100 | 106 | 108 |
| | 10 | 4,430 | 98 | 3,730 | 99 | 3,480 | 99 | 3,250 | 99 | 100 | 105 | 107 |
| 18,000 | -54 | 3,410 | 96 | 2,680 | 98 | 2,460 | 99 | 2,260 | 99 | 99 | 105 | 107 |
| | -50 | 3,460 | 96 | 2,720 | 98 | 2,500 | 98 | 2,300 | 99 | 99 | 105 | 107 |
| | -40 | 3,580 | 96 | 2,820 | 98 | 2,600 | 98 | 2,390 | 99 | 99 | 105 | 107 |
| | -30 | 3,690 | 96 | 2,920 | 97 | 2,690 | 98 | 2,470 | 99 | 99 | 105 | 107 |
| | -20 | 3,810 | 96 | 3,030 | 97 | 2,790 | 98 | 2,560 | 98 | 98 | 105 | 107 |
| | -10 | 3,930 | 96 | 3,130 | 97 | 2,890 | 98 | 2,650 | 98 | 99 | 105 | 107 |
| | 0 | 4,050 | 95 | 3,240 | 97 | 2,990 | 98 | 2,760 | 98 | 99 | 105 | 107 |
| | 10 | 4,400 | 97 | 3,560 | 99 | 3,320 | 99 | 3,100 | 99 | 99 | 105 | 107 |
| 17,000 | -54 | 3,100 | 92 | 2,430 | 94 | 2,230 | 95 | 2,040 | 96 | 96 | 102 | 105 |
| | -50 | 3,150 | 92 | 2,470 | 94 | 2,260 | 95 | 2,070 | 96 | 96 | 102 | 105 |
| | -40 | 3,250 | 92 | 2,560 | 94 | 2,350 | 94 | 2,160 | 95 | 96 | 102 | 105 |
| | -30 | 3,360 | 92 | 2,650 | 94 | 2,440 | 94 | 2,240 | 95 | 96 | 102 | 105 |
| | -20 | 3,460 | 92 | 2,750 | 94 | 2,520 | 94 | 2,320 | 95 | 96 | 102 | 105 |
| | -10 | 3,570 | 92 | 2,830 | 93 | 2,620 | 94 | 2,410 | 95 | 96 | 102 | 105 |
| | 0 | 3,680 | 92 | 2,930 | 93 | 2,710 | 94 | 2,490 | 95 | 96 | 102 | 105 |
| | 10 | 3,880 | 93 | 3,200 | 95 | 2,960 | 96 | 2,750 | 96 | 96 | 102 | 104 |

Contents

Front Matter

Introduction

Limitations

Procedures

W & B



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON

| Pressure Altitude: 5,000 feet | | | | | | | | | | | | |
|--------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,930 | 90 | 2,200 | 90 | 2,030 | 90 | 1,870 | 90 | 92 | 100 | 103 |
| | -50 | 2,970 | 90 | 2,240 | 90 | 2,060 | 90 | 1,900 | 90 | 92 | 100 | 103 |
| | -40 | 3,070 | 90 | 2,320 | 90 | 2,150 | 90 | 1,980 | 90 | 92 | 100 | 103 |
| | -30 | 3,160 | 90 | 2,410 | 90 | 2,230 | 90 | 2,060 | 90 | 92 | 100 | 103 |
| | -20 | 3,260 | 90 | 2,490 | 90 | 2,310 | 90 | 2,140 | 90 | 92 | 100 | 103 |
| | -10 | 3,360 | 89 | 2,580 | 89 | 2,390 | 90 | 2,220 | 90 | 92 | 100 | 103 |
| | 0 | 3,460 | 89 | 2,670 | 89 | 2,480 | 89 | 2,300 | 89 | 92 | 100 | 103 |
| 15,000 | 10 | 3,550 | 89 | 2,980 | 89 | 2,780 | 89 | 2,570 | 89 | 93 | 99 | 102 |
| | -54 | 2,870 | 90 | 2,160 | 90 | 1,940 | 90 | 1,730 | 90 | 91 | 99 | 102 |
| | -50 | 2,910 | 90 | 2,190 | 90 | 1,970 | 90 | 1,760 | 90 | 90 | 99 | 102 |
| | -40 | 3,000 | 90 | 2,270 | 90 | 2,040 | 90 | 1,840 | 90 | 90 | 99 | 102 |
| | -30 | 3,100 | 90 | 2,350 | 90 | 2,120 | 90 | 1,910 | 90 | 90 | 99 | 102 |
| | -20 | 3,190 | 90 | 2,430 | 90 | 2,200 | 90 | 1,980 | 90 | 90 | 99 | 102 |
| | -10 | 3,290 | 90 | 2,510 | 90 | 2,280 | 90 | 2,060 | 90 | 90 | 99 | 102 |
| 14,000 | 0 | 3,380 | 90 | 2,600 | 90 | 2,360 | 90 | 2,130 | 90 | 90 | 99 | 102 |
| | 10 | 3,480 | 89 | 2,710 | 89 | 2,470 | 89 | 2,230 | 89 | 90 | 98 | 100 |
| | -54 | 2,820 | 90 | 2,120 | 90 | 1,910 | 90 | 1,710 | 90 | 91 | 99 | 103 |
| | -50 | 2,860 | 90 | 2,150 | 90 | 1,940 | 90 | 1,740 | 90 | 91 | 99 | 103 |
| | -40 | 2,950 | 90 | 2,230 | 90 | 2,010 | 90 | 1,810 | 90 | 91 | 99 | 102 |
| | -30 | 3,040 | 90 | 2,310 | 90 | 2,090 | 90 | 1,880 | 90 | 91 | 99 | 102 |
| | -20 | 3,130 | 90 | 2,390 | 90 | 2,160 | 90 | 1,950 | 90 | 90 | 99 | 102 |
| 13,000 | -10 | 3,220 | 90 | 2,470 | 90 | 2,240 | 90 | 2,020 | 90 | 90 | 99 | 102 |
| | 0 | 3,310 | 90 | 2,550 | 90 | 2,310 | 90 | 2,100 | 90 | 90 | 99 | 102 |
| | 10 | 3,400 | 90 | 2,650 | 90 | 2,410 | 90 | 2,190 | 90 | 90 | 98 | 101 |
| | -54 | 2,770 | 91 | 2,090 | 91 | 1,880 | 91 | 1,680 | 91 | 91 | 99 | 103 |
| | -50 | 2,810 | 91 | 2,120 | 91 | 1,910 | 91 | 1,710 | 91 | 91 | 99 | 103 |
| | -40 | 2,890 | 90 | 2,200 | 90 | 1,980 | 90 | 1,780 | 90 | 91 | 99 | 103 |
| | -30 | 2,980 | 90 | 2,270 | 90 | 2,060 | 90 | 1,850 | 90 | 91 | 99 | 103 |
| 12,000 | -20 | 3,070 | 90 | 2,350 | 90 | 2,130 | 90 | 1,920 | 90 | 91 | 99 | 103 |
| | -10 | 3,160 | 90 | 2,420 | 90 | 2,210 | 90 | 1,990 | 90 | 91 | 99 | 103 |
| | 0 | 3,240 | 90 | 2,500 | 90 | 2,280 | 90 | 2,060 | 90 | 90 | 99 | 103 |
| | 10 | 3,330 | 90 | 2,600 | 90 | 2,370 | 90 | 2,150 | 90 | 90 | 98 | 101 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON

7 Pressure Altitude: 6,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 6,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,850 | 101 | 3,090 | 102 | 2,870 | 102 | 2,650 | 102 | 102 | 108 | 111 |
| | -50 | 3,910 | 101 | 3,140 | 102 | 2,910 | 102 | 2,690 | 102 | 102 | 108 | 111 |
| | -40 | 4,040 | 100 | 3,250 | 101 | 3,020 | 101 | 2,800 | 101 | 102 | 108 | 111 |
| | -30 | 4,180 | 100 | 3,370 | 101 | 3,140 | 101 | 2,910 | 101 | 101 | 108 | 111 |
| | -20 | 4,320 | 100 | 3,490 | 101 | 3,250 | 101 | 3,030 | 101 | 101 | 108 | 111 |
| | -10 | 4,470 | 100 | 3,610 | 101 | 3,370 | 101 | 3,140 | 101 | 101 | 108 | 111 |
| | 0 | 4,690 | 101 | 3,890 | 101 | 3,630 | 101 | 3,380 | 101 | 101 | 108 | 111 |
| | 10 | 5,540 | 101 | 4,930 | 102 | 4,610 | 102 | 4,310 | 102 | 102 | 108 | 111 |
| 18,300 | -54 | 3,620 | 97 | 2,850 | 99 | 2,630 | 99 | 2,430 | 99 | 99 | 105 | 108 |
| | -50 | 3,670 | 97 | 2,900 | 99 | 2,670 | 99 | 2,470 | 99 | 99 | 106 | 108 |
| | -40 | 3,790 | 97 | 3,010 | 99 | 2,760 | 99 | 2,570 | 99 | 99 | 106 | 108 |
| | -30 | 3,920 | 97 | 3,130 | 99 | 2,880 | 99 | 2,660 | 100 | 100 | 106 | 108 |
| | -20 | 4,040 | 97 | 3,240 | 99 | 3,000 | 99 | 2,760 | 100 | 100 | 106 | 108 |
| | -10 | 4,170 | 97 | 3,350 | 98 | 3,100 | 99 | 2,860 | 100 | 100 | 106 | 108 |
| | 0 | 4,340 | 97 | 3,520 | 99 | 3,270 | 99 | 3,030 | 100 | 100 | 106 | 108 |
| | 10 | 4,840 | 99 | 4,180 | 100 | 3,910 | 99 | 3,650 | 99 | 100 | 105 | 107 |
| 18,000 | -54 | 3,510 | 96 | 2,770 | 98 | 2,540 | 98 | 2,330 | 99 | 99 | 105 | 107 |
| | -50 | 3,560 | 96 | 2,810 | 98 | 2,580 | 98 | 2,370 | 99 | 99 | 105 | 107 |
| | -40 | 3,680 | 96 | 2,920 | 97 | 2,680 | 98 | 2,460 | 99 | 99 | 105 | 107 |
| | -30 | 3,800 | 96 | 3,020 | 97 | 2,780 | 98 | 2,550 | 98 | 99 | 105 | 107 |
| | -20 | 3,920 | 95 | 3,120 | 97 | 2,880 | 98 | 2,650 | 98 | 98 | 105 | 107 |
| | -10 | 4,050 | 95 | 3,240 | 97 | 2,990 | 98 | 2,750 | 98 | 99 | 105 | 107 |
| | 0 | 4,230 | 96 | 3,400 | 98 | 3,140 | 98 | 2,910 | 98 | 99 | 105 | 107 |
| | 10 | 4,830 | 98 | 3,980 | 99 | 3,720 | 99 | 3,470 | 99 | 99 | 104 | 106 |
| 17,000 | -54 | 3,200 | 92 | 2,510 | 94 | 2,300 | 95 | 2,110 | 96 | 96 | 102 | 105 |
| | -50 | 3,240 | 92 | 2,540 | 94 | 2,340 | 95 | 2,140 | 96 | 96 | 102 | 105 |
| | -40 | 3,350 | 92 | 2,640 | 94 | 2,430 | 94 | 2,230 | 95 | 96 | 102 | 105 |
| | -30 | 3,460 | 92 | 2,730 | 94 | 2,520 | 94 | 2,320 | 95 | 96 | 102 | 105 |
| | -20 | 3,570 | 92 | 2,830 | 93 | 2,610 | 94 | 2,400 | 95 | 96 | 102 | 105 |
| | -10 | 3,680 | 92 | 2,940 | 93 | 2,700 | 94 | 2,490 | 95 | 96 | 103 | 105 |
| | 0 | 3,820 | 92 | 3,070 | 94 | 2,840 | 95 | 2,620 | 95 | 96 | 102 | 105 |
| | 10 | 4,180 | 94 | 3,520 | 96 | 3,290 | 96 | 3,060 | 96 | 96 | 102 | 104 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON

| Pressure Altitude: 6,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,010 | 90 | 2,280 | 90 | 2,100 | 90 | 1,930 | 90 | 92 | 100 | 103 |
| | -50 | 3,050 | 90 | 2,310 | 90 | 2,140 | 90 | 1,970 | 90 | 92 | 100 | 103 |
| | -40 | 3,150 | 90 | 2,400 | 90 | 2,220 | 90 | 2,050 | 90 | 92 | 100 | 103 |
| | -30 | 3,250 | 90 | 2,480 | 90 | 2,310 | 90 | 2,130 | 90 | 92 | 100 | 103 |
| | -20 | 3,350 | 89 | 2,580 | 89 | 2,390 | 90 | 2,210 | 90 | 92 | 100 | 103 |
| | -10 | 3,450 | 89 | 2,670 | 89 | 2,480 | 89 | 2,300 | 89 | 92 | 100 | 103 |
| | 0 | 3,560 | 89 | 2,810 | 89 | 2,620 | 89 | 2,430 | 89 | 92 | 100 | 102 |
| | 10 | 3,840 | 89 | 3,330 | 89 | 3,100 | 89 | 2,880 | 89 | 93 | 99 | 101 |
| 15,000 | -54 | 2,950 | 90 | 2,220 | 90 | 2,000 | 90 | 1,790 | 90 | 90 | 99 | 102 |
| | -50 | 2,990 | 90 | 2,260 | 90 | 2,040 | 90 | 1,830 | 90 | 90 | 99 | 102 |
| | -40 | 3,090 | 90 | 2,340 | 90 | 2,120 | 90 | 1,900 | 90 | 90 | 99 | 102 |
| | -30 | 3,190 | 90 | 2,430 | 90 | 2,200 | 90 | 1,980 | 90 | 90 | 99 | 102 |
| | -20 | 3,290 | 90 | 2,510 | 90 | 2,280 | 90 | 2,060 | 90 | 90 | 99 | 102 |
| | -10 | 3,380 | 90 | 2,590 | 90 | 2,360 | 90 | 2,130 | 90 | 90 | 99 | 102 |
| | 0 | 3,480 | 89 | 2,690 | 89 | 2,440 | 89 | 2,210 | 90 | 90 | 98 | 101 |
| | 10 | 3,630 | 89 | 2,870 | 89 | 2,630 | 89 | 2,410 | 89 | 90 | 97 | 100 |
| 14,000 | -54 | 2,900 | 90 | 2,180 | 90 | 1,970 | 90 | 1,770 | 90 | 91 | 99 | 102 |
| | -50 | 2,930 | 90 | 2,220 | 90 | 2,000 | 90 | 1,800 | 90 | 91 | 99 | 102 |
| | -40 | 3,030 | 90 | 2,300 | 90 | 2,080 | 90 | 1,870 | 90 | 91 | 99 | 102 |
| | -30 | 3,120 | 90 | 2,380 | 90 | 2,160 | 90 | 1,950 | 90 | 90 | 99 | 102 |
| | -20 | 3,220 | 90 | 2,460 | 90 | 2,240 | 90 | 2,020 | 90 | 90 | 99 | 102 |
| | -10 | 3,310 | 90 | 2,550 | 90 | 2,310 | 90 | 2,100 | 90 | 90 | 99 | 102 |
| | 0 | 3,410 | 90 | 2,630 | 90 | 2,400 | 90 | 2,170 | 90 | 90 | 99 | 102 |
| | 10 | 3,550 | 89 | 2,790 | 89 | 2,550 | 89 | 2,310 | 89 | 90 | 97 | 100 |
| 13,000 | -54 | 2,840 | 91 | 2,150 | 91 | 1,940 | 91 | 1,750 | 91 | 91 | 99 | 103 |
| | -50 | 2,880 | 90 | 2,180 | 90 | 1,970 | 90 | 1,770 | 90 | 91 | 99 | 103 |
| | -40 | 2,970 | 90 | 2,260 | 90 | 2,050 | 90 | 1,850 | 90 | 91 | 99 | 103 |
| | -30 | 3,070 | 90 | 2,340 | 90 | 2,130 | 90 | 1,920 | 90 | 91 | 99 | 103 |
| | -20 | 3,150 | 90 | 2,420 | 90 | 2,200 | 90 | 1,990 | 90 | 91 | 99 | 103 |
| | -10 | 3,240 | 90 | 2,500 | 90 | 2,280 | 90 | 2,060 | 90 | 90 | 99 | 103 |
| | 0 | 3,340 | 90 | 2,590 | 90 | 2,360 | 90 | 2,140 | 90 | 90 | 99 | 103 |
| | 10 | 3,470 | 90 | 2,730 | 89 | 2,490 | 89 | 2,260 | 89 | 90 | 97 | 100 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON

8 Pressure Altitude: 7,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 7,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,040 | 100 | 3,250 | 101 | 3,010 | 102 | 2,790 | 102 | 102 | 108 | 111 |
| | -50 | 4,100 | 100 | 3,300 | 101 | 3,060 | 101 | 2,840 | 101 | 102 | 108 | 111 |
| | -40 | 4,240 | 100 | 3,420 | 101 | 3,190 | 101 | 2,950 | 101 | 101 | 108 | 111 |
| | -30 | 4,400 | 100 | 3,550 | 101 | 3,310 | 101 | 3,070 | 101 | 101 | 108 | 111 |
| | -20 | 4,550 | 100 | 3,670 | 101 | 3,430 | 101 | 3,190 | 101 | 101 | 108 | 111 |
| | -10 | 4,740 | 101 | 3,900 | 101 | 3,640 | 101 | 3,390 | 101 | 101 | 108 | 111 |
| | 0 | 5,160 | 101 | 4,370 | 101 | 4,080 | 101 | 3,810 | 101 | 101 | 108 | 111 |
| | 10 | 6,500 | 102 | 5,850 | 102 | 5,480 | 102 | 5,130 | 102 | 102 | 109 | 110 |
| 18,300 | -54 | 3,720 | 97 | 2,950 | 99 | 2,710 | 99 | 2,500 | 99 | 99 | 106 | 108 |
| | -50 | 3,770 | 97 | 2,990 | 99 | 2,760 | 99 | 2,540 | 99 | 99 | 105 | 108 |
| | -40 | 3,900 | 97 | 3,110 | 99 | 2,880 | 99 | 2,650 | 99 | 100 | 106 | 108 |
| | -30 | 4,030 | 97 | 3,230 | 98 | 2,980 | 99 | 2,760 | 100 | 100 | 106 | 108 |
| | -20 | 4,160 | 97 | 3,340 | 98 | 3,090 | 99 | 2,860 | 100 | 100 | 106 | 108 |
| | -10 | 4,330 | 97 | 3,490 | 99 | 3,230 | 99 | 2,990 | 100 | 100 | 106 | 108 |
| | 0 | 4,580 | 98 | 3,770 | 99 | 3,520 | 99 | 3,290 | 99 | 99 | 106 | 107 |
| | 10 | 5,390 | 99 | 4,720 | 100 | 4,420 | 100 | 4,120 | 100 | 100 | 105 | 106 |
| 18,000 | -54 | 3,610 | 96 | 2,860 | 97 | 2,620 | 98 | 2,410 | 99 | 99 | 105 | 107 |
| | -50 | 3,660 | 96 | 2,900 | 97 | 2,670 | 98 | 2,450 | 99 | 99 | 105 | 107 |
| | -40 | 3,790 | 96 | 3,010 | 97 | 2,770 | 98 | 2,540 | 98 | 98 | 105 | 107 |
| | -30 | 3,920 | 95 | 3,120 | 97 | 2,880 | 98 | 2,640 | 98 | 98 | 105 | 107 |
| | -20 | 4,040 | 95 | 3,230 | 97 | 2,980 | 98 | 2,750 | 98 | 99 | 105 | 107 |
| | -10 | 4,200 | 96 | 3,370 | 97 | 3,120 | 98 | 2,870 | 98 | 99 | 105 | 107 |
| | 0 | 4,500 | 97 | 3,620 | 98 | 3,370 | 98 | 3,140 | 99 | 99 | 105 | 107 |
| | 10 | 5,370 | 99 | 4,470 | 99 | 4,180 | 99 | 3,900 | 99 | 99 | 104 | 105 |
| 17,000 | -54 | 3,290 | 92 | 2,580 | 94 | 2,380 | 94 | 2,180 | 95 | 96 | 102 | 105 |
| | -50 | 3,330 | 92 | 2,630 | 94 | 2,420 | 94 | 2,220 | 95 | 96 | 102 | 105 |
| | -40 | 3,440 | 92 | 2,730 | 94 | 2,510 | 94 | 2,300 | 95 | 96 | 102 | 105 |
| | -30 | 3,560 | 92 | 2,830 | 93 | 2,600 | 94 | 2,400 | 95 | 96 | 102 | 105 |
| | -20 | 3,670 | 92 | 2,930 | 93 | 2,700 | 94 | 2,490 | 95 | 96 | 103 | 105 |
| | -10 | 3,810 | 92 | 3,050 | 94 | 2,820 | 94 | 2,600 | 95 | 96 | 102 | 105 |
| | 0 | 4,020 | 93 | 3,270 | 95 | 3,030 | 95 | 2,800 | 96 | 96 | 102 | 104 |
| | 10 | 4,540 | 95 | 3,920 | 96 | 3,660 | 96 | 3,410 | 96 | 96 | 101 | 103 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON

| Pressure Altitude: 7,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,100 | 90 | 2,350 | 90 | 2,170 | 90 | 2,000 | 90 | 92 | 100 | 103 |
| | -50 | 3,140 | 90 | 2,390 | 90 | 2,210 | 90 | 2,040 | 90 | 92 | 100 | 103 |
| | -40 | 3,250 | 90 | 2,480 | 90 | 2,290 | 90 | 2,120 | 90 | 92 | 100 | 103 |
| | -30 | 3,350 | 89 | 2,570 | 90 | 2,380 | 90 | 2,210 | 90 | 92 | 100 | 103 |
| | -20 | 3,450 | 89 | 2,660 | 89 | 2,480 | 89 | 2,290 | 89 | 92 | 100 | 103 |
| | -10 | 3,560 | 89 | 2,790 | 89 | 2,600 | 89 | 2,410 | 89 | 92 | 100 | 102 |
| | 0 | 3,680 | 89 | 3,030 | 89 | 2,830 | 89 | 2,620 | 89 | 93 | 99 | 102 |
| | 10 | 4,270 | 89 | 3,740 | 89 | 3,480 | 89 | 3,240 | 89 | 93 | 98 | 100 |
| 15,000 | -54 | 3,040 | 90 | 2,290 | 90 | 2,070 | 90 | 1,860 | 90 | 90 | 99 | 102 |
| | -50 | 3,080 | 90 | 2,330 | 90 | 2,110 | 90 | 1,890 | 90 | 90 | 99 | 102 |
| | -40 | 3,180 | 90 | 2,420 | 90 | 2,190 | 90 | 1,970 | 90 | 90 | 99 | 102 |
| | -30 | 3,280 | 90 | 2,510 | 90 | 2,270 | 90 | 2,050 | 90 | 90 | 99 | 102 |
| | -20 | 3,380 | 90 | 2,590 | 90 | 2,360 | 90 | 2,130 | 90 | 90 | 99 | 102 |
| | -10 | 3,480 | 89 | 2,680 | 90 | 2,440 | 90 | 2,210 | 90 | 90 | 98 | 101 |
| | 0 | 3,600 | 89 | 2,800 | 89 | 2,550 | 89 | 2,310 | 89 | 90 | 98 | 100 |
| | 10 | 3,810 | 89 | 3,100 | 89 | 2,870 | 89 | 2,660 | 89 | 90 | 96 | 98 |
| 14,000 | -54 | 2,980 | 90 | 2,250 | 90 | 2,040 | 90 | 1,830 | 90 | 91 | 99 | 102 |
| | -50 | 3,020 | 90 | 2,290 | 90 | 2,070 | 90 | 1,860 | 90 | 91 | 99 | 102 |
| | -40 | 3,120 | 90 | 2,380 | 90 | 2,150 | 90 | 1,940 | 90 | 90 | 99 | 102 |
| | -30 | 3,210 | 90 | 2,460 | 90 | 2,230 | 90 | 2,010 | 90 | 90 | 99 | 102 |
| | -20 | 3,310 | 90 | 2,550 | 90 | 2,310 | 90 | 2,100 | 90 | 90 | 99 | 102 |
| | -10 | 3,410 | 90 | 2,630 | 90 | 2,400 | 90 | 2,170 | 90 | 90 | 99 | 102 |
| | 0 | 3,520 | 90 | 2,750 | 89 | 2,500 | 90 | 2,270 | 90 | 90 | 98 | 101 |
| | 10 | 3,710 | 89 | 2,940 | 89 | 2,680 | 89 | 2,430 | 89 | 89 | 96 | 98 |
| 13,000 | -54 | 2,920 | 90 | 2,220 | 90 | 2,010 | 90 | 1,810 | 90 | 91 | 99 | 103 |
| | -50 | 2,960 | 90 | 2,250 | 90 | 2,040 | 90 | 1,840 | 90 | 91 | 99 | 103 |
| | -40 | 3,050 | 90 | 2,340 | 90 | 2,120 | 90 | 1,910 | 90 | 91 | 99 | 103 |
| | -30 | 3,150 | 90 | 2,420 | 90 | 2,200 | 90 | 1,990 | 90 | 91 | 99 | 103 |
| | -20 | 3,250 | 90 | 2,500 | 90 | 2,280 | 90 | 2,060 | 90 | 90 | 99 | 103 |
| | -10 | 3,340 | 90 | 2,590 | 90 | 2,360 | 90 | 2,130 | 90 | 90 | 99 | 103 |
| | 0 | 3,450 | 90 | 2,690 | 90 | 2,450 | 90 | 2,230 | 90 | 90 | 98 | 101 |
| | 10 | 3,640 | 89 | 2,870 | 89 | 2,610 | 89 | 2,380 | 89 | 90 | 97 | 99 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON

9 Pressure Altitude: 8,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 8,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,240 | 100 | 3,410 | 101 | 3,170 | 101 | 2,940 | 101 | 101 | 108 | 111 |
| | -50 | 4,310 | 100 | 3,460 | 101 | 3,220 | 101 | 2,980 | 101 | 101 | 108 | 111 |
| | -40 | 4,460 | 100 | 3,600 | 101 | 3,350 | 101 | 3,110 | 101 | 101 | 108 | 111 |
| | -30 | 4,620 | 100 | 3,730 | 101 | 3,490 | 101 | 3,240 | 101 | 101 | 108 | 111 |
| | -20 | 4,830 | 101 | 3,950 | 101 | 3,700 | 101 | 3,440 | 101 | 101 | 108 | 111 |
| | -10 | 5,190 | 101 | 4,310 | 101 | 4,020 | 101 | 3,760 | 101 | 101 | 108 | 111 |
| | 0 | 5,880 | 101 | 5,030 | 101 | 4,710 | 101 | 4,400 | 101 | 101 | 108 | 111 |
| | 10 | 7,750 | 102 | 7,070 | 102 | 6,640 | 102 | 6,210 | 102 | 102 | 109 | 110 |
| 18,300 | -54 | 3,840 | 97 | 3,050 | 99 | 2,800 | 99 | 2,600 | 99 | 99 | 106 | 108 |
| | -50 | 3,890 | 97 | 3,100 | 99 | 2,860 | 99 | 2,630 | 99 | 99 | 106 | 108 |
| | -40 | 4,030 | 97 | 3,220 | 98 | 2,980 | 99 | 2,750 | 100 | 100 | 106 | 108 |
| | -30 | 4,160 | 97 | 3,340 | 98 | 3,090 | 99 | 2,850 | 100 | 100 | 106 | 108 |
| | -20 | 4,330 | 97 | 3,490 | 99 | 3,240 | 99 | 2,990 | 100 | 100 | 106 | 108 |
| | -10 | 4,560 | 98 | 3,700 | 99 | 3,450 | 100 | 3,220 | 100 | 100 | 106 | 108 |
| | 0 | 4,940 | 99 | 4,160 | 99 | 3,890 | 99 | 3,640 | 99 | 99 | 105 | 107 |
| | 10 | 6,140 | 100 | 5,460 | 100 | 5,120 | 100 | 4,780 | 100 | 100 | 105 | 106 |
| 18,000 | -54 | 3,730 | 96 | 2,950 | 97 | 2,720 | 98 | 2,500 | 99 | 99 | 105 | 107 |
| | -50 | 3,780 | 96 | 3,000 | 97 | 2,760 | 98 | 2,540 | 98 | 99 | 105 | 107 |
| | -40 | 3,910 | 95 | 3,110 | 97 | 2,870 | 98 | 2,640 | 98 | 98 | 105 | 107 |
| | -30 | 4,040 | 95 | 3,230 | 97 | 2,980 | 98 | 2,750 | 98 | 99 | 105 | 107 |
| | -20 | 4,200 | 96 | 3,370 | 97 | 3,120 | 98 | 2,870 | 98 | 98 | 105 | 107 |
| | -10 | 4,420 | 96 | 3,570 | 98 | 3,310 | 98 | 3,080 | 98 | 98 | 105 | 107 |
| | 0 | 4,880 | 98 | 3,970 | 99 | 3,710 | 99 | 3,460 | 99 | 99 | 104 | 106 |
| | 10 | 6,080 | 99 | 5,100 | 99 | 4,800 | 99 | 4,470 | 99 | 99 | 104 | 105 |
| 17,000 | -54 | 3,390 | 92 | 2,680 | 94 | 2,460 | 94 | 2,260 | 95 | 96 | 102 | 105 |
| | -50 | 3,440 | 92 | 2,720 | 94 | 2,500 | 94 | 2,300 | 95 | 96 | 102 | 105 |
| | -40 | 3,550 | 92 | 2,820 | 93 | 2,600 | 94 | 2,390 | 95 | 96 | 102 | 105 |
| | -30 | 3,670 | 92 | 2,930 | 93 | 2,700 | 94 | 2,490 | 95 | 96 | 103 | 105 |
| | -20 | 3,820 | 92 | 3,050 | 94 | 2,820 | 94 | 2,600 | 95 | 96 | 102 | 105 |
| | -10 | 4,010 | 93 | 3,220 | 94 | 2,980 | 95 | 2,740 | 95 | 96 | 102 | 105 |
| | 0 | 4,320 | 94 | 3,550 | 95 | 3,300 | 96 | 3,070 | 96 | 96 | 102 | 104 |
| | 10 | 5,060 | 96 | 4,410 | 96 | 4,140 | 96 | 3,850 | 96 | 96 | 101 | 103 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON

| Pressure Altitude: 8,000 feet | | | | | | | | | | | | |
|--------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,200 | 90 | 2,430 | 90 | 2,250 | 90 | 2,080 | 90 | 92 | 100 | 103 |
| | -50 | 3,240 | 90 | 2,470 | 90 | 2,280 | 90 | 2,110 | 90 | 92 | 100 | 103 |
| | -40 | 3,350 | 89 | 2,570 | 90 | 2,380 | 90 | 2,200 | 90 | 92 | 100 | 103 |
| | -30 | 3,460 | 89 | 2,660 | 89 | 2,470 | 89 | 2,290 | 89 | 92 | 100 | 103 |
| | -20 | 3,560 | 89 | 2,790 | 89 | 2,590 | 89 | 2,410 | 89 | 92 | 100 | 103 |
| | -10 | 3,690 | 89 | 2,970 | 89 | 2,760 | 89 | 2,570 | 89 | 92 | 100 | 102 |
| | 0 | 3,950 | 89 | 3,340 | 89 | 3,110 | 89 | 2,900 | 89 | 93 | 99 | 101 |
| | 10 | 4,790 | 89 | 4,230 | 89 | 3,950 | 89 | 3,670 | 89 | 93 | 98 | 100 |
| 15,000 | -54 | 3,130 | 90 | 2,380 | 90 | 2,150 | 90 | 1,930 | 90 | 90 | 99 | 102 |
| | -50 | 3,170 | 90 | 2,410 | 90 | 2,190 | 90 | 1,970 | 90 | 90 | 99 | 102 |
| | -40 | 3,280 | 90 | 2,500 | 90 | 2,270 | 90 | 2,050 | 90 | 90 | 99 | 102 |
| | -30 | 3,380 | 90 | 2,600 | 90 | 2,360 | 90 | 2,130 | 90 | 90 | 99 | 102 |
| | -20 | 3,490 | 90 | 2,690 | 90 | 2,440 | 90 | 2,220 | 90 | 90 | 98 | 101 |
| | -10 | 3,610 | 89 | 2,780 | 89 | 2,540 | 89 | 2,300 | 89 | 90 | 98 | 101 |
| | 0 | 3,770 | 89 | 2,950 | 89 | 2,700 | 89 | 2,460 | 89 | 90 | 97 | 100 |
| | 10 | 4,060 | 89 | 3,440 | 89 | 3,210 | 89 | 2,980 | 89 | 90 | 96 | 98 |
| 14,000 | -54 | 3,070 | 90 | 2,330 | 90 | 2,110 | 90 | 1,900 | 90 | 91 | 99 | 102 |
| | -50 | 3,110 | 90 | 2,370 | 90 | 2,150 | 90 | 1,930 | 90 | 90 | 99 | 102 |
| | -40 | 3,210 | 90 | 2,460 | 90 | 2,230 | 90 | 2,020 | 90 | 90 | 99 | 102 |
| | -30 | 3,310 | 90 | 2,550 | 90 | 2,320 | 90 | 2,090 | 90 | 90 | 99 | 102 |
| | -20 | 3,410 | 90 | 2,640 | 90 | 2,400 | 90 | 2,180 | 90 | 90 | 99 | 102 |
| | -10 | 3,530 | 90 | 2,730 | 90 | 2,490 | 90 | 2,260 | 90 | 90 | 98 | 101 |
| | 0 | 3,680 | 89 | 2,890 | 89 | 2,640 | 89 | 2,390 | 89 | 90 | 97 | 100 |
| | 10 | 3,920 | 89 | 3,120 | 89 | 2,860 | 89 | 2,620 | 89 | 89 | 96 | 98 |
| 13,000 | -54 | 3,010 | 90 | 2,300 | 90 | 2,080 | 90 | 1,880 | 90 | 91 | 99 | 103 |
| | -50 | 3,050 | 90 | 2,330 | 90 | 2,110 | 90 | 1,910 | 90 | 91 | 99 | 103 |
| | -40 | 3,150 | 90 | 2,420 | 90 | 2,200 | 90 | 1,990 | 90 | 91 | 99 | 103 |
| | -30 | 3,250 | 90 | 2,500 | 90 | 2,280 | 90 | 2,060 | 90 | 90 | 99 | 103 |
| | -20 | 3,350 | 90 | 2,590 | 90 | 2,360 | 90 | 2,140 | 90 | 90 | 99 | 103 |
| | -10 | 3,450 | 90 | 2,680 | 90 | 2,450 | 90 | 2,230 | 90 | 90 | 99 | 102 |
| | 0 | 3,600 | 90 | 2,820 | 89 | 2,580 | 89 | 2,340 | 89 | 90 | 98 | 101 |
| | 10 | 3,810 | 89 | 3,040 | 89 | 2,770 | 89 | 2,520 | 89 | 89 | 96 | 98 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON

10 Pressure Altitude: 9,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 9,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,490 | 101 | 3,640 | 101 | 3,380 | 101 | 3,150 | 101 | 101 | 108 | 111 |
| | -50 | 4,550 | 101 | 3,690 | 101 | 3,440 | 101 | 3,190 | 101 | 101 | 108 | 111 |
| | -40 | 4,720 | 101 | 3,830 | 101 | 3,570 | 101 | 3,330 | 101 | 101 | 108 | 111 |
| | -30 | 4,920 | 101 | 4,060 | 101 | 3,790 | 101 | 3,530 | 101 | 101 | 108 | 111 |
| | -20 | 5,270 | 101 | 4,370 | 101 | 4,090 | 101 | 3,810 | 101 | 101 | 108 | 111 |
| | -10 | 5,860 | 101 | 4,880 | 101 | 4,570 | 101 | 4,270 | 101 | 101 | 108 | 111 |
| | 0 | 6,810 | 102 | 5,910 | 102 | 5,540 | 102 | 5,180 | 102 | 102 | 109 | 111 |
| | 10 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 4,050 | 97 | 3,240 | 99 | 2,990 | 99 | 2,760 | 100 | 100 | 106 | 108 |
| | -50 | 4,110 | 97 | 3,290 | 99 | 3,040 | 99 | 2,810 | 100 | 100 | 106 | 108 |
| | -40 | 4,250 | 97 | 3,410 | 99 | 3,160 | 99 | 2,920 | 100 | 100 | 106 | 108 |
| | -30 | 4,420 | 97 | 3,570 | 99 | 3,300 | 99 | 3,070 | 100 | 100 | 106 | 108 |
| | -20 | 4,650 | 98 | 3,780 | 99 | 3,530 | 100 | 3,290 | 100 | 100 | 106 | 108 |
| | -10 | 5,040 | 99 | 4,150 | 99 | 3,890 | 99 | 3,630 | 99 | 99 | 105 | 107 |
| | 0 | 5,620 | 99 | 4,740 | 100 | 4,440 | 100 | 4,150 | 100 | 100 | 105 | 107 |
| | 10 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,940 | 96 | 3,130 | 97 | 2,880 | 98 | 2,650 | 99 | 99 | 105 | 107 |
| | -50 | 3,990 | 96 | 3,170 | 97 | 2,930 | 98 | 2,690 | 98 | 98 | 105 | 107 |
| | -40 | 4,130 | 96 | 3,300 | 97 | 3,050 | 98 | 2,800 | 98 | 98 | 105 | 107 |
| | -30 | 4,290 | 96 | 3,440 | 97 | 3,180 | 98 | 2,940 | 98 | 98 | 105 | 107 |
| | -20 | 4,510 | 96 | 3,630 | 98 | 3,370 | 98 | 3,140 | 98 | 99 | 105 | 107 |
| | -10 | 4,840 | 97 | 3,970 | 98 | 3,710 | 99 | 3,460 | 99 | 99 | 105 | 107 |
| | 0 | 5,450 | 98 | 4,520 | 99 | 4,230 | 99 | 3,960 | 99 | 99 | 104 | 106 |
| | 10 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,570 | 92 | 2,830 | 94 | 2,610 | 94 | 2,400 | 95 | 96 | 102 | 105 |
| | -50 | 3,620 | 92 | 2,880 | 94 | 2,660 | 94 | 2,440 | 95 | 96 | 102 | 105 |
| | -40 | 3,750 | 92 | 2,990 | 94 | 2,760 | 94 | 2,540 | 95 | 96 | 102 | 105 |
| | -30 | 3,890 | 92 | 3,120 | 94 | 2,880 | 94 | 2,650 | 95 | 96 | 102 | 105 |
| | -20 | 4,080 | 93 | 3,280 | 94 | 3,030 | 95 | 2,800 | 95 | 96 | 102 | 105 |
| | -10 | 4,370 | 93 | 3,520 | 95 | 3,260 | 95 | 3,030 | 96 | 96 | 102 | 104 |
| | 0 | 4,760 | 95 | 3,990 | 96 | 3,720 | 96 | 3,470 | 96 | 96 | 102 | 103 |
| | 10 | 5,800 | 96 | 5,110 | 96 | 4,780 | 96 | 4,470 | 96 | 96 | 101 | 102 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON

| Pressure Altitude: 9,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,360 | 90 | 2,590 | 90 | 2,390 | 90 | 2,210 | 90 | 92 | 100 | 103 |
| | -50 | 3,410 | 90 | 2,620 | 90 | 2,430 | 90 | 2,250 | 90 | 92 | 100 | 103 |
| | -40 | 3,520 | 89 | 2,720 | 89 | 2,530 | 89 | 2,340 | 89 | 92 | 100 | 103 |
| | -30 | 3,630 | 89 | 2,850 | 89 | 2,660 | 89 | 2,460 | 89 | 92 | 100 | 102 |
| | -20 | 3,760 | 89 | 3,020 | 89 | 2,810 | 89 | 2,620 | 89 | 92 | 100 | 102 |
| | -10 | 3,980 | 89 | 3,290 | 89 | 3,060 | 89 | 2,850 | 89 | 93 | 99 | 101 |
| | 0 | 4,450 | 89 | 3,790 | 89 | 3,540 | 89 | 3,300 | 89 | 93 | 99 | 101 |
| | 10 | 5,520 | 88 | 4,900 | 88 | 4,580 | 88 | 4,270 | 88 | 93 | 98 | 99 |
| 15,000 | -54 | 3,290 | 90 | 2,510 | 90 | 2,270 | 90 | 2,050 | 90 | 90 | 98 | 102 |
| | -50 | 3,330 | 90 | 2,540 | 90 | 2,310 | 90 | 2,080 | 90 | 90 | 98 | 102 |
| | -40 | 3,450 | 90 | 2,640 | 90 | 2,400 | 90 | 2,170 | 90 | 90 | 99 | 102 |
| | -30 | 3,550 | 90 | 2,740 | 90 | 2,490 | 90 | 2,260 | 90 | 90 | 98 | 101 |
| | -20 | 3,680 | 89 | 2,840 | 89 | 2,590 | 89 | 2,350 | 89 | 90 | 98 | 101 |
| | -10 | 3,840 | 89 | 2,980 | 89 | 2,710 | 89 | 2,460 | 89 | 90 | 98 | 100 |
| | 0 | 4,020 | 89 | 3,200 | 89 | 2,960 | 89 | 2,730 | 89 | 90 | 97 | 99 |
| | 10 | 4,520 | 89 | 3,940 | 88 | 3,680 | 88 | 3,410 | 88 | 90 | 96 | 97 |
| 14,000 | -54 | 3,220 | 90 | 2,460 | 90 | 2,230 | 90 | 2,010 | 90 | 90 | 99 | 102 |
| | -50 | 3,260 | 90 | 2,500 | 90 | 2,270 | 90 | 2,050 | 90 | 90 | 99 | 102 |
| | -40 | 3,370 | 90 | 2,590 | 90 | 2,360 | 90 | 2,130 | 90 | 90 | 99 | 102 |
| | -30 | 3,480 | 90 | 2,690 | 90 | 2,440 | 90 | 2,220 | 90 | 90 | 99 | 102 |
| | -20 | 3,600 | 90 | 2,780 | 90 | 2,540 | 90 | 2,310 | 90 | 90 | 98 | 101 |
| | -10 | 3,750 | 89 | 2,910 | 89 | 2,660 | 89 | 2,410 | 89 | 90 | 98 | 100 |
| | 0 | 3,930 | 89 | 3,100 | 89 | 2,830 | 89 | 2,570 | 89 | 89 | 97 | 99 |
| | 10 | 4,230 | 89 | 3,430 | 89 | 3,160 | 89 | 2,930 | 89 | 89 | 95 | 96 |
| 13,000 | -54 | 3,160 | 90 | 2,420 | 90 | 2,190 | 90 | 1,990 | 90 | 91 | 99 | 103 |
| | -50 | 3,200 | 90 | 2,460 | 90 | 2,230 | 90 | 2,020 | 90 | 91 | 99 | 103 |
| | -40 | 3,310 | 90 | 2,550 | 90 | 2,320 | 90 | 2,100 | 90 | 91 | 99 | 103 |
| | -30 | 3,410 | 90 | 2,640 | 90 | 2,410 | 90 | 2,180 | 90 | 90 | 99 | 102 |
| | -20 | 3,530 | 90 | 2,740 | 90 | 2,500 | 90 | 2,270 | 90 | 90 | 99 | 102 |
| | -10 | 3,660 | 90 | 2,850 | 90 | 2,610 | 90 | 2,370 | 90 | 90 | 98 | 101 |
| | 0 | 3,840 | 89 | 3,020 | 89 | 2,770 | 89 | 2,520 | 89 | 90 | 97 | 99 |
| | 10 | 4,100 | 89 | 3,290 | 89 | 3,010 | 89 | 2,740 | 89 | 89 | 95 | 97 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON

11 Pressure Altitude: 10,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 10,000 feet | | | | | | | | | | | | |
|--------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,830 | 101 | 3,980 | 101 | 3,700 | 101 | 3,450 | 101 | 101 | 108 | 111 |
| | -50 | 4,900 | 101 | 4,040 | 101 | 3,770 | 101 | 3,510 | 101 | 101 | 108 | 111 |
| | -40 | 5,080 | 101 | 4,190 | 101 | 3,920 | 101 | 3,650 | 101 | 101 | 108 | 111 |
| | -30 | 5,450 | 101 | 4,510 | 101 | 4,220 | 101 | 3,940 | 101 | 101 | 108 | 111 |
| | -20 | 5,950 | 101 | 4,950 | 101 | 4,630 | 101 | 4,330 | 101 | 101 | 108 | 111 |
| | -10 | 6,680 | 102 | 5,570 | 101 | 5,210 | 101 | 4,880 | 101 | 102 | 108 | 111 |
| | 0 | 7,880 | 102 | 6,900 | 102 | 6,460 | 102 | 6,060 | 102 | 102 | 109 | 111 |
| | 10 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 4,320 | 98 | 3,480 | 100 | 3,230 | 100 | 3,000 | 100 | 100 | 106 | 108 |
| | -50 | 4,380 | 98 | 3,520 | 99 | 3,280 | 100 | 3,050 | 100 | 100 | 106 | 108 |
| | -40 | 4,530 | 97 | 3,660 | 99 | 3,400 | 100 | 3,170 | 100 | 100 | 106 | 108 |
| | -30 | 4,780 | 98 | 3,900 | 99 | 3,650 | 100 | 3,400 | 100 | 100 | 106 | 108 |
| | -20 | 5,130 | 98 | 4,240 | 99 | 3,980 | 99 | 3,700 | 99 | 99 | 105 | 107 |
| | -10 | 5,690 | 99 | 4,730 | 99 | 4,440 | 99 | 4,140 | 99 | 99 | 105 | 107 |
| | 0 | 6,430 | 100 | 5,420 | 100 | 5,080 | 100 | 4,750 | 100 | 100 | 105 | 107 |
| | 10 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 4,190 | 96 | 3,350 | 98 | 3,090 | 98 | 2,870 | 98 | 99 | 105 | 107 |
| | -50 | 4,250 | 96 | 3,400 | 98 | 3,140 | 98 | 2,910 | 99 | 99 | 105 | 107 |
| | -40 | 4,400 | 96 | 3,530 | 98 | 3,260 | 98 | 3,020 | 98 | 99 | 105 | 107 |
| | -30 | 4,640 | 97 | 3,730 | 98 | 3,480 | 98 | 3,230 | 99 | 99 | 105 | 107 |
| | -20 | 4,930 | 97 | 4,040 | 99 | 3,780 | 98 | 3,520 | 99 | 99 | 105 | 107 |
| | -10 | 5,380 | 98 | 4,480 | 99 | 4,190 | 99 | 3,910 | 99 | 99 | 104 | 106 |
| | 0 | 6,110 | 99 | 5,110 | 99 | 4,780 | 99 | 4,470 | 99 | 99 | 104 | 105 |
| | 10 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,800 | 92 | 3,030 | 94 | 2,790 | 95 | 2,570 | 96 | 96 | 102 | 105 |
| | -50 | 3,850 | 92 | 3,070 | 94 | 2,840 | 95 | 2,610 | 96 | 96 | 102 | 105 |
| | -40 | 3,980 | 92 | 3,190 | 94 | 2,950 | 95 | 2,720 | 95 | 96 | 102 | 105 |
| | -30 | 4,200 | 93 | 3,370 | 94 | 3,110 | 95 | 2,870 | 95 | 96 | 102 | 105 |
| | -20 | 4,450 | 93 | 3,590 | 95 | 3,310 | 95 | 3,080 | 96 | 96 | 102 | 104 |
| | -10 | 4,760 | 94 | 3,900 | 96 | 3,640 | 96 | 3,380 | 96 | 96 | 102 | 104 |
| | 0 | 5,270 | 96 | 4,460 | 96 | 4,170 | 96 | 3,890 | 96 | 96 | 101 | 103 |
| | 10 | 6,690 | 96 | 5,990 | 96 | 5,620 | 96 | 5,260 | 96 | 96 | 101 | 102 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 15, IPS ON

| Pressure Altitude: 10,000 feet | | | | | | | | | | | | |
|--------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,530 | 89 | 2,780 | 89 | 2,580 | 89 | 2,390 | 90 | 92 | 100 | 102 |
| | -50 | 3,580 | 89 | 2,820 | 89 | 2,620 | 89 | 2,430 | 89 | 92 | 100 | 102 |
| | -40 | 3,700 | 89 | 2,930 | 89 | 2,730 | 89 | 2,530 | 89 | 92 | 100 | 102 |
| | -30 | 3,840 | 89 | 3,110 | 89 | 2,900 | 89 | 2,700 | 89 | 92 | 99 | 102 |
| | -20 | 4,050 | 89 | 3,350 | 89 | 3,120 | 89 | 2,900 | 89 | 93 | 99 | 102 |
| | -10 | 4,410 | 89 | 3,650 | 89 | 3,410 | 89 | 3,180 | 89 | 93 | 99 | 101 |
| | 0 | 4,990 | 89 | 4,280 | 89 | 4,010 | 89 | 3,730 | 89 | 93 | 98 | 100 |
| | 10 | 6,350 | 88 | 5,710 | 88 | 5,330 | 88 | 4,980 | 88 | 93 | 98 | 99 |
| 15,000 | -54 | 3,450 | 90 | 2,640 | 90 | 2,390 | 90 | 2,160 | 90 | 90 | 98 | 101 |
| | -50 | 3,500 | 90 | 2,680 | 90 | 2,440 | 90 | 2,200 | 90 | 90 | 98 | 101 |
| | -40 | 3,620 | 90 | 2,780 | 90 | 2,530 | 90 | 2,290 | 90 | 90 | 98 | 101 |
| | -30 | 3,760 | 89 | 2,900 | 89 | 2,650 | 89 | 2,400 | 89 | 90 | 98 | 101 |
| | -20 | 3,920 | 89 | 3,030 | 89 | 2,770 | 89 | 2,510 | 89 | 90 | 98 | 100 |
| | -10 | 4,070 | 89 | 3,180 | 89 | 2,900 | 89 | 2,650 | 89 | 90 | 97 | 99 |
| | 0 | 4,310 | 89 | 3,530 | 89 | 3,290 | 89 | 3,060 | 89 | 90 | 96 | 98 |
| | 10 | 5,130 | 88 | 4,500 | 88 | 4,210 | 88 | 3,920 | 88 | 90 | 95 | 97 |
| 14,000 | -54 | 3,380 | 90 | 2,590 | 90 | 2,350 | 90 | 2,130 | 90 | 90 | 99 | 102 |
| | -50 | 3,430 | 90 | 2,630 | 90 | 2,390 | 90 | 2,170 | 90 | 90 | 99 | 102 |
| | -40 | 3,550 | 90 | 2,740 | 90 | 2,490 | 90 | 2,250 | 90 | 90 | 99 | 102 |
| | -30 | 3,670 | 90 | 2,850 | 90 | 2,590 | 90 | 2,350 | 90 | 90 | 98 | 101 |
| | -20 | 3,820 | 89 | 2,970 | 89 | 2,710 | 89 | 2,460 | 89 | 90 | 98 | 101 |
| | -10 | 3,990 | 89 | 3,110 | 89 | 2,840 | 89 | 2,590 | 89 | 90 | 97 | 100 |
| | 0 | 4,200 | 89 | 3,320 | 89 | 3,040 | 89 | 2,770 | 89 | 89 | 96 | 98 |
| | 10 | 4,570 | 89 | 3,800 | 88 | 3,540 | 88 | 3,290 | 88 | 89 | 94 | 96 |
| 13,000 | -54 | 3,320 | 90 | 2,550 | 90 | 2,320 | 90 | 2,100 | 90 | 91 | 99 | 102 |
| | -50 | 3,360 | 90 | 2,590 | 90 | 2,350 | 90 | 2,130 | 90 | 91 | 99 | 102 |
| | -40 | 3,470 | 90 | 2,680 | 90 | 2,440 | 90 | 2,220 | 90 | 90 | 99 | 102 |
| | -30 | 3,600 | 90 | 2,790 | 90 | 2,550 | 90 | 2,320 | 90 | 90 | 98 | 102 |
| | -20 | 3,740 | 90 | 2,910 | 90 | 2,660 | 90 | 2,420 | 90 | 90 | 98 | 101 |
| | -10 | 3,900 | 89 | 3,030 | 89 | 2,780 | 89 | 2,530 | 89 | 90 | 98 | 100 |
| | 0 | 4,080 | 89 | 3,230 | 89 | 2,960 | 89 | 2,700 | 89 | 89 | 96 | 99 |
| | 10 | 4,420 | 89 | 3,560 | 89 | 3,260 | 89 | 2,980 | 89 | 89 | 95 | 96 |



Takeoff, Dry Runway, Slope Adjustment, Flaps 15

1 Dry Runway Slope Adjustments - Flaps 15

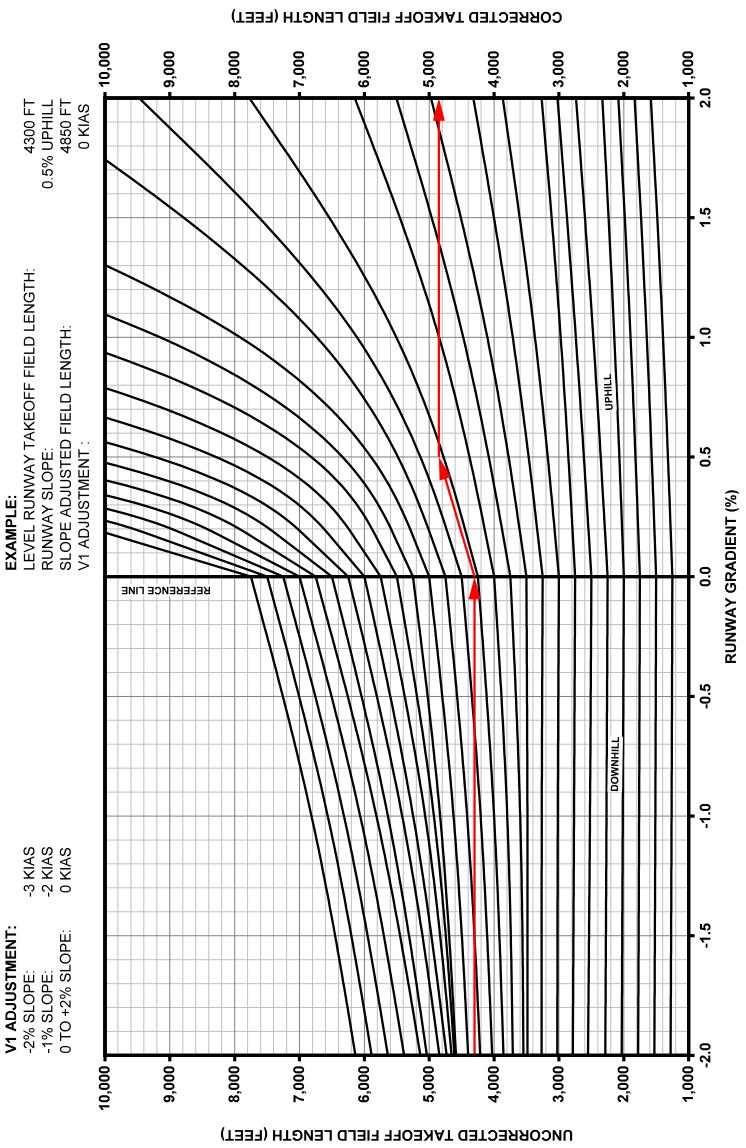


Figure 5-TO-4-1: Dry Runway Slope Adjustments - Flaps 15



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, Slope Adjustment, Flaps 15

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF

1 Pressure Altitude: Sea level

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: Sea level | | | | | | | | | | | | |
|------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|----------------|------------------|----------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R | V _{LOF} | V ₂ |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | KIAS | KIAS | KIAS |
| 18,740 | -54 | 3,510 | 103 | 2,730 | 105 | 2,500 | 105 | 2,280 | 106 | 107 | 113 | 116 |
| | -10 | 4,050 | 103 | 3,210 | 104 | 2,950 | 105 | 2,710 | 105 | 107 | 114 | 116 |
| | 0 | 4,170 | 103 | 3,320 | 104 | 3,060 | 105 | 2,810 | 105 | 107 | 114 | 116 |
| | 10 | 4,300 | 103 | 3,430 | 104 | 3,170 | 105 | 2,910 | 105 | 107 | 114 | 116 |
| | 20 | 4,440 | 103 | 3,550 | 104 | 3,280 | 105 | 3,020 | 105 | 107 | 114 | 116 |
| | 30 | 4,970 | 105 | 4,010 | 107 | 3,720 | 108 | 3,440 | 108 | 109 | 114 | 116 |
| | 40 | 5,930 | 108 | 4,870 | 108 | 4,540 | 108 | 4,240 | 108 | 108 | 113 | 115 |
| | 50 | 7,950 | 108 | 6,560 | 108 | 6,130 | 108 | 5,710 | 108 | 108 | 112 | 114 |
| 18,300 | -54 | 3,370 | 100 | 2,630 | 102 | 2,410 | 102 | 2,190 | 103 | 105 | 112 | 115 |
| | -10 | 3,880 | 100 | 3,080 | 101 | 2,840 | 102 | 2,600 | 102 | 105 | 112 | 115 |
| | 0 | 4,000 | 100 | 3,180 | 101 | 2,940 | 102 | 2,700 | 102 | 105 | 112 | 115 |
| | 10 | 4,120 | 100 | 3,290 | 101 | 3,040 | 102 | 2,800 | 102 | 105 | 112 | 115 |
| | 20 | 4,250 | 100 | 3,400 | 101 | 3,150 | 102 | 2,900 | 102 | 105 | 112 | 115 |
| | 30 | 4,750 | 102 | 3,820 | 103 | 3,540 | 104 | 3,260 | 104 | 106 | 112 | 114 |
| | 40 | 5,600 | 105 | 4,550 | 107 | 4,250 | 107 | 3,960 | 107 | 107 | 112 | 114 |
| | 50 | 7,180 | 106 | 5,950 | 106 | 5,570 | 106 | 5,200 | 106 | 106 | 110 | 112 |
| 18,000 | -54 | 3,280 | 98 | 2,560 | 100 | 2,340 | 101 | 2,130 | 102 | 104 | 111 | 114 |
| | -10 | 3,780 | 98 | 3,000 | 100 | 2,750 | 101 | 2,530 | 101 | 104 | 111 | 114 |
| | 0 | 3,900 | 98 | 3,100 | 100 | 2,850 | 101 | 2,620 | 101 | 104 | 111 | 114 |
| | 10 | 4,020 | 99 | 3,200 | 100 | 2,960 | 101 | 2,720 | 101 | 104 | 111 | 114 |
| | 20 | 4,140 | 99 | 3,310 | 100 | 3,060 | 101 | 2,820 | 101 | 104 | 111 | 114 |
| | 30 | 4,630 | 101 | 3,710 | 102 | 3,440 | 103 | 3,170 | 103 | 105 | 111 | 113 |
| | 40 | 5,430 | 104 | 4,400 | 106 | 4,090 | 106 | 3,810 | 106 | 106 | 111 | 113 |
| | 50 | 6,860 | 105 | 5,660 | 105 | 5,300 | 105 | 4,950 | 105 | 105 | 110 | 111 |
| 17,000 | -54 | 3,000 | 94 | 2,330 | 96 | 2,130 | 97 | 1,930 | 98 | 101 | 108 | 112 |
| | -10 | 3,450 | 94 | 2,730 | 96 | 2,510 | 97 | 2,300 | 98 | 101 | 109 | 112 |
| | 0 | 3,560 | 95 | 2,820 | 96 | 2,590 | 97 | 2,380 | 98 | 101 | 109 | 112 |
| | 10 | 3,670 | 95 | 2,920 | 96 | 2,690 | 97 | 2,470 | 98 | 101 | 109 | 112 |
| | 20 | 3,780 | 95 | 3,010 | 96 | 2,780 | 97 | 2,560 | 98 | 101 | 109 | 112 |
| | 30 | 4,210 | 97 | 3,360 | 98 | 3,100 | 99 | 2,850 | 99 | 102 | 108 | 111 |
| | 40 | 4,880 | 100 | 3,900 | 101 | 3,610 | 102 | 3,340 | 102 | 102 | 108 | 110 |
| | 50 | 5,920 | 103 | 4,870 | 103 | 4,540 | 103 | 4,240 | 103 | 103 | 107 | 109 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF

| Pressure Altitude: Sea level | | | | | | | | | | | | |
|------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,760 | 90 | 2,120 | 92 | 1,930 | 93 | 1,750 | 94 | 98 | 106 | 109 |
| | -10 | 3,150 | 90 | 2,480 | 92 | 2,280 | 93 | 2,080 | 94 | 98 | 106 | 109 |
| | 0 | 3,250 | 90 | 2,570 | 93 | 2,350 | 93 | 2,160 | 94 | 98 | 106 | 109 |
| | 10 | 3,340 | 91 | 2,650 | 93 | 2,440 | 93 | 2,230 | 94 | 98 | 106 | 109 |
| | 20 | 3,450 | 91 | 2,740 | 93 | 2,530 | 93 | 2,320 | 94 | 98 | 106 | 109 |
| | 30 | 3,810 | 93 | 3,030 | 94 | 2,800 | 95 | 2,570 | 96 | 98 | 106 | 108 |
| | 40 | 4,380 | 96 | 3,500 | 97 | 3,240 | 98 | 2,980 | 98 | 99 | 105 | 107 |
| | 50 | 5,150 | 99 | 4,230 | 99 | 3,940 | 99 | 3,660 | 99 | 99 | 104 | 106 |
| 15,000 | -54 | 2,730 | 91 | 2,030 | 91 | 1,820 | 91 | 1,620 | 91 | 95 | 103 | 107 |
| | -10 | 3,100 | 90 | 2,340 | 90 | 2,120 | 90 | 1,900 | 90 | 95 | 104 | 107 |
| | 0 | 3,180 | 90 | 2,410 | 90 | 2,180 | 90 | 1,970 | 90 | 95 | 104 | 107 |
| | 10 | 3,270 | 90 | 2,490 | 90 | 2,260 | 90 | 2,030 | 90 | 95 | 104 | 107 |
| | 20 | 3,350 | 90 | 2,560 | 90 | 2,320 | 90 | 2,100 | 90 | 95 | 104 | 107 |
| | 30 | 3,520 | 90 | 2,740 | 90 | 2,520 | 91 | 2,310 | 92 | 95 | 103 | 106 |
| | 40 | 3,940 | 91 | 3,130 | 93 | 2,880 | 93 | 2,650 | 94 | 95 | 102 | 104 |
| | 50 | 4,580 | 94 | 3,660 | 96 | 3,420 | 96 | 3,150 | 96 | 96 | 102 | 104 |
| 14,000 | -54 | 2,720 | 91 | 2,030 | 91 | 1,820 | 91 | 1,620 | 91 | 92 | 101 | 106 |
| | -10 | 3,080 | 91 | 2,340 | 91 | 2,110 | 91 | 1,900 | 91 | 91 | 101 | 106 |
| | 0 | 3,160 | 90 | 2,410 | 90 | 2,180 | 90 | 1,960 | 90 | 91 | 102 | 106 |
| | 10 | 3,240 | 90 | 2,480 | 90 | 2,240 | 90 | 2,030 | 90 | 91 | 102 | 106 |
| | 20 | 3,310 | 90 | 2,540 | 90 | 2,310 | 90 | 2,090 | 90 | 91 | 102 | 106 |
| | 30 | 3,470 | 90 | 2,660 | 90 | 2,420 | 90 | 2,180 | 90 | 92 | 101 | 104 |
| | 40 | 3,690 | 89 | 2,830 | 89 | 2,570 | 89 | 2,350 | 90 | 92 | 102 | 102 |
| | 50 | 4,070 | 90 | 3,220 | 91 | 2,960 | 92 | 2,730 | 92 | 92 | 99 | 101 |
| 13,000 | -54 | 2,720 | 91 | 2,030 | 91 | 1,830 | 91 | 1,640 | 91 | 92 | 102 | 107 |
| | -10 | 3,060 | 91 | 2,340 | 91 | 2,120 | 91 | 1,910 | 91 | 91 | 102 | 107 |
| | 0 | 3,150 | 91 | 2,400 | 91 | 2,180 | 91 | 1,970 | 91 | 91 | 102 | 107 |
| | 10 | 3,220 | 91 | 2,470 | 91 | 2,250 | 91 | 2,030 | 91 | 91 | 102 | 106 |
| | 20 | 3,300 | 91 | 2,540 | 91 | 2,310 | 91 | 2,090 | 91 | 91 | 102 | 106 |
| | 30 | 3,430 | 90 | 2,640 | 90 | 2,400 | 90 | 2,180 | 90 | 90 | 100 | 104 |
| | 40 | 3,630 | 89 | 2,790 | 90 | 2,530 | 90 | 2,290 | 90 | 90 | 98 | 101 |
| | 50 | 3,890 | 89 | 2,990 | 89 | 2,710 | 89 | 2,450 | 89 | 89 | 97 | 99 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF

2 Pressure Altitude: 1,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 1,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|----------------|------------------|----------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R | V _{LOF} | V ₂ |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | KIAS | KIAS | KIAS |
| 18,740 | -54 | 3,610 | 103 | 2,820 | 105 | 2,580 | 105 | 2,360 | 106 | 107 | 113 | 116 |
| | -10 | 4,170 | 103 | 3,310 | 104 | 3,050 | 105 | 2,800 | 105 | 107 | 114 | 116 |
| | 0 | 4,300 | 103 | 3,430 | 104 | 3,180 | 105 | 2,910 | 105 | 107 | 114 | 116 |
| | 10 | 4,430 | 103 | 3,550 | 104 | 3,280 | 105 | 3,020 | 105 | 107 | 114 | 116 |
| | 20 | 4,630 | 103 | 3,710 | 105 | 3,430 | 105 | 3,170 | 106 | 107 | 114 | 116 |
| | 30 | 5,280 | 106 | 4,270 | 108 | 3,970 | 108 | 3,690 | 108 | 109 | 114 | 116 |
| | 40 | 6,440 | 108 | 5,310 | 108 | 4,960 | 108 | 4,620 | 108 | 108 | 113 | 115 |
| | 50 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 3,460 | 100 | 2,710 | 101 | 2,480 | 102 | 2,270 | 103 | 105 | 112 | 115 |
| | -10 | 3,990 | 100 | 3,180 | 101 | 2,930 | 102 | 2,690 | 102 | 105 | 112 | 115 |
| | 0 | 4,120 | 100 | 3,290 | 101 | 3,030 | 102 | 2,800 | 102 | 105 | 112 | 115 |
| | 10 | 4,250 | 100 | 3,400 | 101 | 3,150 | 102 | 2,900 | 102 | 105 | 112 | 115 |
| | 20 | 4,440 | 100 | 3,560 | 102 | 3,300 | 102 | 3,040 | 103 | 105 | 112 | 115 |
| | 30 | 5,030 | 103 | 4,070 | 104 | 3,770 | 105 | 3,490 | 105 | 106 | 112 | 114 |
| | 40 | 6,000 | 106 | 4,920 | 106 | 4,610 | 106 | 4,300 | 107 | 107 | 111 | 113 |
| | 50 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,370 | 98 | 2,640 | 100 | 2,420 | 101 | 2,210 | 102 | 104 | 111 | 114 |
| | -10 | 3,890 | 98 | 3,090 | 100 | 2,850 | 101 | 2,620 | 101 | 104 | 111 | 114 |
| | 0 | 4,010 | 98 | 3,200 | 100 | 2,950 | 101 | 2,720 | 101 | 104 | 111 | 114 |
| | 10 | 4,140 | 98 | 3,310 | 100 | 3,050 | 101 | 2,820 | 101 | 104 | 111 | 114 |
| | 20 | 4,310 | 99 | 3,460 | 100 | 3,200 | 101 | 2,950 | 102 | 104 | 111 | 114 |
| | 30 | 4,890 | 101 | 3,940 | 103 | 3,650 | 103 | 3,370 | 104 | 105 | 111 | 113 |
| | 40 | 5,800 | 105 | 4,750 | 106 | 4,430 | 106 | 4,130 | 106 | 106 | 111 | 113 |
| | 50 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,080 | 94 | 2,410 | 96 | 2,200 | 97 | 2,000 | 98 | 101 | 108 | 112 |
| | -10 | 3,550 | 94 | 2,820 | 96 | 2,590 | 97 | 2,380 | 98 | 101 | 109 | 112 |
| | 0 | 3,670 | 95 | 2,910 | 96 | 2,690 | 97 | 2,470 | 98 | 101 | 109 | 112 |
| | 10 | 3,780 | 95 | 3,010 | 96 | 2,780 | 97 | 2,560 | 98 | 101 | 109 | 112 |
| | 20 | 3,940 | 95 | 3,150 | 97 | 2,910 | 97 | 2,680 | 98 | 101 | 109 | 112 |
| | 30 | 4,440 | 97 | 3,560 | 99 | 3,290 | 99 | 3,030 | 100 | 102 | 108 | 111 |
| | 40 | 5,180 | 101 | 4,190 | 102 | 3,890 | 102 | 3,610 | 102 | 102 | 108 | 110 |
| | 50 | 6,510 | 102 | 5,370 | 102 | 5,020 | 102 | 4,680 | 102 | 102 | 107 | 109 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF

| Pressure Altitude: 1,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,830 | 90 | 2,190 | 92 | 2,000 | 93 | 1,810 | 94 | 98 | 106 | 109 |
| | -10 | 3,240 | 91 | 2,560 | 92 | 2,360 | 93 | 2,150 | 94 | 98 | 106 | 109 |
| | 0 | 3,340 | 91 | 2,650 | 93 | 2,440 | 93 | 2,240 | 94 | 98 | 106 | 109 |
| | 10 | 3,450 | 91 | 2,740 | 93 | 2,530 | 93 | 2,320 | 94 | 98 | 106 | 109 |
| | 20 | 3,590 | 91 | 2,860 | 93 | 2,640 | 93 | 2,420 | 94 | 98 | 106 | 109 |
| | 30 | 4,020 | 93 | 3,210 | 95 | 2,960 | 95 | 2,720 | 96 | 98 | 105 | 108 |
| | 40 | 4,640 | 96 | 3,720 | 98 | 3,450 | 98 | 3,190 | 98 | 99 | 105 | 107 |
| | 50 | 5,590 | 99 | 4,600 | 99 | 4,290 | 99 | 3,990 | 99 | 99 | 104 | 106 |
| 15,000 | -54 | 2,800 | 91 | 2,090 | 91 | 1,870 | 91 | 1,670 | 91 | 95 | 103 | 107 |
| | -10 | 3,180 | 90 | 2,410 | 90 | 2,180 | 90 | 1,970 | 90 | 95 | 104 | 107 |
| | 0 | 3,260 | 90 | 2,490 | 90 | 2,250 | 90 | 2,030 | 90 | 95 | 104 | 107 |
| | 10 | 3,350 | 90 | 2,560 | 90 | 2,330 | 90 | 2,100 | 90 | 95 | 104 | 107 |
| | 20 | 3,450 | 90 | 2,650 | 90 | 2,400 | 90 | 2,190 | 90 | 95 | 104 | 107 |
| | 30 | 3,670 | 90 | 2,890 | 91 | 2,660 | 92 | 2,450 | 92 | 95 | 103 | 105 |
| | 40 | 4,160 | 92 | 3,310 | 93 | 3,060 | 94 | 2,810 | 95 | 95 | 102 | 104 |
| | 50 | 4,910 | 95 | 3,970 | 96 | 3,700 | 96 | 3,420 | 96 | 96 | 101 | 103 |
| 14,000 | -54 | 2,790 | 91 | 2,080 | 91 | 1,880 | 91 | 1,670 | 91 | 92 | 101 | 106 |
| | -10 | 3,160 | 90 | 2,400 | 90 | 2,170 | 90 | 1,960 | 90 | 91 | 102 | 106 |
| | 0 | 3,240 | 90 | 2,480 | 90 | 2,240 | 90 | 2,030 | 90 | 91 | 102 | 106 |
| | 10 | 3,320 | 90 | 2,550 | 90 | 2,320 | 90 | 2,090 | 90 | 91 | 102 | 106 |
| | 20 | 3,420 | 90 | 2,630 | 90 | 2,390 | 90 | 2,160 | 90 | 91 | 102 | 105 |
| | 30 | 3,590 | 90 | 2,760 | 90 | 2,510 | 90 | 2,270 | 90 | 92 | 100 | 103 |
| | 40 | 3,830 | 89 | 2,970 | 90 | 2,720 | 90 | 2,500 | 90 | 92 | 99 | 102 |
| | 50 | 4,320 | 91 | 3,460 | 92 | 3,200 | 92 | 2,960 | 92 | 92 | 99 | 100 |
| 13,000 | -54 | 2,780 | 91 | 2,090 | 91 | 1,880 | 91 | 1,690 | 91 | 92 | 102 | 107 |
| | -10 | 3,140 | 91 | 2,400 | 91 | 2,180 | 91 | 1,970 | 91 | 91 | 102 | 107 |
| | 0 | 3,220 | 91 | 2,470 | 91 | 2,250 | 91 | 2,030 | 91 | 91 | 102 | 106 |
| | 10 | 3,300 | 90 | 2,550 | 91 | 2,310 | 91 | 2,100 | 91 | 91 | 102 | 106 |
| | 20 | 3,390 | 90 | 2,620 | 90 | 2,390 | 90 | 2,160 | 90 | 91 | 101 | 106 |
| | 30 | 3,540 | 90 | 2,730 | 90 | 2,490 | 90 | 2,250 | 90 | 90 | 100 | 103 |
| | 40 | 3,750 | 89 | 2,890 | 89 | 2,640 | 89 | 2,380 | 89 | 90 | 98 | 101 |
| | 50 | 4,050 | 89 | 3,110 | 89 | 2,840 | 89 | 2,590 | 89 | 89 | 96 | 98 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF

3 Pressure Altitude: 2,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 2,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,720 | 103 | 2,910 | 105 | 2,670 | 105 | 2,440 | 106 | 107 | 114 | 116 |
| | -10 | 4,290 | 103 | 3,420 | 104 | 3,160 | 105 | 2,900 | 105 | 107 | 114 | 116 |
| | 0 | 4,430 | 103 | 3,550 | 104 | 3,270 | 105 | 3,010 | 105 | 107 | 114 | 116 |
| | 10 | 4,580 | 103 | 3,660 | 104 | 3,390 | 105 | 3,130 | 105 | 107 | 114 | 116 |
| | 20 | 4,850 | 104 | 3,890 | 105 | 3,600 | 106 | 3,320 | 106 | 107 | 114 | 116 |
| | 30 | 5,610 | 107 | 4,560 | 108 | 4,250 | 108 | 3,960 | 108 | 109 | 114 | 116 |
| | 40 | 7,020 | 108 | 5,800 | 108 | 5,430 | 108 | 5,060 | 108 | 108 | 112 | 114 |
| | 50 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 3,560 | 100 | 2,800 | 101 | 2,570 | 102 | 2,350 | 103 | 105 | 112 | 115 |
| | -10 | 4,120 | 100 | 3,280 | 101 | 3,030 | 102 | 2,790 | 102 | 105 | 112 | 115 |
| | 0 | 4,240 | 100 | 3,400 | 101 | 3,140 | 102 | 2,900 | 102 | 105 | 112 | 115 |
| | 10 | 4,380 | 100 | 3,520 | 101 | 3,250 | 102 | 3,000 | 102 | 105 | 112 | 115 |
| | 20 | 4,640 | 101 | 3,740 | 102 | 3,460 | 102 | 3,200 | 103 | 105 | 112 | 114 |
| | 30 | 5,330 | 103 | 4,340 | 105 | 4,030 | 106 | 3,730 | 106 | 107 | 112 | 114 |
| | 40 | 6,450 | 106 | 5,350 | 106 | 5,000 | 106 | 4,670 | 106 | 106 | 111 | 113 |
| | 50 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,470 | 98 | 2,720 | 100 | 2,500 | 101 | 2,280 | 102 | 104 | 111 | 114 |
| | -10 | 4,010 | 98 | 3,200 | 100 | 2,940 | 101 | 2,710 | 101 | 104 | 111 | 114 |
| | 0 | 4,130 | 98 | 3,310 | 100 | 3,050 | 101 | 2,810 | 101 | 104 | 111 | 114 |
| | 10 | 4,270 | 99 | 3,420 | 100 | 3,160 | 101 | 2,920 | 101 | 104 | 111 | 114 |
| | 20 | 4,510 | 99 | 3,630 | 101 | 3,360 | 101 | 3,100 | 102 | 104 | 111 | 114 |
| | 30 | 5,180 | 102 | 4,200 | 104 | 3,900 | 104 | 3,580 | 104 | 105 | 111 | 113 |
| | 40 | 6,210 | 105 | 5,140 | 106 | 4,800 | 106 | 4,480 | 106 | 106 | 110 | 112 |
| | 50 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,180 | 94 | 2,480 | 96 | 2,270 | 97 | 2,070 | 98 | 101 | 108 | 112 |
| | -10 | 3,660 | 95 | 2,910 | 96 | 2,680 | 97 | 2,460 | 98 | 101 | 109 | 112 |
| | 0 | 3,770 | 95 | 3,010 | 96 | 2,780 | 97 | 2,550 | 98 | 101 | 109 | 112 |
| | 10 | 3,890 | 95 | 3,110 | 96 | 2,880 | 97 | 2,650 | 98 | 101 | 109 | 112 |
| | 20 | 4,110 | 95 | 3,300 | 97 | 3,050 | 98 | 2,810 | 98 | 101 | 109 | 111 |
| | 30 | 4,690 | 98 | 3,770 | 100 | 3,490 | 100 | 3,220 | 101 | 102 | 108 | 110 |
| | 40 | 5,510 | 102 | 4,500 | 102 | 4,200 | 103 | 3,910 | 103 | 103 | 108 | 110 |
| | 50 | 7,160 | 102 | 5,930 | 102 | 5,560 | 102 | 5,190 | 102 | 102 | 107 | 108 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF

| Pressure Altitude: 2,000 feet | | | | | | | | | | | | |
|--------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,900 | 90 | 2,250 | 92 | 2,060 | 93 | 1,870 | 94 | 98 | 106 | 109 |
| | -10 | 3,340 | 91 | 2,650 | 92 | 2,430 | 93 | 2,230 | 94 | 98 | 106 | 109 |
| | 0 | 3,440 | 91 | 2,740 | 92 | 2,520 | 93 | 2,320 | 94 | 98 | 106 | 109 |
| | 10 | 3,550 | 91 | 2,830 | 93 | 2,610 | 93 | 2,400 | 94 | 98 | 106 | 109 |
| | 20 | 3,740 | 92 | 2,990 | 93 | 2,760 | 94 | 2,540 | 94 | 98 | 106 | 109 |
| | 30 | 4,240 | 94 | 3,390 | 96 | 3,140 | 96 | 2,890 | 97 | 98 | 105 | 108 |
| | 40 | 4,920 | 97 | 3,950 | 98 | 3,670 | 98 | 3,420 | 99 | 99 | 105 | 107 |
| | 50 | 6,070 | 99 | 5,000 | 99 | 4,670 | 99 | 4,360 | 99 | 99 | 104 | 106 |
| 15,000 | -54 | 2,870 | 91 | 2,150 | 91 | 1,930 | 91 | 1,730 | 91 | 95 | 103 | 107 |
| | -10 | 3,270 | 90 | 2,490 | 90 | 2,260 | 90 | 2,030 | 90 | 95 | 104 | 107 |
| | 0 | 3,350 | 90 | 2,560 | 90 | 2,330 | 90 | 2,100 | 90 | 95 | 104 | 107 |
| | 10 | 3,440 | 90 | 2,640 | 90 | 2,400 | 90 | 2,180 | 90 | 95 | 104 | 107 |
| | 20 | 3,550 | 90 | 2,730 | 90 | 2,510 | 90 | 2,300 | 91 | 95 | 103 | 107 |
| | 30 | 3,830 | 90 | 3,050 | 92 | 2,810 | 92 | 2,590 | 93 | 95 | 103 | 105 |
| | 40 | 4,400 | 93 | 3,520 | 94 | 3,250 | 95 | 2,990 | 95 | 95 | 102 | 104 |
| | 50 | 5,240 | 95 | 4,290 | 96 | 4,000 | 96 | 3,720 | 96 | 96 | 101 | 103 |
| 14,000 | -54 | 2,860 | 91 | 2,150 | 91 | 1,930 | 91 | 1,730 | 91 | 91 | 102 | 106 |
| | -10 | 3,240 | 90 | 2,480 | 90 | 2,240 | 90 | 2,030 | 90 | 91 | 102 | 106 |
| | 0 | 3,320 | 90 | 2,550 | 90 | 2,310 | 90 | 2,090 | 90 | 91 | 102 | 106 |
| | 10 | 3,410 | 90 | 2,620 | 90 | 2,390 | 90 | 2,160 | 90 | 91 | 102 | 106 |
| | 20 | 3,520 | 90 | 2,710 | 90 | 2,470 | 90 | 2,240 | 90 | 91 | 101 | 105 |
| | 30 | 3,710 | 89 | 2,860 | 89 | 2,600 | 89 | 2,350 | 89 | 92 | 100 | 103 |
| | 40 | 3,970 | 89 | 3,130 | 90 | 2,880 | 90 | 2,650 | 91 | 92 | 99 | 101 |
| | 50 | 4,570 | 91 | 3,690 | 92 | 3,440 | 92 | 3,190 | 92 | 92 | 98 | 100 |
| 13,000 | -54 | 2,850 | 91 | 2,150 | 91 | 1,940 | 91 | 1,740 | 91 | 92 | 102 | 107 |
| | -10 | 3,220 | 91 | 2,470 | 91 | 2,240 | 91 | 2,030 | 91 | 91 | 102 | 107 |
| | 0 | 3,300 | 91 | 2,550 | 91 | 2,310 | 91 | 2,100 | 91 | 91 | 102 | 106 |
| | 10 | 3,390 | 90 | 2,620 | 90 | 2,390 | 90 | 2,170 | 90 | 91 | 102 | 106 |
| | 20 | 3,480 | 90 | 2,700 | 90 | 2,460 | 90 | 2,240 | 90 | 91 | 101 | 105 |
| | 30 | 3,660 | 90 | 2,830 | 90 | 2,580 | 90 | 2,340 | 90 | 90 | 99 | 103 |
| | 40 | 3,890 | 89 | 3,000 | 89 | 2,740 | 89 | 2,480 | 89 | 89 | 98 | 100 |
| | 50 | 4,210 | 89 | 3,250 | 89 | 2,990 | 89 | 2,750 | 89 | 89 | 96 | 98 |



4 Pressure Altitude: 3,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 3,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,820 | 103 | 3,010 | 104 | 2,760 | 105 | 2,520 | 106 | 107 | 114 | 116 |
| | -10 | 4,420 | 103 | 3,540 | 104 | 3,270 | 105 | 3,010 | 105 | 107 | 114 | 116 |
| | 0 | 4,570 | 103 | 3,660 | 104 | 3,390 | 105 | 3,120 | 105 | 107 | 114 | 116 |
| | 10 | 4,720 | 103 | 3,790 | 104 | 3,510 | 105 | 3,250 | 105 | 107 | 114 | 116 |
| | 20 | 5,120 | 105 | 4,130 | 106 | 3,830 | 106 | 3,530 | 107 | 108 | 114 | 116 |
| | 30 | 5,990 | 108 | 4,900 | 108 | 4,590 | 108 | 4,280 | 108 | 108 | 113 | 115 |
| | 40 | 7,780 | 108 | 6,440 | 108 | 6,030 | 108 | 5,640 | 108 | 108 | 112 | 114 |
| | 47 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 3,660 | 100 | 2,890 | 101 | 2,650 | 102 | 2,430 | 103 | 105 | 112 | 115 |
| | -10 | 4,240 | 100 | 3,390 | 101 | 3,140 | 102 | 2,890 | 102 | 105 | 112 | 115 |
| | 0 | 4,370 | 100 | 3,510 | 101 | 3,250 | 102 | 3,000 | 102 | 105 | 112 | 115 |
| | 10 | 4,510 | 100 | 3,630 | 101 | 3,370 | 102 | 3,110 | 102 | 105 | 112 | 115 |
| | 20 | 4,880 | 101 | 3,950 | 103 | 3,660 | 103 | 3,390 | 104 | 105 | 112 | 114 |
| | 30 | 5,660 | 104 | 4,630 | 106 | 4,310 | 106 | 4,010 | 107 | 107 | 112 | 114 |
| | 40 | 7,040 | 106 | 5,860 | 106 | 5,490 | 106 | 5,130 | 106 | 106 | 111 | 112 |
| | 47 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,570 | 98 | 2,810 | 100 | 2,580 | 101 | 2,360 | 101 | 104 | 111 | 114 |
| | -10 | 4,120 | 98 | 3,300 | 100 | 3,050 | 101 | 2,810 | 101 | 104 | 111 | 114 |
| | 0 | 4,260 | 98 | 3,420 | 100 | 3,160 | 101 | 2,910 | 101 | 104 | 111 | 114 |
| | 10 | 4,390 | 99 | 3,530 | 100 | 3,270 | 101 | 3,030 | 101 | 104 | 111 | 114 |
| | 20 | 4,750 | 100 | 3,840 | 101 | 3,560 | 102 | 3,290 | 102 | 105 | 111 | 113 |
| | 30 | 5,500 | 103 | 4,480 | 105 | 4,170 | 105 | 3,870 | 105 | 106 | 111 | 113 |
| | 40 | 6,750 | 105 | 5,610 | 105 | 5,250 | 105 | 4,910 | 105 | 105 | 110 | 112 |
| | 47 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,260 | 94 | 2,560 | 96 | 2,350 | 97 | 2,140 | 98 | 101 | 109 | 112 |
| | -10 | 3,770 | 95 | 3,010 | 96 | 2,770 | 97 | 2,550 | 98 | 101 | 109 | 112 |
| | 0 | 3,890 | 95 | 3,110 | 96 | 2,870 | 97 | 2,650 | 98 | 101 | 109 | 112 |
| | 10 | 4,010 | 95 | 3,220 | 96 | 2,970 | 97 | 2,740 | 98 | 101 | 109 | 112 |
| | 20 | 4,330 | 96 | 3,480 | 98 | 3,220 | 98 | 2,970 | 99 | 101 | 108 | 111 |
| | 30 | 4,960 | 99 | 4,000 | 100 | 3,710 | 101 | 3,440 | 101 | 102 | 108 | 110 |
| | 40 | 5,910 | 102 | 4,860 | 103 | 4,540 | 103 | 4,240 | 103 | 103 | 108 | 109 |
| | 47 | 7,180 | 102 | 5,980 | 102 | 5,590 | 102 | 5,220 | 102 | 102 | 107 | 108 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF

| Pressure Altitude: 3,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,980 | 90 | 2,330 | 92 | 2,130 | 93 | 1,940 | 94 | 98 | 106 | 109 |
| | -10 | 3,440 | 91 | 2,730 | 92 | 2,520 | 93 | 2,310 | 94 | 98 | 106 | 109 |
| | 0 | 3,550 | 91 | 2,830 | 93 | 2,610 | 93 | 2,400 | 94 | 98 | 106 | 110 |
| | 10 | 3,660 | 91 | 2,930 | 93 | 2,700 | 93 | 2,490 | 94 | 98 | 106 | 110 |
| | 20 | 3,930 | 92 | 3,150 | 94 | 2,910 | 94 | 2,680 | 95 | 98 | 106 | 109 |
| | 30 | 4,480 | 95 | 3,600 | 96 | 3,330 | 97 | 3,070 | 97 | 99 | 105 | 107 |
| | 40 | 5,220 | 98 | 4,240 | 99 | 3,950 | 99 | 3,680 | 99 | 99 | 105 | 106 |
| | 47 | 6,100 | 99 | 5,040 | 99 | 4,710 | 99 | 4,400 | 99 | 99 | 104 | 106 |
| 15,000 | -54 | 2,950 | 90 | 2,210 | 90 | 1,990 | 91 | 1,780 | 91 | 95 | 103 | 107 |
| | -10 | 3,350 | 90 | 2,560 | 90 | 2,330 | 90 | 2,100 | 90 | 95 | 104 | 107 |
| | 0 | 3,440 | 90 | 2,640 | 90 | 2,400 | 90 | 2,180 | 90 | 95 | 104 | 107 |
| | 10 | 3,530 | 90 | 2,720 | 90 | 2,480 | 90 | 2,250 | 90 | 95 | 104 | 107 |
| | 20 | 3,670 | 90 | 2,850 | 90 | 2,630 | 90 | 2,420 | 91 | 95 | 103 | 106 |
| | 30 | 4,030 | 91 | 3,220 | 92 | 2,980 | 93 | 2,740 | 93 | 95 | 102 | 105 |
| | 40 | 4,650 | 94 | 3,740 | 95 | 3,460 | 95 | 3,200 | 95 | 96 | 102 | 104 |
| | 47 | 5,280 | 95 | 4,320 | 96 | 4,030 | 96 | 3,750 | 96 | 96 | 101 | 103 |
| 14,000 | -54 | 2,930 | 91 | 2,210 | 91 | 1,990 | 91 | 1,780 | 91 | 91 | 101 | 106 |
| | -10 | 3,320 | 90 | 2,550 | 90 | 2,310 | 90 | 2,090 | 90 | 91 | 102 | 106 |
| | 0 | 3,410 | 90 | 2,630 | 90 | 2,390 | 90 | 2,160 | 90 | 91 | 102 | 106 |
| | 10 | 3,500 | 90 | 2,700 | 90 | 2,460 | 90 | 2,230 | 90 | 91 | 102 | 106 |
| | 20 | 3,630 | 90 | 2,800 | 90 | 2,550 | 90 | 2,320 | 90 | 91 | 101 | 104 |
| | 30 | 3,840 | 89 | 2,970 | 89 | 2,710 | 89 | 2,460 | 89 | 92 | 100 | 102 |
| | 40 | 4,160 | 89 | 3,310 | 90 | 3,050 | 91 | 2,810 | 91 | 92 | 99 | 101 |
| | 47 | 4,630 | 91 | 3,740 | 92 | 3,460 | 92 | 3,220 | 92 | 92 | 98 | 100 |
| 13,000 | -54 | 2,920 | 91 | 2,210 | 91 | 2,000 | 91 | 1,800 | 91 | 92 | 102 | 107 |
| | -10 | 3,300 | 90 | 2,550 | 91 | 2,310 | 91 | 2,100 | 91 | 91 | 102 | 106 |
| | 0 | 3,390 | 90 | 2,630 | 90 | 2,390 | 90 | 2,160 | 90 | 91 | 102 | 106 |
| | 10 | 3,480 | 90 | 2,700 | 90 | 2,460 | 90 | 2,230 | 90 | 91 | 102 | 106 |
| | 20 | 3,590 | 90 | 2,790 | 90 | 2,540 | 90 | 2,310 | 90 | 90 | 101 | 105 |
| | 30 | 3,780 | 89 | 2,930 | 89 | 2,670 | 89 | 2,430 | 89 | 90 | 99 | 102 |
| | 40 | 4,040 | 89 | 3,130 | 89 | 2,850 | 89 | 2,590 | 89 | 89 | 97 | 99 |
| | 47 | 4,270 | 89 | 3,310 | 89 | 3,040 | 89 | 2,800 | 89 | 89 | 96 | 98 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF

5 Pressure Altitude: 4,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 4,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,930 | 103 | 3,100 | 104 | 2,850 | 105 | 2,620 | 105 | 107 | 114 | 116 |
| | -10 | 4,560 | 103 | 3,660 | 104 | 3,380 | 105 | 3,120 | 105 | 107 | 114 | 116 |
| | 0 | 4,710 | 103 | 3,780 | 104 | 3,510 | 105 | 3,240 | 105 | 107 | 114 | 116 |
| | 10 | 4,870 | 103 | 3,930 | 104 | 3,640 | 105 | 3,360 | 105 | 107 | 114 | 116 |
| | 20 | 5,430 | 105 | 4,410 | 107 | 4,100 | 107 | 3,800 | 108 | 109 | 114 | 116 |
| | 30 | 6,430 | 108 | 5,320 | 108 | 4,980 | 108 | 4,650 | 108 | 108 | 113 | 115 |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| | 45 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 3,770 | 100 | 2,980 | 101 | 2,740 | 102 | 2,510 | 102 | 105 | 112 | 115 |
| | -10 | 4,370 | 100 | 3,500 | 101 | 3,240 | 102 | 2,990 | 102 | 105 | 112 | 115 |
| | 0 | 4,500 | 100 | 3,630 | 101 | 3,360 | 102 | 3,100 | 102 | 105 | 112 | 115 |
| | 10 | 4,660 | 100 | 3,760 | 101 | 3,490 | 102 | 3,230 | 102 | 105 | 112 | 115 |
| | 20 | 5,170 | 102 | 4,200 | 103 | 3,900 | 104 | 3,600 | 104 | 106 | 112 | 114 |
| | 30 | 6,040 | 105 | 4,970 | 106 | 4,640 | 106 | 4,330 | 107 | 107 | 112 | 114 |
| | 40 | 7,810 | 106 | 6,530 | 106 | 6,120 | 106 | 5,740 | 106 | 106 | 111 | 112 |
| | 45 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,670 | 98 | 2,900 | 100 | 2,670 | 101 | 2,440 | 101 | 104 | 111 | 114 |
| | -10 | 4,250 | 98 | 3,410 | 100 | 3,150 | 101 | 2,910 | 101 | 104 | 112 | 114 |
| | 0 | 4,390 | 98 | 3,530 | 100 | 3,270 | 101 | 3,020 | 101 | 104 | 112 | 114 |
| | 10 | 4,530 | 99 | 3,660 | 100 | 3,390 | 101 | 3,140 | 101 | 104 | 112 | 114 |
| | 20 | 5,030 | 101 | 4,070 | 102 | 3,780 | 103 | 3,500 | 103 | 105 | 111 | 113 |
| | 30 | 5,860 | 104 | 4,800 | 105 | 4,480 | 105 | 4,180 | 106 | 106 | 111 | 113 |
| | 40 | 7,430 | 105 | 6,200 | 105 | 5,810 | 105 | 5,450 | 105 | 105 | 110 | 111 |
| | 45 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,360 | 94 | 2,640 | 96 | 2,420 | 97 | 2,220 | 98 | 101 | 109 | 112 |
| | -10 | 3,880 | 95 | 3,110 | 96 | 2,870 | 97 | 2,640 | 97 | 101 | 109 | 112 |
| | 0 | 4,010 | 95 | 3,210 | 96 | 2,970 | 97 | 2,740 | 97 | 101 | 109 | 112 |
| | 10 | 4,140 | 95 | 3,330 | 96 | 3,080 | 97 | 2,850 | 98 | 101 | 109 | 112 |
| | 20 | 4,570 | 97 | 3,680 | 98 | 3,410 | 99 | 3,160 | 99 | 101 | 108 | 111 |
| | 30 | 5,260 | 100 | 4,250 | 101 | 3,960 | 101 | 3,680 | 101 | 102 | 108 | 110 |
| | 40 | 6,390 | 102 | 5,300 | 102 | 4,970 | 103 | 4,640 | 103 | 103 | 107 | 109 |
| | 45 | 7,460 | 102 | 6,210 | 102 | 5,830 | 102 | 5,450 | 102 | 102 | 107 | 108 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF

| Pressure Altitude: 4,000 feet | | | | | | | | | | | | |
|--------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,060 | 90 | 2,400 | 92 | 2,200 | 93 | 2,010 | 94 | 98 | 106 | 109 |
| | -10 | 3,540 | 91 | 2,820 | 92 | 2,600 | 93 | 2,390 | 94 | 98 | 106 | 110 |
| | 0 | 3,650 | 91 | 2,920 | 92 | 2,700 | 93 | 2,490 | 94 | 98 | 106 | 110 |
| | 10 | 3,780 | 91 | 3,030 | 93 | 2,800 | 93 | 2,580 | 94 | 98 | 106 | 109 |
| | 20 | 4,150 | 93 | 3,330 | 94 | 3,080 | 95 | 2,840 | 95 | 98 | 106 | 108 |
| | 30 | 4,740 | 96 | 3,820 | 97 | 3,540 | 97 | 3,270 | 98 | 99 | 105 | 107 |
| | 40 | 5,570 | 98 | 4,580 | 99 | 4,280 | 99 | 3,990 | 99 | 99 | 104 | 106 |
| | 45 | 6,300 | 99 | 5,220 | 99 | 4,890 | 99 | 4,560 | 99 | 99 | 104 | 106 |
| 15,000 | -54 | 3,020 | 90 | 2,280 | 90 | 2,050 | 90 | 1,840 | 90 | 95 | 103 | 107 |
| | -10 | 3,440 | 90 | 2,640 | 90 | 2,400 | 90 | 2,170 | 90 | 95 | 104 | 107 |
| | 0 | 3,540 | 90 | 2,720 | 90 | 2,480 | 90 | 2,250 | 90 | 95 | 104 | 107 |
| | 10 | 3,630 | 90 | 2,810 | 90 | 2,560 | 90 | 2,340 | 90 | 95 | 104 | 107 |
| | 20 | 3,800 | 89 | 3,010 | 90 | 2,780 | 91 | 2,560 | 92 | 95 | 103 | 106 |
| | 30 | 4,260 | 91 | 3,420 | 93 | 3,160 | 93 | 2,910 | 94 | 95 | 102 | 104 |
| | 40 | 4,940 | 94 | 4,000 | 95 | 3,720 | 95 | 3,450 | 95 | 96 | 102 | 104 |
| | 45 | 5,440 | 95 | 4,470 | 96 | 4,180 | 96 | 3,890 | 96 | 96 | 101 | 103 |
| 14,000 | -54 | 3,000 | 91 | 2,270 | 91 | 2,050 | 91 | 1,840 | 91 | 91 | 102 | 106 |
| | -10 | 3,410 | 90 | 2,630 | 90 | 2,390 | 90 | 2,160 | 90 | 91 | 102 | 106 |
| | 0 | 3,500 | 90 | 2,710 | 90 | 2,470 | 90 | 2,230 | 90 | 91 | 102 | 106 |
| | 10 | 3,600 | 90 | 2,790 | 90 | 2,540 | 90 | 2,310 | 90 | 91 | 102 | 106 |
| | 20 | 3,750 | 90 | 2,910 | 90 | 2,650 | 90 | 2,410 | 90 | 92 | 101 | 104 |
| | 30 | 3,990 | 89 | 3,090 | 89 | 2,840 | 89 | 2,600 | 90 | 92 | 100 | 102 |
| | 40 | 4,390 | 90 | 3,520 | 91 | 3,260 | 92 | 3,010 | 92 | 92 | 99 | 101 |
| | 45 | 4,750 | 91 | 3,860 | 92 | 3,580 | 92 | 3,330 | 92 | 92 | 98 | 100 |
| 13,000 | -54 | 3,000 | 91 | 2,270 | 91 | 2,060 | 91 | 1,850 | 91 | 92 | 102 | 107 |
| | -10 | 3,390 | 90 | 2,620 | 90 | 2,390 | 90 | 2,170 | 90 | 91 | 102 | 106 |
| | 0 | 3,480 | 90 | 2,700 | 90 | 2,460 | 90 | 2,240 | 90 | 91 | 102 | 106 |
| | 10 | 3,570 | 90 | 2,780 | 90 | 2,540 | 90 | 2,310 | 90 | 91 | 102 | 106 |
| | 20 | 3,710 | 90 | 2,890 | 90 | 2,640 | 90 | 2,400 | 90 | 90 | 100 | 104 |
| | 30 | 3,910 | 89 | 3,040 | 89 | 2,780 | 89 | 2,530 | 89 | 90 | 99 | 101 |
| | 40 | 4,200 | 89 | 3,260 | 89 | 2,980 | 89 | 2,710 | 89 | 89 | 97 | 99 |
| | 45 | 4,370 | 89 | 3,400 | 89 | 3,140 | 89 | 2,880 | 89 | 89 | 96 | 98 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF

6 Pressure Altitude: 5,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 5,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|----------------|------------------|----------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R | V _{LOF} | V ₂ |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | KIAS | KIAS | KIAS |
| 18,740 | -54 | 4,050 | 103 | 3,200 | 104 | 2,950 | 105 | 2,700 | 105 | 107 | 114 | 116 |
| | -10 | 4,700 | 103 | 3,780 | 104 | 3,500 | 105 | 3,230 | 105 | 107 | 114 | 116 |
| | 0 | 4,860 | 103 | 3,920 | 104 | 3,630 | 104 | 3,350 | 105 | 107 | 114 | 116 |
| | 10 | 5,050 | 103 | 4,080 | 105 | 3,780 | 105 | 3,500 | 105 | 107 | 114 | 116 |
| | 20 | 5,790 | 106 | 4,710 | 108 | 4,380 | 108 | 4,080 | 109 | 109 | 114 | 116 |
| | 30 | 6,990 | 108 | 5,800 | 108 | 5,440 | 108 | 5,090 | 108 | 108 | 113 | 114 |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| | 42 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 3,880 | 100 | 3,080 | 101 | 2,830 | 102 | 2,600 | 102 | 105 | 112 | 115 |
| | -10 | 4,490 | 100 | 3,620 | 101 | 3,350 | 102 | 3,100 | 102 | 105 | 112 | 115 |
| | 0 | 4,640 | 100 | 3,750 | 101 | 3,480 | 102 | 3,210 | 102 | 105 | 112 | 115 |
| | 10 | 4,830 | 100 | 3,910 | 101 | 3,630 | 102 | 3,360 | 102 | 105 | 112 | 115 |
| | 20 | 5,500 | 103 | 4,480 | 104 | 4,180 | 105 | 3,880 | 105 | 106 | 112 | 114 |
| | 30 | 6,460 | 106 | 5,370 | 106 | 5,030 | 106 | 4,710 | 106 | 106 | 111 | 113 |
| | 40 | 8,750 | 106 | 7,340 | 106 | 6,890 | 106 | 6,470 | 106 | 106 | 110 | 112 |
| | 42 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,780 | 98 | 3,000 | 100 | 2,750 | 101 | 2,530 | 101 | 104 | 111 | 114 |
| | -10 | 4,380 | 98 | 3,520 | 100 | 3,260 | 100 | 3,010 | 101 | 104 | 112 | 114 |
| | 0 | 4,520 | 98 | 3,650 | 100 | 3,380 | 100 | 3,120 | 101 | 104 | 112 | 114 |
| | 10 | 4,700 | 99 | 3,800 | 100 | 3,530 | 101 | 3,270 | 101 | 104 | 111 | 114 |
| | 20 | 5,350 | 102 | 4,340 | 103 | 4,030 | 103 | 3,740 | 104 | 105 | 111 | 113 |
| | 30 | 6,260 | 105 | 5,160 | 106 | 4,840 | 106 | 4,530 | 106 | 106 | 111 | 112 |
| | 40 | 8,280 | 105 | 6,940 | 105 | 6,510 | 105 | 6,110 | 105 | 105 | 110 | 111 |
| | 42 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,450 | 94 | 2,730 | 96 | 2,510 | 97 | 2,300 | 98 | 101 | 109 | 112 |
| | -10 | 4,000 | 95 | 3,210 | 96 | 2,970 | 97 | 2,740 | 97 | 101 | 109 | 112 |
| | 0 | 4,130 | 95 | 3,320 | 96 | 3,080 | 97 | 2,840 | 97 | 101 | 109 | 112 |
| | 10 | 4,290 | 95 | 3,460 | 97 | 3,210 | 97 | 2,960 | 98 | 101 | 109 | 112 |
| | 20 | 4,850 | 98 | 3,920 | 99 | 3,640 | 99 | 3,370 | 100 | 101 | 108 | 110 |
| | 30 | 5,600 | 101 | 4,540 | 102 | 4,230 | 102 | 3,960 | 102 | 102 | 108 | 110 |
| | 40 | 6,980 | 102 | 5,820 | 102 | 5,460 | 102 | 5,100 | 102 | 102 | 107 | 109 |
| | 42 | 7,530 | 102 | 6,280 | 102 | 5,900 | 102 | 5,520 | 102 | 102 | 107 | 108 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF

| Pressure Altitude: 5,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,150 | 90 | 2,480 | 92 | 2,280 | 93 | 2,080 | 94 | 98 | 106 | 109 |
| | -10 | 3,650 | 91 | 2,920 | 92 | 2,700 | 93 | 2,490 | 94 | 98 | 106 | 110 |
| | 0 | 3,770 | 91 | 3,020 | 92 | 2,800 | 93 | 2,580 | 94 | 98 | 106 | 110 |
| | 10 | 3,910 | 91 | 3,150 | 93 | 2,910 | 93 | 2,690 | 94 | 98 | 106 | 109 |
| | 20 | 4,390 | 94 | 3,540 | 95 | 3,280 | 96 | 3,030 | 96 | 98 | 106 | 108 |
| | 30 | 5,030 | 96 | 4,070 | 98 | 3,770 | 98 | 3,490 | 98 | 99 | 105 | 107 |
| | 40 | 6,010 | 99 | 4,980 | 99 | 4,660 | 99 | 4,340 | 99 | 99 | 104 | 106 |
| | 42 | 6,370 | 99 | 5,290 | 99 | 4,950 | 99 | 4,620 | 99 | 99 | 104 | 106 |
| 15,000 | -54 | 3,100 | 90 | 2,350 | 90 | 2,120 | 90 | 1,910 | 90 | 95 | 104 | 107 |
| | -10 | 3,540 | 90 | 2,730 | 90 | 2,480 | 90 | 2,250 | 90 | 95 | 104 | 107 |
| | 0 | 3,630 | 90 | 2,810 | 90 | 2,560 | 90 | 2,340 | 90 | 95 | 104 | 107 |
| | 10 | 3,730 | 90 | 2,900 | 90 | 2,640 | 90 | 2,430 | 90 | 95 | 104 | 107 |
| | 20 | 3,970 | 89 | 3,190 | 91 | 2,950 | 92 | 2,720 | 92 | 95 | 103 | 105 |
| | 30 | 4,510 | 92 | 3,630 | 93 | 3,360 | 94 | 3,100 | 94 | 95 | 102 | 104 |
| | 40 | 5,260 | 95 | 4,310 | 96 | 4,030 | 95 | 3,750 | 95 | 96 | 102 | 103 |
| | 42 | 5,510 | 95 | 4,530 | 96 | 4,240 | 96 | 3,950 | 96 | 96 | 101 | 103 |
| 14,000 | -54 | 3,080 | 91 | 2,340 | 91 | 2,120 | 91 | 1,900 | 91 | 91 | 102 | 106 |
| | -10 | 3,500 | 90 | 2,710 | 90 | 2,470 | 90 | 2,240 | 90 | 91 | 102 | 106 |
| | 0 | 3,590 | 90 | 2,790 | 90 | 2,550 | 90 | 2,310 | 90 | 91 | 102 | 106 |
| | 10 | 3,690 | 90 | 2,880 | 90 | 2,620 | 90 | 2,390 | 90 | 91 | 102 | 106 |
| | 20 | 3,880 | 89 | 3,020 | 89 | 2,760 | 89 | 2,510 | 89 | 92 | 101 | 103 |
| | 30 | 4,140 | 89 | 3,240 | 89 | 2,990 | 90 | 2,760 | 90 | 92 | 99 | 102 |
| | 40 | 4,660 | 91 | 3,740 | 92 | 3,470 | 92 | 3,230 | 92 | 92 | 99 | 100 |
| | 42 | 4,820 | 91 | 3,910 | 92 | 3,640 | 92 | 3,370 | 92 | 92 | 98 | 100 |
| 13,000 | -54 | 3,070 | 91 | 2,340 | 91 | 2,120 | 91 | 1,920 | 91 | 91 | 102 | 107 |
| | -10 | 3,480 | 90 | 2,700 | 90 | 2,470 | 90 | 2,240 | 90 | 91 | 102 | 106 |
| | 0 | 3,580 | 90 | 2,780 | 90 | 2,540 | 90 | 2,310 | 90 | 91 | 102 | 106 |
| | 10 | 3,670 | 90 | 2,860 | 90 | 2,620 | 90 | 2,390 | 90 | 91 | 102 | 106 |
| | 20 | 3,830 | 90 | 2,990 | 90 | 2,740 | 90 | 2,490 | 90 | 90 | 100 | 103 |
| | 30 | 4,060 | 89 | 3,160 | 89 | 2,900 | 89 | 2,630 | 89 | 90 | 98 | 101 |
| | 40 | 4,380 | 89 | 3,410 | 89 | 3,110 | 89 | 2,830 | 89 | 89 | 96 | 98 |
| | 42 | 4,450 | 89 | 3,480 | 89 | 3,200 | 89 | 2,940 | 89 | 89 | 96 | 98 |

7 Pressure Altitude: 6,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 6,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,170 | 103 | 3,320 | 104 | 3,050 | 105 | 2,800 | 105 | 107 | 114 | 116 |
| | -10 | 4,850 | 103 | 3,910 | 104 | 3,630 | 104 | 3,350 | 105 | 107 | 114 | 116 |
| | 0 | 5,050 | 103 | 4,080 | 104 | 3,780 | 105 | 3,500 | 105 | 107 | 114 | 116 |
| | 10 | 5,410 | 104 | 4,390 | 106 | 4,080 | 106 | 3,780 | 107 | 108 | 114 | 116 |
| | 20 | 6,330 | 107 | 5,200 | 108 | 4,870 | 108 | 4,560 | 108 | 108 | 113 | 115 |
| | 30 | 8,110 | 108 | 6,730 | 108 | 6,310 | 108 | 5,900 | 108 | 108 | 112 | 114 |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 4,000 | 99 | 3,180 | 101 | 2,930 | 102 | 2,690 | 102 | 105 | 112 | 115 |
| | -10 | 4,640 | 100 | 3,750 | 101 | 3,480 | 102 | 3,210 | 102 | 105 | 112 | 115 |
| | 0 | 4,820 | 100 | 3,910 | 101 | 3,630 | 102 | 3,360 | 102 | 105 | 112 | 115 |
| | 10 | 5,150 | 101 | 4,190 | 102 | 3,890 | 103 | 3,610 | 103 | 105 | 112 | 114 |
| | 20 | 6,000 | 104 | 4,910 | 105 | 4,580 | 106 | 4,280 | 106 | 107 | 112 | 114 |
| | 30 | 7,310 | 106 | 6,120 | 106 | 5,740 | 106 | 5,380 | 106 | 106 | 111 | 113 |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,900 | 98 | 3,090 | 100 | 2,850 | 101 | 2,620 | 101 | 104 | 111 | 114 |
| | -10 | 4,520 | 98 | 3,650 | 100 | 3,380 | 100 | 3,120 | 101 | 104 | 112 | 114 |
| | 0 | 4,690 | 99 | 3,800 | 100 | 3,530 | 101 | 3,270 | 101 | 104 | 112 | 114 |
| | 10 | 5,010 | 100 | 4,070 | 101 | 3,780 | 102 | 3,510 | 102 | 104 | 111 | 114 |
| | 20 | 5,820 | 103 | 4,750 | 104 | 4,430 | 105 | 4,130 | 105 | 106 | 111 | 113 |
| | 30 | 7,020 | 105 | 5,850 | 105 | 5,490 | 105 | 5,140 | 105 | 105 | 110 | 112 |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,560 | 94 | 2,820 | 96 | 2,600 | 97 | 2,380 | 98 | 101 | 109 | 112 |
| | -10 | 4,130 | 95 | 3,320 | 96 | 3,070 | 97 | 2,840 | 97 | 101 | 109 | 112 |
| | 0 | 4,290 | 95 | 3,460 | 97 | 3,200 | 97 | 2,960 | 98 | 101 | 109 | 112 |
| | 10 | 4,570 | 96 | 3,690 | 97 | 3,430 | 98 | 3,170 | 98 | 101 | 109 | 111 |
| | 20 | 5,250 | 99 | 4,270 | 100 | 3,960 | 100 | 3,670 | 101 | 102 | 108 | 110 |
| | 30 | 6,180 | 102 | 5,100 | 103 | 4,770 | 103 | 4,460 | 103 | 103 | 108 | 110 |
| | 40 | 8,210 | 102 | 6,870 | 102 | 6,450 | 102 | 6,040 | 102 | 102 | 107 | 108 |
| 16,000 | -54 | 3,250 | 90 | 2,570 | 92 | 2,350 | 93 | 2,160 | 94 | 98 | 106 | 109 |
| | -10 | 3,760 | 91 | 3,020 | 93 | 2,790 | 93 | 2,580 | 94 | 98 | 107 | 110 |
| | 0 | 3,910 | 91 | 3,140 | 93 | 2,910 | 93 | 2,690 | 94 | 98 | 106 | 109 |
| | 10 | 4,150 | 92 | 3,350 | 94 | 3,100 | 94 | 2,870 | 95 | 98 | 106 | 109 |
| | 20 | 4,740 | 95 | 3,830 | 96 | 3,550 | 96 | 3,290 | 97 | 98 | 105 | 107 |
| | 30 | 5,490 | 97 | 4,470 | 98 | 4,170 | 99 | 3,880 | 99 | 99 | 105 | 107 |
| | 40 | 6,870 | 99 | 5,720 | 99 | 5,360 | 99 | 5,010 | 99 | 99 | 104 | 106 |





Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF

| Pressure Altitude: 6,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 15,000 | -54 | 3,190 | 90 | 2,420 | 90 | 2,190 | 90 | 1,970 | 90 | 95 | 104 | 107 |
| | -10 | 3,630 | 90 | 2,810 | 90 | 2,560 | 90 | 2,340 | 90 | 95 | 104 | 108 |
| | 0 | 3,730 | 90 | 2,900 | 90 | 2,650 | 90 | 2,440 | 90 | 95 | 104 | 107 |
| | 10 | 3,880 | 89 | 3,040 | 90 | 2,810 | 90 | 2,590 | 91 | 95 | 104 | 106 |
| | 20 | 4,270 | 90 | 3,440 | 92 | 3,190 | 93 | 2,940 | 93 | 95 | 103 | 105 |
| | 30 | 4,900 | 93 | 3,960 | 94 | 3,670 | 95 | 3,410 | 95 | 95 | 102 | 104 |
| | 40 | 5,870 | 96 | 4,850 | 96 | 4,540 | 96 | 4,240 | 96 | 96 | 101 | 103 |
| 14,000 | -54 | 3,160 | 90 | 2,410 | 90 | 2,180 | 90 | 1,970 | 90 | 91 | 102 | 106 |
| | -10 | 3,600 | 90 | 2,790 | 90 | 2,550 | 90 | 2,310 | 90 | 91 | 102 | 106 |
| | 0 | 3,700 | 90 | 2,880 | 90 | 2,630 | 90 | 2,390 | 90 | 91 | 102 | 106 |
| | 10 | 3,820 | 90 | 2,980 | 90 | 2,730 | 90 | 2,480 | 90 | 91 | 101 | 105 |
| | 20 | 4,070 | 89 | 3,170 | 89 | 2,890 | 89 | 2,650 | 89 | 92 | 100 | 103 |
| | 30 | 4,400 | 89 | 3,510 | 90 | 3,250 | 91 | 3,000 | 91 | 92 | 99 | 101 |
| | 40 | 5,120 | 92 | 4,170 | 92 | 3,900 | 92 | 3,620 | 92 | 92 | 98 | 100 |
| 13,000 | -54 | 3,150 | 91 | 2,410 | 91 | 2,190 | 91 | 1,970 | 91 | 91 | 102 | 107 |
| | -10 | 3,580 | 90 | 2,780 | 90 | 2,540 | 90 | 2,310 | 90 | 91 | 102 | 106 |
| | 0 | 3,670 | 90 | 2,860 | 90 | 2,620 | 90 | 2,390 | 90 | 91 | 102 | 106 |
| | 10 | 3,790 | 90 | 2,960 | 90 | 2,720 | 90 | 2,480 | 90 | 90 | 101 | 105 |
| | 20 | 4,000 | 89 | 3,130 | 89 | 2,860 | 89 | 2,610 | 89 | 90 | 99 | 102 |
| | 30 | 4,280 | 89 | 3,340 | 89 | 3,050 | 89 | 2,780 | 89 | 89 | 97 | 100 |
| | 40 | 4,630 | 89 | 3,670 | 89 | 3,370 | 89 | 3,120 | 89 | 89 | 96 | 97 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF

8 Pressure Altitude: 7,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 7,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,390 | 103 | 3,500 | 104 | 3,230 | 105 | 2,970 | 105 | 107 | 114 | 116 |
| | -10 | 5,150 | 103 | 4,150 | 104 | 3,850 | 105 | 3,570 | 105 | 107 | 114 | 116 |
| | 0 | 5,420 | 104 | 4,390 | 105 | 4,080 | 106 | 3,800 | 106 | 108 | 114 | 116 |
| | 10 | 5,960 | 105 | 4,860 | 107 | 4,530 | 107 | 4,210 | 108 | 108 | 114 | 116 |
| | 20 | 7,140 | 108 | 5,920 | 108 | 5,560 | 108 | 5,200 | 108 | 108 | 113 | 115 |
| | 30 | 9,740 | 108 | 8,070 | 108 | 7,570 | 108 | 7,090 | 108 | 108 | 112 | 114 |
| | 38 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 4,120 | 99 | 3,290 | 101 | 3,030 | 102 | 2,790 | 102 | 105 | 112 | 115 |
| | -10 | 4,810 | 100 | 3,900 | 101 | 3,620 | 102 | 3,350 | 102 | 105 | 112 | 115 |
| | 0 | 5,070 | 101 | 4,120 | 102 | 3,830 | 102 | 3,550 | 103 | 105 | 112 | 114 |
| | 10 | 5,560 | 102 | 4,530 | 103 | 4,220 | 104 | 3,930 | 104 | 106 | 112 | 114 |
| | 20 | 6,550 | 105 | 5,400 | 106 | 5,060 | 106 | 4,740 | 106 | 106 | 112 | 113 |
| | 30 | 8,410 | 106 | 7,050 | 106 | 6,610 | 106 | 6,210 | 106 | 106 | 111 | 112 |
| | 38 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 4,010 | 98 | 3,200 | 100 | 2,950 | 101 | 2,710 | 101 | 104 | 111 | 114 |
| | -10 | 4,690 | 99 | 3,800 | 100 | 3,520 | 101 | 3,260 | 101 | 104 | 112 | 114 |
| | 0 | 4,940 | 100 | 4,000 | 101 | 3,720 | 101 | 3,450 | 102 | 104 | 111 | 114 |
| | 10 | 5,410 | 101 | 4,400 | 102 | 4,090 | 103 | 3,800 | 103 | 105 | 111 | 113 |
| | 20 | 6,360 | 104 | 5,210 | 105 | 4,880 | 105 | 4,570 | 105 | 106 | 111 | 113 |
| | 30 | 8,010 | 105 | 6,700 | 105 | 6,290 | 105 | 5,890 | 105 | 105 | 110 | 111 |
| | 38 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,670 | 94 | 2,910 | 96 | 2,690 | 97 | 2,460 | 97 | 101 | 109 | 112 |
| | -10 | 4,280 | 95 | 3,450 | 96 | 3,200 | 97 | 2,960 | 98 | 101 | 109 | 112 |
| | 0 | 4,500 | 96 | 3,640 | 97 | 3,370 | 98 | 3,130 | 98 | 101 | 109 | 111 |
| | 10 | 4,920 | 97 | 3,990 | 98 | 3,700 | 99 | 3,430 | 99 | 101 | 108 | 111 |
| | 20 | 5,700 | 100 | 4,660 | 101 | 4,340 | 102 | 4,040 | 102 | 103 | 108 | 110 |
| | 30 | 6,890 | 102 | 5,730 | 102 | 5,370 | 102 | 5,030 | 102 | 102 | 107 | 109 |
| | 38 | - | - | - | - | - | - | - | - | - | - | - |
| 16,000 | -54 | 3,350 | 90 | 2,650 | 92 | 2,440 | 93 | 2,240 | 94 | 98 | 106 | 110 |
| | -10 | 3,900 | 91 | 3,140 | 93 | 2,910 | 93 | 2,680 | 94 | 98 | 107 | 109 |
| | 0 | 4,100 | 92 | 3,300 | 93 | 3,060 | 94 | 2,830 | 94 | 98 | 106 | 109 |
| | 10 | 4,460 | 93 | 3,600 | 94 | 3,340 | 95 | 3,090 | 96 | 98 | 106 | 108 |
| | 20 | 5,130 | 96 | 4,160 | 97 | 3,860 | 97 | 3,580 | 98 | 99 | 105 | 107 |
| | 30 | 6,020 | 99 | 4,970 | 99 | 4,650 | 99 | 4,340 | 99 | 99 | 105 | 106 |
| | 38 | 7,430 | 99 | 6,200 | 99 | 5,810 | 99 | 5,440 | 99 | 99 | 104 | 105 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF

| Pressure Altitude: 7,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 15,000 | -54 | 3,280 | 90 | 2,500 | 90 | 2,260 | 90 | 2,040 | 90 | 95 | 104 | 107 |
| | -10 | 3,730 | 90 | 2,900 | 90 | 2,650 | 90 | 2,430 | 90 | 95 | 104 | 107 |
| | 0 | 3,860 | 90 | 3,000 | 90 | 2,770 | 90 | 2,560 | 91 | 95 | 104 | 107 |
| | 10 | 4,050 | 89 | 3,250 | 91 | 3,010 | 91 | 2,780 | 92 | 95 | 103 | 106 |
| | 20 | 4,610 | 91 | 3,720 | 93 | 3,450 | 93 | 3,190 | 94 | 95 | 102 | 104 |
| | 30 | 5,330 | 94 | 4,330 | 95 | 4,040 | 95 | 3,770 | 95 | 96 | 102 | 103 |
| | 38 | 6,290 | 96 | 5,210 | 96 | 4,880 | 96 | 4,550 | 96 | 96 | 101 | 102 |
| 14,000 | -54 | 3,250 | 90 | 2,480 | 90 | 2,260 | 90 | 2,030 | 90 | 91 | 102 | 106 |
| | -10 | 3,700 | 90 | 2,880 | 90 | 2,630 | 90 | 2,390 | 90 | 91 | 102 | 106 |
| | 0 | 3,810 | 90 | 2,980 | 90 | 2,720 | 90 | 2,480 | 90 | 91 | 101 | 105 |
| | 10 | 3,980 | 89 | 3,110 | 89 | 2,850 | 89 | 2,590 | 89 | 92 | 101 | 104 |
| | 20 | 4,270 | 89 | 3,340 | 89 | 3,080 | 89 | 2,840 | 90 | 92 | 100 | 102 |
| | 30 | 4,730 | 90 | 3,820 | 91 | 3,540 | 92 | 3,280 | 92 | 92 | 99 | 101 |
| | 38 | 5,430 | 92 | 4,460 | 92 | 4,150 | 92 | 3,870 | 92 | 92 | 98 | 100 |
| 13,000 | -54 | 3,240 | 91 | 2,480 | 91 | 2,260 | 91 | 2,040 | 91 | 91 | 102 | 107 |
| | -10 | 3,670 | 90 | 2,870 | 90 | 2,630 | 90 | 2,390 | 90 | 91 | 102 | 106 |
| | 0 | 3,780 | 90 | 2,960 | 90 | 2,710 | 90 | 2,470 | 90 | 90 | 101 | 105 |
| | 10 | 3,940 | 90 | 3,090 | 90 | 2,830 | 90 | 2,580 | 90 | 90 | 100 | 104 |
| | 20 | 4,180 | 89 | 3,280 | 89 | 3,000 | 89 | 2,730 | 89 | 89 | 98 | 101 |
| | 30 | 4,510 | 89 | 3,520 | 89 | 3,230 | 89 | 2,950 | 89 | 89 | 97 | 99 |
| | 38 | 4,830 | 88 | 3,860 | 88 | 3,570 | 88 | 3,320 | 88 | 89 | 95 | 97 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF

9 Pressure Altitude: 8,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 8,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,610 | 103 | 3,680 | 104 | 3,400 | 104 | 3,130 | 105 | 107 | 114 | 116 |
| | -10 | 5,510 | 104 | 4,460 | 105 | 4,140 | 105 | 3,840 | 106 | 107 | 114 | 116 |
| | 0 | 5,910 | 105 | 4,810 | 106 | 4,480 | 107 | 4,170 | 107 | 108 | 114 | 116 |
| | 10 | 6,630 | 106 | 5,430 | 107 | 5,070 | 108 | 4,720 | 108 | 108 | 114 | 116 |
| | 20 | 8,270 | 108 | 6,850 | 108 | 6,440 | 108 | 6,010 | 108 | 108 | 112 | 114 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 35 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 4,250 | 99 | 3,410 | 101 | 3,150 | 102 | 2,900 | 102 | 105 | 112 | 115 |
| | -10 | 5,070 | 101 | 4,110 | 102 | 3,830 | 102 | 3,540 | 103 | 105 | 112 | 114 |
| | 0 | 5,430 | 102 | 4,430 | 103 | 4,120 | 103 | 3,820 | 104 | 106 | 112 | 114 |
| | 10 | 6,060 | 103 | 4,960 | 104 | 4,620 | 105 | 4,310 | 105 | 106 | 112 | 114 |
| | 20 | 7,260 | 106 | 6,050 | 106 | 5,680 | 106 | 5,320 | 106 | 106 | 111 | 113 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 35 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 4,140 | 98 | 3,310 | 100 | 3,060 | 100 | 2,820 | 101 | 104 | 112 | 114 |
| | -10 | 4,930 | 99 | 4,000 | 101 | 3,720 | 101 | 3,450 | 102 | 104 | 111 | 114 |
| | 0 | 5,280 | 100 | 4,300 | 102 | 4,000 | 102 | 3,710 | 102 | 105 | 111 | 113 |
| | 10 | 5,880 | 102 | 4,800 | 103 | 4,480 | 103 | 4,170 | 104 | 105 | 111 | 113 |
| | 20 | 7,010 | 105 | 5,820 | 105 | 5,450 | 105 | 5,110 | 105 | 105 | 110 | 112 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 35 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,790 | 94 | 3,020 | 96 | 2,790 | 97 | 2,560 | 97 | 101 | 109 | 112 |
| | -10 | 4,490 | 96 | 3,640 | 97 | 3,380 | 98 | 3,120 | 98 | 101 | 109 | 111 |
| | 0 | 4,810 | 96 | 3,900 | 98 | 3,620 | 98 | 3,360 | 99 | 101 | 109 | 111 |
| | 10 | 5,320 | 98 | 4,330 | 99 | 4,030 | 100 | 3,740 | 100 | 102 | 108 | 110 |
| | 20 | 6,250 | 101 | 5,130 | 102 | 4,800 | 102 | 4,480 | 103 | 103 | 108 | 110 |
| | 30 | 7,870 | 102 | 6,570 | 102 | 6,180 | 102 | 5,780 | 102 | 102 | 107 | 108 |
| | 35 | - | - | - | - | - | - | - | - | - | - | - |
| 16,000 | -54 | 3,460 | 90 | 2,750 | 92 | 2,530 | 93 | 2,330 | 94 | 98 | 106 | 110 |
| | -10 | 4,100 | 92 | 3,310 | 93 | 3,060 | 94 | 2,830 | 94 | 98 | 106 | 109 |
| | 0 | 4,370 | 92 | 3,530 | 94 | 3,280 | 94 | 3,030 | 95 | 98 | 106 | 109 |
| | 10 | 4,810 | 94 | 3,900 | 95 | 3,620 | 96 | 3,360 | 96 | 98 | 106 | 108 |
| | 20 | 5,590 | 97 | 4,540 | 98 | 4,230 | 98 | 3,930 | 99 | 99 | 105 | 107 |
| | 30 | 6,720 | 99 | 5,600 | 99 | 5,250 | 99 | 4,920 | 99 | 99 | 104 | 106 |
| | 35 | 7,800 | 99 | 6,510 | 99 | 6,100 | 99 | 5,720 | 99 | 99 | 104 | 105 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF

| Pressure Altitude: 8,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 15,000 | -54 | 3,380 | 90 | 2,580 | 90 | 2,340 | 90 | 2,120 | 90 | 95 | 104 | 108 |
| | -10 | 3,870 | 89 | 3,010 | 90 | 2,780 | 90 | 2,560 | 91 | 95 | 104 | 107 |
| | 0 | 4,020 | 89 | 3,190 | 90 | 2,960 | 91 | 2,740 | 91 | 95 | 103 | 106 |
| | 10 | 4,350 | 90 | 3,510 | 91 | 3,250 | 92 | 3,010 | 92 | 95 | 103 | 105 |
| | 20 | 5,000 | 92 | 4,050 | 94 | 3,760 | 94 | 3,480 | 95 | 95 | 102 | 104 |
| | 30 | 5,860 | 95 | 4,830 | 96 | 4,510 | 96 | 4,220 | 96 | 96 | 101 | 103 |
| | 35 | 6,560 | 96 | 5,460 | 96 | 5,110 | 96 | 4,780 | 96 | 96 | 101 | 102 |
| 14,000 | -54 | 3,350 | 90 | 2,570 | 90 | 2,330 | 90 | 2,110 | 90 | 91 | 102 | 106 |
| | -10 | 3,820 | 90 | 2,990 | 90 | 2,730 | 90 | 2,490 | 90 | 91 | 102 | 105 |
| | 0 | 3,970 | 89 | 3,110 | 89 | 2,840 | 89 | 2,590 | 89 | 91 | 101 | 104 |
| | 10 | 4,190 | 89 | 3,270 | 89 | 3,000 | 89 | 2,740 | 89 | 92 | 100 | 103 |
| | 20 | 4,520 | 89 | 3,600 | 90 | 3,330 | 90 | 3,080 | 91 | 92 | 99 | 101 |
| | 30 | 5,170 | 91 | 4,190 | 92 | 3,890 | 92 | 3,630 | 92 | 92 | 99 | 100 |
| | 35 | 5,660 | 92 | 4,650 | 92 | 4,350 | 92 | 4,070 | 92 | 92 | 98 | 100 |
| 13,000 | -54 | 3,330 | 90 | 2,570 | 91 | 2,330 | 91 | 2,120 | 91 | 91 | 102 | 107 |
| | -10 | 3,790 | 90 | 2,970 | 90 | 2,720 | 90 | 2,480 | 90 | 90 | 101 | 105 |
| | 0 | 3,920 | 90 | 3,080 | 90 | 2,830 | 90 | 2,580 | 90 | 90 | 101 | 104 |
| | 10 | 4,130 | 89 | 3,240 | 89 | 2,970 | 89 | 2,700 | 89 | 90 | 100 | 103 |
| | 20 | 4,410 | 89 | 3,460 | 89 | 3,170 | 89 | 2,890 | 89 | 89 | 98 | 100 |
| | 30 | 4,780 | 88 | 3,760 | 88 | 3,450 | 88 | 3,190 | 89 | 89 | 96 | 98 |
| | 35 | 5,020 | 88 | 4,010 | 88 | 3,740 | 88 | 3,480 | 88 | 89 | 95 | 97 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF

10 Pressure Altitude: 9,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 9,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|----------------|------------------|----------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R | V _{LOF} | V ₂ |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | KIAS | KIAS | KIAS |
| 18,740 | -54 | 4,870 | 103 | 3,900 | 104 | 3,610 | 105 | 3,320 | 105 | 107 | 114 | 116 |
| | -10 | 6,000 | 105 | 4,880 | 106 | 4,550 | 106 | 4,230 | 107 | 108 | 114 | 116 |
| | 0 | 6,490 | 106 | 5,300 | 107 | 4,940 | 107 | 4,600 | 108 | 108 | 114 | 116 |
| | 10 | - | - | - | - | - | - | - | - | - | - | - |
| | 20 | - | - | - | - | - | - | - | - | - | - | - |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 33 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 4,490 | 100 | 3,610 | 101 | 3,340 | 102 | 3,080 | 102 | 105 | 112 | 115 |
| | -10 | 5,510 | 101 | 4,490 | 103 | 4,180 | 103 | 3,880 | 103 | 105 | 112 | 114 |
| | 0 | 5,950 | 102 | 4,860 | 104 | 4,530 | 104 | 4,230 | 105 | 106 | 112 | 114 |
| | 10 | 6,750 | 104 | 5,550 | 105 | 5,180 | 106 | 4,840 | 106 | 106 | 112 | 114 |
| | 20 | 8,360 | 106 | 7,000 | 106 | 6,590 | 106 | 6,170 | 106 | 106 | 111 | 112 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 33 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 4,380 | 98 | 3,510 | 100 | 3,240 | 101 | 2,990 | 101 | 104 | 111 | 114 |
| | -10 | 5,360 | 100 | 4,370 | 101 | 4,060 | 102 | 3,770 | 102 | 105 | 111 | 113 |
| | 0 | 5,780 | 101 | 4,720 | 102 | 4,390 | 103 | 4,090 | 103 | 105 | 111 | 113 |
| | 10 | 6,550 | 103 | 5,370 | 104 | 5,010 | 105 | 4,680 | 105 | 105 | 111 | 113 |
| | 20 | 8,010 | 105 | 6,700 | 105 | 6,290 | 105 | 5,900 | 105 | 105 | 110 | 112 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 33 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 4,000 | 95 | 3,200 | 96 | 2,950 | 97 | 2,720 | 98 | 101 | 109 | 112 |
| | -10 | 4,880 | 96 | 3,960 | 98 | 3,680 | 98 | 3,410 | 99 | 101 | 109 | 111 |
| | 0 | 5,250 | 97 | 4,270 | 99 | 3,970 | 99 | 3,680 | 99 | 102 | 108 | 111 |
| | 10 | 5,900 | 99 | 4,820 | 100 | 4,490 | 101 | 4,180 | 101 | 102 | 108 | 110 |
| | 20 | 7,000 | 102 | 5,820 | 102 | 5,450 | 102 | 5,100 | 102 | 102 | 108 | 109 |
| | 30 | 9,390 | 102 | 7,870 | 102 | 7,380 | 102 | 6,930 | 102 | 102 | 107 | 108 |
| | 33 | - | - | - | - | - | - | - | - | - | - | - |
| 16,000 | -54 | 3,650 | 91 | 2,910 | 93 | 2,680 | 93 | 2,460 | 94 | 98 | 106 | 110 |
| | -10 | 4,440 | 92 | 3,590 | 94 | 3,330 | 94 | 3,080 | 95 | 98 | 106 | 109 |
| | 0 | 4,760 | 93 | 3,860 | 95 | 3,580 | 95 | 3,320 | 96 | 98 | 106 | 108 |
| | 10 | 5,320 | 95 | 4,320 | 96 | 4,020 | 97 | 3,730 | 97 | 99 | 105 | 108 |
| | 20 | 6,220 | 98 | 5,100 | 99 | 4,760 | 99 | 4,440 | 99 | 99 | 105 | 107 |
| | 30 | 7,810 | 99 | 6,520 | 99 | 6,120 | 99 | 5,730 | 99 | 99 | 104 | 105 |
| | 33 | - | - | - | - | - | - | - | - | - | - | - |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF

| Pressure Altitude: 9,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 15,000 | -54 | 3,540 | 90 | 2,720 | 90 | 2,470 | 90 | 2,240 | 90 | 95 | 104 | 107 |
| | -10 | 4,100 | 89 | 3,250 | 90 | 3,010 | 91 | 2,780 | 91 | 95 | 103 | 106 |
| | 0 | 4,310 | 89 | 3,480 | 91 | 3,230 | 91 | 2,990 | 92 | 95 | 103 | 106 |
| | 10 | 4,790 | 91 | 3,880 | 92 | 3,600 | 93 | 3,330 | 93 | 95 | 103 | 105 |
| | 20 | 5,530 | 93 | 4,490 | 95 | 4,170 | 95 | 3,890 | 95 | 96 | 102 | 104 |
| | 30 | 6,660 | 96 | 5,530 | 96 | 5,170 | 96 | 4,840 | 96 | 96 | 101 | 103 |
| | 33 | 7,190 | 96 | 6,000 | 96 | 5,610 | 96 | 5,250 | 96 | 96 | 101 | 102 |
| 14,000 | -54 | 3,510 | 90 | 2,710 | 90 | 2,460 | 90 | 2,230 | 90 | 91 | 102 | 106 |
| | -10 | 4,040 | 89 | 3,170 | 90 | 2,900 | 90 | 2,640 | 90 | 91 | 101 | 104 |
| | 0 | 4,220 | 89 | 3,310 | 89 | 3,030 | 89 | 2,760 | 89 | 92 | 101 | 104 |
| | 10 | 4,490 | 89 | 3,520 | 89 | 3,240 | 89 | 2,980 | 89 | 92 | 100 | 103 |
| | 20 | 4,930 | 89 | 3,980 | 90 | 3,690 | 91 | 3,420 | 91 | 92 | 99 | 101 |
| | 30 | 5,760 | 92 | 4,730 | 92 | 4,420 | 92 | 4,120 | 92 | 92 | 98 | 100 |
| | 33 | 6,110 | 92 | 5,060 | 92 | 4,740 | 92 | 4,420 | 92 | 92 | 98 | 100 |
| 13,000 | -54 | 3,490 | 90 | 2,700 | 90 | 2,460 | 90 | 2,230 | 90 | 91 | 102 | 106 |
| | -10 | 4,000 | 90 | 3,150 | 90 | 2,880 | 90 | 2,630 | 90 | 90 | 101 | 104 |
| | 0 | 4,160 | 89 | 3,270 | 89 | 3,000 | 89 | 2,740 | 89 | 90 | 100 | 103 |
| | 10 | 4,410 | 89 | 3,460 | 89 | 3,170 | 89 | 2,900 | 89 | 89 | 99 | 102 |
| | 20 | 4,740 | 89 | 3,720 | 89 | 3,410 | 89 | 3,120 | 89 | 89 | 97 | 99 |
| | 30 | 5,160 | 88 | 4,130 | 88 | 3,840 | 88 | 3,570 | 88 | 89 | 95 | 97 |
| | 33 | 5,360 | 88 | 4,350 | 88 | 4,070 | 88 | 3,800 | 88 | 89 | 95 | 97 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF

11 Pressure Altitude: 10,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 10,000 feet | | | | | | | | | | | | |
|--------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 5,180 | 103 | 4,160 | 105 | 3,850 | 105 | 3,560 | 106 | 107 | 114 | 116 |
| | -10 | - | - | - | - | - | - | - | - | - | - | - |
| | 0 | - | - | - | - | - | - | - | - | - | - | - |
| | 10 | - | - | - | - | - | - | - | - | - | - | - |
| | 20 | - | - | - | - | - | - | - | - | - | - | - |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 31 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 4,780 | 100 | 3,850 | 102 | 3,570 | 102 | 3,300 | 103 | 105 | 112 | 115 |
| | -10 | 6,010 | 102 | 4,910 | 103 | 4,580 | 104 | 4,270 | 104 | 106 | 112 | 114 |
| | 0 | 6,520 | 103 | 5,360 | 104 | 5,000 | 105 | 4,670 | 105 | 106 | 112 | 114 |
| | 10 | 7,520 | 105 | 6,190 | 106 | 5,800 | 106 | 5,450 | 106 | 106 | 112 | 113 |
| | 20 | 9,750 | 106 | 8,170 | 106 | 7,670 | 106 | 7,220 | 106 | 106 | 111 | 112 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 31 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 4,660 | 99 | 3,740 | 101 | 3,470 | 101 | 3,200 | 102 | 104 | 111 | 114 |
| | -10 | 5,840 | 101 | 4,770 | 102 | 4,440 | 103 | 4,130 | 103 | 105 | 111 | 113 |
| | 0 | 6,330 | 102 | 5,190 | 103 | 4,850 | 104 | 4,520 | 104 | 105 | 111 | 113 |
| | 10 | 7,290 | 104 | 5,990 | 105 | 5,590 | 105 | 5,240 | 105 | 105 | 111 | 112 |
| | 20 | 9,270 | 105 | 7,760 | 105 | 7,300 | 105 | 6,850 | 105 | 105 | 110 | 111 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 31 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 4,250 | 95 | 3,410 | 97 | 3,150 | 97 | 2,910 | 98 | 101 | 109 | 111 |
| | -10 | 5,310 | 97 | 4,320 | 98 | 4,020 | 99 | 3,720 | 99 | 101 | 109 | 111 |
| | 0 | 5,730 | 98 | 4,680 | 99 | 4,360 | 100 | 4,050 | 100 | 102 | 108 | 110 |
| | 10 | 6,540 | 100 | 5,360 | 101 | 5,000 | 101 | 4,660 | 102 | 102 | 108 | 110 |
| | 20 | 7,920 | 102 | 6,620 | 102 | 6,220 | 102 | 5,830 | 102 | 102 | 107 | 109 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 31 | - | - | - | - | - | - | - | - | - | - | - |
| 16,000 | -54 | 3,870 | 91 | 3,100 | 93 | 2,860 | 94 | 2,640 | 94 | 98 | 106 | 109 |
| | -10 | 4,810 | 93 | 3,900 | 95 | 3,630 | 95 | 3,360 | 96 | 98 | 106 | 108 |
| | 0 | 5,190 | 94 | 4,220 | 95 | 3,920 | 96 | 3,640 | 96 | 98 | 106 | 108 |
| | 10 | 5,860 | 96 | 4,780 | 97 | 4,440 | 97 | 4,130 | 98 | 99 | 105 | 107 |
| | 20 | 6,930 | 99 | 5,740 | 99 | 5,370 | 99 | 5,030 | 99 | 99 | 105 | 106 |
| | 30 | 9,130 | 99 | 7,640 | 99 | 7,170 | 99 | 6,720 | 99 | 99 | 104 | 105 |
| | 31 | - | - | - | - | - | - | - | - | - | - | - |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF

| Pressure Altitude: 10,000 feet | | | | | | | | | | | | |
|--------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 15,000 | -54 | 3,710 | 90 | 2,860 | 90 | 2,610 | 90 | 2,390 | 90 | 95 | 104 | 107 |
| | -10 | 4,360 | 89 | 3,520 | 91 | 3,270 | 91 | 3,030 | 92 | 95 | 103 | 106 |
| | 0 | 4,680 | 90 | 3,790 | 92 | 3,520 | 92 | 3,260 | 93 | 95 | 103 | 105 |
| | 10 | 5,260 | 92 | 4,270 | 93 | 3,970 | 93 | 3,680 | 94 | 95 | 103 | 105 |
| | 20 | 6,130 | 94 | 4,990 | 95 | 4,670 | 96 | 4,360 | 96 | 96 | 102 | 103 |
| | 30 | 7,620 | 96 | 6,340 | 96 | 5,950 | 96 | 5,570 | 96 | 96 | 101 | 102 |
| | 31 | 7,880 | 96 | 6,570 | 96 | 6,160 | 96 | 5,770 | 96 | 96 | 101 | 102 |
| 14,000 | -54 | 3,680 | 90 | 2,850 | 90 | 2,590 | 90 | 2,350 | 90 | 91 | 102 | 105 |
| | -10 | 4,290 | 89 | 3,360 | 89 | 3,080 | 89 | 2,810 | 89 | 91 | 101 | 104 |
| | 0 | 4,480 | 89 | 3,520 | 89 | 3,230 | 89 | 2,950 | 89 | 92 | 100 | 103 |
| | 10 | 4,820 | 89 | 3,810 | 89 | 3,530 | 89 | 3,270 | 90 | 92 | 100 | 102 |
| | 20 | 5,420 | 90 | 4,390 | 91 | 4,080 | 92 | 3,790 | 92 | 92 | 99 | 101 |
| | 30 | 6,470 | 92 | 5,370 | 92 | 5,020 | 92 | 4,690 | 92 | 92 | 98 | 100 |
| | 31 | 6,640 | 93 | 5,520 | 93 | 5,170 | 92 | 4,820 | 92 | 93 | 98 | 99 |
| 13,000 | -54 | 3,660 | 90 | 2,840 | 90 | 2,590 | 90 | 2,350 | 90 | 91 | 102 | 106 |
| | -10 | 4,230 | 90 | 3,320 | 90 | 3,050 | 90 | 2,790 | 90 | 90 | 100 | 104 |
| | 0 | 4,420 | 89 | 3,480 | 89 | 3,200 | 89 | 2,920 | 89 | 90 | 100 | 103 |
| | 10 | 4,710 | 89 | 3,710 | 89 | 3,410 | 89 | 3,120 | 89 | 89 | 98 | 101 |
| | 20 | 5,100 | 89 | 4,010 | 89 | 3,690 | 89 | 3,420 | 89 | 89 | 96 | 98 |
| | 30 | 5,620 | 88 | 4,640 | 88 | 4,330 | 88 | 4,030 | 88 | 89 | 95 | 97 |
| | 31 | 5,730 | 88 | 4,740 | 88 | 4,430 | 88 | 4,120 | 88 | 89 | 95 | 97 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS OFF

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON

1 Pressure Altitude: Sea level

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: Sea level | | | | | | | | | | | | | |
|------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|----------------|------------------|----------------|
| Wind Factor: | TAIL | 10 KT | 0 KT | | HEAD | | 10 KT | HEAD | | 20 KT | V _R | V _{LOF} | V ₂ |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | KIAS | KIAS | KIAS |
| 18,740 | -54 | 3,670 | 106 | 2,880 | 108 | 2,640 | 108 | 2,410 | 109 | 111 | 116 | 119 | |
| | -50 | 3,720 | 106 | 2,930 | 107 | 2,680 | 108 | 2,450 | 109 | 110 | 116 | 119 | |
| | -40 | 3,850 | 106 | 3,040 | 107 | 2,790 | 108 | 2,550 | 109 | 111 | 116 | 119 | |
| | -30 | 3,980 | 106 | 3,150 | 107 | 2,900 | 108 | 2,650 | 108 | 111 | 116 | 119 | |
| | -20 | 4,110 | 106 | 3,270 | 107 | 3,010 | 108 | 2,760 | 108 | 111 | 116 | 119 | |
| | -10 | 4,240 | 106 | 3,380 | 107 | 3,110 | 108 | 2,860 | 108 | 111 | 116 | 119 | |
| | 0 | 4,380 | 106 | 3,500 | 107 | 3,230 | 108 | 2,970 | 108 | 111 | 116 | 119 | |
| | 10 | 4,520 | 106 | 3,620 | 107 | 3,340 | 108 | 3,080 | 108 | 111 | 116 | 119 | |
| 18,300 | -54 | 3,530 | 102 | 2,770 | 104 | 2,540 | 105 | 2,320 | 105 | 109 | 115 | 118 | |
| | -50 | 3,580 | 102 | 2,810 | 104 | 2,580 | 105 | 2,360 | 105 | 109 | 115 | 118 | |
| | -40 | 3,700 | 102 | 2,920 | 104 | 2,680 | 105 | 2,450 | 105 | 109 | 115 | 118 | |
| | -30 | 3,820 | 102 | 3,020 | 104 | 2,780 | 105 | 2,550 | 105 | 109 | 115 | 118 | |
| | -20 | 3,950 | 102 | 3,130 | 104 | 2,890 | 105 | 2,650 | 105 | 109 | 115 | 118 | |
| | -10 | 4,070 | 102 | 3,250 | 104 | 2,990 | 104 | 2,750 | 105 | 109 | 115 | 118 | |
| | 0 | 4,200 | 102 | 3,360 | 104 | 3,090 | 104 | 2,850 | 105 | 109 | 115 | 118 | |
| | 10 | 4,330 | 102 | 3,470 | 104 | 3,210 | 104 | 2,960 | 105 | 109 | 115 | 118 | |
| 18,000 | -54 | 3,440 | 101 | 2,690 | 103 | 2,470 | 104 | 2,250 | 104 | 108 | 114 | 117 | |
| | -50 | 3,480 | 101 | 2,740 | 103 | 2,510 | 104 | 2,290 | 104 | 108 | 114 | 117 | |
| | -40 | 3,600 | 101 | 2,840 | 103 | 2,610 | 103 | 2,380 | 104 | 108 | 114 | 117 | |
| | -30 | 3,720 | 101 | 2,940 | 103 | 2,710 | 103 | 2,480 | 104 | 108 | 114 | 117 | |
| | -20 | 3,840 | 101 | 3,050 | 103 | 2,800 | 103 | 2,580 | 104 | 108 | 114 | 117 | |
| | -10 | 3,960 | 101 | 3,150 | 103 | 2,910 | 103 | 2,670 | 104 | 108 | 114 | 117 | |
| | 0 | 4,090 | 101 | 3,260 | 103 | 3,010 | 103 | 2,770 | 104 | 108 | 114 | 117 | |
| | 10 | 4,210 | 101 | 3,370 | 103 | 3,110 | 103 | 2,870 | 104 | 108 | 114 | 117 | |
| 17,000 | -54 | 3,140 | 97 | 2,450 | 99 | 2,240 | 100 | 2,040 | 100 | 104 | 111 | 114 | |
| | -50 | 3,180 | 97 | 2,490 | 99 | 2,280 | 100 | 2,070 | 100 | 104 | 111 | 114 | |
| | -40 | 3,290 | 97 | 2,580 | 99 | 2,360 | 99 | 2,160 | 100 | 104 | 111 | 114 | |
| | -30 | 3,400 | 97 | 2,670 | 99 | 2,460 | 99 | 2,250 | 100 | 104 | 111 | 114 | |
| | -20 | 3,500 | 97 | 2,770 | 99 | 2,550 | 99 | 2,330 | 100 | 104 | 111 | 114 | |
| | -10 | 3,610 | 97 | 2,860 | 99 | 2,640 | 99 | 2,420 | 100 | 104 | 111 | 114 | |
| | 0 | 3,730 | 97 | 2,960 | 99 | 2,730 | 99 | 2,510 | 100 | 104 | 111 | 114 | |
| | 10 | 3,840 | 97 | 3,070 | 99 | 2,830 | 99 | 2,600 | 100 | 104 | 111 | 114 | |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON

| Pressure Altitude: Sea level | | | | | | | | | | | | |
|------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,860 | 93 | 2,220 | 95 | 2,030 | 95 | 1,840 | 96 | 101 | 108 | 112 |
| | -50 | 2,900 | 93 | 2,250 | 95 | 2,060 | 95 | 1,870 | 96 | 101 | 108 | 112 |
| | -40 | 2,990 | 93 | 2,340 | 95 | 2,140 | 95 | 1,950 | 96 | 101 | 108 | 112 |
| | -30 | 3,090 | 93 | 2,430 | 95 | 2,220 | 95 | 2,030 | 96 | 101 | 108 | 112 |
| | -20 | 3,190 | 93 | 2,510 | 95 | 2,300 | 95 | 2,110 | 96 | 101 | 109 | 112 |
| | -10 | 3,290 | 93 | 2,590 | 95 | 2,390 | 95 | 2,190 | 96 | 101 | 108 | 112 |
| | 0 | 3,390 | 93 | 2,680 | 95 | 2,470 | 95 | 2,270 | 96 | 101 | 109 | 112 |
| 15,000 | 10 | 3,500 | 93 | 2,770 | 95 | 2,560 | 95 | 2,350 | 96 | 101 | 109 | 112 |
| | -54 | 2,730 | 91 | 2,030 | 91 | 1,830 | 91 | 1,660 | 92 | 98 | 105 | 109 |
| | -50 | 2,760 | 91 | 2,060 | 91 | 1,860 | 91 | 1,690 | 92 | 98 | 105 | 109 |
| | -40 | 2,850 | 91 | 2,130 | 91 | 1,940 | 91 | 1,760 | 92 | 98 | 105 | 109 |
| | -30 | 2,930 | 90 | 2,200 | 90 | 2,010 | 91 | 1,830 | 92 | 98 | 106 | 109 |
| | -20 | 3,020 | 90 | 2,280 | 91 | 2,090 | 91 | 1,900 | 92 | 98 | 106 | 109 |
| | -10 | 3,100 | 90 | 2,360 | 91 | 2,160 | 91 | 1,980 | 92 | 98 | 106 | 109 |
| 14,000 | 0 | 3,180 | 90 | 2,440 | 91 | 2,240 | 91 | 2,050 | 92 | 98 | 106 | 109 |
| | 10 | 3,260 | 90 | 2,520 | 91 | 2,310 | 91 | 2,130 | 92 | 98 | 106 | 109 |
| | -54 | 2,720 | 91 | 2,020 | 91 | 1,820 | 91 | 1,620 | 91 | 94 | 103 | 107 |
| | -50 | 2,760 | 91 | 2,060 | 91 | 1,840 | 91 | 1,650 | 91 | 94 | 103 | 107 |
| | -40 | 2,840 | 91 | 2,130 | 91 | 1,910 | 91 | 1,710 | 91 | 94 | 103 | 107 |
| | -30 | 2,910 | 91 | 2,190 | 91 | 1,980 | 91 | 1,780 | 91 | 94 | 103 | 107 |
| | -20 | 2,990 | 91 | 2,260 | 91 | 2,050 | 91 | 1,830 | 91 | 94 | 103 | 107 |
| 13,000 | -10 | 3,070 | 91 | 2,330 | 91 | 2,110 | 91 | 1,900 | 91 | 94 | 103 | 107 |
| | 0 | 3,150 | 90 | 2,400 | 90 | 2,180 | 90 | 1,960 | 90 | 94 | 103 | 107 |
| | 10 | 3,230 | 90 | 2,470 | 90 | 2,250 | 90 | 2,020 | 90 | 94 | 103 | 107 |
| | -54 | 2,720 | 91 | 2,040 | 91 | 1,830 | 91 | 1,630 | 91 | 92 | 102 | 107 |
| | -50 | 2,750 | 91 | 2,060 | 91 | 1,860 | 91 | 1,660 | 91 | 92 | 102 | 107 |
| | -40 | 2,830 | 91 | 2,130 | 91 | 1,920 | 91 | 1,720 | 91 | 92 | 102 | 107 |
| | -30 | 2,910 | 91 | 2,200 | 91 | 1,980 | 91 | 1,790 | 91 | 92 | 102 | 107 |
| | -20 | 2,990 | 91 | 2,270 | 91 | 2,050 | 91 | 1,840 | 91 | 91 | 102 | 107 |
| | -10 | 3,060 | 91 | 2,340 | 91 | 2,110 | 91 | 1,910 | 91 | 91 | 102 | 107 |
| | 0 | 3,140 | 91 | 2,410 | 91 | 2,180 | 91 | 1,970 | 91 | 91 | 102 | 106 |
| | 10 | 3,220 | 91 | 2,470 | 91 | 2,250 | 91 | 2,030 | 91 | 91 | 102 | 106 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON

2 Pressure Altitude: 1,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 1,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,780 | 106 | 2,970 | 107 | 2,730 | 108 | 2,490 | 109 | 111 | 116 | 119 |
| | -50 | 3,830 | 106 | 3,020 | 107 | 2,770 | 108 | 2,530 | 109 | 111 | 116 | 119 |
| | -40 | 3,960 | 106 | 3,140 | 107 | 2,880 | 108 | 2,640 | 108 | 111 | 116 | 119 |
| | -30 | 4,100 | 106 | 3,250 | 107 | 2,990 | 108 | 2,750 | 108 | 111 | 116 | 119 |
| | -20 | 4,230 | 106 | 3,370 | 107 | 3,110 | 108 | 2,860 | 108 | 111 | 116 | 119 |
| | -10 | 4,370 | 106 | 3,490 | 107 | 3,220 | 108 | 2,960 | 108 | 111 | 116 | 119 |
| | 0 | 4,510 | 106 | 3,610 | 107 | 3,330 | 108 | 3,070 | 108 | 111 | 116 | 119 |
| | 10 | 4,660 | 106 | 3,740 | 107 | 3,460 | 108 | 3,190 | 108 | 111 | 117 | 119 |
| 18,300 | -54 | 3,640 | 102 | 2,860 | 104 | 2,620 | 105 | 2,400 | 105 | 109 | 115 | 118 |
| | -50 | 3,690 | 102 | 2,900 | 104 | 2,670 | 105 | 2,440 | 105 | 109 | 115 | 118 |
| | -40 | 3,810 | 102 | 3,020 | 104 | 2,770 | 105 | 2,540 | 105 | 109 | 115 | 118 |
| | -30 | 3,940 | 102 | 3,130 | 104 | 2,880 | 105 | 2,640 | 105 | 109 | 115 | 118 |
| | -20 | 4,070 | 102 | 3,230 | 104 | 2,990 | 104 | 2,740 | 105 | 109 | 115 | 118 |
| | -10 | 4,190 | 102 | 3,350 | 104 | 3,090 | 104 | 2,850 | 105 | 109 | 115 | 118 |
| | 0 | 4,320 | 102 | 3,470 | 104 | 3,210 | 104 | 2,950 | 105 | 109 | 115 | 118 |
| | 10 | 4,460 | 102 | 3,580 | 104 | 3,320 | 104 | 3,060 | 105 | 109 | 115 | 118 |
| 18,000 | -54 | 3,540 | 101 | 2,780 | 103 | 2,550 | 104 | 2,330 | 104 | 108 | 114 | 117 |
| | -50 | 3,580 | 101 | 2,820 | 103 | 2,590 | 104 | 2,370 | 104 | 108 | 114 | 117 |
| | -40 | 3,710 | 101 | 2,930 | 103 | 2,690 | 103 | 2,470 | 104 | 108 | 114 | 117 |
| | -30 | 3,830 | 101 | 3,030 | 103 | 2,790 | 103 | 2,570 | 104 | 108 | 114 | 117 |
| | -20 | 3,960 | 101 | 3,150 | 103 | 2,900 | 103 | 2,660 | 104 | 108 | 114 | 117 |
| | -10 | 4,080 | 101 | 3,260 | 103 | 3,000 | 103 | 2,770 | 104 | 108 | 114 | 117 |
| | 0 | 4,210 | 101 | 3,370 | 103 | 3,120 | 103 | 2,870 | 104 | 108 | 114 | 117 |
| | 10 | 4,340 | 101 | 3,490 | 103 | 3,220 | 103 | 2,980 | 104 | 108 | 114 | 117 |
| 17,000 | -54 | 3,230 | 97 | 2,530 | 99 | 2,310 | 100 | 2,110 | 100 | 104 | 111 | 114 |
| | -50 | 3,270 | 97 | 2,560 | 99 | 2,350 | 100 | 2,140 | 100 | 104 | 111 | 114 |
| | -40 | 3,380 | 97 | 2,660 | 99 | 2,440 | 99 | 2,240 | 100 | 104 | 111 | 114 |
| | -30 | 3,500 | 97 | 2,760 | 99 | 2,540 | 99 | 2,320 | 100 | 104 | 111 | 114 |
| | -20 | 3,610 | 97 | 2,860 | 99 | 2,630 | 99 | 2,410 | 100 | 104 | 111 | 114 |
| | -10 | 3,720 | 97 | 2,960 | 99 | 2,730 | 99 | 2,510 | 100 | 104 | 111 | 114 |
| | 0 | 3,840 | 97 | 3,060 | 99 | 2,830 | 99 | 2,600 | 100 | 104 | 111 | 114 |
| | 10 | 3,960 | 97 | 3,170 | 99 | 2,930 | 99 | 2,690 | 100 | 104 | 111 | 114 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON

| Pressure Altitude: 1,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,940 | 93 | 2,290 | 95 | 2,090 | 95 | 1,910 | 96 | 101 | 108 | 112 |
| | -50 | 2,980 | 93 | 2,330 | 95 | 2,130 | 95 | 1,940 | 96 | 101 | 108 | 112 |
| | -40 | 3,080 | 93 | 2,420 | 95 | 2,210 | 95 | 2,020 | 96 | 101 | 108 | 112 |
| | -30 | 3,190 | 93 | 2,510 | 95 | 2,300 | 95 | 2,100 | 96 | 101 | 108 | 112 |
| | -20 | 3,280 | 93 | 2,590 | 95 | 2,380 | 95 | 2,180 | 96 | 101 | 109 | 112 |
| | -10 | 3,390 | 93 | 2,690 | 95 | 2,470 | 95 | 2,260 | 96 | 101 | 109 | 112 |
| | 0 | 3,490 | 93 | 2,780 | 95 | 2,560 | 95 | 2,350 | 96 | 101 | 109 | 112 |
| 15,000 | 10 | 3,600 | 93 | 2,870 | 95 | 2,650 | 95 | 2,430 | 96 | 101 | 109 | 112 |
| | -54 | 2,800 | 91 | 2,090 | 91 | 1,890 | 91 | 1,720 | 92 | 98 | 106 | 109 |
| | -50 | 2,840 | 91 | 2,120 | 91 | 1,930 | 91 | 1,750 | 92 | 98 | 106 | 109 |
| | -40 | 2,920 | 90 | 2,190 | 91 | 2,000 | 91 | 1,830 | 92 | 98 | 106 | 109 |
| | -30 | 3,010 | 90 | 2,270 | 90 | 2,080 | 91 | 1,900 | 92 | 98 | 106 | 109 |
| | -20 | 3,090 | 90 | 2,350 | 91 | 2,160 | 91 | 1,970 | 92 | 98 | 106 | 109 |
| | -10 | 3,180 | 90 | 2,430 | 91 | 2,240 | 91 | 2,050 | 92 | 98 | 106 | 109 |
| 14,000 | 0 | 3,270 | 90 | 2,520 | 91 | 2,310 | 91 | 2,120 | 92 | 98 | 106 | 109 |
| | 10 | 3,350 | 90 | 2,600 | 91 | 2,400 | 91 | 2,200 | 92 | 98 | 106 | 109 |
| | -54 | 2,790 | 91 | 2,080 | 91 | 1,870 | 91 | 1,670 | 91 | 94 | 103 | 107 |
| | -50 | 2,820 | 91 | 2,110 | 91 | 1,900 | 91 | 1,700 | 91 | 94 | 103 | 107 |
| | -40 | 2,900 | 91 | 2,180 | 91 | 1,970 | 91 | 1,760 | 91 | 94 | 103 | 107 |
| | -30 | 2,990 | 91 | 2,260 | 91 | 2,040 | 91 | 1,830 | 91 | 94 | 103 | 107 |
| | -20 | 3,070 | 91 | 2,330 | 91 | 2,110 | 91 | 1,890 | 91 | 94 | 103 | 107 |
| 13,000 | -10 | 3,150 | 90 | 2,400 | 90 | 2,180 | 90 | 1,960 | 90 | 94 | 103 | 107 |
| | 0 | 3,240 | 90 | 2,480 | 90 | 2,250 | 90 | 2,030 | 90 | 94 | 103 | 107 |
| | 10 | 3,320 | 90 | 2,550 | 90 | 2,320 | 90 | 2,090 | 90 | 94 | 104 | 107 |
| | -54 | 2,780 | 91 | 2,090 | 91 | 1,880 | 91 | 1,690 | 91 | 92 | 102 | 107 |
| | -50 | 2,810 | 91 | 2,120 | 91 | 1,910 | 91 | 1,710 | 91 | 92 | 102 | 107 |
| | -40 | 2,900 | 91 | 2,190 | 91 | 1,980 | 91 | 1,780 | 91 | 92 | 102 | 107 |
| | -30 | 2,980 | 91 | 2,260 | 91 | 2,050 | 91 | 1,840 | 91 | 91 | 102 | 107 |
| | -20 | 3,060 | 91 | 2,330 | 91 | 2,110 | 91 | 1,910 | 91 | 91 | 102 | 107 |
| | -10 | 3,140 | 91 | 2,400 | 91 | 2,180 | 91 | 1,970 | 91 | 91 | 102 | 106 |
| | 0 | 3,220 | 91 | 2,470 | 91 | 2,250 | 91 | 2,030 | 91 | 91 | 102 | 106 |
| | 10 | 3,310 | 90 | 2,540 | 90 | 2,320 | 90 | 2,100 | 91 | 91 | 102 | 106 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON

3 Pressure Altitude: 2,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 2,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,890 | 106 | 3,070 | 107 | 2,820 | 108 | 2,580 | 109 | 110 | 116 | 119 |
| | -50 | 3,950 | 106 | 3,120 | 107 | 2,860 | 108 | 2,630 | 108 | 111 | 116 | 119 |
| | -40 | 4,080 | 106 | 3,240 | 107 | 2,980 | 108 | 2,730 | 108 | 111 | 116 | 119 |
| | -30 | 4,220 | 106 | 3,360 | 107 | 3,100 | 108 | 2,840 | 108 | 111 | 116 | 119 |
| | -20 | 4,370 | 106 | 3,480 | 107 | 3,220 | 108 | 2,950 | 108 | 111 | 116 | 119 |
| | -10 | 4,510 | 106 | 3,610 | 107 | 3,330 | 108 | 3,070 | 108 | 111 | 116 | 119 |
| | 0 | 4,650 | 106 | 3,740 | 107 | 3,450 | 108 | 3,190 | 108 | 111 | 117 | 119 |
| | 10 | 4,810 | 106 | 3,870 | 107 | 3,580 | 108 | 3,310 | 108 | 111 | 117 | 119 |
| 18,300 | -54 | 3,740 | 102 | 2,950 | 104 | 2,710 | 105 | 2,480 | 105 | 109 | 115 | 118 |
| | -50 | 3,790 | 102 | 3,000 | 104 | 2,760 | 105 | 2,520 | 105 | 109 | 115 | 118 |
| | -40 | 3,930 | 102 | 3,110 | 104 | 2,860 | 105 | 2,630 | 105 | 109 | 115 | 118 |
| | -30 | 4,050 | 102 | 3,230 | 104 | 2,970 | 104 | 2,730 | 105 | 109 | 115 | 118 |
| | -20 | 4,190 | 102 | 3,340 | 104 | 3,090 | 104 | 2,840 | 105 | 109 | 115 | 118 |
| | -10 | 4,320 | 102 | 3,460 | 104 | 3,200 | 104 | 2,950 | 105 | 109 | 115 | 118 |
| | 0 | 4,460 | 102 | 3,580 | 104 | 3,310 | 104 | 3,060 | 105 | 109 | 115 | 118 |
| | 10 | 4,600 | 102 | 3,710 | 104 | 3,430 | 104 | 3,170 | 105 | 109 | 115 | 118 |
| 18,000 | -54 | 3,640 | 101 | 2,870 | 103 | 2,630 | 103 | 2,410 | 104 | 108 | 114 | 117 |
| | -50 | 3,690 | 101 | 2,910 | 103 | 2,680 | 103 | 2,450 | 104 | 108 | 114 | 117 |
| | -40 | 3,820 | 101 | 3,030 | 103 | 2,780 | 103 | 2,550 | 104 | 108 | 114 | 117 |
| | -30 | 3,940 | 101 | 3,140 | 103 | 2,890 | 103 | 2,660 | 104 | 108 | 114 | 117 |
| | -20 | 4,070 | 101 | 3,250 | 103 | 3,000 | 103 | 2,760 | 104 | 108 | 114 | 117 |
| | -10 | 4,200 | 101 | 3,360 | 103 | 3,110 | 103 | 2,860 | 104 | 108 | 114 | 117 |
| | 0 | 4,340 | 101 | 3,480 | 103 | 3,220 | 103 | 2,970 | 104 | 108 | 114 | 117 |
| | 10 | 4,470 | 101 | 3,600 | 103 | 3,340 | 103 | 3,080 | 104 | 108 | 114 | 117 |
| 17,000 | -54 | 3,320 | 97 | 2,610 | 99 | 2,390 | 100 | 2,190 | 100 | 104 | 111 | 114 |
| | -50 | 3,370 | 97 | 2,650 | 99 | 2,430 | 99 | 2,220 | 100 | 104 | 111 | 114 |
| | -40 | 3,480 | 97 | 2,750 | 99 | 2,530 | 99 | 2,310 | 100 | 104 | 111 | 114 |
| | -30 | 3,600 | 97 | 2,850 | 99 | 2,620 | 99 | 2,410 | 100 | 104 | 111 | 114 |
| | -20 | 3,720 | 97 | 2,950 | 99 | 2,720 | 99 | 2,500 | 100 | 104 | 111 | 114 |
| | -10 | 3,830 | 97 | 3,060 | 99 | 2,820 | 99 | 2,590 | 100 | 104 | 111 | 114 |
| | 0 | 3,950 | 97 | 3,160 | 99 | 2,920 | 99 | 2,690 | 100 | 104 | 112 | 114 |
| | 10 | 4,080 | 97 | 3,270 | 99 | 3,030 | 99 | 2,790 | 100 | 104 | 112 | 114 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| Pressure Altitude: 2,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,020 | 93 | 2,370 | 95 | 2,160 | 95 | 1,970 | 96 | 101 | 108 | 112 |
| | -50 | 3,070 | 93 | 2,400 | 95 | 2,200 | 95 | 2,010 | 96 | 101 | 108 | 112 |
| | -40 | 3,170 | 93 | 2,500 | 95 | 2,290 | 95 | 2,090 | 96 | 101 | 108 | 112 |
| | -30 | 3,280 | 93 | 2,580 | 95 | 2,380 | 95 | 2,180 | 96 | 101 | 108 | 112 |
| | -20 | 3,380 | 93 | 2,680 | 95 | 2,470 | 95 | 2,260 | 96 | 101 | 109 | 112 |
| | -10 | 3,490 | 93 | 2,770 | 95 | 2,560 | 95 | 2,350 | 96 | 101 | 109 | 112 |
| | 0 | 3,600 | 93 | 2,870 | 95 | 2,650 | 95 | 2,440 | 96 | 101 | 109 | 112 |
| 15,000 | 10 | 3,710 | 93 | 2,970 | 95 | 2,740 | 95 | 2,520 | 96 | 101 | 109 | 112 |
| | -54 | 2,870 | 91 | 2,150 | 91 | 1,960 | 91 | 1,780 | 92 | 98 | 106 | 109 |
| | -50 | 2,910 | 90 | 2,180 | 91 | 1,990 | 91 | 1,810 | 92 | 98 | 106 | 109 |
| | -40 | 3,000 | 90 | 2,260 | 91 | 2,070 | 91 | 1,890 | 92 | 98 | 106 | 109 |
| | -30 | 3,090 | 90 | 2,350 | 91 | 2,150 | 91 | 1,970 | 92 | 98 | 106 | 109 |
| | -20 | 3,180 | 90 | 2,430 | 91 | 2,230 | 91 | 2,040 | 92 | 98 | 106 | 109 |
| | -10 | 3,270 | 90 | 2,510 | 91 | 2,310 | 91 | 2,120 | 92 | 98 | 106 | 109 |
| 14,000 | 0 | 3,350 | 90 | 2,600 | 91 | 2,400 | 91 | 2,200 | 92 | 98 | 106 | 109 |
| | 10 | 3,440 | 90 | 2,690 | 91 | 2,480 | 91 | 2,280 | 92 | 98 | 106 | 110 |
| | -54 | 2,860 | 91 | 2,140 | 91 | 1,930 | 91 | 1,730 | 91 | 94 | 103 | 107 |
| | -50 | 2,890 | 91 | 2,170 | 91 | 1,960 | 91 | 1,750 | 91 | 94 | 103 | 107 |
| | -40 | 2,980 | 91 | 2,250 | 91 | 2,030 | 91 | 1,820 | 91 | 94 | 103 | 107 |
| | -30 | 3,060 | 91 | 2,320 | 91 | 2,100 | 91 | 1,890 | 91 | 94 | 103 | 107 |
| | -20 | 3,150 | 90 | 2,400 | 90 | 2,180 | 90 | 1,960 | 90 | 94 | 103 | 107 |
| 13,000 | -10 | 3,230 | 90 | 2,470 | 90 | 2,250 | 90 | 2,020 | 90 | 94 | 103 | 107 |
| | 0 | 3,320 | 90 | 2,550 | 90 | 2,320 | 90 | 2,090 | 90 | 94 | 103 | 107 |
| | 10 | 3,410 | 90 | 2,630 | 90 | 2,390 | 90 | 2,160 | 90 | 94 | 103 | 107 |
| | -54 | 2,850 | 91 | 2,150 | 91 | 1,940 | 91 | 1,740 | 91 | 92 | 102 | 107 |
| | -50 | 2,890 | 91 | 2,180 | 91 | 1,970 | 91 | 1,760 | 91 | 92 | 102 | 107 |
| | -40 | 2,970 | 91 | 2,250 | 91 | 2,040 | 91 | 1,830 | 91 | 92 | 102 | 107 |
| | -30 | 3,050 | 91 | 2,330 | 91 | 2,110 | 91 | 1,900 | 91 | 91 | 102 | 107 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON

4 Pressure Altitude: 3,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 3,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,000 | 106 | 3,170 | 107 | 2,910 | 108 | 2,670 | 108 | 111 | 116 | 119 |
| | -50 | 4,060 | 106 | 3,220 | 107 | 2,960 | 108 | 2,720 | 108 | 111 | 116 | 119 |
| | -40 | 4,200 | 106 | 3,350 | 107 | 3,090 | 108 | 2,830 | 108 | 111 | 116 | 119 |
| | -30 | 4,350 | 106 | 3,470 | 107 | 3,210 | 108 | 2,940 | 108 | 111 | 116 | 119 |
| | -20 | 4,500 | 106 | 3,600 | 107 | 3,320 | 108 | 3,060 | 108 | 111 | 117 | 119 |
| | -10 | 4,650 | 106 | 3,730 | 107 | 3,450 | 108 | 3,180 | 108 | 111 | 117 | 119 |
| | 0 | 4,790 | 106 | 3,860 | 107 | 3,570 | 108 | 3,300 | 108 | 111 | 117 | 119 |
| | 10 | 4,960 | 106 | 4,030 | 107 | 3,740 | 108 | 3,450 | 108 | 111 | 117 | 119 |
| 18,300 | -54 | 3,850 | 102 | 3,040 | 104 | 2,800 | 105 | 2,570 | 105 | 109 | 115 | 118 |
| | -50 | 3,900 | 102 | 3,090 | 104 | 2,850 | 105 | 2,610 | 105 | 109 | 115 | 118 |
| | -40 | 4,040 | 102 | 3,210 | 104 | 2,960 | 104 | 2,720 | 105 | 109 | 115 | 118 |
| | -30 | 4,170 | 102 | 3,330 | 104 | 3,080 | 104 | 2,830 | 105 | 109 | 115 | 118 |
| | -20 | 4,310 | 102 | 3,450 | 104 | 3,190 | 104 | 2,940 | 105 | 109 | 115 | 118 |
| | -10 | 4,450 | 102 | 3,570 | 104 | 3,310 | 104 | 3,050 | 105 | 109 | 115 | 118 |
| | 0 | 4,590 | 102 | 3,700 | 104 | 3,430 | 104 | 3,170 | 105 | 109 | 115 | 118 |
| | 10 | 4,750 | 102 | 3,840 | 104 | 3,560 | 104 | 3,300 | 105 | 109 | 115 | 118 |
| 18,000 | -54 | 3,750 | 101 | 2,960 | 103 | 2,720 | 103 | 2,490 | 104 | 108 | 114 | 117 |
| | -50 | 3,800 | 101 | 3,010 | 103 | 2,770 | 103 | 2,540 | 104 | 108 | 114 | 117 |
| | -40 | 3,920 | 101 | 3,120 | 103 | 2,880 | 103 | 2,640 | 104 | 108 | 114 | 117 |
| | -30 | 4,060 | 101 | 3,240 | 103 | 2,990 | 103 | 2,750 | 104 | 108 | 114 | 117 |
| | -20 | 4,190 | 101 | 3,360 | 103 | 3,100 | 103 | 2,860 | 104 | 108 | 114 | 117 |
| | -10 | 4,330 | 101 | 3,480 | 103 | 3,220 | 103 | 2,970 | 104 | 108 | 114 | 117 |
| | 0 | 4,470 | 101 | 3,600 | 103 | 3,330 | 103 | 3,080 | 104 | 108 | 114 | 117 |
| | 10 | 4,620 | 101 | 3,730 | 103 | 3,460 | 103 | 3,200 | 104 | 108 | 114 | 117 |
| 17,000 | -54 | 3,410 | 97 | 2,690 | 99 | 2,470 | 99 | 2,260 | 100 | 104 | 111 | 114 |
| | -50 | 3,460 | 97 | 2,730 | 99 | 2,510 | 99 | 2,300 | 100 | 104 | 111 | 114 |
| | -40 | 3,590 | 97 | 2,840 | 99 | 2,610 | 99 | 2,390 | 100 | 104 | 111 | 114 |
| | -30 | 3,710 | 97 | 2,950 | 99 | 2,710 | 99 | 2,490 | 100 | 104 | 111 | 114 |
| | -20 | 3,820 | 97 | 3,050 | 99 | 2,810 | 99 | 2,590 | 100 | 104 | 111 | 114 |
| | -10 | 3,950 | 97 | 3,160 | 99 | 2,920 | 99 | 2,680 | 100 | 104 | 111 | 114 |
| | 0 | 4,070 | 97 | 3,270 | 99 | 3,020 | 99 | 2,790 | 100 | 104 | 112 | 114 |
| | 10 | 4,210 | 97 | 3,390 | 99 | 3,140 | 99 | 2,900 | 100 | 104 | 112 | 114 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| Pressure Altitude: 3,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,110 | 93 | 2,440 | 95 | 2,240 | 95 | 2,040 | 96 | 101 | 108 | 112 |
| | -50 | 3,160 | 93 | 2,480 | 95 | 2,270 | 95 | 2,080 | 96 | 101 | 108 | 112 |
| | -40 | 3,260 | 93 | 2,580 | 95 | 2,370 | 95 | 2,160 | 96 | 101 | 109 | 112 |
| | -30 | 3,370 | 93 | 2,670 | 95 | 2,460 | 95 | 2,250 | 96 | 101 | 109 | 112 |
| | -20 | 3,480 | 93 | 2,770 | 95 | 2,550 | 95 | 2,340 | 96 | 101 | 109 | 112 |
| | -10 | 3,590 | 93 | 2,860 | 95 | 2,640 | 95 | 2,430 | 96 | 101 | 109 | 112 |
| | 0 | 3,710 | 93 | 2,960 | 95 | 2,740 | 95 | 2,520 | 96 | 101 | 109 | 112 |
| 15,000 | 10 | 3,830 | 93 | 3,070 | 95 | 2,840 | 95 | 2,620 | 96 | 101 | 109 | 112 |
| | -54 | 2,950 | 90 | 2,220 | 90 | 2,020 | 91 | 1,850 | 92 | 98 | 106 | 109 |
| | -50 | 2,990 | 90 | 2,250 | 90 | 2,060 | 91 | 1,880 | 92 | 98 | 106 | 109 |
| | -40 | 3,080 | 90 | 2,330 | 91 | 2,140 | 91 | 1,960 | 92 | 98 | 106 | 109 |
| | -30 | 3,170 | 90 | 2,420 | 91 | 2,220 | 91 | 2,040 | 92 | 98 | 106 | 109 |
| | -20 | 3,260 | 90 | 2,510 | 91 | 2,310 | 91 | 2,120 | 92 | 98 | 106 | 110 |
| | -10 | 3,350 | 90 | 2,600 | 91 | 2,390 | 91 | 2,200 | 92 | 98 | 106 | 110 |
| 14,000 | 0 | 3,450 | 90 | 2,690 | 91 | 2,480 | 91 | 2,280 | 92 | 98 | 106 | 110 |
| | 10 | 3,540 | 90 | 2,790 | 91 | 2,570 | 91 | 2,370 | 92 | 98 | 106 | 110 |
| | -54 | 2,930 | 91 | 2,210 | 91 | 1,990 | 91 | 1,790 | 91 | 94 | 103 | 107 |
| | -50 | 2,970 | 91 | 2,240 | 91 | 2,020 | 91 | 1,810 | 91 | 94 | 103 | 107 |
| | -40 | 3,050 | 91 | 2,320 | 91 | 2,100 | 91 | 1,880 | 91 | 94 | 103 | 107 |
| | -30 | 3,140 | 90 | 2,390 | 90 | 2,170 | 90 | 1,950 | 90 | 94 | 103 | 107 |
| | -20 | 3,230 | 90 | 2,470 | 90 | 2,240 | 90 | 2,020 | 90 | 94 | 103 | 108 |
| 13,000 | -10 | 3,320 | 90 | 2,550 | 90 | 2,320 | 90 | 2,090 | 90 | 94 | 104 | 108 |
| | 0 | 3,420 | 90 | 2,620 | 90 | 2,390 | 90 | 2,160 | 90 | 94 | 104 | 108 |
| | 10 | 3,500 | 90 | 2,710 | 90 | 2,460 | 90 | 2,240 | 90 | 94 | 104 | 107 |
| | -54 | 2,930 | 91 | 2,210 | 91 | 1,990 | 91 | 1,800 | 91 | 92 | 102 | 107 |
| | -50 | 2,960 | 91 | 2,240 | 91 | 2,020 | 91 | 1,820 | 91 | 92 | 102 | 107 |
| | -40 | 3,040 | 91 | 2,320 | 91 | 2,100 | 91 | 1,890 | 91 | 91 | 102 | 107 |
| | -30 | 3,130 | 91 | 2,400 | 91 | 2,170 | 91 | 1,960 | 91 | 91 | 102 | 107 |
| | -20 | 3,220 | 91 | 2,470 | 91 | 2,240 | 91 | 2,030 | 91 | 91 | 102 | 106 |
| | -10 | 3,310 | 90 | 2,550 | 91 | 2,320 | 91 | 2,100 | 91 | 91 | 102 | 106 |
| | 0 | 3,390 | 90 | 2,620 | 90 | 2,390 | 90 | 2,170 | 90 | 91 | 102 | 106 |
| | 10 | 3,480 | 90 | 2,700 | 90 | 2,460 | 90 | 2,240 | 90 | 91 | 102 | 106 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON

5 Pressure Altitude: 4,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 4,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,120 | 106 | 3,270 | 107 | 3,010 | 108 | 2,760 | 108 | 111 | 116 | 119 |
| | -50 | 4,180 | 106 | 3,320 | 107 | 3,060 | 108 | 2,810 | 108 | 111 | 116 | 119 |
| | -40 | 4,330 | 106 | 3,450 | 107 | 3,190 | 108 | 2,930 | 108 | 111 | 116 | 119 |
| | -30 | 4,480 | 106 | 3,590 | 107 | 3,310 | 108 | 3,050 | 108 | 111 | 116 | 119 |
| | -20 | 4,630 | 106 | 3,720 | 107 | 3,440 | 107 | 3,170 | 108 | 111 | 117 | 119 |
| | -10 | 4,790 | 106 | 3,850 | 107 | 3,570 | 107 | 3,290 | 108 | 111 | 117 | 119 |
| | 0 | 4,950 | 106 | 3,990 | 107 | 3,700 | 107 | 3,420 | 108 | 111 | 117 | 119 |
| | 10 | 5,170 | 106 | 4,250 | 108 | 3,950 | 109 | 3,660 | 109 | 111 | 116 | 119 |
| 18,300 | -54 | 3,960 | 102 | 3,140 | 104 | 2,890 | 104 | 2,660 | 105 | 109 | 115 | 118 |
| | -50 | 4,010 | 102 | 3,190 | 104 | 2,940 | 104 | 2,700 | 105 | 109 | 115 | 118 |
| | -40 | 4,150 | 102 | 3,320 | 104 | 3,060 | 104 | 2,820 | 105 | 109 | 115 | 118 |
| | -30 | 4,300 | 102 | 3,440 | 104 | 3,180 | 104 | 2,930 | 105 | 109 | 115 | 118 |
| | -20 | 4,440 | 102 | 3,570 | 104 | 3,300 | 104 | 3,050 | 105 | 109 | 115 | 118 |
| | -10 | 4,580 | 102 | 3,690 | 104 | 3,420 | 104 | 3,160 | 105 | 109 | 115 | 118 |
| | 0 | 4,730 | 102 | 3,820 | 104 | 3,550 | 104 | 3,280 | 105 | 109 | 115 | 118 |
| | 10 | 4,930 | 103 | 4,010 | 104 | 3,720 | 105 | 3,450 | 105 | 109 | 115 | 118 |
| 18,000 | -54 | 3,850 | 101 | 3,050 | 103 | 2,810 | 103 | 2,580 | 104 | 108 | 114 | 117 |
| | -50 | 3,910 | 101 | 3,100 | 103 | 2,860 | 103 | 2,620 | 104 | 108 | 114 | 117 |
| | -40 | 4,040 | 101 | 3,220 | 103 | 2,970 | 103 | 2,730 | 104 | 108 | 114 | 117 |
| | -30 | 4,180 | 101 | 3,340 | 103 | 3,090 | 103 | 2,850 | 104 | 108 | 114 | 117 |
| | -20 | 4,320 | 101 | 3,470 | 103 | 3,210 | 103 | 2,960 | 104 | 108 | 114 | 117 |
| | -10 | 4,460 | 101 | 3,590 | 103 | 3,330 | 103 | 3,070 | 104 | 108 | 114 | 117 |
| | 0 | 4,600 | 101 | 3,720 | 103 | 3,450 | 103 | 3,190 | 104 | 108 | 114 | 117 |
| | 10 | 4,800 | 102 | 3,890 | 103 | 3,610 | 104 | 3,350 | 104 | 108 | 114 | 117 |
| 17,000 | -54 | 3,510 | 97 | 2,780 | 99 | 2,550 | 99 | 2,340 | 100 | 104 | 111 | 114 |
| | -50 | 3,560 | 97 | 2,820 | 99 | 2,600 | 99 | 2,380 | 100 | 104 | 111 | 114 |
| | -40 | 3,690 | 97 | 2,930 | 99 | 2,700 | 99 | 2,480 | 100 | 104 | 111 | 114 |
| | -30 | 3,810 | 97 | 3,040 | 99 | 2,800 | 99 | 2,580 | 100 | 104 | 112 | 114 |
| | -20 | 3,940 | 97 | 3,150 | 99 | 2,910 | 99 | 2,680 | 100 | 104 | 112 | 115 |
| | -10 | 4,060 | 97 | 3,260 | 99 | 3,020 | 99 | 2,780 | 100 | 104 | 112 | 115 |
| | 0 | 4,200 | 97 | 3,370 | 99 | 3,130 | 99 | 2,880 | 100 | 104 | 112 | 115 |
| | 10 | 4,370 | 98 | 3,530 | 99 | 3,270 | 100 | 3,030 | 100 | 104 | 112 | 114 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| Pressure Altitude: 4,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,200 | 93 | 2,520 | 95 | 2,310 | 95 | 2,110 | 96 | 101 | 109 | 112 |
| | -50 | 3,240 | 93 | 2,560 | 95 | 2,350 | 95 | 2,150 | 96 | 101 | 109 | 112 |
| | -40 | 3,360 | 93 | 2,660 | 95 | 2,450 | 95 | 2,240 | 96 | 101 | 109 | 112 |
| | -30 | 3,470 | 93 | 2,760 | 95 | 2,540 | 95 | 2,330 | 96 | 101 | 109 | 112 |
| | -20 | 3,590 | 93 | 2,860 | 95 | 2,640 | 95 | 2,430 | 96 | 101 | 109 | 112 |
| | -10 | 3,700 | 93 | 2,960 | 95 | 2,730 | 95 | 2,520 | 96 | 101 | 109 | 112 |
| | 0 | 3,810 | 93 | 3,070 | 95 | 2,830 | 95 | 2,610 | 96 | 101 | 109 | 112 |
| | 10 | 3,970 | 93 | 3,200 | 95 | 2,960 | 96 | 2,730 | 96 | 101 | 109 | 112 |
| 15,000 | -54 | 3,030 | 90 | 2,280 | 90 | 2,090 | 91 | 1,910 | 92 | 98 | 106 | 109 |
| | -50 | 3,060 | 90 | 2,320 | 90 | 2,130 | 91 | 1,940 | 92 | 98 | 106 | 109 |
| | -40 | 3,160 | 90 | 2,410 | 91 | 2,210 | 91 | 2,020 | 92 | 98 | 106 | 109 |
| | -30 | 3,250 | 90 | 2,500 | 91 | 2,300 | 91 | 2,110 | 92 | 98 | 106 | 110 |
| | -20 | 3,340 | 90 | 2,590 | 91 | 2,390 | 91 | 2,190 | 92 | 98 | 106 | 110 |
| | -10 | 3,440 | 90 | 2,680 | 91 | 2,480 | 91 | 2,280 | 92 | 98 | 106 | 110 |
| | 0 | 3,540 | 90 | 2,780 | 91 | 2,560 | 91 | 2,360 | 92 | 98 | 106 | 110 |
| | 10 | 3,630 | 90 | 2,890 | 91 | 2,680 | 92 | 2,470 | 92 | 98 | 106 | 109 |
| 14,000 | -54 | 3,010 | 91 | 2,270 | 91 | 2,050 | 91 | 1,840 | 91 | 94 | 103 | 107 |
| | -50 | 3,040 | 91 | 2,310 | 91 | 2,080 | 91 | 1,870 | 91 | 94 | 103 | 107 |
| | -40 | 3,130 | 90 | 2,390 | 90 | 2,160 | 90 | 1,940 | 90 | 94 | 103 | 107 |
| | -30 | 3,220 | 90 | 2,460 | 90 | 2,240 | 90 | 2,020 | 90 | 94 | 103 | 108 |
| | -20 | 3,310 | 90 | 2,540 | 90 | 2,310 | 90 | 2,090 | 90 | 94 | 103 | 108 |
| | -10 | 3,410 | 90 | 2,620 | 90 | 2,390 | 90 | 2,160 | 90 | 94 | 104 | 108 |
| | 0 | 3,500 | 90 | 2,710 | 90 | 2,470 | 90 | 2,240 | 90 | 94 | 104 | 108 |
| | 10 | 3,590 | 90 | 2,790 | 90 | 2,540 | 90 | 2,310 | 90 | 94 | 104 | 107 |
| 13,000 | -54 | 2,990 | 91 | 2,280 | 91 | 2,060 | 91 | 1,850 | 91 | 91 | 102 | 107 |
| | -50 | 3,030 | 91 | 2,310 | 91 | 2,090 | 91 | 1,880 | 91 | 91 | 102 | 107 |
| | -40 | 3,120 | 91 | 2,390 | 91 | 2,160 | 91 | 1,950 | 91 | 91 | 102 | 107 |
| | -30 | 3,210 | 91 | 2,460 | 91 | 2,240 | 91 | 2,020 | 91 | 91 | 102 | 107 |
| | -20 | 3,300 | 90 | 2,540 | 91 | 2,320 | 91 | 2,100 | 91 | 91 | 102 | 106 |
| | -10 | 3,390 | 90 | 2,620 | 90 | 2,390 | 90 | 2,170 | 90 | 91 | 102 | 106 |
| | 0 | 3,480 | 90 | 2,700 | 90 | 2,460 | 90 | 2,240 | 90 | 91 | 102 | 106 |
| | 10 | 3,570 | 90 | 2,780 | 90 | 2,540 | 90 | 2,310 | 90 | 91 | 102 | 106 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON

6 Pressure Altitude: 5,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 5,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,240 | 106 | 3,380 | 107 | 3,110 | 108 | 2,860 | 108 | 111 | 116 | 119 |
| | -50 | 4,300 | 106 | 3,430 | 107 | 3,160 | 108 | 2,910 | 108 | 111 | 116 | 119 |
| | -40 | 4,460 | 106 | 3,560 | 107 | 3,290 | 108 | 3,040 | 108 | 110 | 116 | 119 |
| | -30 | 4,620 | 106 | 3,700 | 107 | 3,420 | 107 | 3,160 | 108 | 111 | 117 | 119 |
| | -20 | 4,780 | 106 | 3,840 | 107 | 3,560 | 107 | 3,290 | 108 | 111 | 117 | 119 |
| | -10 | 4,940 | 106 | 3,990 | 107 | 3,690 | 107 | 3,410 | 108 | 111 | 117 | 119 |
| | 0 | 5,100 | 106 | 4,120 | 107 | 3,830 | 107 | 3,540 | 108 | 110 | 117 | 119 |
| | 10 | 5,380 | 107 | 4,510 | 109 | 4,200 | 109 | 3,900 | 110 | 111 | 116 | 119 |
| 18,300 | -54 | 4,070 | 102 | 3,240 | 104 | 2,990 | 104 | 2,750 | 105 | 109 | 115 | 118 |
| | -50 | 4,130 | 102 | 3,290 | 104 | 3,040 | 104 | 2,790 | 105 | 109 | 115 | 118 |
| | -40 | 4,280 | 102 | 3,420 | 104 | 3,170 | 104 | 2,910 | 105 | 109 | 115 | 118 |
| | -30 | 4,420 | 102 | 3,550 | 104 | 3,290 | 104 | 3,030 | 105 | 109 | 115 | 118 |
| | -20 | 4,570 | 102 | 3,680 | 104 | 3,410 | 104 | 3,150 | 105 | 109 | 115 | 118 |
| | -10 | 4,720 | 102 | 3,810 | 104 | 3,540 | 104 | 3,270 | 105 | 109 | 115 | 118 |
| | 0 | 4,870 | 102 | 3,950 | 104 | 3,660 | 104 | 3,400 | 105 | 109 | 115 | 118 |
| | 10 | 5,130 | 103 | 4,180 | 105 | 3,890 | 105 | 3,610 | 106 | 109 | 115 | 117 |
| 18,000 | -54 | 3,960 | 101 | 3,150 | 103 | 2,910 | 103 | 2,670 | 104 | 108 | 114 | 117 |
| | -50 | 4,020 | 101 | 3,200 | 103 | 2,950 | 103 | 2,710 | 104 | 108 | 114 | 117 |
| | -40 | 4,160 | 101 | 3,330 | 103 | 3,070 | 103 | 2,830 | 104 | 108 | 114 | 117 |
| | -30 | 4,300 | 101 | 3,460 | 103 | 3,190 | 103 | 2,950 | 104 | 108 | 114 | 117 |
| | -20 | 4,450 | 101 | 3,580 | 102 | 3,320 | 103 | 3,060 | 104 | 108 | 114 | 117 |
| | -10 | 4,590 | 101 | 3,710 | 102 | 3,440 | 103 | 3,180 | 104 | 108 | 114 | 117 |
| | 0 | 4,740 | 101 | 3,840 | 102 | 3,560 | 103 | 3,300 | 104 | 108 | 114 | 117 |
| | 10 | 4,990 | 102 | 4,060 | 104 | 3,780 | 104 | 3,500 | 105 | 108 | 114 | 117 |
| 17,000 | -54 | 3,620 | 97 | 2,870 | 99 | 2,640 | 99 | 2,420 | 100 | 104 | 111 | 114 |
| | -50 | 3,670 | 97 | 2,910 | 99 | 2,680 | 99 | 2,460 | 100 | 104 | 111 | 114 |
| | -40 | 3,800 | 97 | 3,030 | 99 | 2,790 | 99 | 2,570 | 100 | 104 | 111 | 114 |
| | -30 | 3,920 | 97 | 3,140 | 99 | 2,900 | 99 | 2,670 | 100 | 104 | 112 | 115 |
| | -20 | 4,050 | 97 | 3,250 | 99 | 3,010 | 99 | 2,780 | 100 | 104 | 112 | 115 |
| | -10 | 4,190 | 97 | 3,370 | 99 | 3,120 | 99 | 2,880 | 100 | 104 | 112 | 115 |
| | 0 | 4,320 | 97 | 3,490 | 99 | 3,230 | 99 | 2,990 | 100 | 104 | 112 | 115 |
| | 10 | 4,540 | 98 | 3,680 | 100 | 3,410 | 100 | 3,160 | 101 | 104 | 112 | 114 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON

| Pressure Altitude: 5,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,290 | 93 | 2,600 | 95 | 2,390 | 95 | 2,190 | 96 | 101 | 109 | 112 |
| | -50 | 3,340 | 93 | 2,640 | 95 | 2,430 | 95 | 2,220 | 96 | 101 | 109 | 112 |
| | -40 | 3,450 | 93 | 2,750 | 95 | 2,530 | 95 | 2,320 | 96 | 101 | 109 | 112 |
| | -30 | 3,570 | 93 | 2,850 | 95 | 2,630 | 95 | 2,410 | 96 | 101 | 109 | 112 |
| | -20 | 3,690 | 93 | 2,950 | 95 | 2,730 | 95 | 2,510 | 96 | 101 | 109 | 112 |
| | -10 | 3,820 | 93 | 3,060 | 95 | 2,830 | 95 | 2,610 | 96 | 101 | 109 | 112 |
| | 0 | 3,930 | 93 | 3,170 | 95 | 2,930 | 95 | 2,710 | 96 | 101 | 109 | 112 |
| 15,000 | 10 | 4,120 | 94 | 3,330 | 96 | 3,090 | 96 | 2,850 | 97 | 101 | 109 | 111 |
| | -54 | 3,110 | 90 | 2,360 | 90 | 2,160 | 91 | 1,980 | 92 | 98 | 106 | 109 |
| | -50 | 3,150 | 90 | 2,390 | 90 | 2,200 | 91 | 2,010 | 92 | 98 | 106 | 109 |
| | -40 | 3,250 | 90 | 2,490 | 90 | 2,290 | 91 | 2,100 | 92 | 98 | 106 | 110 |
| | -30 | 3,340 | 90 | 2,580 | 91 | 2,380 | 91 | 2,180 | 92 | 98 | 106 | 110 |
| | -20 | 3,440 | 90 | 2,680 | 91 | 2,470 | 91 | 2,270 | 92 | 98 | 106 | 110 |
| | -10 | 3,540 | 90 | 2,770 | 91 | 2,570 | 91 | 2,360 | 92 | 98 | 106 | 110 |
| 14,000 | 0 | 3,640 | 90 | 2,870 | 91 | 2,650 | 91 | 2,450 | 92 | 98 | 106 | 110 |
| | 10 | 3,740 | 90 | 3,010 | 91 | 2,790 | 92 | 2,570 | 93 | 98 | 106 | 109 |
| | -54 | 3,090 | 91 | 2,340 | 91 | 2,120 | 91 | 1,900 | 91 | 94 | 103 | 107 |
| | -50 | 3,120 | 90 | 2,370 | 90 | 2,150 | 91 | 1,930 | 91 | 94 | 103 | 107 |
| | -40 | 3,220 | 90 | 2,460 | 90 | 2,230 | 90 | 2,010 | 90 | 94 | 104 | 108 |
| | -30 | 3,310 | 90 | 2,540 | 90 | 2,310 | 90 | 2,090 | 90 | 94 | 104 | 108 |
| | -20 | 3,400 | 90 | 2,620 | 90 | 2,390 | 90 | 2,160 | 90 | 94 | 104 | 108 |
| 13,000 | -10 | 3,510 | 90 | 2,700 | 90 | 2,470 | 90 | 2,230 | 90 | 94 | 104 | 108 |
| | 0 | 3,600 | 90 | 2,790 | 90 | 2,540 | 90 | 2,320 | 90 | 94 | 104 | 108 |
| | 10 | 3,690 | 90 | 2,870 | 90 | 2,630 | 90 | 2,390 | 90 | 94 | 103 | 107 |
| | -54 | 3,080 | 91 | 2,340 | 91 | 2,120 | 91 | 1,910 | 91 | 91 | 102 | 107 |
| | -50 | 3,110 | 91 | 2,370 | 91 | 2,150 | 91 | 1,940 | 91 | 91 | 102 | 107 |
| | -40 | 3,210 | 91 | 2,460 | 91 | 2,230 | 91 | 2,020 | 91 | 91 | 102 | 107 |
| | -30 | 3,300 | 91 | 2,540 | 91 | 2,310 | 91 | 2,090 | 91 | 91 | 102 | 106 |
| | -20 | 3,390 | 90 | 2,620 | 90 | 2,390 | 90 | 2,170 | 90 | 91 | 102 | 106 |
| | -10 | 3,480 | 90 | 2,700 | 90 | 2,460 | 90 | 2,230 | 90 | 91 | 102 | 106 |
| | 0 | 3,570 | 90 | 2,790 | 90 | 2,540 | 90 | 2,310 | 90 | 91 | 102 | 106 |
| | 10 | 3,660 | 90 | 2,870 | 90 | 2,620 | 90 | 2,380 | 90 | 91 | 101 | 105 |



7 Pressure Altitude: 6,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 6,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,380 | 106 | 3,490 | 107 | 3,220 | 108 | 2,960 | 108 | 111 | 116 | 119 |
| | -50 | 4,440 | 106 | 3,550 | 107 | 3,270 | 108 | 3,010 | 108 | 111 | 117 | 119 |
| | -40 | 4,600 | 106 | 3,690 | 107 | 3,410 | 107 | 3,150 | 108 | 110 | 117 | 119 |
| | -30 | 4,760 | 106 | 3,830 | 107 | 3,550 | 107 | 3,280 | 108 | 111 | 117 | 119 |
| | -20 | 4,930 | 106 | 3,980 | 107 | 3,680 | 107 | 3,410 | 108 | 111 | 117 | 119 |
| | -10 | 5,090 | 106 | 4,120 | 107 | 3,830 | 107 | 3,540 | 108 | 111 | 117 | 119 |
| | 0 | 5,310 | 106 | 4,330 | 107 | 4,020 | 108 | 3,730 | 108 | 111 | 117 | 119 |
| | 10 | 5,810 | 108 | 4,960 | 110 | 4,620 | 111 | 4,300 | 111 | 111 | 116 | 119 |
| 18,300 | -54 | 4,200 | 102 | 3,350 | 104 | 3,090 | 104 | 2,850 | 105 | 109 | 115 | 118 |
| | -50 | 4,260 | 102 | 3,410 | 104 | 3,140 | 104 | 2,900 | 105 | 109 | 115 | 118 |
| | -40 | 4,410 | 102 | 3,540 | 104 | 3,270 | 104 | 3,020 | 105 | 109 | 115 | 118 |
| | -30 | 4,560 | 102 | 3,670 | 104 | 3,400 | 104 | 3,150 | 105 | 109 | 115 | 118 |
| | -20 | 4,710 | 102 | 3,810 | 104 | 3,530 | 104 | 3,270 | 105 | 109 | 115 | 118 |
| | -10 | 4,870 | 102 | 3,950 | 104 | 3,660 | 104 | 3,400 | 105 | 109 | 115 | 118 |
| | 0 | 5,070 | 103 | 4,130 | 104 | 3,840 | 105 | 3,560 | 105 | 109 | 115 | 118 |
| | 10 | 5,530 | 105 | 4,520 | 106 | 4,210 | 106 | 3,920 | 107 | 109 | 115 | 117 |
| 18,000 | -54 | 4,080 | 101 | 3,260 | 103 | 3,010 | 103 | 2,760 | 104 | 108 | 114 | 117 |
| | -50 | 4,140 | 101 | 3,310 | 103 | 3,060 | 103 | 2,810 | 104 | 108 | 114 | 117 |
| | -40 | 4,290 | 101 | 3,440 | 103 | 3,180 | 103 | 2,930 | 104 | 108 | 114 | 117 |
| | -30 | 4,440 | 101 | 3,570 | 102 | 3,310 | 103 | 3,050 | 104 | 108 | 114 | 117 |
| | -20 | 4,580 | 101 | 3,700 | 102 | 3,430 | 103 | 3,180 | 104 | 108 | 114 | 117 |
| | -10 | 4,740 | 101 | 3,840 | 102 | 3,560 | 103 | 3,300 | 103 | 108 | 114 | 117 |
| | 0 | 4,930 | 102 | 4,010 | 103 | 3,720 | 103 | 3,450 | 104 | 108 | 114 | 117 |
| | 10 | 5,370 | 103 | 4,380 | 105 | 4,090 | 105 | 3,800 | 106 | 108 | 114 | 116 |
| 17,000 | -54 | 3,730 | 97 | 2,960 | 99 | 2,730 | 99 | 2,510 | 100 | 104 | 111 | 114 |
| | -50 | 3,780 | 97 | 3,010 | 99 | 2,770 | 99 | 2,550 | 100 | 104 | 111 | 114 |
| | -40 | 3,910 | 97 | 3,130 | 99 | 2,890 | 99 | 2,660 | 100 | 104 | 112 | 114 |
| | -30 | 4,050 | 97 | 3,250 | 99 | 3,000 | 99 | 2,770 | 100 | 104 | 112 | 115 |
| | -20 | 4,180 | 97 | 3,370 | 99 | 3,120 | 99 | 2,880 | 100 | 104 | 112 | 115 |
| | -10 | 4,310 | 97 | 3,490 | 99 | 3,230 | 99 | 2,990 | 100 | 104 | 112 | 115 |
| | 0 | 4,490 | 98 | 3,640 | 99 | 3,380 | 100 | 3,120 | 100 | 104 | 112 | 114 |
| | 10 | 4,870 | 99 | 3,960 | 101 | 3,680 | 101 | 3,410 | 102 | 105 | 111 | 114 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| Pressure Altitude: 6,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,390 | 93 | 2,690 | 95 | 2,470 | 95 | 2,270 | 96 | 101 | 109 | 112 |
| | -50 | 3,440 | 93 | 2,730 | 95 | 2,510 | 95 | 2,310 | 96 | 101 | 109 | 112 |
| | -40 | 3,560 | 93 | 2,830 | 95 | 2,620 | 95 | 2,410 | 96 | 101 | 109 | 112 |
| | -30 | 3,680 | 93 | 2,950 | 95 | 2,720 | 95 | 2,510 | 96 | 101 | 109 | 112 |
| | -20 | 3,800 | 93 | 3,060 | 95 | 2,830 | 95 | 2,610 | 96 | 101 | 109 | 112 |
| | -10 | 3,930 | 93 | 3,170 | 95 | 2,930 | 95 | 2,710 | 96 | 101 | 109 | 112 |
| | 0 | 4,080 | 93 | 3,300 | 95 | 3,060 | 96 | 2,830 | 96 | 101 | 109 | 112 |
| | 10 | 4,410 | 95 | 3,580 | 97 | 3,320 | 97 | 3,070 | 98 | 101 | 109 | 111 |
| 15,000 | -54 | 3,190 | 90 | 2,440 | 91 | 2,240 | 91 | 2,050 | 92 | 98 | 106 | 110 |
| | -50 | 3,230 | 90 | 2,480 | 91 | 2,280 | 91 | 2,080 | 92 | 98 | 106 | 110 |
| | -40 | 3,330 | 90 | 2,580 | 91 | 2,370 | 91 | 2,180 | 92 | 98 | 106 | 110 |
| | -30 | 3,440 | 90 | 2,670 | 91 | 2,460 | 91 | 2,270 | 92 | 98 | 106 | 110 |
| | -20 | 3,530 | 90 | 2,770 | 91 | 2,560 | 91 | 2,360 | 92 | 98 | 106 | 110 |
| | -10 | 3,640 | 90 | 2,870 | 91 | 2,650 | 91 | 2,450 | 92 | 98 | 106 | 110 |
| | 0 | 3,730 | 90 | 2,990 | 91 | 2,770 | 92 | 2,560 | 92 | 98 | 106 | 109 |
| | 10 | 3,990 | 91 | 3,220 | 92 | 2,990 | 93 | 2,760 | 94 | 98 | 106 | 108 |
| 14,000 | -54 | 3,160 | 90 | 2,410 | 90 | 2,180 | 90 | 1,970 | 90 | 94 | 103 | 108 |
| | -50 | 3,210 | 90 | 2,440 | 90 | 2,220 | 90 | 2,000 | 90 | 94 | 103 | 108 |
| | -40 | 3,300 | 90 | 2,530 | 90 | 2,300 | 90 | 2,080 | 90 | 94 | 103 | 108 |
| | -30 | 3,400 | 90 | 2,620 | 90 | 2,380 | 90 | 2,150 | 90 | 94 | 104 | 108 |
| | -20 | 3,500 | 90 | 2,700 | 90 | 2,460 | 90 | 2,230 | 90 | 94 | 104 | 108 |
| | -10 | 3,600 | 90 | 2,790 | 90 | 2,540 | 90 | 2,310 | 90 | 94 | 104 | 108 |
| | 0 | 3,700 | 90 | 2,880 | 90 | 2,630 | 90 | 2,390 | 90 | 94 | 104 | 107 |
| | 10 | 3,830 | 90 | 2,990 | 90 | 2,730 | 90 | 2,500 | 90 | 94 | 103 | 106 |
| 13,000 | -54 | 3,150 | 91 | 2,410 | 91 | 2,190 | 91 | 1,980 | 91 | 91 | 102 | 107 |
| | -50 | 3,190 | 91 | 2,450 | 91 | 2,220 | 91 | 2,010 | 91 | 91 | 102 | 107 |
| | -40 | 3,290 | 91 | 2,530 | 91 | 2,300 | 91 | 2,080 | 91 | 91 | 102 | 106 |
| | -30 | 3,380 | 90 | 2,620 | 90 | 2,380 | 90 | 2,160 | 90 | 91 | 102 | 106 |
| | -20 | 3,480 | 90 | 2,700 | 90 | 2,460 | 90 | 2,240 | 90 | 91 | 102 | 106 |
| | -10 | 3,570 | 90 | 2,790 | 90 | 2,540 | 90 | 2,310 | 90 | 91 | 102 | 106 |
| | 0 | 3,670 | 90 | 2,870 | 90 | 2,620 | 90 | 2,390 | 90 | 91 | 102 | 106 |
| | 10 | 3,790 | 90 | 2,970 | 90 | 2,720 | 90 | 2,480 | 90 | 91 | 101 | 104 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON

8 Pressure Altitude: 7,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 7,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,600 | 106 | 3,680 | 107 | 3,400 | 107 | 3,130 | 108 | 111 | 117 | 119 |
| | -50 | 4,670 | 106 | 3,740 | 107 | 3,460 | 107 | 3,190 | 108 | 111 | 117 | 119 |
| | -40 | 4,840 | 106 | 3,890 | 107 | 3,600 | 107 | 3,330 | 108 | 111 | 117 | 119 |
| | -30 | 5,020 | 106 | 4,040 | 107 | 3,740 | 107 | 3,470 | 108 | 110 | 117 | 119 |
| | -20 | 5,190 | 106 | 4,200 | 107 | 3,890 | 107 | 3,600 | 108 | 111 | 117 | 119 |
| | -10 | 5,410 | 106 | 4,380 | 107 | 4,070 | 108 | 3,770 | 108 | 111 | 117 | 119 |
| | 0 | 5,710 | 107 | 4,720 | 108 | 4,390 | 109 | 4,080 | 109 | 111 | 116 | 119 |
| | 10 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 4,320 | 102 | 3,460 | 104 | 3,200 | 104 | 2,950 | 105 | 109 | 115 | 118 |
| | -50 | 4,380 | 102 | 3,520 | 104 | 3,250 | 104 | 3,000 | 105 | 109 | 115 | 118 |
| | -40 | 4,540 | 102 | 3,660 | 104 | 3,390 | 104 | 3,130 | 105 | 109 | 115 | 118 |
| | -30 | 4,700 | 102 | 3,800 | 104 | 3,520 | 104 | 3,260 | 105 | 109 | 115 | 118 |
| | -20 | 4,860 | 102 | 3,940 | 104 | 3,660 | 104 | 3,390 | 105 | 109 | 115 | 118 |
| | -10 | 5,050 | 103 | 4,110 | 104 | 3,820 | 104 | 3,550 | 105 | 109 | 115 | 118 |
| | 0 | 5,330 | 104 | 4,350 | 105 | 4,050 | 105 | 3,760 | 106 | 109 | 115 | 117 |
| | 10 | 6,010 | 106 | 4,940 | 107 | 4,610 | 108 | 4,300 | 108 | 110 | 115 | 117 |
| 18,000 | -54 | 4,200 | 101 | 3,370 | 102 | 3,110 | 103 | 2,860 | 104 | 108 | 114 | 117 |
| | -50 | 4,260 | 101 | 3,420 | 102 | 3,160 | 103 | 2,910 | 104 | 108 | 114 | 117 |
| | -40 | 4,420 | 101 | 3,560 | 102 | 3,290 | 103 | 3,040 | 104 | 108 | 114 | 117 |
| | -30 | 4,570 | 101 | 3,690 | 102 | 3,420 | 103 | 3,160 | 103 | 108 | 114 | 117 |
| | -20 | 4,730 | 101 | 3,830 | 102 | 3,550 | 103 | 3,290 | 103 | 108 | 114 | 117 |
| | -10 | 4,920 | 101 | 3,990 | 103 | 3,710 | 103 | 3,440 | 104 | 108 | 114 | 117 |
| | 0 | 5,190 | 102 | 4,230 | 104 | 3,930 | 104 | 3,650 | 104 | 108 | 114 | 117 |
| | 10 | 5,840 | 105 | 4,790 | 106 | 4,470 | 106 | 4,160 | 107 | 109 | 114 | 116 |
| 17,000 | -54 | 3,830 | 97 | 3,060 | 99 | 2,830 | 99 | 2,590 | 100 | 104 | 112 | 114 |
| | -50 | 3,890 | 97 | 3,110 | 99 | 2,870 | 99 | 2,640 | 100 | 104 | 112 | 115 |
| | -40 | 4,030 | 97 | 3,230 | 99 | 2,990 | 99 | 2,760 | 100 | 104 | 112 | 115 |
| | -30 | 4,170 | 97 | 3,350 | 99 | 3,110 | 99 | 2,870 | 100 | 104 | 112 | 115 |
| | -20 | 4,310 | 97 | 3,480 | 99 | 3,230 | 99 | 2,980 | 100 | 104 | 112 | 115 |
| | -10 | 4,480 | 97 | 3,630 | 99 | 3,370 | 99 | 3,120 | 100 | 104 | 112 | 114 |
| | 0 | 4,720 | 98 | 3,830 | 100 | 3,560 | 100 | 3,300 | 101 | 105 | 111 | 114 |
| | 10 | 5,270 | 101 | 4,310 | 102 | 4,010 | 102 | 3,720 | 103 | 105 | 111 | 113 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| Pressure Altitude: 7,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,490 | 93 | 2,780 | 95 | 2,560 | 95 | 2,350 | 96 | 101 | 109 | 112 |
| | -50 | 3,540 | 93 | 2,820 | 95 | 2,600 | 95 | 2,390 | 96 | 101 | 109 | 112 |
| | -40 | 3,670 | 93 | 2,930 | 95 | 2,710 | 95 | 2,490 | 96 | 101 | 109 | 112 |
| | -30 | 3,800 | 93 | 3,050 | 95 | 2,810 | 95 | 2,600 | 96 | 101 | 109 | 112 |
| | -20 | 3,920 | 93 | 3,160 | 95 | 2,930 | 95 | 2,700 | 96 | 101 | 109 | 112 |
| | -10 | 4,080 | 93 | 3,290 | 95 | 3,050 | 96 | 2,820 | 96 | 101 | 109 | 112 |
| | 0 | 4,290 | 94 | 3,470 | 96 | 3,220 | 96 | 2,980 | 97 | 101 | 109 | 111 |
| | 10 | 4,770 | 96 | 3,870 | 98 | 3,590 | 98 | 3,330 | 99 | 101 | 108 | 111 |
| 15,000 | -54 | 3,280 | 90 | 2,520 | 90 | 2,320 | 91 | 2,130 | 92 | 98 | 106 | 110 |
| | -50 | 3,320 | 90 | 2,560 | 91 | 2,360 | 91 | 2,160 | 92 | 98 | 106 | 110 |
| | -40 | 3,420 | 90 | 2,660 | 91 | 2,460 | 91 | 2,260 | 92 | 98 | 106 | 110 |
| | -30 | 3,530 | 90 | 2,760 | 91 | 2,550 | 91 | 2,350 | 92 | 98 | 106 | 110 |
| | -20 | 3,630 | 90 | 2,870 | 91 | 2,650 | 91 | 2,440 | 92 | 98 | 106 | 110 |
| | -10 | 3,740 | 90 | 2,980 | 91 | 2,760 | 92 | 2,550 | 92 | 98 | 106 | 110 |
| | 0 | 3,890 | 90 | 3,140 | 92 | 2,910 | 92 | 2,690 | 93 | 98 | 106 | 109 |
| | 10 | 4,290 | 92 | 3,470 | 93 | 3,220 | 94 | 2,980 | 94 | 98 | 106 | 108 |
| 14,000 | -54 | 3,250 | 90 | 2,490 | 90 | 2,250 | 90 | 2,030 | 90 | 94 | 104 | 108 |
| | -50 | 3,290 | 90 | 2,520 | 90 | 2,290 | 90 | 2,070 | 90 | 94 | 104 | 108 |
| | -40 | 3,400 | 90 | 2,610 | 90 | 2,380 | 90 | 2,150 | 90 | 94 | 104 | 108 |
| | -30 | 3,500 | 90 | 2,700 | 90 | 2,460 | 90 | 2,230 | 90 | 94 | 104 | 108 |
| | -20 | 3,600 | 90 | 2,790 | 90 | 2,540 | 90 | 2,310 | 90 | 94 | 104 | 108 |
| | -10 | 3,700 | 90 | 2,880 | 90 | 2,630 | 90 | 2,390 | 90 | 94 | 104 | 107 |
| | 0 | 3,810 | 90 | 2,970 | 90 | 2,720 | 90 | 2,480 | 90 | 94 | 103 | 107 |
| | 10 | 4,010 | 89 | 3,130 | 89 | 2,890 | 90 | 2,660 | 90 | 94 | 103 | 105 |
| 13,000 | -54 | 3,230 | 91 | 2,490 | 91 | 2,260 | 91 | 2,040 | 91 | 91 | 102 | 107 |
| | -50 | 3,270 | 91 | 2,520 | 91 | 2,290 | 91 | 2,070 | 91 | 91 | 102 | 107 |
| | -40 | 3,370 | 90 | 2,610 | 90 | 2,370 | 90 | 2,150 | 90 | 91 | 102 | 106 |
| | -30 | 3,480 | 90 | 2,700 | 90 | 2,460 | 90 | 2,230 | 90 | 91 | 102 | 106 |
| | -20 | 3,570 | 90 | 2,780 | 90 | 2,540 | 90 | 2,310 | 90 | 91 | 102 | 106 |
| | -10 | 3,670 | 90 | 2,870 | 90 | 2,620 | 90 | 2,390 | 90 | 91 | 102 | 106 |
| | 0 | 3,780 | 90 | 2,960 | 90 | 2,710 | 90 | 2,480 | 90 | 91 | 101 | 105 |
| | 10 | 3,950 | 90 | 3,090 | 90 | 2,830 | 90 | 2,590 | 90 | 91 | 101 | 103 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON

9 Pressure Altitude: 8,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 8,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,830 | 105 | 3,880 | 107 | 3,590 | 107 | 3,310 | 108 | 111 | 117 | 119 |
| | -50 | 4,910 | 105 | 3,940 | 107 | 3,650 | 107 | 3,370 | 108 | 111 | 117 | 119 |
| | -40 | 5,090 | 105 | 4,100 | 107 | 3,800 | 107 | 3,510 | 108 | 111 | 117 | 119 |
| | -30 | 5,280 | 105 | 4,270 | 107 | 3,960 | 107 | 3,660 | 108 | 111 | 117 | 119 |
| | -20 | 5,500 | 106 | 4,460 | 107 | 4,140 | 108 | 3,840 | 108 | 111 | 117 | 119 |
| | -10 | 5,790 | 107 | 4,710 | 108 | 4,380 | 108 | 4,070 | 109 | 111 | 116 | 119 |
| | 0 | - | - | - | - | - | - | - | - | - | - | - |
| | 10 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 4,460 | 102 | 3,590 | 104 | 3,320 | 104 | 3,070 | 105 | 109 | 115 | 118 |
| | -50 | 4,530 | 102 | 3,650 | 104 | 3,370 | 104 | 3,120 | 105 | 109 | 115 | 118 |
| | -40 | 4,690 | 102 | 3,790 | 104 | 3,510 | 104 | 3,250 | 105 | 109 | 115 | 118 |
| | -30 | 4,860 | 102 | 3,940 | 104 | 3,660 | 104 | 3,390 | 105 | 109 | 115 | 118 |
| | -20 | 5,060 | 103 | 4,110 | 104 | 3,830 | 104 | 3,550 | 105 | 109 | 115 | 118 |
| | -10 | 5,320 | 103 | 4,340 | 105 | 4,040 | 105 | 3,750 | 105 | 109 | 115 | 117 |
| | 0 | 5,730 | 105 | 4,680 | 106 | 4,370 | 106 | 4,060 | 106 | 109 | 115 | 117 |
| | 10 | 6,600 | 107 | 5,460 | 108 | 5,110 | 109 | 4,770 | 109 | 110 | 115 | 117 |
| 18,000 | -54 | 4,340 | 101 | 3,490 | 102 | 3,230 | 103 | 2,970 | 104 | 108 | 114 | 117 |
| | -50 | 4,410 | 101 | 3,550 | 102 | 3,280 | 103 | 3,030 | 103 | 108 | 114 | 117 |
| | -40 | 4,560 | 101 | 3,690 | 102 | 3,410 | 103 | 3,160 | 103 | 108 | 114 | 117 |
| | -30 | 4,730 | 101 | 3,830 | 102 | 3,550 | 103 | 3,290 | 103 | 108 | 114 | 117 |
| | -20 | 4,920 | 101 | 4,000 | 103 | 3,720 | 103 | 3,440 | 104 | 108 | 114 | 117 |
| | -10 | 5,180 | 102 | 4,220 | 103 | 3,920 | 104 | 3,640 | 104 | 108 | 114 | 117 |
| | 0 | 5,570 | 103 | 4,550 | 104 | 4,240 | 105 | 3,940 | 105 | 108 | 114 | 116 |
| | 10 | 6,400 | 106 | 5,280 | 107 | 4,940 | 108 | 4,610 | 108 | 109 | 114 | 116 |
| 17,000 | -54 | 3,960 | 97 | 3,170 | 98 | 2,930 | 99 | 2,700 | 100 | 104 | 112 | 115 |
| | -50 | 4,020 | 97 | 3,220 | 99 | 2,980 | 99 | 2,740 | 100 | 104 | 112 | 115 |
| | -40 | 4,160 | 97 | 3,350 | 98 | 3,100 | 99 | 2,860 | 100 | 104 | 112 | 115 |
| | -30 | 4,310 | 97 | 3,480 | 99 | 3,220 | 99 | 2,980 | 100 | 104 | 112 | 115 |
| | -20 | 4,490 | 97 | 3,640 | 99 | 3,370 | 99 | 3,120 | 100 | 104 | 112 | 114 |
| | -10 | 4,710 | 98 | 3,830 | 99 | 3,560 | 100 | 3,300 | 100 | 104 | 112 | 114 |
| | 0 | 5,060 | 99 | 4,120 | 100 | 3,830 | 101 | 3,560 | 101 | 105 | 111 | 114 |
| | 10 | 5,760 | 102 | 4,720 | 103 | 4,390 | 103 | 4,100 | 104 | 105 | 111 | 113 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| Pressure Altitude: 8,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,610 | 93 | 2,880 | 95 | 2,660 | 95 | 2,440 | 96 | 101 | 109 | 112 |
| | -50 | 3,660 | 93 | 2,930 | 95 | 2,700 | 95 | 2,480 | 96 | 101 | 109 | 112 |
| | -40 | 3,800 | 93 | 3,040 | 95 | 2,810 | 95 | 2,590 | 96 | 101 | 109 | 112 |
| | -30 | 3,920 | 93 | 3,160 | 95 | 2,930 | 95 | 2,700 | 96 | 101 | 109 | 112 |
| | -20 | 4,080 | 93 | 3,300 | 95 | 3,050 | 95 | 2,820 | 96 | 101 | 109 | 112 |
| | -10 | 4,280 | 94 | 3,470 | 95 | 3,220 | 96 | 2,980 | 97 | 101 | 109 | 112 |
| | 0 | 4,580 | 95 | 3,720 | 96 | 3,450 | 97 | 3,200 | 97 | 101 | 109 | 111 |
| | 10 | 5,180 | 97 | 4,220 | 99 | 3,920 | 99 | 3,640 | 100 | 102 | 108 | 110 |
| 15,000 | -54 | 3,380 | 90 | 2,610 | 90 | 2,410 | 91 | 2,210 | 92 | 98 | 106 | 110 |
| | -50 | 3,420 | 90 | 2,650 | 91 | 2,450 | 91 | 2,250 | 92 | 98 | 106 | 110 |
| | -40 | 3,530 | 90 | 2,760 | 91 | 2,550 | 91 | 2,340 | 92 | 98 | 106 | 110 |
| | -30 | 3,640 | 90 | 2,870 | 91 | 2,650 | 91 | 2,440 | 92 | 98 | 106 | 110 |
| | -20 | 3,750 | 90 | 2,990 | 91 | 2,770 | 92 | 2,550 | 92 | 98 | 106 | 110 |
| | -10 | 3,880 | 90 | 3,140 | 91 | 2,910 | 92 | 2,690 | 93 | 98 | 106 | 109 |
| | 0 | 4,150 | 91 | 3,350 | 92 | 3,110 | 93 | 2,880 | 93 | 98 | 106 | 108 |
| | 10 | 4,650 | 93 | 3,770 | 94 | 3,500 | 95 | 3,240 | 95 | 98 | 105 | 107 |
| 14,000 | -54 | 3,350 | 90 | 2,570 | 90 | 2,340 | 90 | 2,110 | 90 | 94 | 104 | 108 |
| | -50 | 3,390 | 90 | 2,610 | 90 | 2,370 | 90 | 2,150 | 90 | 94 | 104 | 108 |
| | -40 | 3,490 | 90 | 2,700 | 90 | 2,460 | 90 | 2,230 | 90 | 94 | 104 | 108 |
| | -30 | 3,600 | 90 | 2,800 | 90 | 2,550 | 90 | 2,320 | 90 | 94 | 104 | 108 |
| | -20 | 3,710 | 90 | 2,890 | 90 | 2,630 | 90 | 2,400 | 90 | 94 | 104 | 107 |
| | -10 | 3,830 | 90 | 2,980 | 90 | 2,730 | 90 | 2,490 | 90 | 94 | 103 | 107 |
| | 0 | 3,970 | 89 | 3,100 | 89 | 2,840 | 90 | 2,600 | 90 | 94 | 103 | 106 |
| | 10 | 4,220 | 89 | 3,370 | 90 | 3,120 | 91 | 2,890 | 91 | 95 | 103 | 105 |
| 13,000 | -54 | 3,330 | 90 | 2,570 | 91 | 2,340 | 91 | 2,120 | 91 | 91 | 102 | 107 |
| | -50 | 3,370 | 90 | 2,600 | 90 | 2,370 | 90 | 2,150 | 90 | 91 | 102 | 107 |
| | -40 | 3,470 | 90 | 2,690 | 90 | 2,460 | 90 | 2,230 | 90 | 91 | 102 | 106 |
| | -30 | 3,580 | 90 | 2,790 | 90 | 2,540 | 90 | 2,310 | 90 | 91 | 102 | 106 |
| | -20 | 3,680 | 90 | 2,880 | 90 | 2,630 | 90 | 2,390 | 90 | 91 | 102 | 106 |
| | -10 | 3,790 | 90 | 2,970 | 90 | 2,720 | 90 | 2,480 | 90 | 91 | 101 | 105 |
| | 0 | 3,930 | 90 | 3,080 | 90 | 2,830 | 90 | 2,580 | 90 | 91 | 101 | 104 |
| | 10 | 4,140 | 89 | 3,250 | 89 | 2,970 | 89 | 2,720 | 89 | 91 | 100 | 103 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON

10 Pressure Altitude: 9,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 9,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 5,110 | 106 | 4,110 | 107 | 3,800 | 107 | 3,510 | 108 | 110 | 117 | 119 |
| | -50 | 5,190 | 106 | 4,180 | 107 | 3,870 | 107 | 3,570 | 108 | 111 | 117 | 119 |
| | -40 | 5,380 | 106 | 4,350 | 107 | 4,030 | 107 | 3,730 | 108 | 111 | 117 | 119 |
| | -30 | 5,600 | 106 | 4,550 | 107 | 4,220 | 108 | 3,910 | 108 | 111 | 117 | 119 |
| | -20 | 5,900 | 107 | 4,790 | 108 | 4,450 | 108 | 4,140 | 109 | 111 | 116 | 119 |
| | -10 | - | - | - | - | - | - | - | - | - | - | - |
| | 0 | - | - | - | - | - | - | - | - | - | - | - |
| | 10 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 4,710 | 102 | 3,800 | 104 | 3,520 | 104 | 3,260 | 105 | 109 | 115 | 118 |
| | -50 | 4,790 | 102 | 3,860 | 104 | 3,580 | 104 | 3,310 | 105 | 109 | 115 | 118 |
| | -40 | 4,960 | 102 | 4,020 | 104 | 3,730 | 104 | 3,450 | 105 | 109 | 115 | 118 |
| | -30 | 5,160 | 103 | 4,200 | 104 | 3,900 | 104 | 3,620 | 105 | 109 | 115 | 118 |
| | -20 | 5,420 | 103 | 4,420 | 104 | 4,110 | 105 | 3,820 | 105 | 109 | 115 | 117 |
| | -10 | 5,800 | 104 | 4,740 | 105 | 4,420 | 106 | 4,110 | 106 | 109 | 115 | 117 |
| | 0 | 6,320 | 106 | 5,190 | 107 | 4,840 | 107 | 4,520 | 108 | 109 | 115 | 117 |
| | 10 | 7,430 | 109 | 6,200 | 109 | 5,820 | 109 | 5,460 | 110 | 110 | 115 | 116 |
| 18,000 | -54 | 4,590 | 101 | 3,700 | 103 | 3,420 | 103 | 3,160 | 104 | 108 | 114 | 117 |
| | -50 | 4,660 | 101 | 3,760 | 103 | 3,480 | 103 | 3,220 | 104 | 108 | 114 | 117 |
| | -40 | 4,830 | 101 | 3,900 | 103 | 3,620 | 103 | 3,360 | 104 | 108 | 114 | 117 |
| | -30 | 5,030 | 101 | 4,080 | 103 | 3,790 | 103 | 3,510 | 104 | 108 | 114 | 117 |
| | -20 | 5,280 | 102 | 4,300 | 103 | 4,000 | 104 | 3,710 | 104 | 108 | 114 | 117 |
| | -10 | 5,640 | 103 | 4,610 | 104 | 4,290 | 105 | 3,990 | 105 | 108 | 114 | 116 |
| | 0 | 6,140 | 104 | 5,030 | 105 | 4,690 | 106 | 4,370 | 106 | 108 | 114 | 116 |
| | 10 | 7,190 | 107 | 5,970 | 108 | 5,610 | 108 | 5,250 | 109 | 109 | 114 | 116 |
| 17,000 | -54 | 4,190 | 97 | 3,360 | 99 | 3,110 | 99 | 2,870 | 100 | 104 | 112 | 114 |
| | -50 | 4,250 | 97 | 3,410 | 99 | 3,160 | 99 | 2,910 | 100 | 104 | 112 | 114 |
| | -40 | 4,400 | 97 | 3,550 | 99 | 3,290 | 99 | 3,040 | 100 | 104 | 112 | 115 |
| | -30 | 4,580 | 97 | 3,700 | 99 | 3,440 | 99 | 3,180 | 100 | 104 | 112 | 114 |
| | -20 | 4,800 | 98 | 3,900 | 99 | 3,620 | 100 | 3,350 | 100 | 104 | 112 | 114 |
| | -10 | 5,130 | 99 | 4,170 | 100 | 3,880 | 101 | 3,600 | 101 | 105 | 111 | 114 |
| | 0 | 5,560 | 100 | 4,540 | 101 | 4,220 | 102 | 3,930 | 102 | 105 | 111 | 113 |
| | 10 | 6,430 | 103 | 5,290 | 104 | 4,940 | 105 | 4,620 | 105 | 106 | 111 | 113 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| Pressure Altitude: 9,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,810 | 93 | 3,050 | 95 | 2,820 | 95 | 2,590 | 96 | 101 | 109 | 112 |
| | -50 | 3,870 | 93 | 3,100 | 95 | 2,870 | 95 | 2,640 | 96 | 101 | 109 | 112 |
| | -40 | 4,010 | 93 | 3,220 | 95 | 2,980 | 95 | 2,750 | 96 | 101 | 109 | 112 |
| | -30 | 4,170 | 93 | 3,360 | 95 | 3,120 | 96 | 2,880 | 96 | 101 | 109 | 112 |
| | -20 | 4,360 | 94 | 3,530 | 95 | 3,280 | 96 | 3,030 | 97 | 101 | 109 | 112 |
| | -10 | 4,650 | 95 | 3,770 | 96 | 3,500 | 97 | 3,240 | 97 | 101 | 109 | 111 |
| | 0 | 5,020 | 96 | 4,090 | 97 | 3,800 | 98 | 3,530 | 98 | 101 | 108 | 111 |
| | 10 | 5,750 | 99 | 4,700 | 100 | 4,380 | 100 | 4,070 | 101 | 102 | 108 | 110 |
| 15,000 | -54 | 3,540 | 90 | 2,760 | 91 | 2,550 | 91 | 2,340 | 92 | 98 | 106 | 110 |
| | -50 | 3,590 | 90 | 2,810 | 91 | 2,590 | 91 | 2,390 | 92 | 98 | 106 | 110 |
| | -40 | 3,700 | 90 | 2,920 | 91 | 2,700 | 91 | 2,490 | 92 | 98 | 106 | 110 |
| | -30 | 3,820 | 90 | 3,050 | 91 | 2,820 | 92 | 2,600 | 92 | 98 | 106 | 109 |
| | -20 | 3,960 | 90 | 3,200 | 91 | 2,960 | 92 | 2,740 | 93 | 98 | 106 | 109 |
| | -10 | 4,210 | 91 | 3,400 | 92 | 3,150 | 93 | 2,920 | 93 | 98 | 106 | 109 |
| | 0 | 4,530 | 92 | 3,670 | 93 | 3,410 | 94 | 3,160 | 94 | 98 | 106 | 108 |
| | 10 | 5,150 | 94 | 4,190 | 95 | 3,890 | 96 | 3,610 | 96 | 98 | 105 | 107 |
| 14,000 | -54 | 3,510 | 90 | 2,710 | 90 | 2,460 | 90 | 2,230 | 90 | 94 | 104 | 107 |
| | -50 | 3,560 | 90 | 2,740 | 90 | 2,500 | 90 | 2,260 | 90 | 94 | 104 | 108 |
| | -40 | 3,670 | 90 | 2,850 | 90 | 2,590 | 90 | 2,350 | 90 | 94 | 104 | 108 |
| | -30 | 3,780 | 90 | 2,940 | 90 | 2,690 | 90 | 2,440 | 90 | 94 | 104 | 107 |
| | -20 | 3,900 | 90 | 3,040 | 90 | 2,790 | 90 | 2,540 | 90 | 94 | 103 | 107 |
| | -10 | 4,050 | 89 | 3,160 | 90 | 2,900 | 90 | 2,640 | 90 | 94 | 103 | 106 |
| | 0 | 4,220 | 89 | 3,320 | 89 | 3,060 | 90 | 2,830 | 90 | 94 | 103 | 105 |
| | 10 | 4,590 | 90 | 3,720 | 91 | 3,450 | 92 | 3,200 | 92 | 95 | 102 | 104 |
| 13,000 | -54 | 3,490 | 90 | 2,700 | 90 | 2,460 | 90 | 2,230 | 90 | 91 | 102 | 106 |
| | -50 | 3,530 | 90 | 2,740 | 90 | 2,500 | 90 | 2,270 | 90 | 91 | 102 | 106 |
| | -40 | 3,640 | 90 | 2,840 | 90 | 2,590 | 90 | 2,350 | 90 | 91 | 102 | 106 |
| | -30 | 3,760 | 90 | 2,930 | 90 | 2,680 | 90 | 2,450 | 90 | 91 | 102 | 106 |
| | -20 | 3,870 | 90 | 3,030 | 90 | 2,770 | 90 | 2,530 | 90 | 91 | 101 | 105 |
| | -10 | 4,000 | 90 | 3,140 | 90 | 2,880 | 90 | 2,630 | 90 | 91 | 101 | 105 |
| | 0 | 4,170 | 89 | 3,280 | 89 | 3,000 | 89 | 2,740 | 89 | 91 | 101 | 104 |
| | 10 | 4,430 | 89 | 3,480 | 89 | 3,190 | 89 | 2,910 | 89 | 91 | 100 | 102 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON

11 Pressure Altitude: 10,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 10,000 feet | | | | | | | | | | | | |
|--------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 5,450 | 106 | 4,390 | 108 | 4,070 | 108 | 3,770 | 109 | 111 | 116 | 119 |
| | -50 | 5,530 | 106 | 4,470 | 108 | 4,140 | 108 | 3,830 | 109 | 111 | 116 | 119 |
| | -40 | 5,730 | 106 | 4,650 | 108 | 4,310 | 108 | 4,000 | 108 | 111 | 116 | 119 |
| | -30 | 6,050 | 107 | 4,910 | 108 | 4,570 | 108 | 4,250 | 109 | 111 | 116 | 119 |
| | -20 | - | - | - | - | - | - | - | - | - | - | - |
| | -10 | - | - | - | - | - | - | - | - | - | - | - |
| | 0 | - | - | - | - | - | - | - | - | - | - | - |
| | 10 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 5,020 | 103 | 4,060 | 104 | 3,770 | 105 | 3,490 | 105 | 109 | 115 | 117 |
| | -50 | 5,100 | 103 | 4,130 | 104 | 3,830 | 105 | 3,550 | 105 | 109 | 115 | 117 |
| | -40 | 5,290 | 103 | 4,290 | 104 | 3,990 | 105 | 3,700 | 105 | 109 | 115 | 117 |
| | -30 | 5,570 | 103 | 4,540 | 105 | 4,220 | 105 | 3,920 | 106 | 109 | 115 | 117 |
| | -20 | 5,900 | 104 | 4,820 | 105 | 4,500 | 106 | 4,180 | 106 | 109 | 115 | 117 |
| | -10 | 6,340 | 105 | 5,190 | 106 | 4,840 | 107 | 4,510 | 107 | 109 | 115 | 117 |
| | 0 | 6,970 | 106 | 5,750 | 108 | 5,380 | 108 | 5,020 | 109 | 110 | 115 | 117 |
| | 10 | 8,440 | 109 | 7,110 | 109 | 6,700 | 109 | 6,300 | 109 | 109 | 114 | 116 |
| 18,000 | -54 | 4,890 | 102 | 3,950 | 103 | 3,660 | 104 | 3,380 | 104 | 108 | 114 | 117 |
| | -50 | 4,960 | 102 | 4,010 | 103 | 3,720 | 104 | 3,440 | 104 | 108 | 114 | 117 |
| | -40 | 5,140 | 102 | 4,170 | 103 | 3,880 | 104 | 3,590 | 104 | 108 | 114 | 117 |
| | -30 | 5,420 | 102 | 4,410 | 104 | 4,100 | 104 | 3,810 | 104 | 108 | 114 | 117 |
| | -20 | 5,740 | 103 | 4,690 | 104 | 4,370 | 105 | 4,060 | 105 | 108 | 114 | 116 |
| | -10 | 6,150 | 104 | 5,040 | 105 | 4,690 | 105 | 4,370 | 106 | 108 | 114 | 116 |
| | 0 | 6,760 | 105 | 5,570 | 106 | 5,200 | 107 | 4,860 | 107 | 109 | 114 | 116 |
| | 10 | 8,090 | 108 | 6,810 | 108 | 6,410 | 108 | 6,020 | 108 | 108 | 113 | 115 |
| 17,000 | -54 | 4,460 | 98 | 3,590 | 99 | 3,320 | 100 | 3,070 | 100 | 104 | 111 | 114 |
| | -50 | 4,520 | 98 | 3,640 | 99 | 3,380 | 100 | 3,110 | 100 | 104 | 111 | 114 |
| | -40 | 4,680 | 98 | 3,790 | 99 | 3,510 | 100 | 3,250 | 100 | 104 | 111 | 114 |
| | -30 | 4,930 | 98 | 4,000 | 100 | 3,720 | 100 | 3,440 | 101 | 105 | 111 | 114 |
| | -20 | 5,220 | 99 | 4,250 | 100 | 3,950 | 101 | 3,660 | 101 | 105 | 111 | 114 |
| | -10 | 5,580 | 100 | 4,550 | 101 | 4,240 | 101 | 3,940 | 102 | 105 | 111 | 113 |
| | 0 | 6,100 | 101 | 5,000 | 102 | 4,660 | 103 | 4,330 | 103 | 105 | 111 | 113 |
| | 10 | 7,190 | 104 | 5,940 | 105 | 5,580 | 105 | 5,230 | 106 | 106 | 111 | 113 |



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON

| Pressure Altitude: 10,000 feet | | | | | | | | | | | | |
|--------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 4,050 | 94 | 3,250 | 95 | 3,000 | 96 | 2,770 | 96 | 101 | 109 | 112 |
| | -50 | 4,110 | 94 | 3,300 | 95 | 3,050 | 96 | 2,820 | 96 | 101 | 109 | 112 |
| | -40 | 4,260 | 94 | 3,440 | 95 | 3,180 | 96 | 2,940 | 96 | 101 | 109 | 112 |
| | -30 | 4,480 | 94 | 3,620 | 96 | 3,360 | 96 | 3,110 | 97 | 101 | 109 | 111 |
| | -20 | 4,740 | 95 | 3,840 | 96 | 3,570 | 97 | 3,310 | 97 | 101 | 109 | 111 |
| | -10 | 5,050 | 96 | 4,100 | 97 | 3,820 | 97 | 3,540 | 98 | 101 | 108 | 111 |
| | 0 | 5,500 | 97 | 4,490 | 98 | 4,180 | 99 | 3,880 | 99 | 102 | 108 | 110 |
| 15,000 | 10 | 6,390 | 100 | 5,260 | 101 | 4,910 | 102 | 4,580 | 102 | 103 | 108 | 110 |
| | -54 | 3,720 | 90 | 2,940 | 91 | 2,720 | 92 | 2,500 | 92 | 98 | 106 | 109 |
| | -50 | 3,760 | 90 | 2,990 | 91 | 2,760 | 92 | 2,550 | 92 | 98 | 106 | 109 |
| | -40 | 3,880 | 90 | 3,110 | 91 | 2,880 | 92 | 2,660 | 92 | 98 | 106 | 109 |
| | -30 | 4,060 | 90 | 3,280 | 92 | 3,030 | 92 | 2,810 | 93 | 98 | 106 | 109 |
| | -20 | 4,280 | 91 | 3,470 | 92 | 3,210 | 93 | 2,970 | 93 | 98 | 106 | 109 |
| | -10 | 4,560 | 91 | 3,700 | 93 | 3,430 | 93 | 3,180 | 94 | 98 | 106 | 108 |
| 14,000 | 0 | 4,950 | 93 | 4,020 | 94 | 3,740 | 94 | 3,460 | 95 | 98 | 105 | 108 |
| | 10 | 5,690 | 95 | 4,640 | 97 | 4,320 | 97 | 4,010 | 97 | 98 | 105 | 107 |
| | -54 | 3,680 | 90 | 2,850 | 90 | 2,590 | 90 | 2,350 | 90 | 94 | 103 | 107 |
| | -50 | 3,730 | 90 | 2,890 | 90 | 2,630 | 90 | 2,390 | 90 | 94 | 103 | 107 |
| | -40 | 3,840 | 90 | 2,990 | 90 | 2,730 | 90 | 2,490 | 90 | 94 | 103 | 107 |
| | -30 | 3,980 | 90 | 3,110 | 90 | 2,840 | 90 | 2,590 | 90 | 94 | 103 | 107 |
| | -20 | 4,130 | 89 | 3,230 | 90 | 2,950 | 90 | 2,700 | 90 | 94 | 103 | 106 |
| 13,000 | -10 | 4,290 | 89 | 3,360 | 89 | 3,080 | 89 | 2,850 | 90 | 94 | 103 | 106 |
| | 0 | 4,500 | 89 | 3,600 | 90 | 3,340 | 90 | 3,090 | 91 | 95 | 103 | 105 |
| | 10 | 5,060 | 91 | 4,110 | 92 | 3,820 | 92 | 3,540 | 93 | 95 | 102 | 104 |
| | -54 | 3,660 | 90 | 2,840 | 90 | 2,590 | 90 | 2,350 | 90 | 91 | 102 | 106 |
| | -50 | 3,710 | 90 | 2,880 | 90 | 2,630 | 90 | 2,390 | 90 | 91 | 102 | 106 |
| | -40 | 3,820 | 90 | 2,980 | 90 | 2,730 | 90 | 2,480 | 90 | 91 | 102 | 106 |
| | -30 | 3,950 | 90 | 3,090 | 90 | 2,830 | 90 | 2,580 | 90 | 91 | 101 | 105 |
| 12,000 | -20 | 4,090 | 90 | 3,200 | 90 | 2,940 | 90 | 2,680 | 90 | 91 | 101 | 105 |
| | -10 | 4,240 | 89 | 3,330 | 90 | 3,050 | 90 | 2,790 | 90 | 91 | 101 | 104 |
| | 0 | 4,420 | 89 | 3,490 | 89 | 3,200 | 89 | 2,930 | 89 | 91 | 100 | 103 |
| | 10 | 4,750 | 89 | 3,730 | 89 | 3,430 | 89 | 3,130 | 89 | 91 | 99 | 101 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Dry Runway, No Slope, Flaps 8, IPS ON

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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Takeoff, Dry Runway, Slope Adjustment, Flaps 8

1 Dry Runway Slope Adjustments - Flaps 8

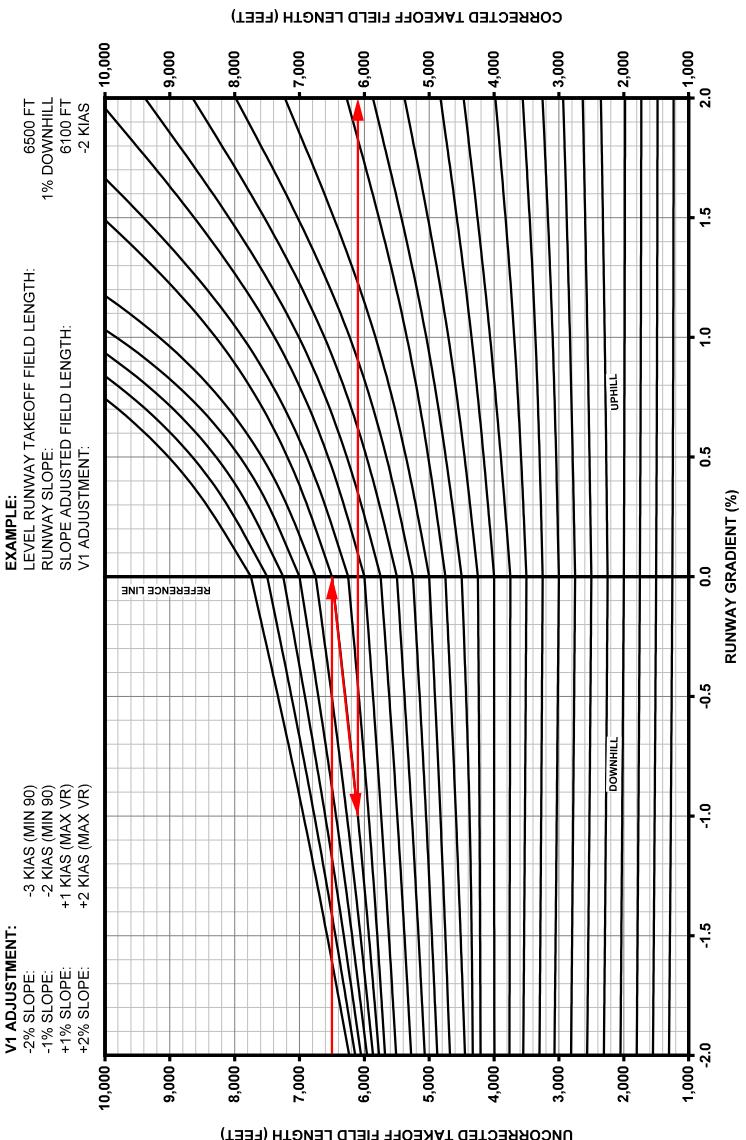


Figure 5-TO-7-1: Dry Runway Slope Adjustments - Flaps 8



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

This Page Intentionally Left Blank



Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF

1 Pressure Altitude: Sea level

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| The effect of NAI is included for OATs of 10°C or lower. | | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: Sea level | | | | | | | | | | | | |
|------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|----------------|------------------|----------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R | V _{LOF} | V ₂ |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | KIAS | KIAS | KIAS |
| 18,740 | -54 | 3,220 | 95 | 2,480 | 97 | 2,240 | 98 | 2,050 | 98 | 98 | 104 | 107 |
| | -10 | 3,710 | 95 | 2,890 | 97 | 2,650 | 97 | 2,420 | 98 | 98 | 104 | 107 |
| | 0 | 3,820 | 95 | 2,990 | 96 | 2,740 | 97 | 2,500 | 98 | 98 | 104 | 107 |
| | 10 | 3,940 | 95 | 3,090 | 96 | 2,840 | 97 | 2,590 | 98 | 98 | 104 | 107 |
| | 20 | 4,030 | 95 | 3,170 | 97 | 2,910 | 97 | 2,670 | 98 | 98 | 105 | 108 |
| | 30 | 4,570 | 98 | 3,700 | 98 | 3,440 | 98 | 3,190 | 98 | 98 | 105 | 107 |
| | 40 | 6,070 | 98 | 4,950 | 98 | 4,600 | 98 | 4,280 | 98 | 98 | 105 | 107 |
| | 50 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 3,040 | 93 | 2,350 | 96 | 2,150 | 96 | 1,970 | 96 | 96 | 103 | 106 |
| | -10 | 3,490 | 93 | 2,720 | 95 | 2,530 | 96 | 2,320 | 96 | 96 | 103 | 106 |
| | 0 | 3,590 | 93 | 2,820 | 95 | 2,590 | 96 | 2,400 | 96 | 96 | 103 | 106 |
| | 10 | 3,700 | 93 | 2,910 | 95 | 2,700 | 96 | 2,500 | 96 | 96 | 103 | 106 |
| | 20 | 3,810 | 93 | 3,010 | 95 | 2,780 | 96 | 2,580 | 96 | 96 | 103 | 106 |
| | 30 | 4,380 | 96 | 3,570 | 96 | 3,330 | 96 | 3,090 | 96 | 96 | 103 | 106 |
| | 40 | 5,810 | 97 | 4,780 | 97 | 4,470 | 97 | 4,150 | 97 | 97 | 103 | 105 |
| | 50 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 2,960 | 92 | 2,270 | 94 | 2,080 | 95 | 1,890 | 95 | 95 | 102 | 105 |
| | -10 | 3,390 | 92 | 2,640 | 94 | 2,420 | 95 | 2,230 | 95 | 95 | 102 | 105 |
| | 0 | 3,490 | 92 | 2,730 | 94 | 2,500 | 94 | 2,300 | 95 | 95 | 102 | 105 |
| | 10 | 3,600 | 92 | 2,820 | 94 | 2,600 | 94 | 2,380 | 95 | 95 | 102 | 105 |
| | 20 | 3,700 | 92 | 2,920 | 94 | 2,680 | 94 | 2,470 | 95 | 95 | 102 | 105 |
| | 30 | 4,190 | 95 | 3,400 | 95 | 3,160 | 96 | 2,920 | 96 | 96 | 102 | 105 |
| | 40 | 5,460 | 96 | 4,480 | 96 | 4,170 | 96 | 3,880 | 96 | 96 | 102 | 104 |
| | 50 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 2,810 | 90 | 2,060 | 90 | 1,870 | 91 | 1,690 | 92 | 93 | 99 | 103 |
| | -10 | 3,200 | 90 | 2,390 | 90 | 2,190 | 91 | 1,990 | 92 | 93 | 100 | 103 |
| | 0 | 3,290 | 90 | 2,470 | 90 | 2,260 | 91 | 2,060 | 91 | 93 | 100 | 103 |
| | 10 | 3,390 | 90 | 2,550 | 90 | 2,340 | 91 | 2,140 | 91 | 93 | 100 | 103 |
| | 20 | 3,480 | 90 | 2,640 | 90 | 2,420 | 91 | 2,210 | 91 | 93 | 100 | 103 |
| | 30 | 3,770 | 90 | 2,990 | 92 | 2,770 | 93 | 2,560 | 93 | 93 | 100 | 102 |
| | 40 | 4,660 | 93 | 3,810 | 93 | 3,530 | 93 | 3,270 | 93 | 93 | 99 | 102 |
| | 50 | 6,290 | 93 | 5,320 | 93 | 4,970 | 93 | 4,640 | 93 | 93 | 99 | 101 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF

| Pressure Altitude: Sea level | | | | | | | | | | | | |
|------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,760 | 90 | 2,020 | 90 | 1,800 | 90 | 1,590 | 90 | 91 | 99 | 102 |
| | -10 | 3,150 | 90 | 2,340 | 90 | 2,110 | 90 | 1,880 | 90 | 90 | 98 | 102 |
| | 0 | 3,230 | 90 | 2,420 | 90 | 2,180 | 90 | 1,950 | 90 | 90 | 98 | 102 |
| | 10 | 3,320 | 90 | 2,500 | 90 | 2,260 | 90 | 2,020 | 90 | 90 | 98 | 101 |
| | 20 | 3,410 | 90 | 2,570 | 90 | 2,320 | 90 | 2,090 | 90 | 90 | 98 | 101 |
| | 30 | 3,610 | 89 | 2,730 | 89 | 2,460 | 89 | 2,260 | 89 | 90 | 97 | 100 |
| | 40 | 4,130 | 90 | 3,340 | 90 | 3,100 | 90 | 2,860 | 90 | 90 | 96 | 99 |
| | 50 | 5,600 | 90 | 4,560 | 90 | 4,250 | 90 | 3,930 | 90 | 90 | 97 | 98 |
| 15,000 | -54 | 2,710 | 91 | 1,990 | 91 | 1,770 | 91 | 1,570 | 91 | 91 | 99 | 102 |
| | -10 | 3,080 | 90 | 2,310 | 90 | 2,070 | 90 | 1,860 | 90 | 91 | 99 | 102 |
| | 0 | 3,170 | 90 | 2,380 | 90 | 2,150 | 90 | 1,920 | 90 | 91 | 99 | 102 |
| | 10 | 3,260 | 90 | 2,460 | 90 | 2,220 | 90 | 1,990 | 90 | 90 | 99 | 102 |
| | 20 | 3,350 | 90 | 2,530 | 90 | 2,280 | 90 | 2,050 | 90 | 90 | 99 | 102 |
| | 30 | 3,530 | 89 | 2,670 | 89 | 2,410 | 89 | 2,170 | 90 | 90 | 97 | 100 |
| | 40 | 3,790 | 89 | 2,870 | 89 | 2,650 | 89 | 2,440 | 89 | 89 | 96 | 98 |
| | 50 | 4,520 | 89 | 3,670 | 89 | 3,400 | 89 | 3,140 | 89 | 89 | 95 | 97 |
| 14,000 | -54 | 2,670 | 91 | 1,960 | 91 | 1,750 | 91 | 1,550 | 91 | 91 | 99 | 103 |
| | -10 | 3,030 | 90 | 2,270 | 90 | 2,050 | 90 | 1,830 | 90 | 91 | 99 | 103 |
| | 0 | 3,110 | 90 | 2,340 | 90 | 2,120 | 90 | 1,890 | 90 | 91 | 99 | 103 |
| | 10 | 3,200 | 90 | 2,410 | 90 | 2,180 | 90 | 1,960 | 90 | 91 | 99 | 103 |
| | 20 | 3,290 | 90 | 2,490 | 90 | 2,250 | 90 | 2,020 | 90 | 91 | 99 | 102 |
| | 30 | 3,450 | 90 | 2,620 | 90 | 2,360 | 90 | 2,130 | 90 | 90 | 98 | 100 |
| | 40 | 3,680 | 89 | 2,790 | 89 | 2,520 | 89 | 2,280 | 89 | 89 | 96 | 98 |
| | 50 | 4,000 | 89 | 3,120 | 89 | 2,890 | 89 | 2,670 | 89 | 89 | 95 | 96 |
| 13,000 | -54 | 2,630 | 91 | 1,930 | 91 | 1,730 | 91 | 1,540 | 91 | 92 | 99 | 104 |
| | -10 | 2,980 | 91 | 2,240 | 91 | 2,020 | 91 | 1,810 | 91 | 91 | 99 | 104 |
| | 0 | 3,070 | 91 | 2,310 | 91 | 2,090 | 91 | 1,870 | 91 | 91 | 99 | 103 |
| | 10 | 3,150 | 90 | 2,380 | 90 | 2,150 | 90 | 1,930 | 91 | 91 | 99 | 103 |
| | 20 | 3,230 | 90 | 2,450 | 90 | 2,220 | 90 | 2,000 | 90 | 91 | 99 | 103 |
| | 30 | 3,380 | 90 | 2,570 | 90 | 2,320 | 90 | 2,090 | 90 | 90 | 98 | 101 |
| | 40 | 3,580 | 89 | 2,730 | 89 | 2,470 | 89 | 2,230 | 89 | 90 | 96 | 98 |
| | 50 | 3,870 | 89 | 2,940 | 89 | 2,660 | 89 | 2,390 | 89 | 89 | 95 | 96 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF

2 Pressure Altitude: 1,000 feet

| Associated Conditions | | | | | | | | | | | | | | |
|---|--|--|--|--|----------------------|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | | | | | Lift Dump: Operative | | | | | | | | | |
| The effect of NAI is included for OATs of 10°C or lower. | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | |

| Pressure Altitude: 1,000 feet | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | V _R KIAS |
| 18,740 | -54 | 3,310 | 95 | 2,550 | 97 | 2,330 | 98 | 2,120 | 98 | 98 |
| | -10 | 3,820 | 95 | 2,990 | 96 | 2,740 | 97 | 2,500 | 98 | 98 |
| | 0 | 3,940 | 95 | 3,090 | 96 | 2,830 | 97 | 2,600 | 98 | 98 |
| | 10 | 4,070 | 95 | 3,200 | 96 | 2,940 | 97 | 2,680 | 98 | 98 |
| | 20 | 4,220 | 96 | 3,320 | 97 | 3,060 | 97 | 2,820 | 98 | 98 |
| | 30 | 4,980 | 98 | 4,060 | 98 | 3,780 | 98 | 3,500 | 98 | 98 |
| | 40 | 6,820 | 98 | 5,590 | 99 | 5,210 | 98 | 4,850 | 99 | 99 |
| | 50 | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 3,130 | 93 | 2,420 | 95 | 2,220 | 96 | 2,040 | 96 | 96 |
| | -10 | 3,590 | 93 | 2,810 | 95 | 2,590 | 95 | 2,390 | 96 | 96 |
| | 0 | 3,690 | 93 | 2,910 | 95 | 2,680 | 95 | 2,470 | 96 | 96 |
| | 10 | 3,800 | 93 | 3,010 | 95 | 2,780 | 95 | 2,560 | 96 | 96 |
| | 20 | 3,980 | 93 | 3,160 | 95 | 2,930 | 96 | 2,710 | 96 | 96 |
| | 30 | 4,750 | 96 | 3,900 | 96 | 3,620 | 96 | 3,360 | 96 | 96 |
| | 40 | 6,460 | 97 | 5,340 | 97 | 5,000 | 97 | 4,650 | 97 | 97 |
| | 50 | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,040 | 92 | 2,340 | 94 | 2,140 | 95 | 1,960 | 95 | 95 |
| | -10 | 3,490 | 92 | 2,730 | 94 | 2,500 | 94 | 2,300 | 95 | 95 |
| | 0 | 3,590 | 92 | 2,820 | 94 | 2,590 | 94 | 2,370 | 95 | 95 |
| | 10 | 3,700 | 92 | 2,920 | 94 | 2,680 | 94 | 2,460 | 95 | 95 |
| | 20 | 3,870 | 92 | 3,060 | 94 | 2,820 | 95 | 2,600 | 95 | 95 |
| | 30 | 4,540 | 95 | 3,710 | 96 | 3,450 | 96 | 3,200 | 96 | 96 |
| | 40 | 6,090 | 96 | 5,020 | 96 | 4,680 | 96 | 4,360 | 96 | 96 |
| | 50 | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 2,880 | 90 | 2,120 | 90 | 1,930 | 91 | 1,750 | 92 | 93 |
| | -10 | 3,300 | 90 | 2,470 | 90 | 2,260 | 91 | 2,060 | 91 | 93 |
| | 0 | 3,390 | 90 | 2,550 | 90 | 2,340 | 91 | 2,130 | 91 | 93 |
| | 10 | 3,480 | 89 | 2,640 | 90 | 2,420 | 90 | 2,210 | 91 | 93 |
| | 20 | 3,600 | 89 | 2,760 | 90 | 2,530 | 91 | 2,320 | 92 | 93 |
| | 30 | 4,020 | 91 | 3,230 | 93 | 3,000 | 93 | 2,780 | 93 | 93 |
| | 40 | 5,140 | 93 | 4,210 | 93 | 3,920 | 93 | 3,640 | 93 | 93 |
| | 50 | - | - | - | - | - | - | - | - | - |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF

| Pressure Altitude: 1,000 feet | | | | | | | | | | | | |
|--------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,830 | 90 | 2,080 | 90 | 1,850 | 90 | 1,640 | 90 | 91 | 98 | 102 |
| | -10 | 3,230 | 90 | 2,420 | 90 | 2,180 | 90 | 1,950 | 90 | 90 | 98 | 102 |
| | 0 | 3,320 | 90 | 2,500 | 90 | 2,250 | 90 | 2,020 | 90 | 90 | 98 | 102 |
| | 10 | 3,410 | 90 | 2,580 | 90 | 2,330 | 90 | 2,090 | 90 | 90 | 98 | 101 |
| | 20 | 3,520 | 90 | 2,670 | 90 | 2,410 | 90 | 2,170 | 90 | 90 | 98 | 101 |
| | 30 | 3,740 | 89 | 2,900 | 89 | 2,650 | 89 | 2,450 | 89 | 90 | 97 | 100 |
| | 40 | 4,530 | 90 | 3,680 | 90 | 3,420 | 90 | 3,170 | 90 | 90 | 97 | 99 |
| | 50 | 6,110 | 90 | 5,220 | 90 | 4,870 | 90 | 4,520 | 90 | 90 | 96 | 98 |
| 15,000 | -54 | 2,780 | 91 | 2,050 | 91 | 1,830 | 91 | 1,620 | 91 | 91 | 99 | 102 |
| | -10 | 3,170 | 90 | 2,380 | 90 | 2,150 | 90 | 1,920 | 90 | 90 | 99 | 102 |
| | 0 | 3,260 | 90 | 2,460 | 90 | 2,220 | 90 | 1,990 | 90 | 90 | 99 | 102 |
| | 10 | 3,350 | 90 | 2,530 | 90 | 2,290 | 90 | 2,060 | 90 | 90 | 99 | 102 |
| | 20 | 3,450 | 90 | 2,620 | 90 | 2,370 | 90 | 2,130 | 90 | 90 | 98 | 102 |
| | 30 | 3,650 | 89 | 2,780 | 89 | 2,510 | 89 | 2,270 | 89 | 90 | 97 | 100 |
| | 40 | 3,960 | 89 | 3,100 | 89 | 2,870 | 89 | 2,650 | 89 | 89 | 96 | 98 |
| | 50 | 5,010 | 88 | 4,090 | 88 | 3,800 | 88 | 3,520 | 89 | 89 | 95 | 97 |
| 14,000 | -54 | 2,740 | 91 | 2,020 | 91 | 1,810 | 91 | 1,600 | 91 | 91 | 99 | 103 |
| | -10 | 3,110 | 90 | 2,340 | 90 | 2,110 | 90 | 1,890 | 90 | 91 | 99 | 103 |
| | 0 | 3,200 | 90 | 2,420 | 90 | 2,180 | 90 | 1,960 | 90 | 91 | 99 | 103 |
| | 10 | 3,290 | 90 | 2,490 | 90 | 2,250 | 90 | 2,020 | 90 | 91 | 99 | 103 |
| | 20 | 3,390 | 90 | 2,570 | 90 | 2,330 | 90 | 2,100 | 90 | 90 | 99 | 102 |
| | 30 | 3,570 | 89 | 2,720 | 89 | 2,460 | 89 | 2,220 | 89 | 90 | 97 | 100 |
| | 40 | 3,830 | 89 | 2,910 | 89 | 2,630 | 89 | 2,390 | 89 | 89 | 96 | 98 |
| | 50 | 4,290 | 89 | 3,430 | 89 | 3,180 | 89 | 2,940 | 89 | 89 | 94 | 96 |
| 13,000 | -54 | 2,700 | 91 | 2,000 | 91 | 1,780 | 91 | 1,590 | 91 | 92 | 99 | 104 |
| | -10 | 3,060 | 91 | 2,310 | 91 | 2,080 | 91 | 1,870 | 91 | 91 | 99 | 104 |
| | 0 | 3,150 | 90 | 2,380 | 90 | 2,160 | 90 | 1,940 | 90 | 91 | 99 | 103 |
| | 10 | 3,230 | 90 | 2,450 | 90 | 2,220 | 90 | 2,000 | 90 | 91 | 99 | 103 |
| | 20 | 3,320 | 90 | 2,530 | 90 | 2,290 | 90 | 2,070 | 90 | 91 | 99 | 103 |
| | 30 | 3,490 | 90 | 2,660 | 90 | 2,420 | 90 | 2,180 | 90 | 90 | 97 | 101 |
| | 40 | 3,720 | 89 | 2,840 | 89 | 2,570 | 89 | 2,320 | 89 | 89 | 96 | 98 |
| | 50 | 4,030 | 89 | 3,070 | 89 | 2,800 | 89 | 2,550 | 89 | 89 | 94 | 96 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF

3 Pressure Altitude: 2,000 feet

| Associated Conditions | | | | | | | | | | | | | | |
|---|--|--|--|--|----------------------|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | | | | | Lift Dump: Operative | | | | | | | | | |
| The effect of NAI is included for OATs of 10°C or lower. | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | |

| Pressure Altitude: 2,000 feet | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | V _R KIAS |
| 18,740 | -54 | 3,380 | 95 | 2,610 | 97 | 2,380 | 98 | 2,170 | 98 | 98 |
| | -10 | 3,900 | 95 | 3,050 | 96 | 2,800 | 97 | 2,560 | 98 | 98 |
| | 0 | 4,020 | 95 | 3,160 | 96 | 2,900 | 97 | 2,660 | 98 | 98 |
| | 10 | 4,150 | 95 | 3,270 | 96 | 3,010 | 97 | 2,760 | 98 | 98 |
| | 20 | 4,430 | 96 | 3,520 | 98 | 3,260 | 98 | 3,000 | 98 | 98 |
| | 30 | 5,460 | 98 | 4,460 | 98 | 4,150 | 98 | 3,860 | 98 | 98 |
| | 40 | 7,690 | 99 | 6,330 | 99 | 5,910 | 99 | 5,520 | 99 | 99 |
| | 50 | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 3,210 | 93 | 2,490 | 95 | 2,300 | 96 | 2,110 | 96 | 96 |
| | -10 | 3,690 | 93 | 2,900 | 95 | 2,670 | 95 | 2,460 | 96 | 96 |
| | 0 | 3,810 | 93 | 3,000 | 95 | 2,770 | 95 | 2,550 | 96 | 96 |
| | 10 | 3,920 | 93 | 3,100 | 95 | 2,850 | 95 | 2,640 | 96 | 96 |
| | 20 | 4,180 | 94 | 3,340 | 96 | 3,110 | 96 | 2,880 | 96 | 96 |
| | 30 | 5,160 | 97 | 4,250 | 96 | 3,960 | 97 | 3,680 | 96 | 97 |
| | 40 | 7,220 | 97 | 6,000 | 97 | 5,620 | 97 | 5,240 | 97 | 97 |
| | 50 | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,130 | 92 | 2,410 | 94 | 2,200 | 95 | 2,020 | 95 | 95 |
| | -10 | 3,590 | 92 | 2,820 | 94 | 2,590 | 94 | 2,370 | 95 | 95 |
| | 0 | 3,700 | 92 | 2,910 | 94 | 2,680 | 94 | 2,460 | 95 | 95 |
| | 10 | 3,810 | 92 | 3,010 | 93 | 2,770 | 94 | 2,540 | 95 | 95 |
| | 20 | 4,050 | 93 | 3,230 | 95 | 2,990 | 95 | 2,770 | 95 | 95 |
| | 30 | 4,930 | 96 | 4,050 | 96 | 3,770 | 96 | 3,500 | 96 | 96 |
| | 40 | 6,810 | 96 | 5,630 | 96 | 5,260 | 96 | 4,910 | 96 | 96 |
| | 50 | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 2,960 | 90 | 2,190 | 90 | 1,990 | 91 | 1,800 | 92 | 93 |
| | -10 | 3,380 | 90 | 2,550 | 90 | 2,340 | 91 | 2,130 | 91 | 93 |
| | 0 | 3,490 | 90 | 2,630 | 90 | 2,420 | 90 | 2,210 | 91 | 93 |
| | 10 | 3,580 | 89 | 2,720 | 90 | 2,500 | 90 | 2,290 | 91 | 93 |
| | 20 | 3,710 | 89 | 2,900 | 91 | 2,660 | 91 | 2,450 | 92 | 93 |
| | 30 | 4,300 | 92 | 3,500 | 93 | 3,250 | 93 | 3,020 | 93 | 93 |
| | 40 | 5,660 | 93 | 4,650 | 93 | 4,360 | 93 | 4,050 | 93 | 93 |
| | 50 | - | - | - | - | - | - | - | - | - |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF

| Pressure Altitude: 2,000 feet | | | | | | | | | | | | |
|--------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,910 | 90 | 2,150 | 90 | 1,910 | 90 | 1,700 | 90 | 91 | 98 | 102 |
| | -10 | 3,320 | 90 | 2,500 | 90 | 2,250 | 90 | 2,020 | 90 | 90 | 98 | 102 |
| | 0 | 3,410 | 90 | 2,580 | 90 | 2,330 | 90 | 2,090 | 90 | 90 | 98 | 101 |
| | 10 | 3,510 | 90 | 2,660 | 90 | 2,410 | 90 | 2,170 | 90 | 90 | 98 | 101 |
| | 20 | 3,630 | 89 | 2,760 | 89 | 2,500 | 89 | 2,250 | 89 | 90 | 98 | 101 |
| | 30 | 3,880 | 89 | 3,100 | 89 | 2,870 | 89 | 2,660 | 89 | 90 | 97 | 99 |
| | 40 | 4,970 | 90 | 4,060 | 90 | 3,780 | 90 | 3,500 | 90 | 90 | 96 | 99 |
| | 50 | 6,730 | 90 | 5,970 | 90 | 5,560 | 90 | 5,180 | 90 | 90 | 97 | 98 |
| 15,000 | -54 | 2,850 | 90 | 2,110 | 90 | 1,880 | 90 | 1,680 | 90 | 91 | 99 | 102 |
| | -10 | 3,260 | 90 | 2,450 | 90 | 2,210 | 90 | 1,990 | 90 | 90 | 99 | 102 |
| | 0 | 3,350 | 90 | 2,540 | 90 | 2,290 | 90 | 2,060 | 90 | 90 | 99 | 102 |
| | 10 | 3,440 | 90 | 2,610 | 90 | 2,370 | 90 | 2,130 | 90 | 90 | 99 | 102 |
| | 20 | 3,560 | 90 | 2,710 | 90 | 2,460 | 90 | 2,220 | 90 | 90 | 98 | 101 |
| | 30 | 3,780 | 89 | 2,890 | 89 | 2,620 | 89 | 2,370 | 89 | 89 | 97 | 99 |
| | 40 | 4,160 | 89 | 3,350 | 89 | 3,110 | 89 | 2,880 | 89 | 89 | 95 | 97 |
| | 50 | 5,550 | 88 | 4,560 | 88 | 4,240 | 88 | 3,940 | 88 | 89 | 95 | 96 |
| 14,000 | -54 | 2,810 | 91 | 2,080 | 91 | 1,860 | 91 | 1,660 | 91 | 91 | 99 | 103 |
| | -10 | 3,200 | 90 | 2,410 | 90 | 2,180 | 90 | 1,960 | 90 | 91 | 99 | 103 |
| | 0 | 3,290 | 90 | 2,490 | 90 | 2,260 | 90 | 2,030 | 90 | 91 | 99 | 103 |
| | 10 | 3,380 | 90 | 2,570 | 90 | 2,330 | 90 | 2,100 | 90 | 90 | 99 | 102 |
| | 20 | 3,490 | 90 | 2,660 | 90 | 2,410 | 90 | 2,180 | 90 | 90 | 98 | 101 |
| | 30 | 3,710 | 89 | 2,830 | 89 | 2,560 | 89 | 2,310 | 89 | 90 | 97 | 99 |
| | 40 | 3,970 | 89 | 3,030 | 89 | 2,750 | 89 | 2,520 | 89 | 89 | 95 | 97 |
| | 50 | 4,630 | 88 | 3,760 | 88 | 3,500 | 88 | 3,230 | 89 | 89 | 94 | 95 |
| 13,000 | -54 | 2,770 | 91 | 2,050 | 91 | 1,840 | 91 | 1,640 | 91 | 92 | 99 | 104 |
| | -10 | 3,150 | 90 | 2,380 | 90 | 2,150 | 91 | 1,930 | 91 | 91 | 99 | 103 |
| | 0 | 3,230 | 90 | 2,460 | 90 | 2,220 | 90 | 2,000 | 90 | 91 | 99 | 103 |
| | 10 | 3,310 | 90 | 2,530 | 90 | 2,290 | 90 | 2,070 | 90 | 91 | 99 | 103 |
| | 20 | 3,420 | 90 | 2,620 | 90 | 2,370 | 90 | 2,140 | 90 | 90 | 99 | 102 |
| | 30 | 3,620 | 89 | 2,760 | 90 | 2,510 | 90 | 2,260 | 90 | 90 | 97 | 99 |
| | 40 | 3,860 | 89 | 2,950 | 89 | 2,680 | 89 | 2,410 | 89 | 89 | 95 | 97 |
| | 50 | 4,200 | 89 | 3,220 | 89 | 2,970 | 89 | 2,740 | 89 | 89 | 94 | 95 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF

4 Pressure Altitude: 3,000 feet

| Associated Conditions | | | | | | | | | | | | | | |
|---|--|--|--|--|----------------------|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | | | | | Lift Dump: Operative | | | | | | | | | |
| The effect of NAI is included for OATs of 10°C or lower. | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | |

| Pressure Altitude: 3,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|---------------|-------------|---------------|-------------|---------------|-------------|---------------|---------------|-------------------|---------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V_2 KIAS |
| Weight LB | OAT °C | Dist. FT | V_1 KIAS | Dist. FT | V_1 KIAS | Dist. FT | V_1 KIAS | Dist. FT | V_1 KIAS | | | |
| 18,740 | -54 | 3,510 | 95 | 2,720 | 97 | 2,480 | 97 | 2,260 | 98 | 98 | 104 | 107 |
| | -10 | 4,060 | 95 | 3,190 | 96 | 2,930 | 97 | 2,680 | 98 | 98 | 105 | 108 |
| | 0 | 4,190 | 95 | 3,300 | 96 | 3,030 | 97 | 2,780 | 97 | 98 | 105 | 108 |
| | 10 | 4,330 | 95 | 3,420 | 96 | 3,150 | 97 | 2,880 | 97 | 98 | 105 | 108 |
| | 20 | 4,720 | 97 | 3,780 | 98 | 3,520 | 98 | 3,280 | 98 | 98 | 105 | 108 |
| | 30 | 6,030 | 98 | 4,950 | 98 | 4,620 | 98 | 4,300 | 98 | 98 | 105 | 107 |
| | 40 | - | - | - | - | - | - | - | - | - | - | |
| | 47 | - | - | - | - | - | - | - | - | - | - | |
| 18,300 | -54 | 3,300 | 93 | 2,570 | 95 | 2,360 | 96 | 2,170 | 96 | 96 | 103 | 106 |
| | -10 | 3,800 | 93 | 3,000 | 95 | 2,750 | 95 | 2,540 | 96 | 96 | 103 | 106 |
| | 0 | 3,910 | 93 | 3,100 | 95 | 2,850 | 95 | 2,630 | 96 | 96 | 103 | 106 |
| | 10 | 4,040 | 93 | 3,210 | 95 | 2,960 | 95 | 2,730 | 96 | 96 | 103 | 106 |
| | 20 | 4,450 | 95 | 3,610 | 96 | 3,370 | 96 | 3,130 | 96 | 96 | 103 | 106 |
| | 30 | 5,690 | 97 | 4,700 | 96 | 4,390 | 97 | 4,090 | 97 | 97 | 103 | 105 |
| | 40 | - | - | - | - | - | - | - | - | - | - | |
| | 47 | - | - | - | - | - | - | - | - | - | - | |
| 18,000 | -54 | 3,220 | 92 | 2,490 | 94 | 2,270 | 95 | 2,090 | 95 | 95 | 102 | 105 |
| | -10 | 3,690 | 91 | 2,910 | 93 | 2,670 | 94 | 2,450 | 95 | 95 | 102 | 105 |
| | 0 | 3,810 | 91 | 3,010 | 93 | 2,770 | 94 | 2,540 | 95 | 95 | 102 | 105 |
| | 10 | 3,930 | 92 | 3,110 | 93 | 2,870 | 94 | 2,630 | 95 | 95 | 102 | 105 |
| | 20 | 4,300 | 94 | 3,460 | 95 | 3,230 | 95 | 3,000 | 95 | 95 | 103 | 105 |
| | 30 | 5,420 | 96 | 4,460 | 96 | 4,170 | 96 | 3,880 | 96 | 96 | 102 | 104 |
| | 40 | - | - | - | - | - | - | - | - | - | - | |
| | 47 | - | - | - | - | - | - | - | - | - | - | |
| 17,000 | -54 | 3,040 | 90 | 2,260 | 90 | 2,050 | 91 | 1,860 | 92 | 93 | 100 | 103 |
| | -10 | 3,480 | 89 | 2,630 | 90 | 2,410 | 90 | 2,200 | 91 | 92 | 100 | 103 |
| | 0 | 3,590 | 89 | 2,720 | 90 | 2,500 | 90 | 2,290 | 91 | 93 | 100 | 103 |
| | 10 | 3,680 | 89 | 2,810 | 90 | 2,590 | 90 | 2,370 | 91 | 93 | 100 | 103 |
| | 20 | 3,880 | 90 | 3,080 | 91 | 2,840 | 92 | 2,640 | 93 | 93 | 100 | 103 |
| | 30 | 4,650 | 93 | 3,820 | 93 | 3,550 | 93 | 3,300 | 93 | 93 | 100 | 102 |
| | 40 | 6,290 | 93 | 5,250 | 93 | 4,890 | 93 | 4,570 | 93 | 93 | 100 | 101 |
| | 47 | - | - | - | - | - | - | - | - | - | - | |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF

| Pressure Altitude: 3,000 feet | | | | | | | | | | | | |
|--------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,990 | 90 | 2,210 | 90 | 1,980 | 90 | 1,760 | 90 | 91 | 98 | 102 |
| | -10 | 3,410 | 90 | 2,580 | 90 | 2,330 | 90 | 2,090 | 90 | 90 | 98 | 102 |
| | 0 | 3,510 | 90 | 2,660 | 90 | 2,410 | 90 | 2,170 | 90 | 90 | 98 | 101 |
| | 10 | 3,610 | 89 | 2,750 | 90 | 2,490 | 90 | 2,240 | 90 | 90 | 98 | 101 |
| | 20 | 3,760 | 89 | 2,870 | 89 | 2,610 | 89 | 2,370 | 89 | 90 | 98 | 100 |
| | 30 | 4,120 | 89 | 3,370 | 90 | 3,130 | 90 | 2,900 | 89 | 90 | 97 | 99 |
| | 40 | 5,510 | 90 | 4,520 | 90 | 4,220 | 90 | 3,910 | 90 | 90 | 97 | 99 |
| | 47 | 6,840 | 90 | 6,000 | 90 | 5,610 | 90 | 5,230 | 90 | 90 | 97 | 98 |
| 15,000 | -54 | 2,930 | 90 | 2,180 | 90 | 1,950 | 90 | 1,740 | 90 | 91 | 99 | 102 |
| | -10 | 3,350 | 90 | 2,540 | 90 | 2,290 | 90 | 2,060 | 90 | 90 | 99 | 102 |
| | 0 | 3,440 | 90 | 2,610 | 90 | 2,370 | 90 | 2,130 | 90 | 90 | 99 | 102 |
| | 10 | 3,540 | 90 | 2,700 | 90 | 2,450 | 90 | 2,200 | 90 | 90 | 99 | 102 |
| | 20 | 3,680 | 89 | 2,810 | 89 | 2,550 | 89 | 2,300 | 89 | 90 | 98 | 101 |
| | 30 | 3,920 | 89 | 3,020 | 89 | 2,760 | 89 | 2,500 | 89 | 89 | 96 | 99 |
| | 40 | 4,480 | 89 | 3,660 | 89 | 3,410 | 89 | 3,160 | 89 | 89 | 95 | 97 |
| | 47 | 5,590 | 88 | 4,590 | 88 | 4,280 | 88 | 3,980 | 88 | 89 | 95 | 96 |
| 14,000 | -54 | 2,880 | 91 | 2,150 | 91 | 1,920 | 91 | 1,720 | 91 | 91 | 99 | 103 |
| | -10 | 3,290 | 90 | 2,490 | 90 | 2,250 | 90 | 2,020 | 90 | 91 | 99 | 103 |
| | 0 | 3,380 | 90 | 2,580 | 90 | 2,330 | 90 | 2,100 | 90 | 90 | 99 | 103 |
| | 10 | 3,470 | 90 | 2,650 | 90 | 2,400 | 90 | 2,170 | 90 | 90 | 99 | 102 |
| | 20 | 3,600 | 90 | 2,760 | 90 | 2,510 | 90 | 2,260 | 90 | 90 | 98 | 101 |
| | 30 | 3,840 | 89 | 2,940 | 89 | 2,670 | 89 | 2,420 | 89 | 89 | 96 | 99 |
| | 40 | 4,140 | 89 | 3,200 | 89 | 2,920 | 89 | 2,700 | 89 | 89 | 95 | 97 |
| | 47 | 4,660 | 88 | 3,790 | 88 | 3,520 | 88 | 3,270 | 88 | 89 | 94 | 95 |
| 13,000 | -54 | 2,840 | 91 | 2,120 | 91 | 1,900 | 91 | 1,700 | 91 | 91 | 99 | 104 |
| | -10 | 3,230 | 90 | 2,450 | 90 | 2,220 | 90 | 2,000 | 90 | 91 | 99 | 103 |
| | 0 | 3,320 | 90 | 2,530 | 90 | 2,290 | 90 | 2,070 | 90 | 91 | 99 | 103 |
| | 10 | 3,410 | 90 | 2,610 | 90 | 2,370 | 90 | 2,140 | 90 | 91 | 99 | 103 |
| | 20 | 3,530 | 90 | 2,710 | 90 | 2,460 | 90 | 2,230 | 90 | 90 | 98 | 102 |
| | 30 | 3,740 | 89 | 2,870 | 89 | 2,610 | 89 | 2,360 | 89 | 90 | 97 | 99 |
| | 40 | 4,010 | 89 | 3,070 | 89 | 2,790 | 89 | 2,520 | 89 | 89 | 95 | 97 |
| | 47 | 4,260 | 89 | 3,290 | 89 | 3,030 | 89 | 2,780 | 89 | 89 | 94 | 95 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF

5 Pressure Altitude: 4,000 feet

| Associated Conditions | | | | | | | | | | | | | | |
|---|--|--|--|--|----------------------|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | | | | | Lift Dump: Operative | | | | | | | | | |
| The effect of NAI is included for OATs of 10°C or lower. | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | |

| Pressure Altitude: 4,000 feet | | | | | | | | | | | | |
|-------------------------------|--------|------------|---------------------|----------|---------------------|------------|---------------------|------------|---------------------|---------------------|-----------------------|---------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,600 | 95 | 2,800 | 97 | 2,560 | 97 | 2,330 | 98 | 98 | 104 | 107 |
| | -10 | 4,180 | 95 | 3,290 | 96 | 3,030 | 97 | 2,780 | 97 | 98 | 105 | 108 |
| | 0 | 4,320 | 95 | 3,410 | 96 | 3,140 | 97 | 2,880 | 97 | 98 | 105 | 108 |
| | 10 | 4,480 | 95 | 3,550 | 97 | 3,270 | 97 | 3,000 | 97 | 98 | 105 | 108 |
| | 20 | 5,090 | 98 | 4,150 | 98 | 3,860 | 98 | 3,600 | 98 | 98 | 105 | 107 |
| | 30 | 6,740 | 99 | 5,550 | 98 | 5,180 | 98 | 4,830 | 98 | 98 | 105 | 107 |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| | 45 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 3,400 | 93 | 2,640 | 95 | 2,430 | 96 | 2,230 | 96 | 96 | 103 | 106 |
| | -10 | 3,910 | 93 | 3,090 | 95 | 2,850 | 95 | 2,640 | 96 | 96 | 103 | 106 |
| | 0 | 4,030 | 93 | 3,200 | 95 | 2,950 | 95 | 2,730 | 96 | 96 | 103 | 106 |
| | 10 | 4,170 | 93 | 3,320 | 95 | 3,080 | 95 | 2,850 | 96 | 96 | 103 | 106 |
| | 20 | 4,830 | 96 | 3,970 | 96 | 3,710 | 96 | 3,450 | 96 | 96 | 104 | 106 |
| | 30 | 6,370 | 97 | 5,290 | 97 | 4,950 | 97 | 4,630 | 97 | 97 | 103 | 105 |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| | 45 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,300 | 92 | 2,570 | 94 | 2,340 | 95 | 2,150 | 95 | 95 | 102 | 105 |
| | -10 | 3,800 | 91 | 3,000 | 93 | 2,760 | 94 | 2,530 | 95 | 95 | 102 | 105 |
| | 0 | 3,920 | 91 | 3,110 | 93 | 2,860 | 94 | 2,620 | 95 | 95 | 102 | 105 |
| | 10 | 4,050 | 92 | 3,220 | 93 | 2,970 | 94 | 2,740 | 95 | 95 | 103 | 105 |
| | 20 | 4,620 | 95 | 3,780 | 96 | 3,530 | 95 | 3,280 | 96 | 96 | 103 | 105 |
| | 30 | 6,010 | 96 | 4,980 | 96 | 4,650 | 96 | 4,350 | 96 | 96 | 103 | 104 |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| | 45 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,120 | 90 | 2,320 | 90 | 2,120 | 91 | 1,930 | 92 | 93 | 100 | 103 |
| | -10 | 3,580 | 89 | 2,720 | 90 | 2,490 | 90 | 2,280 | 91 | 93 | 100 | 103 |
| | 0 | 3,690 | 89 | 2,810 | 90 | 2,580 | 90 | 2,370 | 91 | 93 | 100 | 103 |
| | 10 | 3,790 | 89 | 2,910 | 90 | 2,680 | 90 | 2,460 | 91 | 92 | 100 | 103 |
| | 20 | 4,120 | 91 | 3,310 | 92 | 3,070 | 92 | 2,850 | 93 | 93 | 100 | 102 |
| | 30 | 5,100 | 93 | 4,200 | 93 | 3,920 | 93 | 3,650 | 93 | 93 | 100 | 102 |
| | 40 | 7,030 | 93 | 5,990 | 93 | 5,600 | 93 | 5,220 | 93 | 93 | 100 | 101 |
| | 45 | - | - | - | - | - | - | - | - | - | - | - |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF

| Pressure Altitude: 4,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,070 | 90 | 2,280 | 90 | 2,040 | 90 | 1,820 | 90 | 90 | 99 | 102 |
| | -10 | 3,510 | 90 | 2,660 | 90 | 2,410 | 90 | 2,160 | 90 | 90 | 99 | 102 |
| | 0 | 3,610 | 90 | 2,750 | 90 | 2,490 | 90 | 2,240 | 90 | 90 | 99 | 101 |
| | 10 | 3,710 | 89 | 2,840 | 89 | 2,570 | 89 | 2,320 | 89 | 90 | 98 | 101 |
| | 20 | 3,910 | 89 | 3,000 | 89 | 2,760 | 89 | 2,530 | 89 | 90 | 97 | 100 |
| | 30 | 4,520 | 90 | 3,690 | 90 | 3,440 | 90 | 3,190 | 90 | 90 | 97 | 99 |
| | 40 | 6,170 | 90 | 5,090 | 90 | 4,750 | 90 | 4,430 | 90 | 90 | 97 | 99 |
| | 45 | - | - | - | - | - | - | - | - | - | - | - |
| 15,000 | -54 | 3,010 | 90 | 2,240 | 90 | 2,010 | 90 | 1,800 | 90 | 91 | 99 | 102 |
| | -10 | 3,440 | 90 | 2,610 | 90 | 2,370 | 90 | 2,130 | 90 | 90 | 99 | 102 |
| | 0 | 3,540 | 90 | 2,700 | 90 | 2,450 | 90 | 2,210 | 90 | 90 | 99 | 102 |
| | 10 | 3,640 | 90 | 2,780 | 90 | 2,530 | 90 | 2,290 | 90 | 90 | 99 | 102 |
| | 20 | 3,820 | 89 | 2,930 | 89 | 2,660 | 89 | 2,400 | 89 | 90 | 97 | 99 |
| | 30 | 4,080 | 89 | 3,180 | 89 | 2,930 | 89 | 2,690 | 89 | 89 | 96 | 98 |
| | 40 | 4,930 | 88 | 4,040 | 88 | 3,770 | 88 | 3,500 | 88 | 89 | 95 | 97 |
| | 45 | 5,820 | 88 | 4,800 | 88 | 4,480 | 88 | 4,170 | 88 | 89 | 95 | 96 |
| 14,000 | -54 | 2,960 | 90 | 2,210 | 91 | 1,980 | 91 | 1,780 | 91 | 91 | 99 | 103 |
| | -10 | 3,380 | 90 | 2,570 | 90 | 2,330 | 90 | 2,100 | 90 | 90 | 99 | 103 |
| | 0 | 3,470 | 90 | 2,660 | 90 | 2,400 | 90 | 2,170 | 90 | 90 | 99 | 102 |
| | 10 | 3,560 | 90 | 2,740 | 90 | 2,490 | 90 | 2,250 | 90 | 90 | 99 | 102 |
| | 20 | 3,730 | 89 | 2,870 | 89 | 2,610 | 89 | 2,360 | 89 | 90 | 98 | 100 |
| | 30 | 3,980 | 89 | 3,060 | 89 | 2,780 | 89 | 2,520 | 89 | 89 | 96 | 98 |
| | 40 | 4,320 | 89 | 3,440 | 89 | 3,170 | 89 | 2,940 | 89 | 89 | 95 | 96 |
| | 45 | 4,810 | 88 | 3,940 | 88 | 3,670 | 88 | 3,410 | 88 | 89 | 95 | 95 |
| 13,000 | -54 | 2,910 | 91 | 2,180 | 91 | 1,960 | 91 | 1,750 | 91 | 91 | 99 | 104 |
| | -10 | 3,320 | 90 | 2,530 | 90 | 2,290 | 90 | 2,070 | 90 | 91 | 99 | 103 |
| | 0 | 3,410 | 90 | 2,610 | 90 | 2,370 | 90 | 2,150 | 90 | 91 | 99 | 103 |
| | 10 | 3,500 | 90 | 2,690 | 90 | 2,450 | 90 | 2,210 | 90 | 91 | 99 | 103 |
| | 20 | 3,650 | 90 | 2,810 | 90 | 2,560 | 90 | 2,320 | 90 | 90 | 98 | 101 |
| | 30 | 3,870 | 89 | 2,990 | 89 | 2,720 | 89 | 2,460 | 89 | 90 | 96 | 98 |
| | 40 | 4,180 | 89 | 3,210 | 89 | 2,920 | 89 | 2,640 | 89 | 89 | 95 | 96 |
| | 45 | 4,370 | 89 | 3,400 | 89 | 3,130 | 89 | 2,870 | 89 | 89 | 94 | 95 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF

6 Pressure Altitude: 5,000 feet

| Associated Conditions | | | | | | | | | | | | | | |
|---|--|--|--|--|----------------------|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | | | | | Lift Dump: Operative | | | | | | | | | |
| The effect of NAI is included for OATs of 10°C or lower. | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | |

| Pressure Altitude: 5,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,710 | 95 | 2,890 | 96 | 2,650 | 97 | 2,410 | 98 | 98 | 104 | 107 |
| | -10 | 4,310 | 95 | 3,410 | 96 | 3,130 | 97 | 2,880 | 97 | 98 | 105 | 108 |
| | 0 | 4,450 | 95 | 3,530 | 96 | 3,250 | 97 | 2,980 | 97 | 98 | 105 | 108 |
| | 10 | 4,660 | 96 | 3,700 | 97 | 3,410 | 97 | 3,140 | 98 | 98 | 105 | 108 |
| | 20 | 5,580 | 98 | 4,580 | 98 | 4,270 | 98 | 3,980 | 98 | 98 | 105 | 107 |
| | 30 | 7,590 | 99 | 6,260 | 99 | 5,860 | 99 | 5,470 | 99 | 99 | 106 | 107 |
| | 40 | - | - | - | - | - | - | - | - | - | - | |
| | 42 | - | - | - | - | - | - | - | - | - | - | |
| 18,300 | -54 | 3,490 | 93 | 2,720 | 95 | 2,490 | 96 | 2,300 | 96 | 96 | 103 | 106 |
| | -10 | 4,020 | 93 | 3,200 | 94 | 2,940 | 95 | 2,730 | 96 | 96 | 103 | 106 |
| | 0 | 4,150 | 93 | 3,310 | 94 | 3,050 | 95 | 2,830 | 96 | 96 | 103 | 106 |
| | 10 | 4,330 | 93 | 3,470 | 95 | 3,230 | 96 | 3,010 | 96 | 96 | 103 | 106 |
| | 20 | 5,300 | 96 | 4,400 | 97 | 4,110 | 97 | 3,840 | 97 | 97 | 104 | 106 |
| | 30 | 7,180 | 97 | 5,990 | 97 | 5,620 | 97 | 5,270 | 97 | 97 | 104 | 105 |
| | 40 | - | - | - | - | - | - | - | - | - | - | |
| | 42 | - | - | - | - | - | - | - | - | - | - | |
| 18,000 | -54 | 3,390 | 92 | 2,650 | 94 | 2,420 | 94 | 2,220 | 95 | 95 | 102 | 105 |
| | -10 | 3,910 | 91 | 3,100 | 93 | 2,850 | 94 | 2,620 | 95 | 95 | 102 | 105 |
| | 0 | 4,040 | 91 | 3,210 | 93 | 2,960 | 94 | 2,720 | 95 | 95 | 102 | 105 |
| | 10 | 4,210 | 92 | 3,360 | 94 | 3,100 | 94 | 2,870 | 95 | 95 | 103 | 105 |
| | 20 | 5,020 | 96 | 4,160 | 96 | 3,880 | 96 | 3,610 | 96 | 96 | 103 | 105 |
| | 30 | 6,700 | 96 | 5,580 | 96 | 5,230 | 96 | 4,890 | 96 | 96 | 103 | 104 |
| | 40 | - | - | - | - | - | - | - | - | - | - | |
| | 42 | - | - | - | - | - | - | - | - | - | - | |
| 17,000 | -54 | 3,210 | 90 | 2,390 | 90 | 2,190 | 91 | 1,990 | 91 | 92 | 100 | 103 |
| | -10 | 3,690 | 89 | 2,800 | 89 | 2,580 | 90 | 2,360 | 91 | 92 | 100 | 103 |
| | 0 | 3,790 | 89 | 2,900 | 89 | 2,670 | 90 | 2,450 | 91 | 92 | 100 | 103 |
| | 10 | 3,900 | 89 | 3,030 | 90 | 2,790 | 90 | 2,560 | 91 | 92 | 100 | 103 |
| | 20 | 4,400 | 92 | 3,590 | 93 | 3,350 | 93 | 3,110 | 93 | 93 | 100 | 102 |
| | 30 | 5,650 | 93 | 4,660 | 93 | 4,370 | 93 | 4,060 | 93 | 93 | 100 | 102 |
| | 40 | - | - | - | - | - | - | - | - | - | - | |
| | 42 | - | - | - | - | - | - | - | - | - | - | |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF

| Pressure Altitude: 5,000 feet | | | | | | | | | | | | |
|--------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,150 | 90 | 2,350 | 90 | 2,110 | 90 | 1,890 | 90 | 90 | 99 | 102 |
| | -10 | 3,610 | 90 | 2,750 | 90 | 2,490 | 90 | 2,240 | 90 | 90 | 99 | 101 |
| | 0 | 3,720 | 89 | 2,840 | 89 | 2,580 | 89 | 2,320 | 90 | 90 | 98 | 101 |
| | 10 | 3,810 | 89 | 2,930 | 89 | 2,660 | 89 | 2,410 | 89 | 90 | 98 | 101 |
| | 20 | 4,050 | 89 | 3,190 | 89 | 2,960 | 89 | 2,740 | 89 | 90 | 97 | 100 |
| | 30 | 4,970 | 90 | 4,080 | 90 | 3,810 | 90 | 3,550 | 90 | 90 | 97 | 99 |
| | 40 | 6,980 | 90 | 5,780 | 90 | 5,400 | 90 | 5,040 | 90 | 90 | 97 | 99 |
| | 42 | - | - | - | - | - | - | - | - | - | - | - |
| 15,000 | -54 | 3,100 | 90 | 2,310 | 90 | 2,080 | 90 | 1,860 | 90 | 91 | 99 | 102 |
| | -10 | 3,540 | 90 | 2,700 | 90 | 2,440 | 90 | 2,210 | 90 | 90 | 99 | 102 |
| | 0 | 3,640 | 90 | 2,780 | 90 | 2,530 | 90 | 2,280 | 90 | 90 | 99 | 102 |
| | 10 | 3,740 | 90 | 2,880 | 90 | 2,610 | 90 | 2,370 | 90 | 90 | 99 | 101 |
| | 20 | 3,980 | 89 | 3,050 | 89 | 2,780 | 89 | 2,510 | 89 | 89 | 97 | 99 |
| | 30 | 4,270 | 89 | 3,400 | 89 | 3,160 | 89 | 2,930 | 89 | 89 | 96 | 98 |
| | 40 | 5,450 | 88 | 4,490 | 88 | 4,190 | 88 | 3,900 | 88 | 89 | 95 | 97 |
| | 42 | 5,890 | 88 | 4,860 | 88 | 4,540 | 88 | 4,230 | 88 | 89 | 95 | 97 |
| 14,000 | -54 | 3,040 | 90 | 2,280 | 90 | 2,050 | 90 | 1,830 | 90 | 91 | 99 | 103 |
| | -10 | 3,470 | 90 | 2,660 | 90 | 2,410 | 90 | 2,180 | 90 | 90 | 99 | 103 |
| | 0 | 3,570 | 90 | 2,740 | 90 | 2,490 | 90 | 2,250 | 90 | 90 | 99 | 102 |
| | 10 | 3,670 | 90 | 2,820 | 90 | 2,570 | 90 | 2,330 | 90 | 90 | 99 | 102 |
| | 20 | 3,880 | 89 | 2,980 | 89 | 2,720 | 89 | 2,460 | 89 | 90 | 97 | 99 |
| | 30 | 4,140 | 89 | 3,190 | 89 | 2,900 | 89 | 2,630 | 89 | 89 | 96 | 97 |
| | 40 | 4,570 | 89 | 3,740 | 89 | 3,490 | 89 | 3,240 | 89 | 89 | 95 | 96 |
| | 42 | 4,860 | 88 | 4,000 | 88 | 3,720 | 88 | 3,460 | 88 | 89 | 95 | 96 |
| 13,000 | -54 | 3,000 | 91 | 2,250 | 91 | 2,020 | 91 | 1,820 | 91 | 91 | 99 | 104 |
| | -10 | 3,410 | 90 | 2,610 | 90 | 2,370 | 90 | 2,150 | 90 | 91 | 99 | 103 |
| | 0 | 3,500 | 90 | 2,700 | 90 | 2,450 | 90 | 2,220 | 90 | 91 | 99 | 103 |
| | 10 | 3,600 | 90 | 2,770 | 90 | 2,530 | 90 | 2,290 | 90 | 90 | 99 | 103 |
| | 20 | 3,790 | 90 | 2,920 | 90 | 2,660 | 90 | 2,410 | 90 | 90 | 97 | 100 |
| | 30 | 4,030 | 89 | 3,120 | 89 | 2,840 | 89 | 2,580 | 89 | 89 | 96 | 98 |
| | 40 | 4,360 | 89 | 3,370 | 89 | 3,070 | 89 | 2,780 | 89 | 89 | 95 | 96 |
| | 42 | 4,450 | 89 | 3,470 | 89 | 3,190 | 89 | 2,920 | 89 | 89 | 94 | 96 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF

7

Pressure Altitude: 6,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| The effect of NAI is included for OATs of 10°C or lower. | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 6,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,820 | 95 | 2,990 | 96 | 2,740 | 97 | 2,500 | 98 | 98 | 104 | 107 |
| | -10 | 4,450 | 95 | 3,530 | 96 | 3,250 | 97 | 2,980 | 97 | 98 | 105 | 108 |
| | 0 | 4,660 | 96 | 3,700 | 97 | 3,420 | 97 | 3,140 | 98 | 98 | 105 | 108 |
| | 10 | 5,030 | 97 | 4,060 | 98 | 3,780 | 98 | 3,510 | 98 | 98 | 105 | 108 |
| | 20 | 6,420 | 98 | 5,290 | 98 | 4,940 | 98 | 4,600 | 98 | 98 | 105 | 107 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 3,590 | 93 | 2,810 | 95 | 2,580 | 95 | 2,390 | 96 | 96 | 103 | 106 |
| | -10 | 4,150 | 93 | 3,300 | 94 | 3,050 | 95 | 2,820 | 96 | 96 | 103 | 106 |
| | 0 | 4,330 | 93 | 3,460 | 95 | 3,210 | 96 | 2,990 | 96 | 96 | 104 | 106 |
| | 10 | 4,700 | 95 | 3,830 | 96 | 3,570 | 96 | 3,330 | 96 | 96 | 104 | 106 |
| | 20 | 6,030 | 96 | 5,010 | 97 | 4,700 | 96 | 4,390 | 96 | 97 | 104 | 106 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,490 | 91 | 2,730 | 94 | 2,500 | 94 | 2,300 | 95 | 95 | 102 | 105 |
| | -10 | 4,040 | 91 | 3,210 | 93 | 2,950 | 94 | 2,720 | 95 | 95 | 103 | 105 |
| | 0 | 4,210 | 92 | 3,360 | 94 | 3,100 | 94 | 2,860 | 95 | 96 | 103 | 105 |
| | 10 | 4,550 | 94 | 3,680 | 95 | 3,420 | 95 | 3,180 | 95 | 95 | 103 | 105 |
| | 20 | 5,730 | 96 | 4,750 | 96 | 4,440 | 96 | 4,140 | 96 | 96 | 103 | 105 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,310 | 90 | 2,480 | 90 | 2,260 | 91 | 2,060 | 91 | 93 | 100 | 103 |
| | -10 | 3,790 | 89 | 2,900 | 89 | 2,670 | 90 | 2,440 | 91 | 93 | 100 | 103 |
| | 0 | 3,900 | 89 | 3,030 | 90 | 2,790 | 91 | 2,560 | 91 | 93 | 100 | 103 |
| | 10 | 4,120 | 90 | 3,280 | 91 | 3,040 | 92 | 2,800 | 92 | 93 | 100 | 103 |
| | 20 | 4,910 | 93 | 4,050 | 93 | 3,790 | 93 | 3,530 | 93 | 93 | 100 | 102 |
| | 30 | 6,590 | 93 | 5,470 | 93 | 5,120 | 93 | 4,790 | 93 | 93 | 100 | 102 |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| 16,000 | -54 | 3,240 | 90 | 2,430 | 90 | 2,180 | 90 | 1,950 | 90 | 90 | 98 | 102 |
| | -10 | 3,710 | 89 | 2,840 | 89 | 2,570 | 89 | 2,330 | 89 | 90 | 99 | 101 |
| | 0 | 3,820 | 89 | 2,930 | 89 | 2,670 | 89 | 2,410 | 89 | 90 | 98 | 101 |
| | 10 | 3,980 | 89 | 3,070 | 89 | 2,790 | 89 | 2,540 | 89 | 90 | 98 | 101 |
| | 20 | 4,390 | 89 | 3,580 | 90 | 3,340 | 90 | 3,110 | 90 | 90 | 97 | 100 |
| | 30 | 5,760 | 90 | 4,750 | 90 | 4,440 | 90 | 4,130 | 90 | 90 | 97 | 99 |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF

| Pressure Altitude: 6,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 15,000 | -54 | 3,180 | 90 | 2,390 | 90 | 2,150 | 90 | 1,930 | 90 | 90 | 99 | 102 |
| | -10 | 3,640 | 90 | 2,790 | 90 | 2,530 | 90 | 2,280 | 90 | 90 | 99 | 102 |
| | 0 | 3,740 | 90 | 2,880 | 90 | 2,620 | 90 | 2,370 | 90 | 90 | 99 | 102 |
| | 10 | 3,900 | 89 | 3,000 | 89 | 2,730 | 89 | 2,480 | 89 | 90 | 98 | 101 |
| | 20 | 4,160 | 89 | 3,220 | 89 | 2,940 | 89 | 2,700 | 89 | 89 | 96 | 99 |
| | 30 | 4,680 | 89 | 3,850 | 89 | 3,590 | 89 | 3,340 | 89 | 89 | 95 | 97 |
| | 40 | 6,420 | 88 | 5,320 | 88 | 4,980 | 88 | 4,640 | 88 | 88 | 95 | 97 |
| 14,000 | -54 | 3,130 | 90 | 2,350 | 90 | 2,120 | 90 | 1,900 | 90 | 91 | 99 | 103 |
| | -10 | 3,570 | 90 | 2,740 | 90 | 2,490 | 90 | 2,250 | 90 | 90 | 99 | 103 |
| | 0 | 3,680 | 90 | 2,830 | 90 | 2,570 | 90 | 2,330 | 90 | 90 | 99 | 102 |
| | 10 | 3,820 | 90 | 2,950 | 90 | 2,680 | 90 | 2,430 | 90 | 90 | 98 | 101 |
| | 20 | 4,060 | 89 | 3,140 | 89 | 2,860 | 89 | 2,600 | 89 | 89 | 97 | 99 |
| | 30 | 4,390 | 89 | 3,410 | 89 | 3,130 | 89 | 2,860 | 89 | 89 | 95 | 97 |
| | 40 | 5,260 | 88 | 4,330 | 88 | 4,040 | 88 | 3,760 | 88 | 89 | 95 | 96 |
| 13,000 | -54 | 3,070 | 91 | 2,320 | 91 | 2,090 | 91 | 1,880 | 91 | 91 | 99 | 104 |
| | -10 | 3,500 | 90 | 2,700 | 90 | 2,450 | 90 | 2,220 | 90 | 91 | 99 | 103 |
| | 0 | 3,600 | 90 | 2,780 | 90 | 2,530 | 90 | 2,300 | 90 | 90 | 99 | 103 |
| | 10 | 3,740 | 90 | 2,890 | 90 | 2,630 | 90 | 2,390 | 90 | 90 | 98 | 102 |
| | 20 | 3,960 | 89 | 3,070 | 89 | 2,800 | 89 | 2,540 | 89 | 90 | 97 | 99 |
| | 30 | 4,250 | 89 | 3,290 | 89 | 3,000 | 89 | 2,710 | 89 | 89 | 95 | 97 |
| | 40 | 4,640 | 88 | 3,680 | 88 | 3,380 | 88 | 3,140 | 88 | 89 | 94 | 96 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF

8 Pressure Altitude: 7,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| The effect of NAI is included for OATs of 10°C or lower. | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 7,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,020 | 95 | 3,150 | 96 | 2,890 | 97 | 2,640 | 97 | 98 | 105 | 108 |
| | -10 | 4,740 | 96 | 3,770 | 97 | 3,470 | 97 | 3,200 | 98 | 98 | 105 | 108 |
| | 0 | 5,030 | 97 | 4,020 | 98 | 3,740 | 98 | 3,480 | 98 | 98 | 105 | 108 |
| | 10 | 5,640 | 98 | 4,630 | 98 | 4,320 | 98 | 4,020 | 98 | 98 | 105 | 108 |
| | 20 | 7,570 | 98 | 6,250 | 99 | 5,850 | 99 | 5,450 | 99 | 99 | 106 | 107 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 38 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 3,690 | 93 | 2,900 | 95 | 2,670 | 95 | 2,480 | 96 | 96 | 103 | 106 |
| | -10 | 4,330 | 93 | 3,450 | 95 | 3,190 | 96 | 2,960 | 96 | 96 | 103 | 106 |
| | 0 | 4,580 | 94 | 3,700 | 96 | 3,460 | 96 | 3,220 | 96 | 96 | 104 | 106 |
| | 10 | 5,140 | 96 | 4,250 | 96 | 3,970 | 96 | 3,710 | 96 | 97 | 104 | 106 |
| | 20 | 6,890 | 97 | 5,750 | 97 | 5,400 | 97 | 5,040 | 97 | 97 | 104 | 106 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 38 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,590 | 91 | 2,820 | 93 | 2,590 | 94 | 2,370 | 95 | 95 | 102 | 105 |
| | -10 | 4,200 | 92 | 3,350 | 94 | 3,090 | 94 | 2,850 | 95 | 95 | 103 | 105 |
| | 0 | 4,450 | 93 | 3,560 | 95 | 3,310 | 95 | 3,090 | 95 | 95 | 103 | 105 |
| | 10 | 4,950 | 95 | 4,060 | 96 | 3,800 | 96 | 3,540 | 96 | 96 | 103 | 105 |
| | 20 | 6,540 | 96 | 5,450 | 96 | 5,110 | 96 | 4,770 | 96 | 96 | 103 | 105 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 38 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,400 | 90 | 2,560 | 90 | 2,340 | 90 | 2,130 | 91 | 92 | 100 | 103 |
| | -10 | 3,900 | 89 | 3,020 | 90 | 2,780 | 90 | 2,560 | 91 | 92 | 100 | 103 |
| | 0 | 4,040 | 89 | 3,210 | 91 | 2,960 | 91 | 2,720 | 92 | 93 | 100 | 103 |
| | 10 | 4,430 | 91 | 3,560 | 92 | 3,320 | 93 | 3,080 | 93 | 93 | 100 | 103 |
| | 20 | 5,560 | 93 | 4,600 | 93 | 4,320 | 93 | 4,020 | 93 | 93 | 100 | 102 |
| | 30 | 7,530 | 93 | 6,450 | 93 | 6,070 | 93 | 5,690 | 93 | 93 | 100 | 102 |
| | 38 | - | - | - | - | - | - | - | - | - | - | - |
| 16,000 | -54 | 3,330 | 90 | 2,510 | 90 | 2,260 | 90 | 2,030 | 90 | 90 | 99 | 102 |
| | -10 | 3,820 | 89 | 2,930 | 89 | 2,670 | 89 | 2,410 | 89 | 90 | 98 | 101 |
| | 0 | 3,950 | 89 | 3,040 | 89 | 2,770 | 89 | 2,510 | 89 | 90 | 98 | 101 |
| | 10 | 4,170 | 89 | 3,230 | 89 | 2,960 | 89 | 2,740 | 89 | 90 | 97 | 100 |
| | 20 | 4,940 | 90 | 4,060 | 90 | 3,790 | 90 | 3,530 | 90 | 90 | 97 | 99 |
| | 30 | 6,690 | 90 | 5,540 | 90 | 5,190 | 90 | 4,840 | 90 | 90 | 97 | 99 |
| | 38 | - | - | - | - | - | - | - | - | - | - | - |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF

| Pressure Altitude: 7,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 15,000 | -54 | 3,270 | 90 | 2,470 | 90 | 2,220 | 90 | 2,000 | 90 | 90 | 99 | 102 |
| | -10 | 3,740 | 90 | 2,880 | 90 | 2,620 | 90 | 2,370 | 90 | 90 | 99 | 101 |
| | 0 | 3,870 | 89 | 2,980 | 89 | 2,720 | 89 | 2,460 | 89 | 90 | 98 | 101 |
| | 10 | 4,080 | 89 | 3,150 | 89 | 2,870 | 89 | 2,600 | 89 | 89 | 97 | 99 |
| | 20 | 4,400 | 89 | 3,440 | 89 | 3,190 | 89 | 2,950 | 89 | 89 | 96 | 98 |
| | 30 | 5,320 | 88 | 4,380 | 88 | 4,090 | 88 | 3,810 | 88 | 89 | 95 | 97 |
| | 38 | 6,940 | 88 | 5,760 | 88 | 5,480 | 88 | 5,120 | 88 | 88 | 95 | 96 |
| 14,000 | -54 | 3,210 | 90 | 2,430 | 90 | 2,190 | 90 | 1,970 | 90 | 91 | 99 | 103 |
| | -10 | 3,680 | 90 | 2,830 | 90 | 2,570 | 90 | 2,330 | 90 | 90 | 99 | 102 |
| | 0 | 3,790 | 90 | 2,930 | 90 | 2,670 | 90 | 2,420 | 90 | 90 | 98 | 101 |
| | 10 | 3,980 | 89 | 3,080 | 89 | 2,810 | 89 | 2,550 | 89 | 90 | 98 | 100 |
| | 20 | 4,270 | 89 | 3,310 | 89 | 3,010 | 89 | 2,730 | 89 | 89 | 96 | 98 |
| | 30 | 4,650 | 88 | 3,720 | 88 | 3,460 | 88 | 3,210 | 88 | 89 | 95 | 96 |
| | 38 | 5,710 | 88 | 4,710 | 88 | 4,400 | 88 | 4,100 | 88 | 88 | 94 | 96 |
| 13,000 | -54 | 3,160 | 90 | 2,400 | 91 | 2,160 | 91 | 1,940 | 91 | 91 | 99 | 104 |
| | -10 | 3,610 | 90 | 2,780 | 90 | 2,530 | 90 | 2,300 | 90 | 90 | 99 | 103 |
| | 0 | 3,720 | 90 | 2,880 | 90 | 2,630 | 90 | 2,390 | 90 | 90 | 99 | 102 |
| | 10 | 3,900 | 89 | 3,020 | 89 | 2,760 | 89 | 2,500 | 89 | 90 | 98 | 101 |
| | 20 | 4,150 | 89 | 3,220 | 89 | 2,950 | 89 | 2,680 | 89 | 89 | 96 | 98 |
| | 30 | 4,500 | 89 | 3,490 | 89 | 3,180 | 89 | 2,890 | 89 | 89 | 95 | 96 |
| | 38 | 4,910 | 88 | 3,900 | 88 | 3,630 | 88 | 3,380 | 88 | 89 | 94 | 95 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF

9 Pressure Altitude: 8,000 feet

| Associated Conditions | | | | | | | | | | | | | | |
|---|--|--|--|--|----------------------|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | | | | | Lift Dump: Operative | | | | | | | | | |
| The effect of NAI is included for OATs of 10°C or lower. | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | |

| Pressure Altitude: 8,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,230 | 95 | 3,320 | 96 | 3,040 | 97 | 2,790 | 97 | 98 | 105 | 108 |
| | -10 | 5,100 | 97 | 4,080 | 98 | 3,780 | 98 | 3,520 | 98 | 98 | 105 | 108 |
| | 0 | 5,520 | 98 | 4,520 | 98 | 4,220 | 98 | 3,920 | 98 | 98 | 105 | 108 |
| | 10 | 6,530 | 98 | 5,370 | 98 | 5,030 | 98 | 4,690 | 98 | 98 | 106 | 108 |
| | 20 | - | - | - | - | - | - | - | - | - | - | - |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 35 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 3,810 | 93 | 3,010 | 94 | 2,760 | 95 | 2,550 | 96 | 96 | 103 | 106 |
| | -10 | 4,580 | 94 | 3,690 | 96 | 3,440 | 96 | 3,200 | 96 | 96 | 104 | 106 |
| | 0 | 4,960 | 96 | 4,090 | 96 | 3,830 | 96 | 3,570 | 96 | 96 | 104 | 106 |
| | 10 | 5,860 | 97 | 4,870 | 97 | 4,560 | 97 | 4,250 | 96 | 97 | 104 | 106 |
| | 20 | - | - | - | - | - | - | - | - | - | - | - |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 35 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,710 | 91 | 2,920 | 93 | 2,680 | 94 | 2,450 | 95 | 95 | 102 | 105 |
| | -10 | 4,450 | 93 | 3,560 | 95 | 3,310 | 95 | 3,080 | 95 | 95 | 103 | 105 |
| | 0 | 4,800 | 94 | 3,920 | 95 | 3,660 | 95 | 3,410 | 95 | 95 | 103 | 105 |
| | 10 | 5,620 | 96 | 4,660 | 96 | 4,360 | 96 | 4,070 | 96 | 96 | 103 | 105 |
| | 20 | - | - | - | - | - | - | - | - | - | - | - |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 35 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,510 | 89 | 2,650 | 90 | 2,420 | 90 | 2,220 | 91 | 92 | 100 | 103 |
| | -10 | 4,050 | 89 | 3,200 | 91 | 2,960 | 91 | 2,720 | 92 | 93 | 100 | 103 |
| | 0 | 4,330 | 90 | 3,460 | 92 | 3,200 | 92 | 2,980 | 93 | 93 | 100 | 103 |
| | 10 | 4,930 | 92 | 4,030 | 93 | 3,760 | 93 | 3,510 | 93 | 93 | 100 | 103 |
| | 20 | 6,480 | 93 | 5,390 | 93 | 5,060 | 93 | 4,720 | 93 | 93 | 100 | 102 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 35 | - | - | - | - | - | - | - | - | - | - | - |
| 16,000 | -54 | 3,440 | 90 | 2,600 | 90 | 2,350 | 90 | 2,110 | 90 | 90 | 99 | 102 |
| | -10 | 3,960 | 89 | 3,050 | 89 | 2,780 | 89 | 2,510 | 89 | 90 | 98 | 101 |
| | 0 | 4,140 | 89 | 3,200 | 89 | 2,910 | 89 | 2,650 | 89 | 90 | 98 | 100 |
| | 10 | 4,470 | 89 | 3,550 | 90 | 3,290 | 90 | 3,060 | 90 | 90 | 97 | 100 |
| | 20 | 5,660 | 90 | 4,660 | 90 | 4,360 | 90 | 4,060 | 90 | 90 | 97 | 99 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 35 | - | - | - | - | - | - | - | - | - | - | - |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF

| Pressure Altitude: 8,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 15,000 | -54 | 3,370 | 90 | 2,550 | 90 | 2,310 | 90 | 2,080 | 90 | 90 | 99 | 102 |
| | -10 | 3,880 | 89 | 2,990 | 89 | 2,720 | 89 | 2,470 | 89 | 90 | 98 | 101 |
| | 0 | 4,050 | 89 | 3,130 | 89 | 2,850 | 89 | 2,590 | 89 | 90 | 98 | 100 |
| | 10 | 4,310 | 89 | 3,350 | 89 | 3,050 | 89 | 2,780 | 89 | 89 | 97 | 99 |
| | 20 | 4,720 | 88 | 3,820 | 88 | 3,560 | 88 | 3,320 | 88 | 89 | 96 | 98 |
| | 30 | 6,130 | 88 | 5,080 | 88 | 4,750 | 88 | 4,430 | 88 | 88 | 95 | 97 |
| | 35 | - | - | - | - | - | - | - | - | - | - | - |
| 14,000 | -54 | 3,310 | 90 | 2,510 | 90 | 2,270 | 90 | 2,040 | 90 | 91 | 99 | 103 |
| | -10 | 3,800 | 90 | 2,940 | 90 | 2,680 | 90 | 2,430 | 90 | 90 | 98 | 102 |
| | 0 | 3,960 | 89 | 3,070 | 89 | 2,800 | 89 | 2,540 | 89 | 90 | 98 | 101 |
| | 10 | 4,210 | 89 | 3,260 | 89 | 2,980 | 89 | 2,710 | 89 | 89 | 97 | 99 |
| | 20 | 4,530 | 89 | 3,510 | 89 | 3,210 | 89 | 2,930 | 89 | 89 | 96 | 97 |
| | 30 | 5,130 | 88 | 4,220 | 88 | 3,940 | 88 | 3,660 | 88 | 88 | 95 | 96 |
| | 35 | 6,000 | 88 | 4,960 | 88 | 4,640 | 88 | 4,320 | 88 | 88 | 94 | 96 |
| 13,000 | -54 | 3,260 | 90 | 2,470 | 90 | 2,240 | 90 | 2,020 | 90 | 91 | 99 | 104 |
| | -10 | 3,730 | 90 | 2,890 | 90 | 2,630 | 90 | 2,390 | 90 | 90 | 99 | 102 |
| | 0 | 3,880 | 90 | 3,010 | 90 | 2,740 | 90 | 2,490 | 90 | 90 | 98 | 101 |
| | 10 | 4,100 | 89 | 3,190 | 89 | 2,910 | 89 | 2,650 | 89 | 89 | 97 | 100 |
| | 20 | 4,390 | 89 | 3,410 | 89 | 3,110 | 89 | 2,830 | 89 | 89 | 95 | 98 |
| | 30 | 4,790 | 88 | 3,740 | 88 | 3,430 | 88 | 3,140 | 88 | 89 | 94 | 96 |
| | 35 | 5,090 | 88 | 4,100 | 88 | 3,820 | 88 | 3,560 | 88 | 88 | 94 | 95 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF

10 Pressure Altitude: 9,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | |
| The effect of NAI is included for OATs of 10°C or lower. | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 9,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|----------------|------------------|----------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R | V _{LOF} | V ₂ |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | KIAS | KIAS | KIAS |
| 18,740 | -54 | 4,470 | 95 | 3,520 | 96 | 3,240 | 97 | 2,970 | 98 | 98 | 105 | 108 |
| | -10 | 5,590 | 98 | 4,560 | 98 | 4,260 | 98 | 3,980 | 98 | 98 | 105 | 108 |
| | 0 | 6,250 | 98 | 5,150 | 98 | 4,810 | 98 | 4,490 | 98 | 98 | 106 | 108 |
| | 10 | 7,650 | 99 | 6,320 | 98 | 5,900 | 98 | 5,510 | 98 | 98 | 106 | 108 |
| | 20 | - | - | - | - | - | - | - | - | - | - | - |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 33 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 4,030 | 93 | 3,190 | 95 | 2,940 | 95 | 2,710 | 96 | 96 | 103 | 106 |
| | -10 | 5,060 | 95 | 4,150 | 96 | 3,890 | 96 | 3,630 | 96 | 96 | 104 | 106 |
| | 0 | 5,620 | 96 | 4,670 | 97 | 4,380 | 97 | 4,090 | 96 | 97 | 104 | 106 |
| | 10 | 6,840 | 97 | 5,710 | 97 | 5,350 | 97 | 5,010 | 97 | 97 | 104 | 106 |
| | 20 | - | - | - | - | - | - | - | - | - | - | - |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 33 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,920 | 92 | 3,100 | 93 | 2,850 | 94 | 2,620 | 95 | 95 | 102 | 105 |
| | -10 | 4,870 | 94 | 3,970 | 95 | 3,710 | 95 | 3,460 | 95 | 95 | 103 | 105 |
| | 0 | 5,350 | 95 | 4,450 | 96 | 4,160 | 96 | 3,890 | 96 | 96 | 103 | 105 |
| | 10 | 6,540 | 96 | 5,450 | 96 | 5,110 | 96 | 4,780 | 96 | 96 | 103 | 105 |
| | 20 | - | - | - | - | - | - | - | - | - | - | - |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 33 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,690 | 89 | 2,800 | 90 | 2,570 | 90 | 2,350 | 91 | 92 | 100 | 103 |
| | -10 | 4,390 | 90 | 3,510 | 92 | 3,250 | 92 | 3,020 | 93 | 93 | 100 | 103 |
| | 0 | 4,770 | 91 | 3,860 | 93 | 3,600 | 93 | 3,360 | 93 | 93 | 100 | 103 |
| | 10 | 5,630 | 93 | 4,660 | 93 | 4,350 | 93 | 4,070 | 93 | 93 | 100 | 102 |
| | 20 | 7,680 | 93 | 6,410 | 93 | 6,020 | 93 | 5,630 | 93 | 93 | 100 | 102 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 33 | - | - | - | - | - | - | - | - | - | - | - |
| 16,000 | -54 | 3,610 | 90 | 2,740 | 90 | 2,480 | 90 | 2,230 | 90 | 90 | 98 | 101 |
| | -10 | 4,210 | 89 | 3,260 | 89 | 2,970 | 89 | 2,700 | 89 | 90 | 98 | 100 |
| | 0 | 4,430 | 89 | 3,450 | 89 | 3,190 | 89 | 2,970 | 89 | 90 | 97 | 100 |
| | 10 | 4,990 | 89 | 4,080 | 90 | 3,800 | 90 | 3,540 | 90 | 90 | 97 | 100 |
| | 20 | 6,630 | 90 | 5,490 | 90 | 5,130 | 90 | 4,800 | 90 | 90 | 98 | 99 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 33 | - | - | - | - | - | - | - | - | - | - | - |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF

| Pressure Altitude: 9,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 15,000 | -54 | 3,540 | 90 | 2,690 | 90 | 2,440 | 90 | 2,190 | 90 | 90 | 99 | 102 |
| | -10 | 4,120 | 89 | 3,190 | 89 | 2,910 | 89 | 2,640 | 89 | 90 | 98 | 100 |
| | 0 | 4,320 | 89 | 3,350 | 89 | 3,060 | 89 | 2,780 | 89 | 89 | 97 | 99 |
| | 10 | 4,640 | 89 | 3,600 | 89 | 3,300 | 89 | 3,040 | 89 | 89 | 96 | 98 |
| | 20 | 5,330 | 88 | 4,400 | 88 | 4,110 | 88 | 3,830 | 88 | 89 | 96 | 97 |
| | 30 | 7,200 | 88 | 6,090 | 88 | 5,710 | 88 | 5,330 | 88 | 88 | 95 | 96 |
| | 33 | - | - | - | - | - | - | - | - | - | - | - |
| 14,000 | -54 | 3,470 | 90 | 2,650 | 90 | 2,400 | 90 | 2,160 | 90 | 90 | 99 | 103 |
| | -10 | 4,030 | 89 | 3,120 | 89 | 2,850 | 89 | 2,590 | 89 | 90 | 98 | 101 |
| | 0 | 4,230 | 89 | 3,280 | 89 | 2,990 | 89 | 2,720 | 89 | 89 | 97 | 100 |
| | 10 | 4,510 | 89 | 3,510 | 89 | 3,200 | 89 | 2,910 | 89 | 89 | 96 | 98 |
| | 20 | 4,890 | 88 | 3,850 | 88 | 3,560 | 88 | 3,270 | 88 | 89 | 95 | 96 |
| | 30 | 6,000 | 88 | 4,960 | 88 | 4,640 | 88 | 4,320 | 88 | 88 | 95 | 95 |
| | 33 | 6,600 | 88 | 5,500 | 88 | 5,150 | 88 | 4,800 | 88 | 88 | 94 | 95 |
| 13,000 | -54 | 3,420 | 90 | 2,610 | 90 | 2,370 | 90 | 2,130 | 90 | 91 | 99 | 103 |
| | -10 | 3,950 | 90 | 3,070 | 90 | 2,800 | 90 | 2,540 | 90 | 90 | 98 | 101 |
| | 0 | 4,130 | 89 | 3,210 | 89 | 2,930 | 89 | 2,670 | 89 | 90 | 98 | 100 |
| | 10 | 4,390 | 89 | 3,410 | 89 | 3,130 | 89 | 2,850 | 89 | 89 | 96 | 98 |
| | 20 | 4,730 | 89 | 3,690 | 89 | 3,370 | 89 | 3,070 | 89 | 89 | 95 | 96 |
| | 30 | 5,210 | 88 | 4,190 | 88 | 3,880 | 88 | 3,610 | 88 | 88 | 94 | 95 |
| | 33 | 5,470 | 88 | 4,510 | 88 | 4,210 | 88 | 3,920 | 88 | 88 | 94 | 95 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF

11 Pressure Altitude: 10,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | |
|---|--|--|--|--|--|----------------------|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | | | | | | Lift Dump: Operative | | | | | | | | | | | |
| The effect of NAI is included for OATs of 10°C or lower. | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 10,000 feet | | | | | | | | | | | | |
|--------------------------------|--------|------------|---------------------|----------|---------------------|------------|---------------------|------------|---------------------|---------------------|-----------------------|---------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,790 | 96 | 3,780 | 97 | 3,490 | 98 | 3,210 | 98 | 98 | 105 | 108 |
| | -10 | 6,270 | 98 | 5,170 | 98 | 4,840 | 98 | 4,510 | 98 | 98 | 106 | 108 |
| | 0 | 7,130 | 98 | 5,900 | 98 | 5,520 | 98 | 5,150 | 98 | 98 | 106 | 108 |
| | 10 | 8,930 | 98 | 7,370 | 98 | 6,890 | 98 | 6,440 | 98 | 98 | 106 | 108 |
| | 20 | - | - | - | - | - | - | - | - | - | - | - |
| | 25 | - | - | - | - | - | - | - | - | - | - | - |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 31 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 4,310 | 94 | 3,430 | 96 | 3,190 | 96 | 2,960 | 96 | 96 | 103 | 106 |
| | -10 | 5,690 | 96 | 4,730 | 97 | 4,440 | 96 | 4,140 | 96 | 97 | 104 | 106 |
| | 0 | 6,430 | 97 | 5,360 | 96 | 5,040 | 97 | 4,700 | 96 | 97 | 104 | 106 |
| | 10 | 7,950 | 97 | 6,650 | 97 | 6,250 | 97 | 5,850 | 97 | 97 | 104 | 106 |
| | 20 | - | - | - | - | - | - | - | - | - | - | - |
| | 25 | - | - | - | - | - | - | - | - | - | - | - |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 31 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 4,190 | 93 | 3,330 | 94 | 3,070 | 95 | 2,850 | 95 | 95 | 102 | 105 |
| | -10 | 5,390 | 95 | 4,480 | 96 | 4,190 | 96 | 3,910 | 96 | 96 | 103 | 105 |
| | 0 | 6,090 | 96 | 5,060 | 96 | 4,750 | 96 | 4,440 | 96 | 96 | 103 | 105 |
| | 10 | 7,570 | 96 | 6,310 | 96 | 5,920 | 96 | 5,560 | 96 | 96 | 103 | 105 |
| | 20 | - | - | - | - | - | - | - | - | - | - | - |
| | 25 | - | - | - | - | - | - | - | - | - | - | - |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 31 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,880 | 89 | 3,000 | 90 | 2,760 | 91 | 2,530 | 92 | 93 | 100 | 103 |
| | -10 | 4,810 | 91 | 3,900 | 93 | 3,640 | 93 | 3,380 | 93 | 93 | 100 | 103 |
| | 0 | 5,270 | 93 | 4,350 | 93 | 4,070 | 93 | 3,800 | 93 | 93 | 100 | 103 |
| | 10 | 6,450 | 93 | 5,370 | 93 | 5,010 | 93 | 4,700 | 93 | 93 | 101 | 102 |
| | 20 | 9,110 | 93 | 7,660 | 93 | 7,180 | 93 | 6,750 | 93 | 93 | 101 | 102 |
| | 25 | - | - | - | - | - | - | - | - | - | - | - |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 31 | - | - | - | - | - | - | - | - | - | - | - |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS OFF

| Pressure Altitude: 10,000 feet | | | | | | | | | | | | |
|---------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,790 | 89 | 2,890 | 90 | 2,620 | 90 | 2,360 | 90 | 90 | 98 | 101 |
| | -10 | 4,490 | 89 | 3,480 | 89 | 3,220 | 89 | 2,990 | 89 | 90 | 98 | 100 |
| | 0 | 4,740 | 89 | 3,860 | 90 | 3,610 | 90 | 3,350 | 90 | 90 | 98 | 100 |
| | 10 | 5,670 | 90 | 4,680 | 90 | 4,370 | 90 | 4,090 | 90 | 90 | 97 | 100 |
| | 20 | 7,780 | 90 | 6,470 | 90 | 6,060 | 90 | 5,660 | 90 | 90 | 98 | 99 |
| | 25 | 8,620 | 90 | 7,220 | 90 | 6,760 | 91 | 6,320 | 90 | 91 | 98 | 99 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 31 | - | - | - | - | - | - | - | - | - | - | - |
| 15,000 | -54 | 3,720 | 90 | 2,840 | 90 | 2,580 | 90 | 2,320 | 90 | 90 | 98 | 101 |
| | -10 | 4,390 | 89 | 3,400 | 89 | 3,100 | 89 | 2,820 | 89 | 89 | 97 | 99 |
| | 0 | 4,620 | 89 | 3,600 | 89 | 3,290 | 89 | 3,000 | 89 | 89 | 97 | 99 |
| | 10 | 4,990 | 88 | 3,900 | 89 | 3,640 | 89 | 3,390 | 89 | 89 | 96 | 98 |
| | 20 | 6,140 | 88 | 5,090 | 88 | 4,750 | 88 | 4,430 | 88 | 88 | 95 | 97 |
| | 25 | 7,190 | 88 | 5,980 | 88 | 5,600 | 88 | 5,230 | 88 | 88 | 95 | 97 |
| | 30 | 8,510 | 88 | 7,110 | 88 | 6,660 | 88 | 6,230 | 88 | 88 | 95 | 96 |
| | 31 | - | - | - | - | - | - | - | - | - | - | - |
| 14,000 | -54 | 3,650 | 90 | 2,790 | 90 | 2,530 | 90 | 2,290 | 90 | 90 | 99 | 102 |
| | -10 | 4,280 | 89 | 3,330 | 89 | 3,040 | 89 | 2,770 | 89 | 90 | 97 | 100 |
| | 0 | 4,520 | 89 | 3,520 | 89 | 3,210 | 89 | 2,930 | 89 | 89 | 97 | 99 |
| | 10 | 4,840 | 89 | 3,770 | 89 | 3,450 | 89 | 3,140 | 89 | 89 | 96 | 98 |
| | 20 | 5,300 | 88 | 4,300 | 88 | 4,010 | 88 | 3,730 | 88 | 89 | 95 | 96 |
| | 25 | 5,970 | 88 | 4,930 | 88 | 4,610 | 88 | 4,300 | 88 | 88 | 95 | 96 |
| | 30 | 7,040 | 88 | 5,840 | 88 | 5,470 | 88 | 5,100 | 88 | 88 | 95 | 95 |
| | 31 | 7,300 | 88 | 6,070 | 88 | 5,680 | 88 | 5,300 | 88 | 88 | 94 | 95 |
| 13,000 | -54 | 3,590 | 90 | 2,750 | 90 | 2,490 | 90 | 2,250 | 90 | 91 | 99 | 103 |
| | -10 | 4,190 | 89 | 3,260 | 89 | 2,980 | 89 | 2,710 | 89 | 90 | 98 | 100 |
| | 0 | 4,400 | 89 | 3,430 | 89 | 3,140 | 89 | 2,860 | 89 | 89 | 97 | 99 |
| | 10 | 4,700 | 89 | 3,660 | 89 | 3,350 | 89 | 3,050 | 89 | 89 | 96 | 98 |
| | 20 | 5,110 | 88 | 3,990 | 88 | 3,650 | 88 | 3,330 | 88 | 89 | 95 | 96 |
| | 25 | 5,360 | 88 | 4,190 | 88 | 3,910 | 88 | 3,640 | 88 | 88 | 94 | 95 |
| | 30 | 5,800 | 88 | 4,780 | 88 | 4,480 | 88 | 4,180 | 88 | 88 | 94 | 95 |
| | 31 | 5,980 | 88 | 4,950 | 88 | 4,630 | 88 | 4,320 | 88 | 88 | 94 | 95 |





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Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON

1 Pressure Altitude: Sea level

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: Sea level | | | | | | | | | | | | |
|------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,380 | 99 | 2,620 | 101 | 2,390 | 101 | 2,190 | 101 | 101 | 107 | 110 |
| | -50 | 3,430 | 98 | 2,660 | 101 | 2,420 | 101 | 2,220 | 101 | 101 | 107 | 110 |
| | -40 | 3,540 | 98 | 2,750 | 100 | 2,510 | 101 | 2,300 | 101 | 101 | 107 | 110 |
| | -30 | 3,660 | 98 | 2,850 | 100 | 2,610 | 101 | 2,390 | 101 | 101 | 107 | 110 |
| | -20 | 3,780 | 98 | 2,960 | 100 | 2,720 | 101 | 2,480 | 102 | 102 | 107 | 110 |
| | -10 | 3,890 | 98 | 3,060 | 100 | 2,810 | 101 | 2,580 | 102 | 102 | 107 | 110 |
| | 0 | 4,010 | 98 | 3,170 | 100 | 2,910 | 101 | 2,670 | 101 | 102 | 107 | 110 |
| | 10 | 4,140 | 98 | 3,270 | 100 | 3,010 | 101 | 2,770 | 101 | 102 | 107 | 110 |
| 18,300 | -54 | 3,170 | 96 | 2,450 | 98 | 2,230 | 99 | 2,020 | 99 | 99 | 105 | 108 |
| | -50 | 3,210 | 96 | 2,480 | 98 | 2,260 | 99 | 2,050 | 99 | 99 | 105 | 108 |
| | -40 | 3,320 | 96 | 2,570 | 98 | 2,350 | 99 | 2,130 | 99 | 99 | 105 | 108 |
| | -30 | 3,420 | 96 | 2,660 | 98 | 2,430 | 98 | 2,210 | 99 | 99 | 105 | 108 |
| | -20 | 3,530 | 95 | 2,750 | 97 | 2,520 | 98 | 2,300 | 99 | 99 | 105 | 108 |
| | -10 | 3,630 | 95 | 2,850 | 97 | 2,610 | 98 | 2,380 | 99 | 99 | 105 | 108 |
| | 0 | 3,740 | 95 | 2,940 | 97 | 2,690 | 98 | 2,470 | 99 | 99 | 105 | 108 |
| | 10 | 3,850 | 95 | 3,040 | 97 | 2,790 | 98 | 2,550 | 98 | 99 | 105 | 108 |
| 18,000 | -54 | 3,070 | 94 | 2,370 | 97 | 2,160 | 98 | 1,960 | 99 | 99 | 104 | 107 |
| | -50 | 3,110 | 94 | 2,400 | 97 | 2,190 | 97 | 1,990 | 98 | 99 | 104 | 107 |
| | -40 | 3,220 | 94 | 2,490 | 96 | 2,270 | 97 | 2,060 | 98 | 99 | 104 | 107 |
| | -30 | 3,320 | 94 | 2,580 | 96 | 2,350 | 97 | 2,140 | 98 | 99 | 104 | 107 |
| | -20 | 3,420 | 94 | 2,660 | 96 | 2,440 | 97 | 2,220 | 98 | 99 | 104 | 107 |
| | -10 | 3,520 | 94 | 2,750 | 96 | 2,520 | 97 | 2,300 | 97 | 99 | 104 | 107 |
| | 0 | 3,630 | 94 | 2,840 | 96 | 2,600 | 97 | 2,390 | 97 | 99 | 104 | 107 |
| | 10 | 3,740 | 94 | 2,940 | 96 | 2,700 | 96 | 2,470 | 97 | 99 | 104 | 107 |
| 17,000 | -54 | 3,050 | 96 | 2,150 | 93 | 1,950 | 93 | 1,760 | 94 | 96 | 102 | 105 |
| | -50 | 3,080 | 95 | 2,180 | 92 | 1,980 | 93 | 1,790 | 94 | 96 | 102 | 105 |
| | -40 | 3,200 | 96 | 2,260 | 92 | 2,050 | 93 | 1,860 | 94 | 96 | 102 | 105 |
| | -30 | 3,310 | 96 | 2,340 | 92 | 2,130 | 93 | 1,930 | 94 | 96 | 102 | 105 |
| | -20 | 3,470 | 97 | 2,420 | 92 | 2,200 | 93 | 2,000 | 94 | 97 | 102 | 105 |
| | -10 | 3,200 | 90 | 2,500 | 92 | 2,280 | 93 | 2,080 | 93 | 96 | 102 | 105 |
| | 0 | 3,300 | 90 | 2,580 | 92 | 2,360 | 93 | 2,150 | 93 | 96 | 102 | 105 |
| | 10 | 3,400 | 90 | 2,670 | 92 | 2,450 | 93 | 2,230 | 93 | 95 | 102 | 105 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON

| Pressure Altitude: Sea level | | | | | | | | | | | | |
|------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,760 | 90 | 2,020 | 90 | 1,790 | 90 | 1,590 | 90 | 92 | 99 | 102 |
| | -50 | 2,790 | 90 | 2,050 | 90 | 1,820 | 90 | 1,610 | 90 | 93 | 99 | 102 |
| | -40 | 2,880 | 90 | 2,120 | 90 | 1,890 | 90 | 1,680 | 90 | 93 | 99 | 102 |
| | -30 | 2,970 | 90 | 2,200 | 90 | 1,970 | 90 | 1,750 | 90 | 92 | 100 | 103 |
| | -20 | 3,060 | 90 | 2,270 | 90 | 2,040 | 90 | 1,820 | 90 | 93 | 100 | 103 |
| | -10 | 3,150 | 90 | 2,350 | 90 | 2,110 | 90 | 1,880 | 90 | 92 | 100 | 103 |
| | 0 | 3,230 | 90 | 2,430 | 90 | 2,180 | 90 | 1,950 | 90 | 92 | 100 | 103 |
| 15,000 | 10 | 3,320 | 90 | 2,500 | 90 | 2,250 | 90 | 2,020 | 90 | 92 | 100 | 103 |
| | -54 | 2,710 | 91 | 1,990 | 91 | 1,770 | 91 | 1,570 | 91 | 91 | 99 | 102 |
| | -50 | 2,740 | 91 | 2,010 | 91 | 1,800 | 91 | 1,590 | 91 | 91 | 99 | 102 |
| | -40 | 2,830 | 90 | 2,090 | 90 | 1,870 | 90 | 1,660 | 90 | 91 | 99 | 102 |
| | -30 | 2,920 | 90 | 2,160 | 90 | 1,940 | 90 | 1,720 | 90 | 91 | 99 | 102 |
| | -20 | 3,000 | 90 | 2,240 | 90 | 2,010 | 90 | 1,790 | 90 | 91 | 99 | 102 |
| | -10 | 3,080 | 90 | 2,310 | 90 | 2,080 | 90 | 1,860 | 90 | 91 | 99 | 102 |
| 14,000 | 0 | 3,170 | 90 | 2,390 | 90 | 2,150 | 90 | 1,920 | 90 | 90 | 99 | 102 |
| | 10 | 3,260 | 90 | 2,460 | 90 | 2,220 | 90 | 1,990 | 90 | 90 | 98 | 102 |
| | -54 | 2,670 | 91 | 1,960 | 91 | 1,750 | 91 | 1,550 | 91 | 91 | 99 | 103 |
| | -50 | 2,700 | 91 | 1,990 | 91 | 1,770 | 91 | 1,580 | 91 | 91 | 99 | 103 |
| | -40 | 2,780 | 91 | 2,060 | 91 | 1,840 | 91 | 1,640 | 91 | 91 | 99 | 103 |
| | -30 | 2,870 | 91 | 2,130 | 91 | 1,910 | 91 | 1,700 | 91 | 91 | 99 | 103 |
| | -20 | 2,950 | 90 | 2,200 | 90 | 1,980 | 90 | 1,770 | 90 | 91 | 99 | 103 |
| 13,000 | -10 | 3,030 | 90 | 2,280 | 90 | 2,050 | 90 | 1,830 | 90 | 91 | 99 | 102 |
| | 0 | 3,110 | 90 | 2,350 | 90 | 2,110 | 90 | 1,900 | 90 | 91 | 99 | 102 |
| | 10 | 3,200 | 90 | 2,420 | 90 | 2,180 | 90 | 1,960 | 90 | 91 | 99 | 102 |
| | -54 | 2,630 | 91 | 1,940 | 91 | 1,730 | 91 | 1,530 | 91 | 92 | 99 | 104 |
| | -50 | 2,670 | 91 | 1,970 | 91 | 1,760 | 91 | 1,560 | 91 | 92 | 99 | 104 |
| | -40 | 2,740 | 91 | 2,030 | 91 | 1,820 | 91 | 1,620 | 91 | 92 | 99 | 104 |
| | -30 | 2,820 | 91 | 2,100 | 91 | 1,890 | 91 | 1,690 | 91 | 91 | 99 | 103 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON

2 Pressure Altitude: 1,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 1,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,480 | 99 | 2,700 | 100 | 2,460 | 101 | 2,260 | 101 | 101 | 107 | 110 |
| | -50 | 3,530 | 98 | 2,740 | 100 | 2,500 | 101 | 2,290 | 101 | 101 | 107 | 110 |
| | -40 | 3,640 | 98 | 2,840 | 100 | 2,600 | 101 | 2,390 | 101 | 101 | 107 | 110 |
| | -30 | 3,770 | 98 | 2,950 | 100 | 2,710 | 101 | 2,480 | 102 | 102 | 107 | 110 |
| | -20 | 3,890 | 98 | 3,060 | 100 | 2,810 | 101 | 2,570 | 102 | 102 | 107 | 110 |
| | -10 | 4,010 | 98 | 3,160 | 100 | 2,910 | 101 | 2,670 | 101 | 102 | 107 | 110 |
| | 0 | 4,140 | 98 | 3,270 | 100 | 3,010 | 101 | 2,760 | 101 | 102 | 107 | 110 |
| | 10 | 4,270 | 99 | 3,380 | 100 | 3,120 | 101 | 2,870 | 101 | 101 | 107 | 110 |
| 18,300 | -54 | 3,260 | 96 | 2,520 | 98 | 2,300 | 99 | 2,090 | 99 | 99 | 105 | 108 |
| | -50 | 3,310 | 96 | 2,560 | 98 | 2,330 | 99 | 2,120 | 99 | 99 | 105 | 108 |
| | -40 | 3,410 | 96 | 2,650 | 98 | 2,420 | 98 | 2,210 | 99 | 99 | 105 | 108 |
| | -30 | 3,520 | 95 | 2,750 | 97 | 2,510 | 98 | 2,290 | 99 | 99 | 105 | 108 |
| | -20 | 3,630 | 95 | 2,850 | 97 | 2,600 | 98 | 2,380 | 99 | 99 | 105 | 108 |
| | -10 | 3,740 | 95 | 2,940 | 97 | 2,690 | 98 | 2,470 | 99 | 99 | 105 | 108 |
| | 0 | 3,850 | 95 | 3,040 | 97 | 2,790 | 98 | 2,560 | 98 | 99 | 105 | 108 |
| | 10 | 3,970 | 95 | 3,140 | 97 | 2,890 | 98 | 2,640 | 98 | 99 | 105 | 108 |
| 18,000 | -54 | 3,160 | 94 | 2,440 | 97 | 2,230 | 97 | 2,030 | 98 | 99 | 104 | 107 |
| | -50 | 3,200 | 94 | 2,470 | 96 | 2,260 | 97 | 2,060 | 98 | 99 | 104 | 107 |
| | -40 | 3,310 | 94 | 2,560 | 96 | 2,350 | 97 | 2,140 | 98 | 99 | 104 | 107 |
| | -30 | 3,410 | 94 | 2,660 | 96 | 2,430 | 97 | 2,220 | 98 | 99 | 104 | 107 |
| | -20 | 3,520 | 94 | 2,750 | 96 | 2,510 | 97 | 2,300 | 97 | 99 | 104 | 107 |
| | -10 | 3,630 | 94 | 2,840 | 96 | 2,600 | 97 | 2,380 | 97 | 99 | 104 | 107 |
| | 0 | 3,740 | 94 | 2,940 | 96 | 2,700 | 96 | 2,470 | 97 | 99 | 104 | 107 |
| | 10 | 3,850 | 94 | 3,030 | 96 | 2,790 | 96 | 2,560 | 97 | 98 | 105 | 107 |
| 17,000 | -54 | 3,140 | 96 | 2,210 | 92 | 2,010 | 93 | 1,820 | 94 | 96 | 102 | 105 |
| | -50 | 3,180 | 96 | 2,250 | 92 | 2,040 | 93 | 1,850 | 94 | 96 | 102 | 105 |
| | -40 | 3,300 | 96 | 2,330 | 92 | 2,120 | 93 | 1,920 | 94 | 96 | 102 | 105 |
| | -30 | 3,330 | 94 | 2,410 | 92 | 2,200 | 93 | 2,000 | 94 | 96 | 102 | 105 |
| | -20 | 3,200 | 90 | 2,490 | 92 | 2,280 | 93 | 2,070 | 93 | 96 | 102 | 105 |
| | -10 | 3,300 | 90 | 2,580 | 92 | 2,360 | 93 | 2,150 | 93 | 95 | 102 | 105 |
| | 0 | 3,400 | 90 | 2,660 | 92 | 2,440 | 92 | 2,230 | 93 | 95 | 102 | 105 |
| | 10 | 3,500 | 90 | 2,750 | 92 | 2,530 | 92 | 2,310 | 93 | 96 | 102 | 105 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON

| Pressure Altitude: 1,000 feet | | | | | | | | | | | | |
|--------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,830 | 90 | 2,080 | 90 | 1,850 | 90 | 1,640 | 90 | 92 | 99 | 102 |
| | -50 | 2,870 | 90 | 2,110 | 90 | 1,880 | 90 | 1,670 | 90 | 92 | 99 | 102 |
| | -40 | 2,960 | 90 | 2,190 | 90 | 1,960 | 90 | 1,740 | 90 | 92 | 99 | 103 |
| | -30 | 3,050 | 90 | 2,270 | 90 | 2,030 | 90 | 1,810 | 90 | 92 | 99 | 102 |
| | -20 | 3,140 | 90 | 2,340 | 90 | 2,110 | 90 | 1,880 | 90 | 92 | 100 | 102 |
| | -10 | 3,230 | 90 | 2,420 | 90 | 2,180 | 90 | 1,950 | 90 | 92 | 100 | 102 |
| | 0 | 3,320 | 90 | 2,500 | 90 | 2,250 | 90 | 2,020 | 90 | 92 | 100 | 102 |
| 15,000 | 10 | 3,420 | 90 | 2,580 | 90 | 2,330 | 90 | 2,090 | 90 | 92 | 100 | 102 |
| | -54 | 2,780 | 90 | 2,050 | 90 | 1,830 | 90 | 1,620 | 91 | 91 | 99 | 102 |
| | -50 | 2,820 | 90 | 2,080 | 90 | 1,860 | 90 | 1,650 | 90 | 91 | 99 | 102 |
| | -40 | 2,910 | 90 | 2,160 | 90 | 1,930 | 90 | 1,720 | 90 | 91 | 99 | 102 |
| | -30 | 2,990 | 90 | 2,230 | 90 | 2,000 | 90 | 1,780 | 90 | 91 | 99 | 102 |
| | -20 | 3,080 | 90 | 2,300 | 90 | 2,070 | 90 | 1,860 | 90 | 91 | 99 | 102 |
| | -10 | 3,170 | 90 | 2,380 | 90 | 2,140 | 90 | 1,920 | 90 | 90 | 98 | 102 |
| 14,000 | 0 | 3,260 | 90 | 2,460 | 90 | 2,220 | 90 | 1,990 | 90 | 90 | 99 | 102 |
| | 10 | 3,350 | 90 | 2,530 | 90 | 2,290 | 90 | 2,060 | 90 | 90 | 99 | 102 |
| | -54 | 2,740 | 91 | 2,020 | 91 | 1,800 | 91 | 1,600 | 91 | 91 | 99 | 103 |
| | -50 | 2,770 | 91 | 2,050 | 91 | 1,830 | 91 | 1,630 | 91 | 91 | 99 | 103 |
| | -40 | 2,860 | 91 | 2,120 | 91 | 1,900 | 91 | 1,700 | 91 | 91 | 99 | 103 |
| | -30 | 2,940 | 90 | 2,200 | 90 | 1,970 | 90 | 1,760 | 90 | 91 | 99 | 103 |
| | -20 | 3,030 | 90 | 2,270 | 90 | 2,040 | 90 | 1,830 | 90 | 91 | 99 | 102 |
| 13,000 | -10 | 3,110 | 90 | 2,350 | 90 | 2,110 | 90 | 1,900 | 90 | 91 | 99 | 102 |
| | 0 | 3,200 | 90 | 2,420 | 90 | 2,180 | 90 | 1,960 | 90 | 91 | 99 | 102 |
| | 10 | 3,290 | 90 | 2,490 | 90 | 2,250 | 90 | 2,030 | 90 | 90 | 99 | 102 |
| | -54 | 2,700 | 91 | 1,990 | 91 | 1,790 | 91 | 1,590 | 91 | 92 | 99 | 104 |
| | -50 | 2,730 | 91 | 2,020 | 91 | 1,810 | 91 | 1,610 | 91 | 92 | 99 | 104 |
| | -40 | 2,810 | 91 | 2,100 | 91 | 1,880 | 91 | 1,680 | 91 | 91 | 99 | 103 |
| | -30 | 2,900 | 91 | 2,170 | 91 | 1,950 | 91 | 1,740 | 91 | 91 | 99 | 103 |
| 12,000 | -20 | 2,980 | 91 | 2,240 | 91 | 2,020 | 91 | 1,810 | 91 | 91 | 99 | 103 |
| | -10 | 3,060 | 91 | 2,310 | 91 | 2,080 | 91 | 1,870 | 91 | 91 | 99 | 103 |
| | 0 | 3,150 | 90 | 2,390 | 90 | 2,150 | 90 | 1,940 | 90 | 91 | 99 | 103 |
| | 10 | 3,230 | 90 | 2,460 | 90 | 2,220 | 90 | 2,000 | 90 | 91 | 99 | 103 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON

3 Pressure Altitude: 2,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 2,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,580 | 98 | 2,790 | 100 | 2,540 | 101 | 2,340 | 101 | 101 | 107 | 110 |
| | -50 | 3,630 | 98 | 2,820 | 100 | 2,580 | 101 | 2,370 | 101 | 101 | 107 | 110 |
| | -40 | 3,750 | 98 | 2,940 | 100 | 2,690 | 101 | 2,470 | 102 | 102 | 107 | 110 |
| | -30 | 3,880 | 98 | 3,040 | 100 | 2,800 | 101 | 2,570 | 102 | 102 | 107 | 110 |
| | -20 | 4,010 | 98 | 3,160 | 100 | 2,900 | 101 | 2,660 | 101 | 102 | 107 | 110 |
| | -10 | 4,140 | 98 | 3,260 | 100 | 3,010 | 101 | 2,760 | 101 | 102 | 107 | 110 |
| | 0 | 4,270 | 98 | 3,380 | 100 | 3,110 | 100 | 2,860 | 101 | 101 | 107 | 110 |
| | 10 | 4,410 | 99 | 3,500 | 100 | 3,230 | 101 | 2,970 | 101 | 101 | 107 | 110 |
| 18,300 | -54 | 3,350 | 96 | 2,600 | 98 | 2,370 | 99 | 2,150 | 99 | 99 | 105 | 108 |
| | -50 | 3,400 | 96 | 2,640 | 98 | 2,410 | 98 | 2,190 | 99 | 99 | 105 | 108 |
| | -40 | 3,510 | 95 | 2,740 | 98 | 2,500 | 98 | 2,280 | 99 | 99 | 105 | 108 |
| | -30 | 3,620 | 95 | 2,840 | 97 | 2,600 | 98 | 2,370 | 99 | 99 | 105 | 108 |
| | -20 | 3,730 | 95 | 2,930 | 97 | 2,690 | 98 | 2,460 | 99 | 99 | 105 | 108 |
| | -10 | 3,840 | 95 | 3,030 | 97 | 2,790 | 98 | 2,550 | 98 | 99 | 105 | 108 |
| | 0 | 3,960 | 95 | 3,130 | 97 | 2,880 | 98 | 2,640 | 98 | 99 | 105 | 108 |
| | 10 | 4,080 | 95 | 3,240 | 97 | 2,980 | 98 | 2,740 | 98 | 100 | 105 | 108 |
| 18,000 | -54 | 3,250 | 94 | 2,510 | 96 | 2,300 | 97 | 2,090 | 98 | 99 | 104 | 107 |
| | -50 | 3,290 | 94 | 2,550 | 96 | 2,330 | 97 | 2,130 | 98 | 99 | 104 | 107 |
| | -40 | 3,400 | 94 | 2,640 | 96 | 2,420 | 97 | 2,210 | 98 | 99 | 104 | 107 |
| | -30 | 3,510 | 94 | 2,740 | 96 | 2,510 | 97 | 2,290 | 98 | 99 | 104 | 107 |
| | -20 | 3,620 | 94 | 2,840 | 96 | 2,600 | 97 | 2,380 | 97 | 99 | 104 | 107 |
| | -10 | 3,730 | 94 | 2,930 | 96 | 2,690 | 96 | 2,460 | 97 | 99 | 104 | 107 |
| | 0 | 3,840 | 94 | 3,030 | 96 | 2,780 | 96 | 2,550 | 97 | 98 | 105 | 107 |
| | 10 | 3,960 | 94 | 3,140 | 96 | 2,880 | 96 | 2,640 | 97 | 98 | 105 | 107 |
| 17,000 | -54 | 3,230 | 96 | 2,280 | 92 | 2,080 | 93 | 1,880 | 94 | 96 | 102 | 105 |
| | -50 | 3,290 | 96 | 2,320 | 92 | 2,110 | 93 | 1,910 | 94 | 96 | 102 | 105 |
| | -40 | 3,440 | 96 | 2,400 | 92 | 2,190 | 93 | 1,990 | 94 | 96 | 102 | 105 |
| | -30 | 3,190 | 90 | 2,490 | 92 | 2,270 | 93 | 2,070 | 93 | 96 | 102 | 105 |
| | -20 | 3,290 | 90 | 2,570 | 92 | 2,350 | 93 | 2,150 | 93 | 96 | 102 | 105 |
| | -10 | 3,390 | 90 | 2,660 | 92 | 2,440 | 93 | 2,220 | 93 | 95 | 102 | 105 |
| | 0 | 3,500 | 90 | 2,750 | 92 | 2,520 | 92 | 2,310 | 93 | 95 | 102 | 105 |
| | 10 | 3,600 | 90 | 2,840 | 92 | 2,610 | 92 | 2,390 | 93 | 96 | 102 | 105 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON

| Pressure Altitude: 2,000 feet | | | | | | | | | | | | |
|--------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,910 | 90 | 2,140 | 90 | 1,920 | 90 | 1,700 | 90 | 93 | 99 | 102 |
| | -50 | 2,940 | 90 | 2,180 | 90 | 1,940 | 90 | 1,730 | 90 | 92 | 100 | 102 |
| | -40 | 3,040 | 90 | 2,250 | 90 | 2,020 | 90 | 1,800 | 90 | 92 | 100 | 103 |
| | -30 | 3,130 | 90 | 2,340 | 90 | 2,100 | 90 | 1,880 | 90 | 92 | 100 | 103 |
| | -20 | 3,230 | 90 | 2,420 | 90 | 2,170 | 90 | 1,950 | 90 | 92 | 100 | 103 |
| | -10 | 3,320 | 90 | 2,500 | 90 | 2,250 | 90 | 2,020 | 90 | 92 | 100 | 103 |
| | 0 | 3,410 | 90 | 2,580 | 90 | 2,330 | 90 | 2,090 | 90 | 92 | 100 | 103 |
| 15,000 | 10 | 3,510 | 90 | 2,660 | 90 | 2,410 | 90 | 2,170 | 90 | 92 | 100 | 103 |
| | -54 | 2,850 | 90 | 2,110 | 90 | 1,890 | 90 | 1,680 | 90 | 91 | 99 | 102 |
| | -50 | 2,890 | 90 | 2,140 | 90 | 1,920 | 90 | 1,710 | 90 | 91 | 99 | 102 |
| | -40 | 2,980 | 90 | 2,220 | 90 | 1,990 | 90 | 1,780 | 90 | 91 | 99 | 102 |
| | -30 | 3,080 | 90 | 2,300 | 90 | 2,070 | 90 | 1,850 | 90 | 91 | 99 | 102 |
| | -20 | 3,170 | 90 | 2,380 | 90 | 2,140 | 90 | 1,920 | 90 | 90 | 99 | 102 |
| | -10 | 3,260 | 90 | 2,460 | 90 | 2,220 | 90 | 1,990 | 90 | 90 | 98 | 102 |
| 14,000 | 0 | 3,350 | 90 | 2,530 | 90 | 2,290 | 90 | 2,060 | 90 | 90 | 98 | 102 |
| | 10 | 3,440 | 90 | 2,610 | 90 | 2,370 | 90 | 2,130 | 90 | 90 | 98 | 101 |
| | -54 | 2,810 | 91 | 2,080 | 91 | 1,860 | 91 | 1,660 | 91 | 91 | 99 | 103 |
| | -50 | 2,840 | 91 | 2,110 | 91 | 1,890 | 91 | 1,690 | 91 | 91 | 99 | 103 |
| | -40 | 2,930 | 90 | 2,190 | 90 | 1,960 | 90 | 1,760 | 91 | 91 | 99 | 103 |
| | -30 | 3,020 | 90 | 2,270 | 90 | 2,040 | 90 | 1,820 | 90 | 91 | 99 | 102 |
| | -20 | 3,110 | 90 | 2,340 | 90 | 2,110 | 90 | 1,890 | 90 | 91 | 99 | 102 |
| 13,000 | -10 | 3,200 | 90 | 2,420 | 90 | 2,180 | 90 | 1,960 | 90 | 91 | 99 | 102 |
| | 0 | 3,290 | 90 | 2,490 | 90 | 2,250 | 90 | 2,030 | 90 | 90 | 99 | 102 |
| | 10 | 3,380 | 90 | 2,570 | 90 | 2,330 | 90 | 2,100 | 90 | 90 | 99 | 102 |
| | -54 | 2,770 | 91 | 2,060 | 91 | 1,840 | 91 | 1,640 | 91 | 91 | 99 | 104 |
| | -50 | 2,800 | 91 | 2,090 | 91 | 1,870 | 91 | 1,660 | 91 | 91 | 99 | 103 |
| | -40 | 2,890 | 91 | 2,160 | 91 | 1,940 | 91 | 1,730 | 91 | 91 | 99 | 103 |
| | -30 | 2,970 | 91 | 2,230 | 91 | 2,010 | 91 | 1,800 | 91 | 91 | 99 | 103 |
| PC24-A15-60-054-00A-030-A | -20 | 3,060 | 91 | 2,310 | 91 | 2,080 | 91 | 1,870 | 91 | 91 | 99 | 103 |
| | -10 | 3,150 | 90 | 2,380 | 90 | 2,150 | 90 | 1,940 | 90 | 91 | 99 | 103 |
| | 0 | 3,230 | 90 | 2,460 | 90 | 2,220 | 90 | 2,000 | 90 | 91 | 99 | 103 |
| | 10 | 3,320 | 90 | 2,530 | 90 | 2,290 | 90 | 2,070 | 90 | 91 | 99 | 103 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON

4 Pressure Altitude: 3,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 3,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,680 | 98 | 2,870 | 100 | 2,630 | 101 | 2,400 | 101 | 101 | 107 | 110 |
| | -50 | 3,730 | 98 | 2,920 | 100 | 2,680 | 101 | 2,440 | 101 | 102 | 107 | 110 |
| | -40 | 3,870 | 98 | 3,030 | 100 | 2,790 | 101 | 2,550 | 102 | 102 | 107 | 110 |
| | -30 | 3,990 | 98 | 3,140 | 100 | 2,890 | 101 | 2,650 | 101 | 102 | 107 | 110 |
| | -20 | 4,130 | 98 | 3,260 | 100 | 3,000 | 101 | 2,750 | 101 | 102 | 107 | 110 |
| | -10 | 4,260 | 98 | 3,370 | 100 | 3,110 | 100 | 2,850 | 101 | 101 | 107 | 110 |
| | 0 | 4,400 | 98 | 3,500 | 100 | 3,220 | 100 | 2,960 | 101 | 101 | 107 | 110 |
| | 10 | 4,560 | 99 | 3,670 | 100 | 3,390 | 101 | 3,120 | 101 | 101 | 108 | 110 |
| 18,300 | -54 | 3,440 | 96 | 2,680 | 98 | 2,450 | 98 | 2,230 | 99 | 99 | 105 | 108 |
| | -50 | 3,490 | 95 | 2,720 | 98 | 2,490 | 98 | 2,260 | 99 | 99 | 105 | 108 |
| | -40 | 3,610 | 95 | 2,820 | 97 | 2,580 | 98 | 2,350 | 99 | 99 | 105 | 108 |
| | -30 | 3,720 | 95 | 2,930 | 97 | 2,680 | 98 | 2,450 | 99 | 99 | 105 | 108 |
| | -20 | 3,840 | 95 | 3,030 | 97 | 2,780 | 98 | 2,550 | 98 | 99 | 105 | 108 |
| | -10 | 3,960 | 95 | 3,130 | 97 | 2,870 | 98 | 2,640 | 98 | 99 | 105 | 108 |
| | 0 | 4,080 | 95 | 3,230 | 97 | 2,980 | 97 | 2,730 | 98 | 100 | 105 | 108 |
| | 10 | 4,220 | 95 | 3,370 | 97 | 3,110 | 98 | 2,860 | 98 | 100 | 105 | 107 |
| 18,000 | -54 | 3,340 | 94 | 2,590 | 96 | 2,370 | 97 | 2,160 | 98 | 99 | 104 | 107 |
| | -50 | 3,380 | 94 | 2,630 | 96 | 2,410 | 97 | 2,190 | 98 | 99 | 104 | 107 |
| | -40 | 3,500 | 94 | 2,730 | 96 | 2,500 | 97 | 2,280 | 98 | 99 | 104 | 107 |
| | -30 | 3,610 | 94 | 2,830 | 96 | 2,590 | 97 | 2,370 | 97 | 99 | 104 | 107 |
| | -20 | 3,720 | 94 | 2,920 | 96 | 2,690 | 96 | 2,460 | 97 | 99 | 104 | 107 |
| | -10 | 3,840 | 94 | 3,030 | 96 | 2,780 | 96 | 2,550 | 97 | 98 | 105 | 107 |
| | 0 | 3,950 | 94 | 3,130 | 96 | 2,880 | 96 | 2,640 | 97 | 98 | 105 | 107 |
| | 10 | 4,110 | 94 | 3,260 | 96 | 3,000 | 96 | 2,760 | 97 | 98 | 105 | 107 |
| 17,000 | -54 | 3,360 | 96 | 2,350 | 92 | 2,150 | 93 | 1,940 | 94 | 96 | 102 | 105 |
| | -50 | 3,380 | 95 | 2,390 | 92 | 2,180 | 93 | 1,980 | 94 | 96 | 102 | 105 |
| | -40 | 3,550 | 96 | 2,480 | 92 | 2,260 | 93 | 2,060 | 93 | 96 | 102 | 105 |
| | -30 | 3,280 | 90 | 2,570 | 92 | 2,350 | 93 | 2,140 | 93 | 96 | 102 | 105 |
| | -20 | 3,380 | 90 | 2,660 | 92 | 2,430 | 92 | 2,220 | 93 | 96 | 102 | 105 |
| | -10 | 3,490 | 90 | 2,750 | 92 | 2,520 | 92 | 2,300 | 93 | 95 | 102 | 105 |
| | 0 | 3,600 | 90 | 2,840 | 92 | 2,610 | 92 | 2,390 | 93 | 95 | 102 | 105 |
| | 10 | 3,720 | 90 | 2,960 | 92 | 2,720 | 93 | 2,490 | 93 | 95 | 102 | 105 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON

| Pressure Altitude: 3,000 feet | | | | | | | | | | | | |
|--------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,990 | 90 | 2,210 | 90 | 1,980 | 90 | 1,760 | 90 | 92 | 99 | 102 |
| | -50 | 3,030 | 90 | 2,240 | 90 | 2,010 | 90 | 1,790 | 90 | 92 | 100 | 102 |
| | -40 | 3,120 | 90 | 2,330 | 90 | 2,090 | 90 | 1,870 | 90 | 92 | 100 | 102 |
| | -30 | 3,220 | 90 | 2,410 | 90 | 2,170 | 90 | 1,940 | 90 | 92 | 100 | 102 |
| | -20 | 3,310 | 90 | 2,490 | 90 | 2,250 | 90 | 2,020 | 90 | 92 | 100 | 103 |
| | -10 | 3,410 | 90 | 2,580 | 90 | 2,330 | 90 | 2,090 | 90 | 92 | 100 | 103 |
| | 0 | 3,510 | 90 | 2,660 | 90 | 2,410 | 90 | 2,170 | 90 | 92 | 100 | 103 |
| | 10 | 3,610 | 89 | 2,750 | 89 | 2,500 | 89 | 2,260 | 89 | 92 | 100 | 103 |
| 15,000 | -54 | 2,930 | 90 | 2,180 | 90 | 1,950 | 90 | 1,730 | 90 | 91 | 99 | 102 |
| | -50 | 2,970 | 90 | 2,210 | 90 | 1,980 | 90 | 1,770 | 90 | 91 | 99 | 102 |
| | -40 | 3,060 | 90 | 2,290 | 90 | 2,060 | 90 | 1,840 | 90 | 91 | 99 | 102 |
| | -30 | 3,160 | 90 | 2,370 | 90 | 2,130 | 90 | 1,910 | 90 | 90 | 99 | 102 |
| | -20 | 3,250 | 90 | 2,450 | 90 | 2,220 | 90 | 1,980 | 90 | 90 | 99 | 102 |
| | -10 | 3,350 | 90 | 2,530 | 90 | 2,290 | 90 | 2,060 | 90 | 90 | 99 | 102 |
| | 0 | 3,440 | 90 | 2,620 | 90 | 2,370 | 90 | 2,130 | 90 | 90 | 99 | 102 |
| | 10 | 3,540 | 90 | 2,710 | 90 | 2,450 | 90 | 2,210 | 90 | 90 | 98 | 102 |
| 14,000 | -54 | 2,880 | 91 | 2,140 | 91 | 1,920 | 91 | 1,710 | 91 | 91 | 99 | 103 |
| | -50 | 2,920 | 90 | 2,170 | 90 | 1,950 | 91 | 1,740 | 91 | 91 | 99 | 103 |
| | -40 | 3,010 | 90 | 2,260 | 90 | 2,030 | 90 | 1,820 | 90 | 91 | 99 | 102 |
| | -30 | 3,100 | 90 | 2,340 | 90 | 2,100 | 90 | 1,890 | 90 | 91 | 99 | 102 |
| | -20 | 3,190 | 90 | 2,420 | 90 | 2,180 | 90 | 1,960 | 90 | 91 | 99 | 102 |
| | -10 | 3,290 | 90 | 2,490 | 90 | 2,250 | 90 | 2,030 | 90 | 90 | 99 | 102 |
| | 0 | 3,380 | 90 | 2,570 | 90 | 2,330 | 90 | 2,100 | 90 | 90 | 99 | 102 |
| | 10 | 3,470 | 90 | 2,660 | 90 | 2,410 | 90 | 2,170 | 90 | 90 | 99 | 102 |
| 13,000 | -54 | 2,840 | 91 | 2,110 | 91 | 1,900 | 91 | 1,700 | 91 | 91 | 99 | 103 |
| | -50 | 2,870 | 91 | 2,140 | 91 | 1,930 | 91 | 1,720 | 91 | 91 | 99 | 103 |
| | -40 | 2,960 | 91 | 2,220 | 91 | 2,010 | 91 | 1,790 | 91 | 91 | 99 | 103 |
| | -30 | 3,050 | 91 | 2,300 | 91 | 2,080 | 91 | 1,860 | 91 | 91 | 99 | 103 |
| | -20 | 3,140 | 90 | 2,380 | 90 | 2,150 | 90 | 1,930 | 90 | 91 | 99 | 103 |
| | -10 | 3,230 | 90 | 2,460 | 90 | 2,220 | 90 | 2,000 | 90 | 91 | 99 | 103 |
| | 0 | 3,320 | 90 | 2,530 | 90 | 2,300 | 90 | 2,070 | 90 | 91 | 99 | 103 |
| | 10 | 3,410 | 90 | 2,620 | 90 | 2,370 | 90 | 2,140 | 90 | 91 | 99 | 103 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON

5 Pressure Altitude: 4,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 4,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,780 | 98 | 2,960 | 100 | 2,720 | 101 | 2,500 | 102 | 102 | 107 | 110 |
| | -50 | 3,840 | 98 | 3,010 | 100 | 2,770 | 101 | 2,540 | 102 | 102 | 107 | 110 |
| | -40 | 3,980 | 98 | 3,130 | 100 | 2,870 | 101 | 2,640 | 101 | 102 | 107 | 110 |
| | -30 | 4,110 | 98 | 3,240 | 100 | 2,980 | 100 | 2,740 | 101 | 102 | 107 | 110 |
| | -20 | 4,250 | 98 | 3,360 | 100 | 3,100 | 100 | 2,840 | 101 | 101 | 107 | 110 |
| | -10 | 4,390 | 98 | 3,480 | 100 | 3,210 | 100 | 2,950 | 101 | 101 | 107 | 110 |
| | 0 | 4,540 | 98 | 3,610 | 100 | 3,330 | 100 | 3,060 | 101 | 101 | 108 | 111 |
| | 10 | 4,770 | 99 | 3,920 | 101 | 3,650 | 101 | 3,380 | 101 | 101 | 108 | 110 |
| 18,300 | -54 | 3,540 | 95 | 2,760 | 97 | 2,530 | 98 | 2,300 | 99 | 99 | 105 | 108 |
| | -50 | 3,580 | 95 | 2,810 | 97 | 2,570 | 98 | 2,340 | 99 | 99 | 105 | 108 |
| | -40 | 3,700 | 95 | 2,910 | 97 | 2,660 | 98 | 2,440 | 99 | 99 | 105 | 108 |
| | -30 | 3,820 | 95 | 3,010 | 97 | 2,770 | 98 | 2,530 | 98 | 99 | 105 | 108 |
| | -20 | 3,940 | 95 | 3,120 | 97 | 2,870 | 98 | 2,620 | 98 | 99 | 105 | 108 |
| | -10 | 4,070 | 95 | 3,220 | 97 | 2,970 | 97 | 2,730 | 98 | 99 | 105 | 108 |
| | 0 | 4,190 | 95 | 3,340 | 97 | 3,080 | 97 | 2,830 | 98 | 99 | 105 | 108 |
| | 10 | 4,390 | 96 | 3,560 | 98 | 3,290 | 98 | 3,040 | 99 | 100 | 105 | 107 |
| 18,000 | -54 | 3,430 | 94 | 2,670 | 96 | 2,440 | 97 | 2,230 | 98 | 99 | 104 | 107 |
| | -50 | 3,470 | 94 | 2,710 | 96 | 2,480 | 97 | 2,260 | 98 | 99 | 104 | 107 |
| | -40 | 3,590 | 94 | 2,810 | 96 | 2,580 | 97 | 2,360 | 97 | 99 | 104 | 107 |
| | -30 | 3,710 | 94 | 2,910 | 96 | 2,670 | 96 | 2,450 | 97 | 99 | 104 | 107 |
| | -20 | 3,830 | 94 | 3,020 | 96 | 2,770 | 96 | 2,540 | 97 | 98 | 105 | 107 |
| | -10 | 3,950 | 94 | 3,120 | 95 | 2,870 | 96 | 2,630 | 97 | 98 | 105 | 107 |
| | 0 | 4,070 | 94 | 3,230 | 95 | 2,970 | 96 | 2,730 | 97 | 98 | 105 | 107 |
| | 10 | 4,320 | 95 | 3,450 | 96 | 3,180 | 97 | 2,930 | 98 | 99 | 104 | 107 |
| 17,000 | -54 | 3,490 | 96 | 2,420 | 92 | 2,210 | 93 | 2,010 | 94 | 96 | 102 | 105 |
| | -50 | 3,530 | 96 | 2,460 | 92 | 2,250 | 93 | 2,050 | 93 | 96 | 102 | 105 |
| | -40 | 3,270 | 90 | 2,550 | 92 | 2,330 | 93 | 2,130 | 93 | 96 | 102 | 105 |
| | -30 | 3,380 | 90 | 2,650 | 92 | 2,430 | 92 | 2,210 | 93 | 95 | 102 | 105 |
| | -20 | 3,490 | 90 | 2,740 | 92 | 2,510 | 92 | 2,300 | 93 | 95 | 102 | 105 |
| | -10 | 3,590 | 90 | 2,840 | 92 | 2,600 | 92 | 2,380 | 93 | 95 | 102 | 105 |
| | 0 | 3,700 | 90 | 2,930 | 92 | 2,700 | 92 | 2,470 | 93 | 95 | 102 | 105 |
| | 10 | 3,860 | 90 | 3,120 | 93 | 2,870 | 93 | 2,630 | 94 | 96 | 102 | 104 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON

| Pressure Altitude: 4,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,070 | 90 | 2,280 | 90 | 2,050 | 90 | 1,830 | 90 | 92 | 100 | 103 |
| | -50 | 3,110 | 90 | 2,320 | 90 | 2,080 | 90 | 1,860 | 90 | 92 | 100 | 102 |
| | -40 | 3,210 | 90 | 2,400 | 90 | 2,160 | 90 | 1,930 | 90 | 92 | 100 | 103 |
| | -30 | 3,310 | 90 | 2,490 | 90 | 2,240 | 90 | 2,010 | 90 | 92 | 100 | 103 |
| | -20 | 3,410 | 90 | 2,580 | 90 | 2,330 | 90 | 2,090 | 90 | 92 | 100 | 103 |
| | -10 | 3,510 | 90 | 2,660 | 90 | 2,410 | 90 | 2,160 | 90 | 92 | 100 | 103 |
| | 0 | 3,610 | 89 | 2,750 | 89 | 2,490 | 89 | 2,240 | 89 | 92 | 100 | 103 |
| | 10 | 3,710 | 89 | 2,860 | 89 | 2,620 | 89 | 2,400 | 89 | 92 | 99 | 102 |
| 15,000 | -54 | 3,010 | 90 | 2,250 | 90 | 2,010 | 90 | 1,800 | 90 | 91 | 99 | 102 |
| | -50 | 3,050 | 90 | 2,280 | 90 | 2,050 | 90 | 1,830 | 90 | 91 | 99 | 102 |
| | -40 | 3,150 | 90 | 2,360 | 90 | 2,130 | 90 | 1,900 | 90 | 90 | 99 | 102 |
| | -30 | 3,250 | 90 | 2,450 | 90 | 2,210 | 90 | 1,980 | 90 | 90 | 99 | 102 |
| | -20 | 3,350 | 90 | 2,530 | 90 | 2,290 | 90 | 2,060 | 90 | 90 | 99 | 102 |
| | -10 | 3,440 | 90 | 2,620 | 90 | 2,370 | 90 | 2,130 | 90 | 90 | 99 | 102 |
| | 0 | 3,540 | 90 | 2,700 | 90 | 2,450 | 90 | 2,210 | 90 | 90 | 99 | 102 |
| | 10 | 3,640 | 90 | 2,800 | 90 | 2,540 | 90 | 2,300 | 90 | 90 | 98 | 100 |
| 14,000 | -54 | 2,960 | 90 | 2,210 | 90 | 1,990 | 90 | 1,770 | 90 | 91 | 99 | 103 |
| | -50 | 3,000 | 90 | 2,240 | 90 | 2,020 | 90 | 1,800 | 90 | 91 | 99 | 103 |
| | -40 | 3,090 | 90 | 2,330 | 90 | 2,090 | 90 | 1,880 | 90 | 91 | 99 | 102 |
| | -30 | 3,190 | 90 | 2,410 | 90 | 2,170 | 90 | 1,950 | 90 | 91 | 99 | 102 |
| | -20 | 3,290 | 90 | 2,490 | 90 | 2,250 | 90 | 2,030 | 90 | 91 | 99 | 102 |
| | -10 | 3,380 | 90 | 2,570 | 90 | 2,330 | 90 | 2,100 | 90 | 90 | 99 | 102 |
| | 0 | 3,470 | 90 | 2,660 | 90 | 2,410 | 90 | 2,170 | 90 | 90 | 99 | 102 |
| | 10 | 3,570 | 90 | 2,750 | 90 | 2,500 | 90 | 2,260 | 90 | 90 | 98 | 101 |
| 13,000 | -54 | 2,910 | 91 | 2,180 | 91 | 1,960 | 91 | 1,760 | 91 | 91 | 99 | 103 |
| | -50 | 2,950 | 91 | 2,210 | 91 | 1,990 | 91 | 1,780 | 91 | 91 | 99 | 103 |
| | -40 | 3,040 | 91 | 2,290 | 91 | 2,070 | 91 | 1,860 | 91 | 91 | 99 | 103 |
| | -30 | 3,140 | 90 | 2,370 | 90 | 2,140 | 90 | 1,930 | 90 | 91 | 99 | 103 |
| | -20 | 3,230 | 90 | 2,460 | 90 | 2,220 | 90 | 2,000 | 90 | 91 | 99 | 103 |
| | -10 | 3,320 | 90 | 2,530 | 90 | 2,300 | 90 | 2,070 | 90 | 91 | 99 | 103 |
| | 0 | 3,410 | 90 | 2,610 | 90 | 2,370 | 90 | 2,140 | 90 | 91 | 99 | 103 |
| | 10 | 3,510 | 90 | 2,700 | 90 | 2,460 | 90 | 2,220 | 90 | 90 | 98 | 102 |



6 Pressure Altitude: 5,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 5,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,900 | 98 | 3,060 | 100 | 2,810 | 101 | 2,580 | 101 | 102 | 107 | 110 |
| | -50 | 3,950 | 98 | 3,100 | 100 | 2,860 | 101 | 2,610 | 101 | 102 | 107 | 110 |
| | -40 | 4,090 | 98 | 3,220 | 100 | 2,970 | 100 | 2,720 | 101 | 102 | 107 | 110 |
| | -30 | 4,240 | 98 | 3,350 | 100 | 3,090 | 100 | 2,830 | 101 | 101 | 107 | 110 |
| | -20 | 4,380 | 98 | 3,480 | 100 | 3,200 | 100 | 2,940 | 101 | 101 | 107 | 110 |
| | -10 | 4,520 | 98 | 3,600 | 100 | 3,320 | 100 | 3,060 | 101 | 101 | 108 | 110 |
| | 0 | 4,670 | 98 | 3,730 | 100 | 3,450 | 100 | 3,170 | 101 | 101 | 108 | 111 |
| | 10 | 4,980 | 100 | 4,250 | 101 | 3,970 | 101 | 3,700 | 101 | 101 | 108 | 110 |
| 18,300 | -54 | 3,640 | 95 | 2,850 | 97 | 2,610 | 98 | 2,380 | 99 | 99 | 105 | 108 |
| | -50 | 3,680 | 95 | 2,890 | 97 | 2,650 | 98 | 2,420 | 99 | 99 | 105 | 108 |
| | -40 | 3,810 | 95 | 3,000 | 97 | 2,750 | 98 | 2,520 | 98 | 99 | 105 | 108 |
| | -30 | 3,930 | 95 | 3,110 | 97 | 2,860 | 97 | 2,610 | 98 | 99 | 105 | 108 |
| | -20 | 4,060 | 95 | 3,220 | 97 | 2,960 | 97 | 2,720 | 98 | 99 | 105 | 108 |
| | -10 | 4,190 | 95 | 3,330 | 97 | 3,070 | 97 | 2,820 | 98 | 99 | 105 | 108 |
| | 0 | 4,310 | 95 | 3,440 | 97 | 3,180 | 97 | 2,920 | 98 | 99 | 105 | 108 |
| | 10 | 4,580 | 96 | 3,780 | 99 | 3,500 | 99 | 3,250 | 99 | 100 | 105 | 107 |
| 18,000 | -54 | 3,520 | 94 | 2,750 | 96 | 2,520 | 97 | 2,300 | 97 | 99 | 104 | 107 |
| | -50 | 3,570 | 94 | 2,790 | 96 | 2,560 | 97 | 2,340 | 97 | 99 | 104 | 107 |
| | -40 | 3,690 | 94 | 2,900 | 96 | 2,660 | 96 | 2,430 | 97 | 99 | 104 | 107 |
| | -30 | 3,810 | 94 | 3,010 | 96 | 2,760 | 96 | 2,530 | 97 | 98 | 105 | 107 |
| | -20 | 3,930 | 94 | 3,120 | 95 | 2,860 | 96 | 2,630 | 97 | 98 | 105 | 107 |
| | -10 | 4,060 | 94 | 3,220 | 95 | 2,960 | 96 | 2,720 | 97 | 98 | 105 | 107 |
| | 0 | 4,180 | 94 | 3,330 | 95 | 3,070 | 96 | 2,830 | 97 | 98 | 105 | 107 |
| | 10 | 4,550 | 96 | 3,650 | 97 | 3,370 | 98 | 3,110 | 98 | 99 | 104 | 106 |
| 17,000 | -54 | 3,580 | 96 | 2,500 | 92 | 2,280 | 93 | 2,080 | 93 | 96 | 102 | 105 |
| | -50 | 3,630 | 96 | 2,540 | 92 | 2,320 | 93 | 2,110 | 93 | 96 | 102 | 105 |
| | -40 | 3,370 | 90 | 2,630 | 92 | 2,410 | 92 | 2,200 | 93 | 95 | 102 | 105 |
| | -30 | 3,470 | 90 | 2,730 | 92 | 2,500 | 92 | 2,290 | 93 | 95 | 102 | 105 |
| | -20 | 3,580 | 89 | 2,830 | 92 | 2,600 | 92 | 2,370 | 93 | 95 | 102 | 105 |
| | -10 | 3,700 | 89 | 2,930 | 91 | 2,690 | 92 | 2,470 | 93 | 95 | 102 | 105 |
| | 0 | 3,810 | 90 | 3,030 | 91 | 2,790 | 92 | 2,560 | 93 | 95 | 102 | 105 |
| | 10 | 4,020 | 91 | 3,300 | 93 | 3,040 | 94 | 2,790 | 95 | 96 | 102 | 104 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON

| Pressure Altitude: 5,000 feet | | | | | | | | | | | | |
|--------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,150 | 90 | 2,350 | 90 | 2,110 | 90 | 1,890 | 90 | 92 | 100 | 103 |
| | -50 | 3,200 | 90 | 2,390 | 90 | 2,150 | 90 | 1,920 | 90 | 92 | 100 | 103 |
| | -40 | 3,300 | 90 | 2,480 | 90 | 2,240 | 90 | 2,000 | 90 | 92 | 100 | 103 |
| | -30 | 3,400 | 90 | 2,570 | 90 | 2,320 | 90 | 2,080 | 90 | 92 | 100 | 103 |
| | -20 | 3,510 | 90 | 2,660 | 90 | 2,400 | 90 | 2,160 | 90 | 92 | 100 | 103 |
| | -10 | 3,610 | 89 | 2,750 | 89 | 2,490 | 90 | 2,240 | 90 | 92 | 100 | 103 |
| | 0 | 3,720 | 89 | 2,840 | 89 | 2,570 | 89 | 2,330 | 89 | 92 | 100 | 103 |
| | 10 | 3,820 | 89 | 2,980 | 89 | 2,780 | 89 | 2,570 | 89 | 93 | 99 | 102 |
| 15,000 | -54 | 3,100 | 90 | 2,320 | 90 | 2,080 | 90 | 1,860 | 90 | 91 | 99 | 102 |
| | -50 | 3,130 | 90 | 2,350 | 90 | 2,110 | 90 | 1,890 | 90 | 90 | 99 | 102 |
| | -40 | 3,240 | 90 | 2,440 | 90 | 2,200 | 90 | 1,970 | 90 | 90 | 99 | 102 |
| | -30 | 3,330 | 90 | 2,520 | 90 | 2,280 | 90 | 2,050 | 90 | 90 | 99 | 102 |
| | -20 | 3,440 | 90 | 2,620 | 90 | 2,360 | 90 | 2,130 | 90 | 90 | 99 | 102 |
| | -10 | 3,540 | 90 | 2,700 | 90 | 2,450 | 90 | 2,200 | 90 | 90 | 99 | 102 |
| | 0 | 3,640 | 90 | 2,790 | 90 | 2,530 | 90 | 2,290 | 90 | 90 | 99 | 102 |
| | 10 | 3,740 | 89 | 2,910 | 89 | 2,640 | 89 | 2,390 | 89 | 90 | 98 | 100 |
| 14,000 | -54 | 3,040 | 90 | 2,280 | 90 | 2,050 | 90 | 1,840 | 90 | 91 | 99 | 103 |
| | -50 | 3,080 | 90 | 2,310 | 90 | 2,090 | 90 | 1,870 | 90 | 91 | 99 | 103 |
| | -40 | 3,180 | 90 | 2,400 | 90 | 2,170 | 90 | 1,940 | 90 | 91 | 99 | 102 |
| | -30 | 3,270 | 90 | 2,490 | 90 | 2,240 | 90 | 2,020 | 90 | 91 | 99 | 102 |
| | -20 | 3,380 | 90 | 2,570 | 90 | 2,320 | 90 | 2,100 | 90 | 90 | 99 | 102 |
| | -10 | 3,470 | 90 | 2,650 | 90 | 2,410 | 90 | 2,170 | 90 | 90 | 99 | 102 |
| | 0 | 3,570 | 90 | 2,740 | 90 | 2,490 | 90 | 2,250 | 90 | 90 | 99 | 102 |
| | 10 | 3,670 | 90 | 2,850 | 90 | 2,590 | 90 | 2,350 | 90 | 90 | 98 | 101 |
| 13,000 | -54 | 3,000 | 91 | 2,250 | 91 | 2,030 | 91 | 1,810 | 91 | 91 | 99 | 103 |
| | -50 | 3,030 | 91 | 2,280 | 91 | 2,060 | 91 | 1,840 | 91 | 91 | 99 | 103 |
| | -40 | 3,130 | 90 | 2,370 | 90 | 2,140 | 90 | 1,920 | 90 | 91 | 99 | 103 |
| | -30 | 3,230 | 90 | 2,440 | 90 | 2,220 | 90 | 1,990 | 90 | 91 | 99 | 103 |
| | -20 | 3,310 | 90 | 2,530 | 90 | 2,300 | 90 | 2,070 | 90 | 91 | 99 | 103 |
| | -10 | 3,410 | 90 | 2,610 | 90 | 2,380 | 90 | 2,140 | 90 | 91 | 99 | 103 |
| | 0 | 3,500 | 90 | 2,690 | 90 | 2,450 | 90 | 2,220 | 90 | 90 | 99 | 103 |
| | 10 | 3,600 | 90 | 2,800 | 90 | 2,550 | 90 | 2,310 | 90 | 90 | 98 | 101 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON

7 Pressure Altitude: 6,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 6,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,010 | 98 | 3,160 | 100 | 2,910 | 101 | 2,660 | 101 | 102 | 107 | 110 |
| | -50 | 4,080 | 98 | 3,210 | 100 | 2,950 | 100 | 2,710 | 101 | 102 | 107 | 110 |
| | -40 | 4,220 | 98 | 3,340 | 100 | 3,070 | 100 | 2,820 | 101 | 102 | 107 | 110 |
| | -30 | 4,370 | 98 | 3,470 | 100 | 3,200 | 100 | 2,930 | 101 | 101 | 107 | 110 |
| | -20 | 4,520 | 98 | 3,600 | 100 | 3,320 | 100 | 3,050 | 101 | 101 | 108 | 111 |
| | -10 | 4,670 | 98 | 3,730 | 100 | 3,440 | 100 | 3,170 | 101 | 101 | 108 | 111 |
| | 0 | 4,890 | 99 | 3,940 | 101 | 3,660 | 101 | 3,390 | 101 | 101 | 108 | 111 |
| | 10 | 5,550 | 101 | 4,930 | 102 | 4,610 | 102 | 4,310 | 102 | 102 | 108 | 111 |
| 18,300 | -54 | 3,740 | 95 | 2,940 | 97 | 2,690 | 98 | 2,460 | 98 | 99 | 105 | 108 |
| | -50 | 3,790 | 95 | 2,980 | 97 | 2,740 | 98 | 2,500 | 98 | 99 | 105 | 108 |
| | -40 | 3,920 | 95 | 3,100 | 97 | 2,850 | 98 | 2,610 | 98 | 99 | 105 | 108 |
| | -30 | 4,050 | 95 | 3,210 | 97 | 2,960 | 97 | 2,710 | 98 | 99 | 105 | 108 |
| | -20 | 4,180 | 95 | 3,320 | 97 | 3,060 | 97 | 2,820 | 98 | 99 | 105 | 108 |
| | -10 | 4,310 | 95 | 3,440 | 97 | 3,170 | 97 | 2,920 | 98 | 99 | 105 | 108 |
| | 0 | 4,490 | 95 | 3,610 | 97 | 3,340 | 98 | 3,080 | 98 | 99 | 105 | 107 |
| | 10 | 4,950 | 98 | 4,200 | 99 | 3,910 | 99 | 3,650 | 99 | 100 | 105 | 107 |
| 18,000 | -54 | 3,620 | 94 | 2,840 | 96 | 2,600 | 96 | 2,380 | 97 | 99 | 104 | 107 |
| | -50 | 3,680 | 94 | 2,890 | 96 | 2,640 | 96 | 2,420 | 97 | 99 | 104 | 107 |
| | -40 | 3,800 | 94 | 3,000 | 96 | 2,750 | 96 | 2,520 | 97 | 98 | 105 | 107 |
| | -30 | 3,930 | 94 | 3,100 | 95 | 2,860 | 96 | 2,620 | 97 | 98 | 105 | 107 |
| | -20 | 4,060 | 94 | 3,220 | 95 | 2,960 | 96 | 2,720 | 97 | 98 | 105 | 107 |
| | -10 | 4,180 | 94 | 3,330 | 95 | 3,070 | 96 | 2,820 | 96 | 98 | 105 | 107 |
| | 0 | 4,380 | 94 | 3,500 | 96 | 3,230 | 96 | 2,980 | 97 | 98 | 105 | 107 |
| | 10 | 4,970 | 97 | 4,020 | 98 | 3,740 | 98 | 3,470 | 99 | 99 | 104 | 106 |
| 17,000 | -54 | 3,680 | 96 | 2,580 | 92 | 2,360 | 92 | 2,150 | 93 | 96 | 102 | 105 |
| | -50 | 3,730 | 96 | 2,620 | 92 | 2,400 | 92 | 2,190 | 93 | 96 | 102 | 105 |
| | -40 | 3,470 | 90 | 2,720 | 92 | 2,500 | 92 | 2,280 | 93 | 95 | 102 | 105 |
| | -30 | 3,580 | 90 | 2,820 | 92 | 2,590 | 92 | 2,370 | 93 | 95 | 102 | 105 |
| | -20 | 3,690 | 89 | 2,920 | 91 | 2,690 | 92 | 2,460 | 93 | 95 | 102 | 105 |
| | -10 | 3,810 | 89 | 3,030 | 91 | 2,790 | 92 | 2,560 | 93 | 95 | 102 | 105 |
| | 0 | 3,960 | 90 | 3,170 | 92 | 2,920 | 93 | 2,690 | 93 | 95 | 102 | 105 |
| | 10 | 4,320 | 92 | 3,600 | 95 | 3,330 | 95 | 3,080 | 95 | 96 | 102 | 104 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON

| Pressure Altitude: 6,000 feet | | | | | | | | | | | | |
|--------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,240 | 90 | 2,430 | 90 | 2,190 | 90 | 1,960 | 90 | 92 | 100 | 103 |
| | -50 | 3,280 | 90 | 2,470 | 90 | 2,220 | 90 | 1,990 | 90 | 92 | 100 | 103 |
| | -40 | 3,390 | 90 | 2,560 | 90 | 2,310 | 90 | 2,070 | 90 | 92 | 100 | 103 |
| | -30 | 3,500 | 90 | 2,650 | 90 | 2,400 | 90 | 2,160 | 90 | 92 | 100 | 103 |
| | -20 | 3,600 | 89 | 2,750 | 89 | 2,490 | 90 | 2,240 | 90 | 92 | 100 | 103 |
| | -10 | 3,710 | 89 | 2,840 | 89 | 2,580 | 89 | 2,330 | 89 | 92 | 100 | 103 |
| | 0 | 3,820 | 89 | 2,940 | 89 | 2,670 | 89 | 2,440 | 89 | 92 | 100 | 102 |
| | 10 | 3,990 | 89 | 3,330 | 89 | 3,100 | 89 | 2,880 | 89 | 93 | 99 | 101 |
| 15,000 | -54 | 3,180 | 90 | 2,390 | 90 | 2,150 | 90 | 1,930 | 90 | 90 | 99 | 102 |
| | -50 | 3,220 | 90 | 2,430 | 90 | 2,190 | 90 | 1,960 | 90 | 90 | 99 | 102 |
| | -40 | 3,330 | 90 | 2,520 | 90 | 2,280 | 90 | 2,040 | 90 | 90 | 99 | 102 |
| | -30 | 3,430 | 90 | 2,610 | 90 | 2,360 | 90 | 2,120 | 90 | 90 | 99 | 102 |
| | -20 | 3,540 | 90 | 2,700 | 90 | 2,450 | 90 | 2,200 | 90 | 90 | 99 | 102 |
| | -10 | 3,640 | 90 | 2,790 | 90 | 2,530 | 90 | 2,290 | 90 | 90 | 99 | 102 |
| | 0 | 3,740 | 89 | 2,890 | 89 | 2,620 | 89 | 2,370 | 90 | 90 | 98 | 101 |
| | 10 | 3,890 | 89 | 3,060 | 89 | 2,780 | 89 | 2,520 | 89 | 90 | 97 | 100 |
| 14,000 | -54 | 3,130 | 90 | 2,350 | 90 | 2,120 | 90 | 1,900 | 90 | 91 | 99 | 102 |
| | -50 | 3,170 | 90 | 2,390 | 90 | 2,160 | 90 | 1,930 | 90 | 91 | 99 | 102 |
| | -40 | 3,260 | 90 | 2,480 | 90 | 2,240 | 90 | 2,010 | 90 | 91 | 99 | 102 |
| | -30 | 3,370 | 90 | 2,560 | 90 | 2,320 | 90 | 2,090 | 90 | 90 | 99 | 102 |
| | -20 | 3,470 | 90 | 2,650 | 90 | 2,410 | 90 | 2,170 | 90 | 90 | 99 | 102 |
| | -10 | 3,570 | 90 | 2,740 | 90 | 2,490 | 90 | 2,250 | 90 | 90 | 99 | 102 |
| | 0 | 3,680 | 90 | 2,830 | 90 | 2,580 | 90 | 2,340 | 90 | 90 | 99 | 102 |
| | 10 | 3,820 | 89 | 2,990 | 89 | 2,730 | 89 | 2,470 | 89 | 90 | 97 | 100 |
| 13,000 | -54 | 3,070 | 91 | 2,320 | 91 | 2,100 | 91 | 1,880 | 91 | 91 | 99 | 103 |
| | -50 | 3,110 | 90 | 2,350 | 90 | 2,130 | 90 | 1,910 | 90 | 91 | 99 | 103 |
| | -40 | 3,210 | 90 | 2,440 | 90 | 2,210 | 90 | 1,990 | 90 | 91 | 99 | 103 |
| | -30 | 3,310 | 90 | 2,520 | 90 | 2,290 | 90 | 2,060 | 90 | 91 | 99 | 103 |
| | -20 | 3,400 | 90 | 2,610 | 90 | 2,370 | 90 | 2,140 | 90 | 91 | 99 | 103 |
| | -10 | 3,500 | 90 | 2,690 | 90 | 2,450 | 90 | 2,220 | 90 | 90 | 99 | 103 |
| | 0 | 3,600 | 90 | 2,780 | 90 | 2,540 | 90 | 2,300 | 90 | 90 | 99 | 103 |
| | 10 | 3,740 | 90 | 2,930 | 89 | 2,670 | 89 | 2,420 | 89 | 90 | 97 | 100 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON

8 Pressure Altitude: 7,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 7,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,220 | 98 | 3,330 | 100 | 3,060 | 100 | 2,810 | 101 | 102 | 107 | 110 |
| | -50 | 4,290 | 98 | 3,380 | 100 | 3,110 | 100 | 2,860 | 101 | 102 | 107 | 110 |
| | -40 | 4,440 | 98 | 3,520 | 100 | 3,240 | 100 | 2,980 | 101 | 101 | 107 | 110 |
| | -30 | 4,600 | 98 | 3,660 | 100 | 3,370 | 100 | 3,100 | 101 | 101 | 108 | 111 |
| | -20 | 4,760 | 98 | 3,790 | 100 | 3,500 | 100 | 3,220 | 101 | 101 | 108 | 111 |
| | -10 | 4,970 | 99 | 3,980 | 100 | 3,680 | 101 | 3,400 | 101 | 101 | 108 | 111 |
| | 0 | 5,280 | 100 | 4,370 | 101 | 4,080 | 101 | 3,810 | 101 | 101 | 108 | 111 |
| | 10 | 6,500 | 102 | 5,850 | 102 | 5,480 | 102 | 5,130 | 102 | 102 | 109 | 110 |
| 18,300 | -54 | 3,850 | 95 | 3,030 | 97 | 2,790 | 98 | 2,550 | 98 | 99 | 105 | 108 |
| | -50 | 3,900 | 95 | 3,080 | 97 | 2,830 | 98 | 2,590 | 98 | 99 | 105 | 108 |
| | -40 | 4,040 | 95 | 3,200 | 97 | 2,940 | 97 | 2,700 | 98 | 99 | 105 | 108 |
| | -30 | 4,170 | 95 | 3,320 | 97 | 3,060 | 97 | 2,810 | 98 | 99 | 105 | 108 |
| | -20 | 4,300 | 95 | 3,440 | 96 | 3,170 | 97 | 2,910 | 98 | 99 | 105 | 108 |
| | -10 | 4,480 | 95 | 3,590 | 97 | 3,310 | 97 | 3,050 | 98 | 99 | 105 | 107 |
| | 0 | 4,740 | 96 | 3,860 | 98 | 3,570 | 98 | 3,300 | 99 | 99 | 105 | 107 |
| | 10 | 5,430 | 99 | 4,720 | 100 | 4,420 | 100 | 4,120 | 100 | 100 | 105 | 106 |
| 18,000 | -54 | 3,730 | 94 | 2,930 | 96 | 2,690 | 96 | 2,460 | 97 | 99 | 104 | 107 |
| | -50 | 3,780 | 94 | 2,980 | 96 | 2,740 | 96 | 2,500 | 97 | 98 | 105 | 107 |
| | -40 | 3,910 | 94 | 3,100 | 95 | 2,840 | 96 | 2,610 | 97 | 98 | 105 | 107 |
| | -30 | 4,050 | 94 | 3,210 | 95 | 2,960 | 96 | 2,710 | 97 | 98 | 105 | 107 |
| | -20 | 4,180 | 93 | 3,330 | 95 | 3,070 | 96 | 2,820 | 96 | 98 | 105 | 107 |
| | -10 | 4,350 | 94 | 3,470 | 96 | 3,200 | 96 | 2,950 | 97 | 98 | 105 | 107 |
| | 0 | 4,650 | 95 | 3,730 | 97 | 3,450 | 97 | 3,190 | 98 | 99 | 104 | 106 |
| | 10 | 5,440 | 98 | 4,480 | 99 | 4,180 | 99 | 3,900 | 99 | 99 | 104 | 105 |
| 17,000 | -54 | 3,410 | 90 | 2,670 | 92 | 2,440 | 92 | 2,230 | 93 | 95 | 102 | 105 |
| | -50 | 3,450 | 90 | 2,710 | 92 | 2,480 | 92 | 2,270 | 93 | 95 | 102 | 105 |
| | -40 | 3,570 | 89 | 2,810 | 91 | 2,580 | 92 | 2,360 | 93 | 95 | 102 | 105 |
| | -30 | 3,680 | 89 | 2,920 | 91 | 2,680 | 92 | 2,450 | 93 | 95 | 102 | 105 |
| | -20 | 3,800 | 89 | 3,020 | 91 | 2,780 | 92 | 2,550 | 93 | 95 | 102 | 105 |
| | -10 | 3,950 | 90 | 3,150 | 92 | 2,910 | 92 | 2,670 | 93 | 95 | 102 | 105 |
| | 0 | 4,170 | 91 | 3,370 | 93 | 3,120 | 93 | 2,870 | 94 | 96 | 102 | 104 |
| | 10 | 4,700 | 94 | 3,940 | 96 | 3,670 | 96 | 3,410 | 96 | 96 | 101 | 103 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON

| Pressure Altitude: 7,000 feet | | | | | | | | | | | | |
|--------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,330 | 90 | 2,510 | 90 | 2,270 | 90 | 2,030 | 90 | 92 | 100 | 103 |
| | -50 | 3,380 | 90 | 2,550 | 90 | 2,300 | 90 | 2,060 | 90 | 92 | 100 | 103 |
| | -40 | 3,490 | 90 | 2,650 | 90 | 2,390 | 90 | 2,150 | 90 | 92 | 100 | 103 |
| | -30 | 3,600 | 89 | 2,740 | 90 | 2,480 | 90 | 2,240 | 90 | 92 | 100 | 103 |
| | -20 | 3,710 | 89 | 2,840 | 89 | 2,580 | 89 | 2,320 | 89 | 92 | 100 | 103 |
| | -10 | 3,820 | 89 | 2,940 | 89 | 2,670 | 89 | 2,410 | 89 | 92 | 100 | 102 |
| | 0 | 3,950 | 89 | 3,070 | 89 | 2,840 | 89 | 2,620 | 89 | 93 | 99 | 102 |
| | 10 | 4,300 | 89 | 3,740 | 89 | 3,480 | 89 | 3,240 | 89 | 93 | 98 | 100 |
| 15,000 | -54 | 3,270 | 90 | 2,460 | 90 | 2,230 | 90 | 2,000 | 90 | 90 | 99 | 102 |
| | -50 | 3,310 | 90 | 2,500 | 90 | 2,260 | 90 | 2,030 | 90 | 90 | 99 | 102 |
| | -40 | 3,420 | 90 | 2,600 | 90 | 2,350 | 90 | 2,120 | 90 | 90 | 99 | 102 |
| | -30 | 3,530 | 90 | 2,690 | 90 | 2,440 | 90 | 2,200 | 90 | 90 | 99 | 102 |
| | -20 | 3,640 | 90 | 2,790 | 90 | 2,530 | 90 | 2,280 | 90 | 90 | 99 | 102 |
| | -10 | 3,740 | 89 | 2,880 | 90 | 2,620 | 90 | 2,370 | 90 | 90 | 98 | 101 |
| | 0 | 3,870 | 89 | 3,010 | 89 | 2,740 | 89 | 2,480 | 89 | 90 | 98 | 100 |
| | 10 | 4,080 | 89 | 3,220 | 89 | 2,940 | 89 | 2,690 | 89 | 90 | 96 | 98 |
| 14,000 | -54 | 3,210 | 90 | 2,430 | 90 | 2,190 | 90 | 1,970 | 90 | 91 | 99 | 102 |
| | -50 | 3,250 | 90 | 2,470 | 90 | 2,230 | 90 | 2,000 | 90 | 91 | 99 | 102 |
| | -40 | 3,360 | 90 | 2,560 | 90 | 2,310 | 90 | 2,090 | 90 | 90 | 99 | 102 |
| | -30 | 3,460 | 90 | 2,650 | 90 | 2,400 | 90 | 2,170 | 90 | 90 | 99 | 102 |
| | -20 | 3,570 | 90 | 2,740 | 90 | 2,490 | 90 | 2,250 | 90 | 90 | 99 | 102 |
| | -10 | 3,680 | 90 | 2,830 | 90 | 2,580 | 90 | 2,330 | 90 | 90 | 99 | 102 |
| | 0 | 3,790 | 90 | 2,950 | 89 | 2,680 | 90 | 2,430 | 90 | 90 | 98 | 101 |
| | 10 | 3,990 | 89 | 3,150 | 89 | 2,860 | 89 | 2,600 | 89 | 89 | 96 | 98 |
| 13,000 | -54 | 3,160 | 90 | 2,390 | 90 | 2,160 | 90 | 1,950 | 90 | 91 | 99 | 103 |
| | -50 | 3,200 | 90 | 2,430 | 90 | 2,200 | 90 | 1,980 | 90 | 91 | 99 | 103 |
| | -40 | 3,300 | 90 | 2,520 | 90 | 2,280 | 90 | 2,060 | 90 | 91 | 99 | 103 |
| | -30 | 3,410 | 90 | 2,600 | 90 | 2,370 | 90 | 2,140 | 90 | 91 | 99 | 103 |
| | -20 | 3,510 | 90 | 2,690 | 90 | 2,450 | 90 | 2,220 | 90 | 90 | 99 | 103 |
| | -10 | 3,610 | 90 | 2,790 | 90 | 2,540 | 90 | 2,300 | 90 | 90 | 99 | 103 |
| | 0 | 3,720 | 90 | 2,900 | 90 | 2,640 | 90 | 2,390 | 90 | 90 | 98 | 101 |
| | 10 | 3,910 | 89 | 3,070 | 89 | 2,800 | 89 | 2,550 | 89 | 90 | 97 | 99 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON

9 Pressure Altitude: 8,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 8,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,430 | 98 | 3,510 | 100 | 3,230 | 100 | 2,970 | 101 | 101 | 107 | 110 |
| | -50 | 4,500 | 98 | 3,570 | 100 | 3,280 | 100 | 3,020 | 101 | 101 | 107 | 110 |
| | -40 | 4,660 | 98 | 3,710 | 100 | 3,420 | 100 | 3,150 | 101 | 101 | 108 | 111 |
| | -30 | 4,840 | 98 | 3,860 | 100 | 3,560 | 100 | 3,280 | 101 | 101 | 108 | 111 |
| | -20 | 5,060 | 99 | 4,050 | 100 | 3,740 | 101 | 3,450 | 101 | 101 | 108 | 111 |
| | -10 | 5,350 | 100 | 4,310 | 101 | 4,020 | 101 | 3,760 | 101 | 101 | 108 | 111 |
| | 0 | 5,880 | 101 | 5,030 | 101 | 4,710 | 101 | 4,400 | 101 | 101 | 108 | 111 |
| | 10 | 7,750 | 102 | 7,070 | 102 | 6,640 | 102 | 6,210 | 102 | 102 | 109 | 110 |
| 18,300 | -54 | 3,970 | 95 | 3,140 | 97 | 2,890 | 97 | 2,640 | 98 | 99 | 105 | 108 |
| | -50 | 4,030 | 95 | 3,190 | 97 | 2,940 | 97 | 2,690 | 98 | 99 | 105 | 108 |
| | -40 | 4,160 | 95 | 3,310 | 97 | 3,050 | 97 | 2,800 | 98 | 99 | 105 | 108 |
| | -30 | 4,310 | 95 | 3,440 | 96 | 3,170 | 97 | 2,910 | 98 | 99 | 105 | 108 |
| | -20 | 4,480 | 95 | 3,590 | 97 | 3,320 | 97 | 3,060 | 98 | 99 | 105 | 107 |
| | -10 | 4,720 | 96 | 3,800 | 98 | 3,510 | 98 | 3,250 | 99 | 100 | 105 | 107 |
| | 0 | 5,100 | 97 | 4,220 | 99 | 3,910 | 99 | 3,640 | 99 | 99 | 105 | 107 |
| | 10 | 6,140 | 100 | 5,460 | 100 | 5,120 | 100 | 4,780 | 100 | 100 | 105 | 106 |
| 18,000 | -54 | 3,850 | 94 | 3,040 | 95 | 2,790 | 96 | 2,560 | 97 | 98 | 105 | 107 |
| | -50 | 3,900 | 94 | 3,090 | 95 | 2,830 | 96 | 2,600 | 97 | 98 | 105 | 107 |
| | -40 | 4,040 | 93 | 3,210 | 95 | 2,950 | 96 | 2,710 | 97 | 98 | 105 | 107 |
| | -30 | 4,180 | 93 | 3,320 | 95 | 3,070 | 96 | 2,820 | 96 | 98 | 105 | 107 |
| | -20 | 4,350 | 94 | 3,470 | 96 | 3,200 | 96 | 2,950 | 97 | 98 | 105 | 107 |
| | -10 | 4,580 | 95 | 3,670 | 96 | 3,390 | 97 | 3,130 | 97 | 98 | 104 | 107 |
| | 0 | 5,040 | 96 | 4,060 | 97 | 3,760 | 98 | 3,480 | 98 | 99 | 104 | 106 |
| | 10 | 6,080 | 99 | 5,100 | 99 | 4,800 | 99 | 4,470 | 99 | 99 | 104 | 105 |
| 17,000 | -54 | 3,760 | 94 | 2,760 | 92 | 2,530 | 92 | 2,310 | 93 | 96 | 102 | 105 |
| | -50 | 3,560 | 89 | 2,800 | 91 | 2,570 | 92 | 2,350 | 93 | 95 | 102 | 105 |
| | -40 | 3,680 | 89 | 2,910 | 91 | 2,680 | 92 | 2,450 | 93 | 95 | 102 | 105 |
| | -30 | 3,810 | 89 | 3,020 | 91 | 2,780 | 92 | 2,550 | 93 | 95 | 102 | 105 |
| | -20 | 3,950 | 90 | 3,150 | 92 | 2,910 | 92 | 2,670 | 93 | 95 | 102 | 105 |
| | -10 | 4,150 | 91 | 3,320 | 92 | 3,060 | 93 | 2,820 | 94 | 95 | 102 | 104 |
| | 0 | 4,470 | 92 | 3,650 | 94 | 3,380 | 94 | 3,120 | 95 | 96 | 102 | 104 |
| | 10 | 5,160 | 95 | 4,410 | 96 | 4,140 | 96 | 3,850 | 96 | 96 | 101 | 103 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON

| Pressure Altitude: 8,000 feet | | | | | | | | | | | | |
|--------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,440 | 90 | 2,600 | 90 | 2,350 | 90 | 2,110 | 90 | 92 | 100 | 103 |
| | -50 | 3,490 | 90 | 2,640 | 90 | 2,380 | 90 | 2,140 | 90 | 92 | 100 | 103 |
| | -40 | 3,600 | 89 | 2,740 | 90 | 2,480 | 90 | 2,230 | 90 | 92 | 100 | 103 |
| | -30 | 3,710 | 89 | 2,840 | 89 | 2,580 | 89 | 2,330 | 89 | 92 | 100 | 103 |
| | -20 | 3,830 | 89 | 2,940 | 89 | 2,670 | 89 | 2,420 | 89 | 92 | 100 | 103 |
| | -10 | 3,960 | 89 | 3,050 | 89 | 2,780 | 89 | 2,570 | 89 | 92 | 100 | 102 |
| | 0 | 4,120 | 89 | 3,340 | 89 | 3,110 | 89 | 2,900 | 89 | 93 | 99 | 101 |
| | 10 | 4,790 | 89 | 4,230 | 89 | 3,950 | 89 | 3,670 | 89 | 93 | 98 | 100 |
| 15,000 | -54 | 3,370 | 90 | 2,550 | 90 | 2,310 | 90 | 2,080 | 90 | 90 | 99 | 102 |
| | -50 | 3,420 | 90 | 2,590 | 90 | 2,350 | 90 | 2,110 | 90 | 90 | 99 | 102 |
| | -40 | 3,530 | 90 | 2,690 | 90 | 2,440 | 90 | 2,200 | 90 | 90 | 99 | 102 |
| | -30 | 3,640 | 90 | 2,790 | 90 | 2,530 | 90 | 2,290 | 90 | 90 | 99 | 102 |
| | -20 | 3,760 | 90 | 2,890 | 90 | 2,620 | 90 | 2,380 | 90 | 90 | 98 | 101 |
| | -10 | 3,880 | 89 | 2,990 | 89 | 2,730 | 89 | 2,470 | 89 | 90 | 98 | 101 |
| | 0 | 4,040 | 89 | 3,160 | 89 | 2,880 | 89 | 2,610 | 89 | 90 | 97 | 100 |
| | 10 | 4,310 | 89 | 3,470 | 89 | 3,210 | 89 | 2,980 | 89 | 90 | 96 | 98 |
| 14,000 | -54 | 3,310 | 90 | 2,510 | 90 | 2,270 | 90 | 2,050 | 90 | 91 | 99 | 102 |
| | -50 | 3,360 | 90 | 2,550 | 90 | 2,310 | 90 | 2,080 | 90 | 90 | 99 | 102 |
| | -40 | 3,470 | 90 | 2,650 | 90 | 2,400 | 90 | 2,170 | 90 | 90 | 99 | 102 |
| | -30 | 3,570 | 90 | 2,740 | 90 | 2,490 | 90 | 2,250 | 90 | 90 | 99 | 102 |
| | -20 | 3,680 | 90 | 2,840 | 90 | 2,580 | 90 | 2,340 | 90 | 90 | 99 | 102 |
| | -10 | 3,800 | 90 | 2,940 | 90 | 2,680 | 90 | 2,430 | 90 | 90 | 98 | 101 |
| | 0 | 3,960 | 89 | 3,090 | 89 | 2,830 | 89 | 2,560 | 89 | 90 | 97 | 100 |
| | 10 | 4,200 | 89 | 3,330 | 89 | 3,040 | 89 | 2,760 | 89 | 89 | 96 | 98 |
| 13,000 | -54 | 3,260 | 90 | 2,480 | 90 | 2,240 | 90 | 2,020 | 90 | 91 | 99 | 103 |
| | -50 | 3,300 | 90 | 2,520 | 90 | 2,280 | 90 | 2,060 | 90 | 91 | 99 | 103 |
| | -40 | 3,400 | 90 | 2,610 | 90 | 2,360 | 90 | 2,140 | 90 | 91 | 99 | 103 |
| | -30 | 3,510 | 90 | 2,700 | 90 | 2,460 | 90 | 2,220 | 90 | 90 | 99 | 103 |
| | -20 | 3,610 | 90 | 2,790 | 90 | 2,540 | 90 | 2,300 | 90 | 90 | 99 | 103 |
| | -10 | 3,730 | 90 | 2,890 | 90 | 2,630 | 90 | 2,390 | 90 | 90 | 99 | 102 |
| | 0 | 3,880 | 90 | 3,030 | 89 | 2,770 | 89 | 2,510 | 89 | 90 | 98 | 101 |
| | 10 | 4,090 | 89 | 3,240 | 89 | 2,960 | 89 | 2,680 | 89 | 89 | 96 | 98 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON

10 Pressure Altitude: 9,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 9,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,700 | 99 | 3,730 | 100 | 3,440 | 100 | 3,160 | 101 | 101 | 108 | 110 |
| | -50 | 4,770 | 99 | 3,790 | 100 | 3,490 | 100 | 3,210 | 101 | 101 | 108 | 111 |
| | -40 | 4,940 | 99 | 3,950 | 100 | 3,640 | 100 | 3,350 | 101 | 101 | 108 | 111 |
| | -30 | 5,170 | 99 | 4,140 | 100 | 3,820 | 101 | 3,530 | 101 | 101 | 108 | 111 |
| | -20 | 5,450 | 100 | 4,390 | 101 | 4,090 | 101 | 3,810 | 101 | 101 | 108 | 111 |
| | -10 | 5,890 | 101 | 4,880 | 101 | 4,570 | 101 | 4,270 | 101 | 101 | 108 | 111 |
| | 0 | 6,810 | 102 | 5,910 | 102 | 5,540 | 102 | 5,180 | 102 | 102 | 109 | 111 |
| | 10 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 4,190 | 95 | 3,330 | 97 | 3,060 | 98 | 2,810 | 98 | 99 | 105 | 108 |
| | -50 | 4,250 | 95 | 3,380 | 97 | 3,110 | 97 | 2,860 | 98 | 99 | 105 | 108 |
| | -40 | 4,400 | 95 | 3,510 | 97 | 3,240 | 97 | 2,980 | 98 | 99 | 105 | 108 |
| | -30 | 4,580 | 95 | 3,670 | 97 | 3,390 | 98 | 3,120 | 98 | 99 | 105 | 107 |
| | -20 | 4,810 | 96 | 3,860 | 97 | 3,580 | 98 | 3,300 | 99 | 100 | 105 | 107 |
| | -10 | 5,150 | 97 | 4,160 | 98 | 3,850 | 99 | 3,570 | 99 | 99 | 105 | 107 |
| | 0 | 5,640 | 98 | 4,740 | 99 | 4,440 | 100 | 4,150 | 100 | 100 | 105 | 107 |
| | 10 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 4,070 | 94 | 3,220 | 96 | 2,960 | 96 | 2,710 | 97 | 98 | 105 | 107 |
| | -50 | 4,120 | 94 | 3,270 | 96 | 3,010 | 96 | 2,760 | 97 | 98 | 105 | 107 |
| | -40 | 4,270 | 94 | 3,400 | 95 | 3,130 | 96 | 2,880 | 97 | 98 | 105 | 107 |
| | -30 | 4,440 | 94 | 3,550 | 96 | 3,270 | 96 | 3,020 | 97 | 98 | 105 | 107 |
| | -20 | 4,670 | 95 | 3,740 | 96 | 3,460 | 97 | 3,190 | 97 | 98 | 104 | 107 |
| | -10 | 5,000 | 96 | 4,020 | 97 | 3,720 | 98 | 3,440 | 98 | 99 | 104 | 106 |
| | 0 | 5,590 | 97 | 4,540 | 98 | 4,230 | 99 | 3,940 | 99 | 99 | 104 | 106 |
| | 10 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,710 | 90 | 2,920 | 92 | 2,690 | 92 | 2,460 | 93 | 95 | 102 | 105 |
| | -50 | 3,760 | 90 | 2,970 | 92 | 2,730 | 92 | 2,500 | 93 | 95 | 102 | 105 |
| | -40 | 3,880 | 90 | 3,080 | 92 | 2,840 | 92 | 2,610 | 93 | 95 | 102 | 105 |
| | -30 | 4,040 | 90 | 3,220 | 92 | 2,970 | 92 | 2,730 | 93 | 95 | 102 | 104 |
| | -20 | 4,230 | 91 | 3,380 | 92 | 3,120 | 93 | 2,870 | 94 | 95 | 102 | 104 |
| | -10 | 4,520 | 92 | 3,620 | 93 | 3,350 | 94 | 3,090 | 94 | 96 | 102 | 104 |
| | 0 | 4,920 | 93 | 4,060 | 95 | 3,760 | 95 | 3,480 | 96 | 96 | 102 | 103 |
| | 10 | 5,830 | 96 | 5,110 | 96 | 4,780 | 96 | 4,470 | 96 | 96 | 101 | 102 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON

| Pressure Altitude: 9,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,610 | 90 | 2,740 | 90 | 2,480 | 90 | 2,230 | 90 | 92 | 100 | 103 |
| | -50 | 3,660 | 90 | 2,780 | 90 | 2,520 | 90 | 2,270 | 90 | 92 | 100 | 103 |
| | -40 | 3,780 | 89 | 2,890 | 89 | 2,620 | 89 | 2,360 | 89 | 92 | 100 | 103 |
| | -30 | 3,900 | 89 | 3,000 | 89 | 2,720 | 89 | 2,470 | 89 | 92 | 100 | 102 |
| | -20 | 4,040 | 89 | 3,120 | 89 | 2,830 | 89 | 2,620 | 89 | 92 | 100 | 102 |
| | -10 | 4,200 | 89 | 3,290 | 89 | 3,060 | 89 | 2,850 | 89 | 93 | 99 | 101 |
| | 0 | 4,490 | 89 | 3,790 | 89 | 3,540 | 89 | 3,300 | 89 | 93 | 99 | 101 |
| | 10 | 5,520 | 88 | 4,900 | 88 | 4,580 | 88 | 4,270 | 88 | 93 | 98 | 99 |
| 15,000 | -54 | 3,540 | 90 | 2,700 | 90 | 2,440 | 90 | 2,200 | 90 | 90 | 98 | 102 |
| | -50 | 3,590 | 90 | 2,740 | 90 | 2,480 | 90 | 2,230 | 90 | 90 | 98 | 102 |
| | -40 | 3,710 | 90 | 2,840 | 90 | 2,580 | 90 | 2,330 | 90 | 90 | 99 | 102 |
| | -30 | 3,820 | 90 | 2,940 | 90 | 2,680 | 90 | 2,420 | 90 | 90 | 98 | 101 |
| | -20 | 3,960 | 89 | 3,050 | 89 | 2,780 | 89 | 2,520 | 89 | 90 | 98 | 101 |
| | -10 | 4,120 | 89 | 3,190 | 89 | 2,910 | 89 | 2,640 | 89 | 90 | 98 | 100 |
| | 0 | 4,310 | 89 | 3,390 | 89 | 3,090 | 89 | 2,810 | 89 | 90 | 97 | 99 |
| | 10 | 4,660 | 89 | 3,940 | 88 | 3,680 | 88 | 3,410 | 88 | 90 | 96 | 97 |
| 14,000 | -54 | 3,470 | 90 | 2,650 | 90 | 2,400 | 90 | 2,170 | 90 | 90 | 99 | 102 |
| | -50 | 3,520 | 90 | 2,690 | 90 | 2,440 | 90 | 2,200 | 90 | 90 | 99 | 102 |
| | -40 | 3,640 | 90 | 2,790 | 90 | 2,530 | 90 | 2,290 | 90 | 90 | 99 | 102 |
| | -30 | 3,760 | 90 | 2,890 | 90 | 2,630 | 90 | 2,380 | 90 | 90 | 99 | 102 |
| | -20 | 3,880 | 90 | 3,000 | 90 | 2,730 | 90 | 2,480 | 90 | 90 | 98 | 101 |
| | -10 | 4,030 | 89 | 3,130 | 89 | 2,850 | 89 | 2,590 | 89 | 90 | 98 | 100 |
| | 0 | 4,210 | 89 | 3,310 | 89 | 3,020 | 89 | 2,750 | 89 | 89 | 97 | 99 |
| | 10 | 4,520 | 89 | 3,610 | 89 | 3,290 | 89 | 3,000 | 89 | 89 | 95 | 96 |
| 13,000 | -54 | 3,420 | 90 | 2,610 | 90 | 2,360 | 90 | 2,140 | 90 | 91 | 99 | 103 |
| | -50 | 3,460 | 90 | 2,650 | 90 | 2,400 | 90 | 2,170 | 90 | 91 | 99 | 103 |
| | -40 | 3,570 | 90 | 2,740 | 90 | 2,500 | 90 | 2,260 | 90 | 91 | 99 | 103 |
| | -30 | 3,690 | 90 | 2,850 | 90 | 2,590 | 90 | 2,350 | 90 | 90 | 99 | 102 |
| | -20 | 3,810 | 90 | 2,950 | 90 | 2,690 | 90 | 2,440 | 90 | 90 | 99 | 102 |
| | -10 | 3,950 | 90 | 3,070 | 90 | 2,800 | 90 | 2,540 | 90 | 90 | 98 | 101 |
| | 0 | 4,130 | 89 | 3,240 | 89 | 2,960 | 89 | 2,700 | 89 | 90 | 97 | 99 |
| | 10 | 4,390 | 89 | 3,510 | 89 | 3,200 | 89 | 2,910 | 89 | 89 | 95 | 97 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON

11 Pressure Altitude: 10,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 10,000 feet | | | | | | | | | | | | |
|--------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 5,030 | 100 | 4,010 | 101 | 3,700 | 101 | 3,450 | 101 | 101 | 108 | 110 |
| | -50 | 5,100 | 100 | 4,080 | 101 | 3,770 | 101 | 3,510 | 101 | 101 | 108 | 111 |
| | -40 | 5,290 | 100 | 4,230 | 101 | 3,920 | 101 | 3,650 | 101 | 101 | 108 | 111 |
| | -30 | 5,600 | 100 | 4,510 | 101 | 4,220 | 101 | 3,940 | 101 | 101 | 108 | 111 |
| | -20 | 5,960 | 101 | 4,950 | 101 | 4,630 | 101 | 4,330 | 101 | 101 | 108 | 111 |
| | -10 | 6,680 | 102 | 5,570 | 101 | 5,210 | 101 | 4,880 | 101 | 102 | 108 | 111 |
| | 0 | 7,880 | 102 | 6,900 | 102 | 6,460 | 102 | 6,060 | 102 | 102 | 109 | 111 |
| | 10 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 4,470 | 96 | 3,560 | 98 | 3,280 | 98 | 3,030 | 99 | 100 | 105 | 107 |
| | -50 | 4,540 | 96 | 3,620 | 97 | 3,340 | 98 | 3,080 | 99 | 100 | 105 | 107 |
| | -40 | 4,690 | 96 | 3,760 | 97 | 3,470 | 98 | 3,200 | 99 | 100 | 105 | 107 |
| | -30 | 4,940 | 96 | 3,970 | 98 | 3,670 | 98 | 3,390 | 99 | 100 | 105 | 107 |
| | -20 | 5,250 | 97 | 4,230 | 98 | 3,920 | 99 | 3,620 | 99 | 99 | 105 | 107 |
| | -10 | 5,630 | 98 | 4,560 | 99 | 4,240 | 99 | 3,980 | 99 | 99 | 105 | 107 |
| | 0 | 6,290 | 100 | 5,410 | 100 | 5,070 | 100 | 4,750 | 100 | 100 | 105 | 107 |
| | 10 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 4,340 | 95 | 3,440 | 96 | 3,170 | 97 | 2,920 | 97 | 98 | 104 | 107 |
| | -50 | 4,400 | 94 | 3,500 | 96 | 3,230 | 97 | 2,970 | 97 | 98 | 104 | 107 |
| | -40 | 4,550 | 94 | 3,640 | 96 | 3,350 | 97 | 3,090 | 97 | 98 | 105 | 107 |
| | -30 | 4,800 | 95 | 3,840 | 96 | 3,550 | 97 | 3,280 | 98 | 99 | 104 | 107 |
| | -20 | 5,090 | 96 | 4,090 | 97 | 3,780 | 97 | 3,490 | 98 | 99 | 104 | 106 |
| | -10 | 5,460 | 96 | 4,410 | 98 | 4,090 | 98 | 3,790 | 99 | 99 | 104 | 106 |
| | 0 | 6,190 | 98 | 5,110 | 99 | 4,770 | 99 | 4,470 | 99 | 99 | 104 | 105 |
| | 10 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,940 | 90 | 3,120 | 92 | 2,870 | 93 | 2,630 | 94 | 96 | 102 | 104 |
| | -50 | 3,990 | 90 | 3,170 | 92 | 2,920 | 93 | 2,680 | 93 | 96 | 102 | 104 |
| | -40 | 4,130 | 90 | 3,290 | 92 | 3,040 | 93 | 2,800 | 93 | 95 | 102 | 104 |
| | -30 | 4,350 | 91 | 3,470 | 93 | 3,200 | 93 | 2,950 | 94 | 96 | 102 | 104 |
| | -20 | 4,610 | 92 | 3,690 | 93 | 3,410 | 94 | 3,140 | 94 | 96 | 102 | 104 |
| | -10 | 4,930 | 93 | 3,960 | 94 | 3,670 | 95 | 3,380 | 95 | 96 | 102 | 104 |
| | 0 | 5,420 | 94 | 4,490 | 96 | 4,170 | 96 | 3,890 | 96 | 96 | 101 | 103 |
| | 10 | 6,690 | 96 | 5,990 | 96 | 5,620 | 96 | 5,260 | 96 | 96 | 101 | 102 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON

| Pressure Altitude: 10,000 feet | | | | | | | | | | | | |
|---------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,790 | 89 | 2,890 | 89 | 2,620 | 89 | 2,390 | 90 | 92 | 100 | 102 |
| | -50 | 3,840 | 89 | 2,940 | 89 | 2,660 | 89 | 2,430 | 89 | 92 | 100 | 102 |
| | -40 | 3,980 | 89 | 3,050 | 89 | 2,770 | 89 | 2,530 | 89 | 92 | 100 | 102 |
| | -30 | 4,130 | 89 | 3,180 | 89 | 2,900 | 89 | 2,700 | 89 | 92 | 99 | 102 |
| | -20 | 4,280 | 89 | 3,350 | 89 | 3,120 | 89 | 2,900 | 89 | 93 | 99 | 102 |
| | -10 | 4,470 | 89 | 3,650 | 89 | 3,410 | 89 | 3,180 | 89 | 93 | 99 | 101 |
| | 0 | 4,990 | 89 | 4,280 | 89 | 4,010 | 89 | 3,730 | 89 | 93 | 98 | 100 |
| | 10 | 6,350 | 88 | 5,710 | 88 | 5,330 | 88 | 4,980 | 88 | 93 | 98 | 99 |
| 15,000 | -54 | 3,720 | 90 | 2,840 | 90 | 2,570 | 90 | 2,320 | 90 | 90 | 98 | 101 |
| | -50 | 3,770 | 90 | 2,880 | 90 | 2,620 | 90 | 2,360 | 90 | 90 | 98 | 101 |
| | -40 | 3,900 | 90 | 2,990 | 90 | 2,720 | 90 | 2,460 | 90 | 90 | 98 | 101 |
| | -30 | 4,050 | 89 | 3,120 | 89 | 2,840 | 89 | 2,570 | 89 | 90 | 98 | 101 |
| | -20 | 4,210 | 89 | 3,250 | 89 | 2,970 | 89 | 2,690 | 89 | 90 | 98 | 100 |
| | -10 | 4,370 | 89 | 3,410 | 89 | 3,110 | 89 | 2,820 | 89 | 90 | 97 | 99 |
| | 0 | 4,620 | 89 | 3,650 | 89 | 3,330 | 89 | 3,060 | 89 | 90 | 96 | 98 |
| | 10 | 5,140 | 88 | 4,500 | 88 | 4,210 | 88 | 3,920 | 88 | 90 | 95 | 97 |
| 14,000 | -54 | 3,650 | 90 | 2,790 | 90 | 2,530 | 90 | 2,290 | 90 | 90 | 99 | 102 |
| | -50 | 3,700 | 90 | 2,840 | 90 | 2,570 | 90 | 2,330 | 90 | 90 | 99 | 102 |
| | -40 | 3,820 | 90 | 2,940 | 90 | 2,670 | 90 | 2,420 | 90 | 90 | 99 | 102 |
| | -30 | 3,960 | 90 | 3,060 | 90 | 2,790 | 90 | 2,530 | 90 | 90 | 98 | 101 |
| | -20 | 4,110 | 89 | 3,190 | 89 | 2,910 | 89 | 2,640 | 89 | 90 | 98 | 101 |
| | -10 | 4,280 | 89 | 3,330 | 89 | 3,040 | 89 | 2,770 | 89 | 90 | 97 | 100 |
| | 0 | 4,500 | 89 | 3,550 | 89 | 3,240 | 89 | 2,950 | 89 | 89 | 96 | 98 |
| | 10 | 4,870 | 89 | 3,920 | 88 | 3,580 | 88 | 3,290 | 88 | 89 | 94 | 96 |
| 13,000 | -54 | 3,590 | 90 | 2,750 | 90 | 2,500 | 90 | 2,260 | 90 | 91 | 99 | 102 |
| | -50 | 3,630 | 90 | 2,790 | 90 | 2,540 | 90 | 2,290 | 90 | 91 | 99 | 102 |
| | -40 | 3,750 | 90 | 2,890 | 90 | 2,630 | 90 | 2,390 | 90 | 90 | 99 | 102 |
| | -30 | 3,880 | 90 | 3,000 | 90 | 2,740 | 90 | 2,490 | 90 | 90 | 98 | 102 |
| | -20 | 4,030 | 90 | 3,130 | 90 | 2,860 | 90 | 2,600 | 90 | 90 | 98 | 101 |
| | -10 | 4,190 | 89 | 3,260 | 89 | 2,980 | 89 | 2,710 | 89 | 90 | 98 | 100 |
| | 0 | 4,380 | 89 | 3,460 | 89 | 3,160 | 89 | 2,880 | 89 | 89 | 96 | 99 |
| | 10 | 4,720 | 89 | 3,790 | 89 | 3,470 | 89 | 3,150 | 89 | 89 | 95 | 96 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 15, IPS ON

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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Takeoff, Wet Runway, Slope Adjustment, Flaps 15

1 Wet Runway Slope Adjustments - Flaps 15

FLAPS 15 WET RUNWAY SLOPE CORRECTIONS

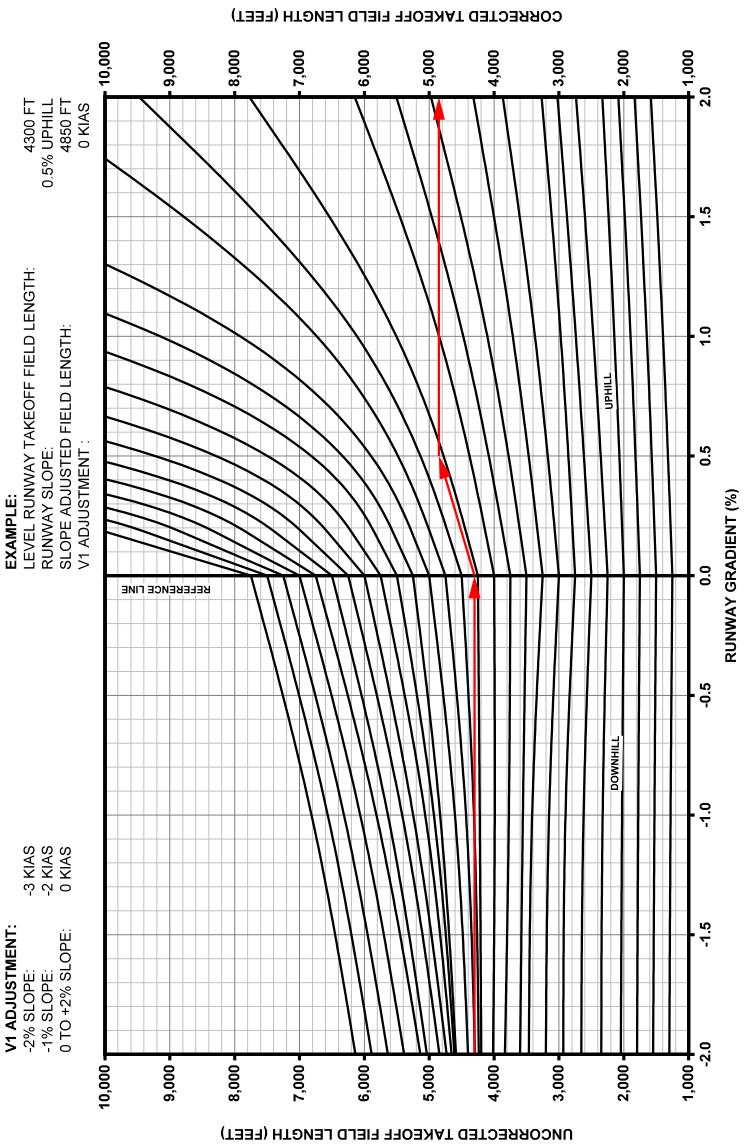


Figure 5-TO-10-1: Wet Runway Slope Adjustments - Flaps 15



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

This Page Intentionally Left Blank



Takeoff, Wet Runway, No Slope, Flaps 8, IPS OFF

1 Pressure Altitude: Sea level

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: Sea level | | | | | | | | | | | | |
|------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|----------------|------------------|----------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R | V _{LOF} | V ₂ |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | KIAS | KIAS | KIAS |
| 18,740 | -54 | 3,710 | 100 | 2,870 | 102 | 2,620 | 103 | 2,390 | 103 | 107 | 113 | 116 |
| | -10 | 4,280 | 100 | 3,380 | 102 | 3,100 | 102 | 2,840 | 103 | 107 | 113 | 116 |
| | 0 | 4,410 | 100 | 3,490 | 102 | 3,210 | 102 | 2,950 | 103 | 107 | 113 | 116 |
| | 10 | 4,550 | 100 | 3,610 | 102 | 3,330 | 102 | 3,060 | 103 | 107 | 113 | 116 |
| | 20 | 4,650 | 100 | 3,700 | 102 | 3,410 | 102 | 3,140 | 103 | 107 | 113 | 116 |
| | 30 | 5,180 | 103 | 4,130 | 104 | 3,820 | 105 | 3,510 | 105 | 108 | 113 | 115 |
| | 40 | 6,070 | 107 | 4,880 | 108 | 4,540 | 108 | 4,240 | 108 | 108 | 113 | 115 |
| | 50 | 7,950 | 108 | 6,560 | 108 | 6,130 | 108 | 5,710 | 108 | 108 | 112 | 114 |
| 18,300 | -54 | 3,480 | 97 | 2,710 | 99 | 2,480 | 100 | 2,250 | 101 | 105 | 112 | 115 |
| | -10 | 4,010 | 97 | 3,170 | 99 | 2,920 | 100 | 2,680 | 101 | 105 | 112 | 115 |
| | 0 | 4,140 | 97 | 3,290 | 99 | 3,030 | 100 | 2,780 | 101 | 105 | 112 | 115 |
| | 10 | 4,270 | 98 | 3,390 | 99 | 3,130 | 100 | 2,880 | 101 | 105 | 112 | 115 |
| | 20 | 4,390 | 98 | 3,500 | 99 | 3,240 | 100 | 2,980 | 101 | 105 | 112 | 115 |
| | 30 | 4,910 | 100 | 3,930 | 102 | 3,640 | 102 | 3,350 | 103 | 106 | 111 | 114 |
| | 40 | 5,740 | 103 | 4,630 | 105 | 4,310 | 106 | 3,980 | 106 | 107 | 111 | 113 |
| | 50 | 7,180 | 106 | 5,950 | 106 | 5,580 | 106 | 5,200 | 106 | 106 | 110 | 112 |
| 18,000 | -54 | 3,390 | 96 | 2,640 | 98 | 2,410 | 99 | 2,190 | 100 | 104 | 111 | 114 |
| | -10 | 3,910 | 96 | 3,090 | 98 | 2,840 | 99 | 2,600 | 99 | 104 | 111 | 114 |
| | 0 | 4,030 | 96 | 3,190 | 98 | 2,940 | 99 | 2,700 | 99 | 104 | 111 | 114 |
| | 10 | 4,150 | 96 | 3,300 | 98 | 3,040 | 99 | 2,800 | 99 | 104 | 111 | 114 |
| | 20 | 4,280 | 96 | 3,410 | 98 | 3,160 | 99 | 2,900 | 99 | 104 | 111 | 114 |
| | 30 | 4,770 | 99 | 3,820 | 100 | 3,540 | 101 | 3,250 | 101 | 105 | 111 | 113 |
| | 40 | 5,570 | 102 | 4,480 | 104 | 4,160 | 104 | 3,840 | 105 | 106 | 110 | 112 |
| | 50 | 6,860 | 105 | 5,660 | 105 | 5,310 | 105 | 4,950 | 105 | 105 | 110 | 111 |
| 17,000 | -54 | 3,110 | 92 | 2,400 | 94 | 2,190 | 95 | 1,990 | 96 | 101 | 108 | 111 |
| | -10 | 3,570 | 92 | 2,810 | 94 | 2,580 | 95 | 2,360 | 96 | 101 | 109 | 112 |
| | 0 | 3,680 | 92 | 2,910 | 94 | 2,670 | 95 | 2,450 | 96 | 101 | 109 | 112 |
| | 10 | 3,800 | 92 | 3,010 | 94 | 2,770 | 95 | 2,540 | 96 | 101 | 109 | 112 |
| | 20 | 3,900 | 92 | 3,110 | 94 | 2,870 | 95 | 2,630 | 96 | 101 | 109 | 112 |
| | 30 | 4,340 | 95 | 3,460 | 96 | 3,190 | 97 | 2,930 | 98 | 101 | 108 | 111 |
| | 40 | 5,020 | 98 | 4,010 | 100 | 3,710 | 100 | 3,410 | 101 | 102 | 107 | 110 |
| | 50 | 5,980 | 102 | 4,870 | 103 | 4,550 | 103 | 4,240 | 103 | 103 | 107 | 109 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 8, IPS OFF

| Pressure Altitude: Sea level | | | | | | | | | | | | |
|------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,990 | 90 | 2,210 | 91 | 1,990 | 91 | 1,800 | 92 | 98 | 105 | 109 |
| | -10 | 3,380 | 90 | 2,560 | 90 | 2,350 | 91 | 2,140 | 92 | 98 | 106 | 109 |
| | 0 | 3,480 | 90 | 2,650 | 90 | 2,430 | 91 | 2,220 | 92 | 98 | 106 | 109 |
| | 10 | 3,570 | 90 | 2,730 | 90 | 2,510 | 91 | 2,300 | 92 | 98 | 106 | 109 |
| | 20 | 3,660 | 90 | 2,830 | 90 | 2,600 | 91 | 2,380 | 92 | 98 | 106 | 109 |
| | 30 | 3,930 | 91 | 3,130 | 92 | 2,880 | 93 | 2,640 | 94 | 98 | 105 | 108 |
| | 40 | 4,530 | 94 | 3,600 | 95 | 3,320 | 96 | 3,050 | 96 | 99 | 105 | 107 |
| | 50 | 5,300 | 97 | 4,240 | 99 | 3,950 | 99 | 3,660 | 99 | 99 | 104 | 106 |
| 15,000 | -54 | 2,960 | 91 | 2,200 | 91 | 1,960 | 91 | 1,750 | 91 | 95 | 103 | 107 |
| | -10 | 3,350 | 90 | 2,540 | 90 | 2,290 | 90 | 2,050 | 90 | 95 | 103 | 107 |
| | 0 | 3,440 | 90 | 2,610 | 90 | 2,360 | 90 | 2,120 | 90 | 95 | 104 | 107 |
| | 10 | 3,530 | 90 | 2,690 | 90 | 2,430 | 90 | 2,190 | 90 | 95 | 104 | 107 |
| | 20 | 3,620 | 90 | 2,760 | 90 | 2,510 | 90 | 2,260 | 90 | 95 | 104 | 107 |
| | 30 | 3,790 | 90 | 2,890 | 90 | 2,630 | 90 | 2,370 | 90 | 95 | 103 | 106 |
| | 40 | 4,060 | 89 | 3,220 | 91 | 2,970 | 92 | 2,710 | 92 | 95 | 102 | 104 |
| | 50 | 4,720 | 93 | 3,750 | 94 | 3,460 | 95 | 3,170 | 95 | 96 | 101 | 103 |
| 14,000 | -54 | 2,950 | 91 | 2,200 | 91 | 1,970 | 91 | 1,760 | 91 | 92 | 101 | 106 |
| | -10 | 3,330 | 91 | 2,530 | 91 | 2,290 | 91 | 2,050 | 91 | 91 | 101 | 106 |
| | 0 | 3,420 | 90 | 2,600 | 90 | 2,360 | 90 | 2,120 | 90 | 91 | 102 | 106 |
| | 10 | 3,500 | 90 | 2,680 | 90 | 2,430 | 90 | 2,190 | 90 | 91 | 102 | 106 |
| | 20 | 3,590 | 90 | 2,750 | 90 | 2,500 | 90 | 2,260 | 90 | 91 | 102 | 106 |
| | 30 | 3,740 | 90 | 2,860 | 90 | 2,610 | 90 | 2,350 | 90 | 92 | 101 | 104 |
| | 40 | 3,960 | 89 | 3,040 | 89 | 2,760 | 89 | 2,480 | 89 | 92 | 99 | 102 |
| | 50 | 4,260 | 89 | 3,310 | 90 | 3,050 | 90 | 2,790 | 91 | 92 | 98 | 100 |
| 13,000 | -54 | 2,960 | 91 | 2,210 | 91 | 1,980 | 91 | 1,770 | 91 | 92 | 102 | 107 |
| | -10 | 3,320 | 91 | 2,530 | 91 | 2,290 | 91 | 2,070 | 91 | 91 | 102 | 107 |
| | 0 | 3,410 | 91 | 2,610 | 91 | 2,360 | 91 | 2,130 | 91 | 91 | 102 | 107 |
| | 10 | 3,490 | 91 | 2,670 | 91 | 2,430 | 91 | 2,200 | 91 | 91 | 102 | 106 |
| | 20 | 3,580 | 90 | 2,750 | 90 | 2,510 | 90 | 2,260 | 91 | 91 | 102 | 106 |
| | 30 | 3,710 | 90 | 2,850 | 90 | 2,600 | 90 | 2,340 | 90 | 90 | 100 | 104 |
| | 40 | 3,900 | 89 | 2,990 | 89 | 2,730 | 89 | 2,460 | 89 | 90 | 98 | 101 |
| | 50 | 4,160 | 89 | 3,190 | 89 | 2,900 | 89 | 2,610 | 89 | 89 | 97 | 99 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 8, IPS OFF

2 Pressure Altitude: 1,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 1,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,810 | 100 | 2,970 | 102 | 2,710 | 103 | 2,470 | 103 | 107 | 113 | 116 |
| | -10 | 4,410 | 100 | 3,490 | 102 | 3,210 | 102 | 2,940 | 103 | 107 | 113 | 116 |
| | 0 | 4,540 | 100 | 3,610 | 102 | 3,320 | 102 | 3,050 | 103 | 107 | 113 | 116 |
| | 10 | 4,690 | 100 | 3,730 | 102 | 3,440 | 102 | 3,170 | 103 | 107 | 114 | 116 |
| | 20 | 4,840 | 101 | 3,870 | 102 | 3,570 | 103 | 3,290 | 103 | 107 | 113 | 116 |
| | 30 | 5,490 | 104 | 4,400 | 105 | 4,070 | 106 | 3,750 | 106 | 108 | 113 | 115 |
| | 40 | 6,520 | 107 | 5,310 | 108 | 4,960 | 108 | 4,620 | 108 | 108 | 113 | 115 |
| | 50 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 3,590 | 97 | 2,800 | 99 | 2,560 | 100 | 2,340 | 101 | 105 | 112 | 115 |
| | -10 | 4,130 | 97 | 3,280 | 99 | 3,020 | 100 | 2,770 | 101 | 105 | 112 | 115 |
| | 0 | 4,260 | 97 | 3,390 | 99 | 3,130 | 100 | 2,880 | 101 | 105 | 112 | 115 |
| | 10 | 4,390 | 98 | 3,510 | 99 | 3,240 | 100 | 2,980 | 101 | 105 | 112 | 115 |
| | 20 | 4,580 | 98 | 3,670 | 100 | 3,400 | 100 | 3,120 | 101 | 105 | 112 | 115 |
| | 30 | 5,200 | 101 | 4,180 | 102 | 3,870 | 103 | 3,570 | 103 | 106 | 111 | 114 |
| | 40 | 6,120 | 104 | 4,980 | 106 | 4,640 | 106 | 4,310 | 106 | 107 | 111 | 113 |
| | 50 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,490 | 96 | 2,720 | 98 | 2,490 | 99 | 2,270 | 100 | 104 | 111 | 114 |
| | -10 | 4,020 | 96 | 3,190 | 98 | 2,940 | 99 | 2,690 | 99 | 104 | 111 | 114 |
| | 0 | 4,150 | 96 | 3,300 | 98 | 3,040 | 99 | 2,790 | 99 | 104 | 111 | 114 |
| | 10 | 4,280 | 96 | 3,410 | 98 | 3,150 | 99 | 2,900 | 99 | 104 | 111 | 114 |
| | 20 | 4,460 | 97 | 3,570 | 99 | 3,300 | 99 | 3,040 | 100 | 104 | 111 | 114 |
| | 30 | 5,050 | 100 | 4,060 | 101 | 3,760 | 102 | 3,460 | 102 | 105 | 111 | 113 |
| | 40 | 5,930 | 103 | 4,800 | 104 | 4,470 | 105 | 4,150 | 105 | 106 | 110 | 112 |
| | 50 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,190 | 92 | 2,480 | 94 | 2,260 | 95 | 2,060 | 96 | 101 | 108 | 111 |
| | -10 | 3,680 | 92 | 2,910 | 94 | 2,670 | 95 | 2,450 | 96 | 101 | 109 | 112 |
| | 0 | 3,790 | 92 | 3,010 | 94 | 2,770 | 95 | 2,540 | 96 | 101 | 109 | 112 |
| | 10 | 3,910 | 92 | 3,110 | 94 | 2,860 | 95 | 2,630 | 96 | 101 | 109 | 112 |
| | 20 | 4,070 | 93 | 3,250 | 95 | 3,000 | 95 | 2,750 | 96 | 101 | 109 | 111 |
| | 30 | 4,590 | 96 | 3,670 | 97 | 3,390 | 98 | 3,110 | 98 | 102 | 108 | 110 |
| | 40 | 5,320 | 99 | 4,280 | 100 | 3,960 | 101 | 3,650 | 101 | 102 | 107 | 109 |
| | 50 | 6,530 | 102 | 5,370 | 102 | 5,030 | 102 | 4,680 | 102 | 102 | 107 | 109 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 8, IPS OFF

| Pressure Altitude: 1,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,060 | 90 | 2,270 | 90 | 2,060 | 91 | 1,870 | 92 | 98 | 106 | 109 |
| | -10 | 3,470 | 90 | 2,640 | 90 | 2,430 | 91 | 2,220 | 92 | 98 | 106 | 109 |
| | 0 | 3,570 | 90 | 2,730 | 90 | 2,510 | 91 | 2,300 | 92 | 98 | 106 | 109 |
| | 10 | 3,660 | 90 | 2,830 | 90 | 2,600 | 91 | 2,380 | 92 | 98 | 106 | 109 |
| | 20 | 3,770 | 90 | 2,950 | 91 | 2,720 | 91 | 2,500 | 92 | 98 | 106 | 109 |
| | 30 | 4,150 | 91 | 3,300 | 93 | 3,050 | 94 | 2,800 | 94 | 98 | 105 | 108 |
| | 40 | 4,790 | 95 | 3,820 | 96 | 3,530 | 97 | 3,240 | 97 | 99 | 104 | 107 |
| | 50 | 5,680 | 98 | 4,600 | 99 | 4,300 | 99 | 3,990 | 99 | 99 | 104 | 106 |
| 15,000 | -54 | 3,040 | 91 | 2,260 | 91 | 2,030 | 91 | 1,810 | 91 | 95 | 103 | 107 |
| | -10 | 3,440 | 90 | 2,610 | 90 | 2,360 | 90 | 2,120 | 90 | 95 | 104 | 107 |
| | 0 | 3,540 | 90 | 2,690 | 90 | 2,440 | 90 | 2,190 | 90 | 95 | 104 | 107 |
| | 10 | 3,620 | 90 | 2,770 | 90 | 2,510 | 90 | 2,270 | 90 | 95 | 104 | 107 |
| | 20 | 3,730 | 90 | 2,860 | 90 | 2,600 | 90 | 2,340 | 90 | 95 | 104 | 107 |
| | 30 | 3,920 | 89 | 3,020 | 90 | 2,760 | 90 | 2,510 | 90 | 95 | 103 | 105 |
| | 40 | 4,300 | 90 | 3,410 | 92 | 3,150 | 92 | 2,880 | 93 | 95 | 102 | 104 |
| | 50 | 5,020 | 94 | 4,020 | 95 | 3,730 | 95 | 3,430 | 95 | 96 | 101 | 103 |
| 14,000 | -54 | 3,020 | 91 | 2,260 | 91 | 2,030 | 91 | 1,810 | 91 | 91 | 101 | 106 |
| | -10 | 3,420 | 90 | 2,600 | 90 | 2,360 | 90 | 2,120 | 90 | 91 | 102 | 106 |
| | 0 | 3,510 | 90 | 2,680 | 90 | 2,430 | 90 | 2,190 | 90 | 91 | 102 | 106 |
| | 10 | 3,600 | 90 | 2,760 | 90 | 2,510 | 90 | 2,260 | 90 | 91 | 102 | 106 |
| | 20 | 3,700 | 90 | 2,840 | 90 | 2,590 | 90 | 2,330 | 90 | 91 | 102 | 105 |
| | 30 | 3,870 | 90 | 2,970 | 90 | 2,700 | 90 | 2,440 | 90 | 92 | 100 | 103 |
| | 40 | 4,110 | 89 | 3,150 | 89 | 2,870 | 89 | 2,600 | 89 | 92 | 99 | 102 |
| | 50 | 4,480 | 89 | 3,530 | 90 | 3,260 | 91 | 2,980 | 91 | 92 | 98 | 100 |
| 13,000 | -54 | 3,030 | 91 | 2,270 | 91 | 2,040 | 91 | 1,830 | 91 | 92 | 102 | 107 |
| | -10 | 3,410 | 91 | 2,600 | 91 | 2,360 | 91 | 2,130 | 91 | 91 | 102 | 107 |
| | 0 | 3,500 | 91 | 2,680 | 91 | 2,430 | 91 | 2,200 | 91 | 91 | 102 | 106 |
| | 10 | 3,580 | 90 | 2,750 | 90 | 2,510 | 90 | 2,270 | 91 | 91 | 102 | 106 |
| | 20 | 3,670 | 90 | 2,830 | 90 | 2,590 | 90 | 2,340 | 90 | 91 | 101 | 106 |
| | 30 | 3,820 | 90 | 2,950 | 90 | 2,690 | 90 | 2,420 | 90 | 90 | 100 | 103 |
| | 40 | 4,030 | 89 | 3,100 | 89 | 2,830 | 89 | 2,550 | 89 | 90 | 98 | 101 |
| | 50 | 4,330 | 89 | 3,320 | 89 | 3,030 | 89 | 2,730 | 89 | 89 | 96 | 98 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 8, IPS OFF

3 Pressure Altitude: 2,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 2,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,890 | 100 | 3,030 | 102 | 2,770 | 103 | 2,530 | 103 | 107 | 113 | 116 |
| | -10 | 4,490 | 100 | 3,570 | 102 | 3,290 | 102 | 3,020 | 103 | 107 | 113 | 116 |
| | 0 | 4,630 | 100 | 3,690 | 102 | 3,410 | 102 | 3,130 | 103 | 107 | 114 | 116 |
| | 10 | 4,780 | 100 | 3,820 | 102 | 3,530 | 102 | 3,250 | 103 | 107 | 114 | 116 |
| | 20 | 5,070 | 102 | 4,050 | 103 | 3,750 | 103 | 3,460 | 104 | 107 | 113 | 116 |
| | 30 | 5,810 | 105 | 4,680 | 106 | 4,330 | 107 | 4,010 | 107 | 108 | 113 | 115 |
| | 40 | 7,050 | 108 | 5,800 | 108 | 5,430 | 108 | 5,060 | 108 | 108 | 112 | 114 |
| | 50 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 3,690 | 97 | 2,890 | 99 | 2,640 | 100 | 2,420 | 101 | 105 | 112 | 115 |
| | -10 | 4,260 | 97 | 3,390 | 99 | 3,120 | 100 | 2,870 | 100 | 105 | 112 | 115 |
| | 0 | 4,390 | 98 | 3,500 | 99 | 3,240 | 100 | 2,980 | 100 | 105 | 112 | 115 |
| | 10 | 4,520 | 98 | 3,630 | 99 | 3,350 | 100 | 3,090 | 100 | 105 | 112 | 115 |
| | 20 | 4,790 | 99 | 3,850 | 100 | 3,570 | 101 | 3,280 | 101 | 105 | 112 | 114 |
| | 30 | 5,500 | 102 | 4,430 | 103 | 4,120 | 104 | 3,810 | 104 | 106 | 111 | 113 |
| | 40 | 6,530 | 105 | 5,360 | 106 | 5,020 | 106 | 4,670 | 106 | 106 | 111 | 113 |
| | 50 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,590 | 96 | 2,810 | 98 | 2,570 | 99 | 2,350 | 100 | 104 | 111 | 114 |
| | -10 | 4,140 | 96 | 3,300 | 98 | 3,040 | 99 | 2,790 | 99 | 104 | 111 | 114 |
| | 0 | 4,270 | 96 | 3,410 | 98 | 3,150 | 99 | 2,900 | 99 | 104 | 111 | 114 |
| | 10 | 4,410 | 96 | 3,530 | 98 | 3,260 | 99 | 3,000 | 99 | 104 | 111 | 114 |
| | 20 | 4,660 | 97 | 3,740 | 99 | 3,470 | 100 | 3,190 | 100 | 104 | 111 | 114 |
| | 30 | 5,340 | 101 | 4,300 | 102 | 3,990 | 102 | 3,680 | 103 | 105 | 110 | 113 |
| | 40 | 6,320 | 104 | 5,150 | 105 | 4,820 | 105 | 4,490 | 105 | 106 | 110 | 112 |
| | 50 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,280 | 92 | 2,560 | 94 | 2,340 | 95 | 2,130 | 96 | 101 | 108 | 111 |
| | -10 | 3,790 | 92 | 3,000 | 94 | 2,760 | 95 | 2,540 | 96 | 101 | 109 | 112 |
| | 0 | 3,910 | 92 | 3,110 | 94 | 2,860 | 95 | 2,630 | 96 | 101 | 109 | 112 |
| | 10 | 4,030 | 92 | 3,210 | 94 | 2,970 | 95 | 2,720 | 96 | 101 | 109 | 112 |
| | 20 | 4,250 | 93 | 3,400 | 95 | 3,140 | 96 | 2,890 | 96 | 101 | 109 | 111 |
| | 30 | 4,850 | 96 | 3,880 | 98 | 3,600 | 98 | 3,310 | 99 | 102 | 108 | 110 |
| | 40 | 5,650 | 100 | 4,570 | 101 | 4,250 | 102 | 3,920 | 102 | 103 | 107 | 109 |
| | 50 | 7,160 | 102 | 5,930 | 102 | 5,560 | 102 | 5,190 | 102 | 102 | 107 | 108 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 8, IPS OFF

| Pressure Altitude: 2,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,140 | 90 | 2,330 | 90 | 2,130 | 91 | 1,930 | 92 | 98 | 106 | 109 |
| | -10 | 3,570 | 90 | 2,730 | 90 | 2,510 | 91 | 2,300 | 92 | 98 | 106 | 109 |
| | 0 | 3,670 | 90 | 2,830 | 90 | 2,600 | 91 | 2,380 | 92 | 98 | 106 | 109 |
| | 10 | 3,760 | 90 | 2,920 | 90 | 2,700 | 91 | 2,470 | 92 | 98 | 106 | 109 |
| | 20 | 3,890 | 90 | 3,090 | 91 | 2,850 | 92 | 2,620 | 93 | 98 | 106 | 109 |
| | 30 | 4,380 | 92 | 3,500 | 94 | 3,230 | 94 | 2,970 | 95 | 98 | 105 | 107 |
| | 40 | 5,070 | 95 | 4,060 | 97 | 3,760 | 97 | 3,460 | 98 | 99 | 104 | 106 |
| | 50 | 6,100 | 99 | 5,000 | 99 | 4,680 | 99 | 4,360 | 99 | 99 | 104 | 106 |
| 15,000 | -54 | 3,110 | 91 | 2,330 | 91 | 2,090 | 91 | 1,870 | 91 | 95 | 103 | 107 |
| | -10 | 3,530 | 90 | 2,690 | 90 | 2,440 | 90 | 2,190 | 90 | 95 | 104 | 107 |
| | 0 | 3,630 | 90 | 2,770 | 90 | 2,510 | 90 | 2,270 | 90 | 95 | 104 | 107 |
| | 10 | 3,730 | 90 | 2,860 | 90 | 2,600 | 90 | 2,340 | 90 | 95 | 104 | 107 |
| | 20 | 3,840 | 90 | 2,950 | 90 | 2,690 | 90 | 2,420 | 90 | 95 | 103 | 107 |
| | 30 | 4,060 | 89 | 3,150 | 90 | 2,910 | 90 | 2,660 | 91 | 95 | 102 | 105 |
| | 40 | 4,540 | 91 | 3,620 | 92 | 3,340 | 93 | 3,070 | 93 | 95 | 102 | 104 |
| | 50 | 5,340 | 94 | 4,310 | 95 | 4,010 | 96 | 3,720 | 96 | 96 | 101 | 103 |
| 14,000 | -54 | 3,100 | 91 | 2,320 | 91 | 2,090 | 91 | 1,870 | 91 | 91 | 101 | 106 |
| | -10 | 3,510 | 90 | 2,680 | 90 | 2,430 | 90 | 2,190 | 90 | 91 | 102 | 106 |
| | 0 | 3,600 | 90 | 2,760 | 90 | 2,510 | 90 | 2,260 | 90 | 91 | 102 | 106 |
| | 10 | 3,690 | 90 | 2,840 | 90 | 2,590 | 90 | 2,330 | 90 | 91 | 102 | 106 |
| | 20 | 3,800 | 90 | 2,930 | 90 | 2,670 | 90 | 2,410 | 90 | 91 | 101 | 105 |
| | 30 | 3,990 | 89 | 3,080 | 89 | 2,800 | 89 | 2,530 | 89 | 92 | 100 | 103 |
| | 40 | 4,250 | 89 | 3,280 | 89 | 3,000 | 89 | 2,720 | 89 | 92 | 99 | 101 |
| | 50 | 4,720 | 90 | 3,750 | 91 | 3,470 | 92 | 3,200 | 92 | 92 | 98 | 100 |
| 13,000 | -54 | 3,100 | 91 | 2,340 | 91 | 2,100 | 91 | 1,880 | 91 | 92 | 102 | 107 |
| | -10 | 3,500 | 91 | 2,680 | 91 | 2,430 | 91 | 2,200 | 91 | 91 | 102 | 106 |
| | 0 | 3,590 | 90 | 2,760 | 90 | 2,500 | 91 | 2,270 | 91 | 91 | 102 | 106 |
| | 10 | 3,670 | 90 | 2,840 | 90 | 2,590 | 90 | 2,340 | 90 | 91 | 102 | 106 |
| | 20 | 3,770 | 90 | 2,920 | 90 | 2,670 | 90 | 2,410 | 90 | 91 | 101 | 105 |
| | 30 | 3,950 | 90 | 3,040 | 90 | 2,780 | 90 | 2,510 | 90 | 90 | 99 | 103 |
| | 40 | 4,170 | 89 | 3,220 | 89 | 2,940 | 89 | 2,660 | 89 | 89 | 98 | 100 |
| | 50 | 4,490 | 89 | 3,460 | 89 | 3,160 | 89 | 2,850 | 89 | 89 | 96 | 98 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 8, IPS OFF

4 Pressure Altitude: 3,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 3,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|----------------|------------------|----------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R | V _{LOF} | V ₂ |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | KIAS | KIAS | KIAS |
| 18,740 | -54 | 4,040 | 100 | 3,160 | 102 | 2,900 | 102 | 2,650 | 103 | 107 | 113 | 116 |
| | -10 | 4,670 | 100 | 3,730 | 102 | 3,440 | 102 | 3,160 | 103 | 107 | 114 | 116 |
| | 0 | 4,820 | 100 | 3,860 | 102 | 3,560 | 102 | 3,280 | 103 | 107 | 114 | 116 |
| | 10 | 4,990 | 100 | 3,990 | 102 | 3,690 | 102 | 3,410 | 103 | 107 | 114 | 116 |
| | 20 | 5,350 | 102 | 4,290 | 104 | 3,970 | 104 | 3,670 | 105 | 107 | 113 | 115 |
| | 30 | 6,180 | 106 | 5,000 | 107 | 4,650 | 107 | 4,310 | 108 | 108 | 113 | 115 |
| | 40 | 7,780 | 108 | 6,440 | 108 | 6,030 | 108 | 5,640 | 108 | 108 | 112 | 114 |
| | 47 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 3,790 | 97 | 2,980 | 99 | 2,730 | 100 | 2,500 | 101 | 105 | 112 | 115 |
| | -10 | 4,390 | 97 | 3,500 | 99 | 3,230 | 100 | 2,980 | 100 | 105 | 112 | 115 |
| | 0 | 4,530 | 98 | 3,620 | 99 | 3,350 | 100 | 3,090 | 100 | 105 | 112 | 115 |
| | 10 | 4,670 | 98 | 3,750 | 99 | 3,470 | 100 | 3,200 | 100 | 105 | 112 | 115 |
| | 20 | 5,050 | 99 | 4,070 | 101 | 3,780 | 101 | 3,480 | 102 | 105 | 112 | 114 |
| | 30 | 5,840 | 103 | 4,720 | 104 | 4,400 | 104 | 4,070 | 105 | 106 | 111 | 113 |
| | 40 | 7,070 | 106 | 5,860 | 106 | 5,500 | 106 | 5,130 | 106 | 106 | 111 | 112 |
| | 47 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,690 | 96 | 2,900 | 98 | 2,660 | 99 | 2,430 | 100 | 104 | 111 | 114 |
| | -10 | 4,270 | 96 | 3,410 | 98 | 3,140 | 99 | 2,890 | 99 | 104 | 111 | 114 |
| | 0 | 4,410 | 96 | 3,520 | 98 | 3,250 | 99 | 3,000 | 99 | 104 | 111 | 114 |
| | 10 | 4,540 | 96 | 3,650 | 98 | 3,380 | 99 | 3,110 | 99 | 104 | 111 | 114 |
| | 20 | 4,910 | 98 | 3,960 | 100 | 3,670 | 100 | 3,380 | 101 | 104 | 111 | 113 |
| | 30 | 5,670 | 101 | 4,580 | 103 | 4,260 | 103 | 3,940 | 104 | 105 | 110 | 112 |
| | 40 | 6,810 | 105 | 5,610 | 105 | 5,260 | 105 | 4,910 | 105 | 105 | 110 | 112 |
| | 47 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,380 | 92 | 2,640 | 94 | 2,420 | 95 | 2,210 | 96 | 101 | 108 | 111 |
| | -10 | 3,900 | 92 | 3,100 | 94 | 2,860 | 95 | 2,630 | 96 | 101 | 109 | 112 |
| | 0 | 4,020 | 92 | 3,210 | 94 | 2,960 | 95 | 2,730 | 96 | 101 | 109 | 112 |
| | 10 | 4,150 | 92 | 3,320 | 94 | 3,070 | 95 | 2,830 | 96 | 101 | 109 | 112 |
| | 20 | 4,480 | 94 | 3,590 | 96 | 3,320 | 96 | 3,060 | 97 | 101 | 108 | 111 |
| | 30 | 5,130 | 97 | 4,120 | 99 | 3,820 | 99 | 3,520 | 100 | 102 | 108 | 110 |
| | 40 | 6,020 | 101 | 4,900 | 102 | 4,570 | 102 | 4,240 | 103 | 103 | 107 | 109 |
| | 47 | 7,190 | 102 | 5,980 | 102 | 5,600 | 102 | 5,220 | 102 | 102 | 107 | 108 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 8, IPS OFF

| Pressure Altitude: 3,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,220 | 90 | 2,400 | 90 | 2,200 | 91 | 2,000 | 92 | 98 | 106 | 109 |
| | -10 | 3,660 | 90 | 2,820 | 90 | 2,600 | 91 | 2,380 | 92 | 98 | 106 | 109 |
| | 0 | 3,760 | 90 | 2,920 | 90 | 2,690 | 91 | 2,470 | 92 | 98 | 106 | 109 |
| | 10 | 3,860 | 90 | 3,020 | 90 | 2,790 | 91 | 2,560 | 92 | 98 | 106 | 109 |
| | 20 | 4,070 | 90 | 3,250 | 92 | 3,010 | 92 | 2,760 | 93 | 98 | 106 | 108 |
| | 30 | 4,630 | 93 | 3,700 | 94 | 3,430 | 95 | 3,150 | 96 | 98 | 105 | 107 |
| | 40 | 5,370 | 96 | 4,320 | 98 | 4,010 | 98 | 3,700 | 98 | 99 | 104 | 106 |
| | 47 | 6,150 | 99 | 5,040 | 99 | 4,720 | 99 | 4,400 | 99 | 99 | 104 | 106 |
| 15,000 | -54 | 3,200 | 90 | 2,400 | 90 | 2,150 | 90 | 1,930 | 90 | 95 | 103 | 107 |
| | -10 | 3,620 | 90 | 2,770 | 90 | 2,510 | 90 | 2,270 | 90 | 95 | 104 | 107 |
| | 0 | 3,730 | 90 | 2,860 | 90 | 2,600 | 90 | 2,340 | 90 | 95 | 104 | 107 |
| | 10 | 3,830 | 90 | 2,950 | 90 | 2,670 | 90 | 2,420 | 90 | 95 | 104 | 107 |
| | 20 | 3,960 | 90 | 3,050 | 90 | 2,790 | 90 | 2,520 | 90 | 95 | 103 | 106 |
| | 30 | 4,220 | 89 | 3,320 | 90 | 3,070 | 91 | 2,820 | 91 | 95 | 102 | 105 |
| | 40 | 4,800 | 92 | 3,840 | 93 | 3,550 | 94 | 3,270 | 94 | 95 | 101 | 103 |
| | 47 | 5,390 | 94 | 4,350 | 95 | 4,050 | 95 | 3,750 | 96 | 96 | 101 | 103 |
| 14,000 | -54 | 3,180 | 91 | 2,390 | 91 | 2,150 | 91 | 1,930 | 91 | 91 | 101 | 106 |
| | -10 | 3,600 | 90 | 2,760 | 90 | 2,510 | 90 | 2,260 | 90 | 91 | 102 | 106 |
| | 0 | 3,700 | 90 | 2,840 | 90 | 2,580 | 90 | 2,340 | 90 | 91 | 102 | 106 |
| | 10 | 3,790 | 90 | 2,930 | 90 | 2,660 | 90 | 2,420 | 90 | 91 | 102 | 106 |
| | 20 | 3,920 | 90 | 3,030 | 90 | 2,760 | 90 | 2,500 | 90 | 91 | 101 | 104 |
| | 30 | 4,130 | 89 | 3,190 | 89 | 2,910 | 89 | 2,630 | 89 | 92 | 100 | 102 |
| | 40 | 4,420 | 89 | 3,430 | 89 | 3,160 | 89 | 2,880 | 90 | 92 | 99 | 101 |
| | 47 | 4,770 | 90 | 3,800 | 91 | 3,520 | 91 | 3,240 | 92 | 92 | 98 | 100 |
| 13,000 | -54 | 3,180 | 91 | 2,400 | 91 | 2,160 | 91 | 1,940 | 91 | 92 | 102 | 107 |
| | -10 | 3,590 | 90 | 2,760 | 91 | 2,510 | 91 | 2,270 | 91 | 91 | 102 | 106 |
| | 0 | 3,670 | 90 | 2,840 | 90 | 2,580 | 90 | 2,340 | 90 | 91 | 102 | 106 |
| | 10 | 3,770 | 90 | 2,920 | 90 | 2,660 | 90 | 2,420 | 90 | 91 | 102 | 106 |
| | 20 | 3,880 | 90 | 3,010 | 90 | 2,750 | 90 | 2,490 | 90 | 90 | 101 | 105 |
| | 30 | 4,070 | 89 | 3,150 | 89 | 2,880 | 89 | 2,610 | 90 | 90 | 99 | 102 |
| | 40 | 4,330 | 89 | 3,350 | 89 | 3,060 | 89 | 2,770 | 89 | 89 | 97 | 99 |
| | 47 | 4,560 | 89 | 3,530 | 89 | 3,220 | 89 | 2,910 | 89 | 89 | 96 | 98 |



5 Pressure Altitude: 4,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 4,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,150 | 100 | 3,270 | 102 | 3,000 | 102 | 2,750 | 103 | 107 | 113 | 116 |
| | -10 | 4,820 | 100 | 3,850 | 102 | 3,560 | 102 | 3,270 | 103 | 107 | 114 | 116 |
| | 0 | 4,970 | 100 | 3,990 | 102 | 3,690 | 102 | 3,400 | 103 | 107 | 114 | 116 |
| | 10 | 5,150 | 101 | 4,140 | 102 | 3,830 | 102 | 3,540 | 103 | 107 | 114 | 116 |
| | 20 | 5,670 | 103 | 4,560 | 104 | 4,230 | 105 | 3,910 | 105 | 108 | 113 | 115 |
| | 30 | 6,580 | 107 | 5,360 | 108 | 5,000 | 108 | 4,670 | 108 | 108 | 113 | 115 |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| | 45 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 3,900 | 97 | 3,070 | 99 | 2,830 | 100 | 2,590 | 101 | 105 | 112 | 115 |
| | -10 | 4,510 | 97 | 3,620 | 99 | 3,340 | 100 | 3,080 | 100 | 105 | 112 | 115 |
| | 0 | 4,660 | 98 | 3,740 | 99 | 3,470 | 100 | 3,200 | 100 | 105 | 112 | 115 |
| | 10 | 4,820 | 98 | 3,880 | 99 | 3,600 | 100 | 3,320 | 100 | 105 | 112 | 115 |
| | 20 | 5,350 | 100 | 4,330 | 102 | 4,020 | 102 | 3,710 | 103 | 105 | 111 | 114 |
| | 30 | 6,210 | 103 | 5,050 | 105 | 4,700 | 105 | 4,360 | 106 | 106 | 111 | 113 |
| | 40 | 7,810 | 106 | 6,530 | 106 | 6,130 | 106 | 5,740 | 106 | 106 | 111 | 112 |
| | 45 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,800 | 96 | 2,990 | 98 | 2,750 | 99 | 2,510 | 99 | 104 | 111 | 114 |
| | -10 | 4,390 | 96 | 3,520 | 98 | 3,250 | 99 | 2,990 | 99 | 104 | 111 | 114 |
| | 0 | 4,540 | 96 | 3,640 | 98 | 3,370 | 99 | 3,110 | 99 | 104 | 111 | 114 |
| | 10 | 4,690 | 97 | 3,780 | 98 | 3,500 | 99 | 3,230 | 99 | 104 | 111 | 114 |
| | 20 | 5,200 | 99 | 4,200 | 100 | 3,900 | 101 | 3,600 | 101 | 105 | 111 | 113 |
| | 30 | 6,020 | 102 | 4,890 | 104 | 4,550 | 104 | 4,220 | 105 | 105 | 110 | 112 |
| | 40 | 7,460 | 105 | 6,200 | 105 | 5,820 | 105 | 5,450 | 105 | 105 | 110 | 111 |
| | 45 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,470 | 92 | 2,730 | 94 | 2,500 | 95 | 2,280 | 96 | 101 | 108 | 112 |
| | -10 | 4,020 | 92 | 3,200 | 94 | 2,960 | 95 | 2,720 | 96 | 101 | 109 | 112 |
| | 0 | 4,140 | 92 | 3,320 | 94 | 3,060 | 95 | 2,820 | 96 | 101 | 109 | 112 |
| | 10 | 4,280 | 93 | 3,440 | 94 | 3,180 | 95 | 2,930 | 96 | 101 | 109 | 112 |
| | 20 | 4,730 | 95 | 3,800 | 97 | 3,530 | 97 | 3,250 | 98 | 101 | 108 | 111 |
| | 30 | 5,430 | 98 | 4,380 | 99 | 4,070 | 100 | 3,750 | 100 | 102 | 107 | 109 |
| | 40 | 6,450 | 101 | 5,320 | 102 | 4,980 | 102 | 4,640 | 103 | 103 | 107 | 109 |
| | 45 | 7,460 | 102 | 6,210 | 102 | 5,830 | 102 | 5,450 | 102 | 102 | 107 | 108 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 8, IPS OFF

| Pressure Altitude: 4,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,310 | 90 | 2,480 | 90 | 2,270 | 91 | 2,070 | 92 | 98 | 106 | 109 |
| | -10 | 3,760 | 90 | 2,920 | 90 | 2,690 | 91 | 2,470 | 92 | 98 | 106 | 109 |
| | 0 | 3,870 | 90 | 3,020 | 90 | 2,790 | 91 | 2,560 | 92 | 98 | 106 | 109 |
| | 10 | 3,970 | 89 | 3,130 | 91 | 2,890 | 91 | 2,660 | 92 | 98 | 106 | 109 |
| | 20 | 4,300 | 91 | 3,440 | 93 | 3,180 | 93 | 2,930 | 94 | 98 | 106 | 108 |
| | 30 | 4,900 | 94 | 3,930 | 95 | 3,640 | 96 | 3,360 | 96 | 99 | 105 | 107 |
| | 40 | 5,720 | 97 | 4,630 | 98 | 4,320 | 98 | 4,000 | 99 | 99 | 104 | 106 |
| | 45 | 6,350 | 99 | 5,220 | 99 | 4,890 | 99 | 4,560 | 99 | 99 | 104 | 106 |
| 15,000 | -54 | 3,280 | 90 | 2,470 | 90 | 2,220 | 90 | 1,990 | 90 | 95 | 103 | 107 |
| | -10 | 3,730 | 90 | 2,860 | 90 | 2,590 | 90 | 2,340 | 90 | 95 | 104 | 107 |
| | 0 | 3,830 | 90 | 2,940 | 90 | 2,680 | 90 | 2,430 | 90 | 95 | 104 | 107 |
| | 10 | 3,930 | 90 | 3,030 | 90 | 2,770 | 90 | 2,500 | 90 | 95 | 104 | 107 |
| | 20 | 4,100 | 89 | 3,170 | 89 | 2,910 | 90 | 2,650 | 90 | 95 | 103 | 106 |
| | 30 | 4,420 | 90 | 3,520 | 91 | 3,260 | 92 | 2,990 | 92 | 95 | 102 | 104 |
| | 40 | 5,090 | 93 | 4,090 | 94 | 3,790 | 94 | 3,490 | 95 | 96 | 101 | 103 |
| | 45 | 5,540 | 94 | 4,500 | 95 | 4,190 | 95 | 3,890 | 96 | 96 | 101 | 103 |
| 14,000 | -54 | 3,260 | 91 | 2,460 | 91 | 2,220 | 91 | 2,000 | 91 | 91 | 102 | 106 |
| | -10 | 3,700 | 90 | 2,840 | 90 | 2,580 | 90 | 2,340 | 90 | 91 | 102 | 106 |
| | 0 | 3,800 | 90 | 2,930 | 90 | 2,660 | 90 | 2,420 | 90 | 91 | 102 | 106 |
| | 10 | 3,890 | 90 | 3,020 | 90 | 2,750 | 90 | 2,500 | 90 | 91 | 102 | 106 |
| | 20 | 4,050 | 90 | 3,130 | 90 | 2,870 | 90 | 2,600 | 90 | 92 | 101 | 104 |
| | 30 | 4,280 | 89 | 3,310 | 89 | 3,030 | 89 | 2,740 | 89 | 92 | 100 | 102 |
| | 40 | 4,600 | 89 | 3,620 | 90 | 3,350 | 90 | 3,070 | 90 | 92 | 98 | 100 |
| | 45 | 4,900 | 90 | 3,920 | 91 | 3,640 | 91 | 3,350 | 92 | 92 | 98 | 100 |
| 13,000 | -54 | 3,250 | 91 | 2,470 | 91 | 2,230 | 91 | 2,000 | 91 | 91 | 102 | 107 |
| | -10 | 3,680 | 90 | 2,840 | 90 | 2,580 | 90 | 2,340 | 90 | 91 | 102 | 106 |
| | 0 | 3,770 | 90 | 2,920 | 90 | 2,660 | 90 | 2,420 | 90 | 91 | 102 | 106 |
| | 10 | 3,870 | 90 | 3,010 | 90 | 2,750 | 90 | 2,500 | 90 | 91 | 102 | 106 |
| | 20 | 4,010 | 90 | 3,110 | 90 | 2,850 | 90 | 2,590 | 90 | 90 | 100 | 104 |
| | 30 | 4,210 | 89 | 3,270 | 89 | 2,990 | 89 | 2,710 | 89 | 90 | 99 | 101 |
| | 40 | 4,500 | 89 | 3,490 | 89 | 3,190 | 89 | 2,890 | 89 | 89 | 97 | 99 |
| | 45 | 4,660 | 89 | 3,620 | 89 | 3,310 | 89 | 3,000 | 89 | 89 | 96 | 98 |



6 Pressure Altitude: 5,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 5,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,280 | 100 | 3,370 | 102 | 3,100 | 102 | 2,840 | 103 | 107 | 113 | 116 |
| | -10 | 4,970 | 100 | 3,990 | 102 | 3,680 | 102 | 3,390 | 103 | 107 | 114 | 116 |
| | 0 | 5,130 | 100 | 4,130 | 102 | 3,820 | 102 | 3,520 | 103 | 107 | 114 | 116 |
| | 10 | 5,340 | 101 | 4,300 | 102 | 3,990 | 103 | 3,690 | 103 | 107 | 114 | 116 |
| | 20 | 6,030 | 104 | 4,860 | 105 | 4,520 | 106 | 4,190 | 106 | 108 | 113 | 115 |
| | 30 | 7,050 | 108 | 5,800 | 108 | 5,440 | 108 | 5,090 | 108 | 108 | 113 | 114 |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| | 42 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 4,010 | 97 | 3,170 | 99 | 2,920 | 100 | 2,680 | 101 | 105 | 112 | 115 |
| | -10 | 4,650 | 97 | 3,730 | 99 | 3,460 | 100 | 3,190 | 100 | 105 | 112 | 115 |
| | 0 | 4,800 | 98 | 3,870 | 99 | 3,580 | 100 | 3,310 | 100 | 105 | 112 | 115 |
| | 10 | 4,990 | 98 | 4,030 | 100 | 3,750 | 100 | 3,460 | 101 | 105 | 112 | 115 |
| | 20 | 5,690 | 101 | 4,610 | 102 | 4,290 | 103 | 3,960 | 103 | 106 | 111 | 113 |
| | 30 | 6,640 | 104 | 5,420 | 106 | 5,070 | 106 | 4,720 | 106 | 107 | 111 | 113 |
| | 40 | 8,750 | 106 | 7,340 | 106 | 6,910 | 106 | 6,470 | 106 | 106 | 110 | 112 |
| | 42 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 3,910 | 96 | 3,090 | 98 | 2,840 | 99 | 2,600 | 99 | 104 | 111 | 114 |
| | -10 | 4,530 | 96 | 3,640 | 98 | 3,360 | 99 | 3,100 | 99 | 104 | 111 | 114 |
| | 0 | 4,670 | 96 | 3,760 | 98 | 3,490 | 99 | 3,220 | 99 | 104 | 112 | 114 |
| | 10 | 4,860 | 97 | 3,920 | 98 | 3,640 | 99 | 3,360 | 100 | 104 | 111 | 114 |
| | 20 | 5,530 | 100 | 4,480 | 101 | 4,160 | 102 | 3,850 | 102 | 105 | 111 | 113 |
| | 30 | 6,420 | 103 | 5,240 | 104 | 4,890 | 105 | 4,540 | 105 | 106 | 110 | 112 |
| | 40 | 8,280 | 105 | 6,940 | 105 | 6,520 | 105 | 6,110 | 105 | 105 | 110 | 111 |
| | 42 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,580 | 92 | 2,810 | 94 | 2,580 | 95 | 2,360 | 96 | 101 | 109 | 112 |
| | -10 | 4,140 | 92 | 3,310 | 94 | 3,060 | 95 | 2,820 | 95 | 101 | 109 | 112 |
| | 0 | 4,270 | 92 | 3,430 | 94 | 3,170 | 95 | 2,920 | 96 | 101 | 109 | 112 |
| | 10 | 4,440 | 93 | 3,570 | 95 | 3,310 | 95 | 3,050 | 96 | 101 | 109 | 112 |
| | 20 | 5,020 | 96 | 4,040 | 97 | 3,760 | 98 | 3,470 | 98 | 101 | 108 | 110 |
| | 30 | 5,780 | 99 | 4,680 | 100 | 4,350 | 101 | 4,020 | 101 | 102 | 107 | 109 |
| | 40 | 6,990 | 102 | 5,820 | 102 | 5,460 | 102 | 5,100 | 102 | 102 | 107 | 109 |
| | 42 | 7,530 | 102 | 6,280 | 102 | 5,900 | 102 | 5,520 | 102 | 102 | 107 | 108 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 8, IPS OFF

| Pressure Altitude: 5,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,400 | 90 | 2,560 | 90 | 2,350 | 91 | 2,140 | 92 | 98 | 106 | 109 |
| | -10 | 3,870 | 90 | 3,010 | 90 | 2,780 | 91 | 2,560 | 92 | 98 | 106 | 110 |
| | 0 | 3,980 | 90 | 3,120 | 90 | 2,880 | 91 | 2,660 | 92 | 98 | 106 | 110 |
| | 10 | 4,090 | 89 | 3,240 | 91 | 3,010 | 91 | 2,770 | 92 | 98 | 106 | 109 |
| | 20 | 4,550 | 92 | 3,650 | 93 | 3,380 | 94 | 3,120 | 94 | 98 | 105 | 108 |
| | 30 | 5,190 | 95 | 4,190 | 96 | 3,890 | 96 | 3,580 | 97 | 99 | 105 | 107 |
| | 40 | 6,120 | 98 | 4,980 | 99 | 4,670 | 99 | 4,340 | 99 | 99 | 104 | 106 |
| | 42 | 6,440 | 98 | 5,290 | 99 | 4,960 | 99 | 4,620 | 99 | 99 | 104 | 106 |
| 15,000 | -54 | 3,370 | 90 | 2,540 | 90 | 2,290 | 90 | 2,060 | 90 | 95 | 104 | 107 |
| | -10 | 3,830 | 90 | 2,940 | 90 | 2,680 | 90 | 2,430 | 90 | 95 | 104 | 107 |
| | 0 | 3,930 | 90 | 3,040 | 90 | 2,760 | 90 | 2,510 | 90 | 95 | 104 | 107 |
| | 10 | 4,040 | 90 | 3,130 | 90 | 2,860 | 90 | 2,590 | 90 | 95 | 104 | 107 |
| | 20 | 4,250 | 89 | 3,290 | 89 | 3,050 | 90 | 2,800 | 90 | 95 | 103 | 105 |
| | 30 | 4,660 | 90 | 3,740 | 92 | 3,460 | 92 | 3,190 | 93 | 95 | 102 | 104 |
| | 40 | 5,420 | 93 | 4,370 | 95 | 4,060 | 95 | 3,750 | 95 | 96 | 101 | 103 |
| | 42 | 5,620 | 94 | 4,560 | 95 | 4,260 | 95 | 3,950 | 96 | 96 | 101 | 103 |
| 14,000 | -54 | 3,350 | 91 | 2,530 | 91 | 2,290 | 91 | 2,060 | 91 | 91 | 102 | 106 |
| | -10 | 3,800 | 90 | 2,930 | 90 | 2,670 | 90 | 2,410 | 90 | 91 | 102 | 106 |
| | 0 | 3,900 | 90 | 3,020 | 90 | 2,750 | 90 | 2,500 | 90 | 91 | 102 | 106 |
| | 10 | 4,000 | 90 | 3,110 | 90 | 2,850 | 90 | 2,580 | 90 | 91 | 102 | 106 |
| | 20 | 4,190 | 89 | 3,250 | 89 | 2,980 | 89 | 2,700 | 89 | 92 | 100 | 103 |
| | 30 | 4,450 | 89 | 3,450 | 89 | 3,160 | 89 | 2,860 | 89 | 92 | 99 | 101 |
| | 40 | 4,820 | 89 | 3,860 | 90 | 3,570 | 91 | 3,280 | 91 | 92 | 98 | 100 |
| | 42 | 4,980 | 89 | 3,990 | 91 | 3,700 | 91 | 3,410 | 92 | 92 | 98 | 100 |
| 13,000 | -54 | 3,340 | 91 | 2,540 | 91 | 2,300 | 91 | 2,070 | 91 | 91 | 102 | 107 |
| | -10 | 3,770 | 90 | 2,930 | 90 | 2,670 | 90 | 2,420 | 90 | 91 | 102 | 106 |
| | 0 | 3,870 | 90 | 3,010 | 90 | 2,750 | 90 | 2,500 | 90 | 91 | 102 | 106 |
| | 10 | 3,970 | 90 | 3,100 | 90 | 2,840 | 90 | 2,580 | 90 | 91 | 102 | 106 |
| | 20 | 4,140 | 90 | 3,220 | 90 | 2,950 | 90 | 2,680 | 90 | 90 | 100 | 103 |
| | 30 | 4,370 | 89 | 3,400 | 89 | 3,110 | 89 | 2,820 | 89 | 89 | 98 | 100 |
| | 40 | 4,680 | 89 | 3,640 | 89 | 3,330 | 89 | 3,020 | 89 | 89 | 96 | 98 |
| | 42 | 4,750 | 89 | 3,700 | 89 | 3,390 | 89 | 3,070 | 89 | 89 | 96 | 98 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 8, IPS OFF

7

Pressure Altitude: 6,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 6,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,410 | 100 | 3,490 | 102 | 3,210 | 102 | 2,940 | 103 | 107 | 113 | 116 |
| | -10 | 5,130 | 100 | 4,120 | 102 | 3,820 | 102 | 3,520 | 103 | 107 | 114 | 116 |
| | 0 | 5,340 | 101 | 4,300 | 102 | 3,990 | 103 | 3,680 | 103 | 107 | 114 | 116 |
| | 10 | 5,720 | 102 | 4,610 | 103 | 4,280 | 104 | 3,960 | 104 | 107 | 113 | 116 |
| | 20 | 6,570 | 106 | 5,320 | 107 | 4,950 | 107 | 4,610 | 107 | 108 | 113 | 115 |
| | 30 | 8,110 | 108 | 6,730 | 108 | 6,310 | 108 | 5,900 | 108 | 108 | 112 | 114 |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 4,140 | 97 | 3,280 | 99 | 3,020 | 100 | 2,770 | 100 | 105 | 112 | 115 |
| | -10 | 4,800 | 98 | 3,870 | 99 | 3,580 | 100 | 3,310 | 100 | 105 | 112 | 115 |
| | 0 | 4,990 | 98 | 4,040 | 100 | 3,740 | 100 | 3,460 | 101 | 105 | 112 | 115 |
| | 10 | 5,360 | 99 | 4,340 | 101 | 4,030 | 101 | 3,730 | 102 | 105 | 112 | 114 |
| | 20 | 6,180 | 102 | 5,030 | 104 | 4,690 | 104 | 4,340 | 105 | 106 | 111 | 113 |
| | 30 | 7,410 | 105 | 6,120 | 106 | 5,750 | 106 | 5,380 | 106 | 106 | 111 | 113 |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 4,030 | 96 | 3,190 | 98 | 2,940 | 99 | 2,700 | 99 | 104 | 111 | 114 |
| | -10 | 4,670 | 96 | 3,760 | 98 | 3,480 | 99 | 3,220 | 99 | 104 | 112 | 114 |
| | 0 | 4,860 | 97 | 3,920 | 98 | 3,640 | 99 | 3,360 | 100 | 104 | 111 | 114 |
| | 10 | 5,210 | 98 | 4,220 | 100 | 3,920 | 100 | 3,630 | 101 | 104 | 111 | 113 |
| | 20 | 6,010 | 101 | 4,880 | 102 | 4,540 | 103 | 4,210 | 103 | 105 | 110 | 112 |
| | 30 | 7,120 | 104 | 5,870 | 105 | 5,510 | 105 | 5,140 | 105 | 105 | 110 | 112 |
| | 40 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,680 | 92 | 2,910 | 94 | 2,680 | 95 | 2,450 | 96 | 101 | 109 | 112 |
| | -10 | 4,270 | 92 | 3,430 | 94 | 3,170 | 95 | 2,930 | 96 | 101 | 109 | 112 |
| | 0 | 4,440 | 93 | 3,570 | 95 | 3,310 | 95 | 3,060 | 96 | 101 | 109 | 112 |
| | 10 | 4,750 | 94 | 3,830 | 96 | 3,550 | 96 | 3,280 | 97 | 101 | 109 | 111 |
| | 20 | 5,430 | 97 | 4,390 | 98 | 4,080 | 99 | 3,770 | 99 | 102 | 108 | 110 |
| | 30 | 6,330 | 100 | 5,160 | 101 | 4,820 | 102 | 4,490 | 102 | 103 | 107 | 109 |
| | 40 | 8,210 | 102 | 6,870 | 102 | 6,460 | 102 | 6,040 | 102 | 102 | 107 | 108 |
| 16,000 | -54 | 3,490 | 90 | 2,650 | 90 | 2,430 | 91 | 2,220 | 92 | 98 | 106 | 109 |
| | -10 | 3,980 | 90 | 3,120 | 90 | 2,880 | 91 | 2,650 | 92 | 98 | 106 | 110 |
| | 0 | 4,090 | 89 | 3,250 | 91 | 3,000 | 91 | 2,770 | 92 | 98 | 106 | 109 |
| | 10 | 4,320 | 90 | 3,470 | 92 | 3,220 | 92 | 2,970 | 93 | 98 | 106 | 109 |
| | 20 | 4,900 | 93 | 3,950 | 94 | 3,660 | 95 | 3,380 | 95 | 98 | 105 | 107 |
| | 30 | 5,660 | 96 | 4,570 | 97 | 4,250 | 98 | 3,930 | 98 | 99 | 104 | 106 |
| | 40 | 6,910 | 99 | 5,720 | 99 | 5,360 | 99 | 5,010 | 99 | 99 | 104 | 106 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 8, IPS OFF

| Pressure Altitude: 6,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 15,000 | -54 | 3,450 | 90 | 2,620 | 90 | 2,370 | 90 | 2,130 | 90 | 95 | 104 | 107 |
| | -10 | 3,930 | 90 | 3,040 | 90 | 2,760 | 90 | 2,510 | 90 | 95 | 104 | 108 |
| | 0 | 4,040 | 90 | 3,130 | 90 | 2,850 | 90 | 2,600 | 90 | 95 | 104 | 107 |
| | 10 | 4,190 | 89 | 3,250 | 89 | 2,980 | 90 | 2,710 | 90 | 95 | 103 | 106 |
| | 20 | 4,470 | 89 | 3,550 | 90 | 3,290 | 91 | 3,030 | 91 | 95 | 102 | 105 |
| | 30 | 5,060 | 91 | 4,070 | 93 | 3,770 | 93 | 3,480 | 94 | 95 | 102 | 104 |
| | 40 | 5,970 | 95 | 4,870 | 95 | 4,550 | 96 | 4,240 | 96 | 96 | 101 | 103 |
| 14,000 | -54 | 3,430 | 90 | 2,610 | 90 | 2,360 | 90 | 2,130 | 90 | 91 | 102 | 106 |
| | -10 | 3,900 | 90 | 3,020 | 90 | 2,750 | 90 | 2,500 | 90 | 91 | 102 | 106 |
| | 0 | 4,000 | 90 | 3,110 | 90 | 2,840 | 90 | 2,580 | 90 | 91 | 102 | 106 |
| | 10 | 4,140 | 90 | 3,220 | 90 | 2,950 | 90 | 2,680 | 90 | 91 | 101 | 105 |
| | 20 | 4,380 | 89 | 3,400 | 89 | 3,120 | 89 | 2,830 | 89 | 92 | 100 | 103 |
| | 30 | 4,680 | 89 | 3,650 | 89 | 3,370 | 89 | 3,080 | 89 | 92 | 99 | 101 |
| | 40 | 5,250 | 90 | 4,220 | 91 | 3,930 | 92 | 3,640 | 92 | 92 | 98 | 100 |
| 13,000 | -54 | 3,420 | 91 | 2,620 | 91 | 2,370 | 91 | 2,140 | 91 | 91 | 102 | 107 |
| | -10 | 3,870 | 90 | 3,010 | 90 | 2,750 | 90 | 2,500 | 90 | 91 | 102 | 106 |
| | 0 | 3,980 | 90 | 3,100 | 90 | 2,840 | 90 | 2,580 | 90 | 91 | 102 | 106 |
| | 10 | 4,100 | 90 | 3,210 | 90 | 2,940 | 90 | 2,670 | 90 | 90 | 101 | 105 |
| | 20 | 4,310 | 89 | 3,360 | 89 | 3,080 | 89 | 2,800 | 89 | 90 | 99 | 102 |
| | 30 | 4,580 | 89 | 3,570 | 89 | 3,270 | 89 | 2,970 | 89 | 89 | 97 | 100 |
| | 40 | 4,940 | 89 | 3,850 | 89 | 3,540 | 89 | 3,220 | 89 | 89 | 96 | 97 |

8 Pressure Altitude: 7,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 7,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,640 | 100 | 3,680 | 102 | 3,390 | 102 | 3,110 | 103 | 107 | 114 | 116 |
| | -10 | 5,440 | 101 | 4,380 | 102 | 4,060 | 102 | 3,750 | 103 | 107 | 114 | 116 |
| | 0 | 5,740 | 102 | 4,630 | 103 | 4,290 | 103 | 3,980 | 104 | 107 | 113 | 116 |
| | 10 | 6,290 | 103 | 5,090 | 104 | 4,720 | 105 | 4,370 | 105 | 108 | 113 | 115 |
| | 20 | 7,330 | 107 | 5,950 | 108 | 5,580 | 108 | 5,210 | 108 | 108 | 113 | 115 |
| | 30 | 9,740 | 108 | 8,070 | 108 | 7,570 | 108 | 7,090 | 108 | 108 | 112 | 114 |
| | 38 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 4,260 | 97 | 3,390 | 99 | 3,120 | 100 | 2,880 | 100 | 105 | 112 | 115 |
| | -10 | 4,990 | 98 | 4,030 | 99 | 3,740 | 100 | 3,460 | 101 | 105 | 112 | 115 |
| | 0 | 5,260 | 99 | 4,260 | 100 | 3,960 | 101 | 3,660 | 101 | 105 | 112 | 114 |
| | 10 | 5,760 | 100 | 4,670 | 102 | 4,350 | 102 | 4,030 | 102 | 105 | 112 | 114 |
| | 20 | 6,740 | 103 | 5,510 | 105 | 5,140 | 105 | 4,770 | 106 | 106 | 111 | 113 |
| | 30 | 8,430 | 106 | 7,050 | 106 | 6,630 | 106 | 6,210 | 106 | 106 | 111 | 112 |
| | 38 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 4,150 | 96 | 3,300 | 98 | 3,040 | 99 | 2,790 | 99 | 104 | 111 | 114 |
| | -10 | 4,860 | 97 | 3,920 | 98 | 3,630 | 99 | 3,360 | 99 | 104 | 111 | 114 |
| | 0 | 5,110 | 98 | 4,140 | 99 | 3,840 | 100 | 3,550 | 100 | 104 | 111 | 114 |
| | 10 | 5,600 | 99 | 4,540 | 100 | 4,230 | 101 | 3,910 | 101 | 105 | 111 | 113 |
| | 20 | 6,540 | 102 | 5,330 | 103 | 4,970 | 104 | 4,620 | 104 | 105 | 110 | 112 |
| | 30 | 8,040 | 105 | 6,700 | 105 | 6,300 | 105 | 5,890 | 105 | 105 | 110 | 111 |
| | 38 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,790 | 92 | 3,010 | 94 | 2,770 | 95 | 2,540 | 95 | 101 | 109 | 112 |
| | -10 | 4,430 | 93 | 3,570 | 95 | 3,310 | 95 | 3,050 | 96 | 101 | 109 | 112 |
| | 0 | 4,660 | 94 | 3,760 | 95 | 3,490 | 96 | 3,220 | 96 | 101 | 109 | 111 |
| | 10 | 5,090 | 95 | 4,110 | 97 | 3,820 | 97 | 3,530 | 98 | 101 | 108 | 111 |
| | 20 | 5,890 | 98 | 4,780 | 99 | 4,450 | 100 | 4,120 | 100 | 102 | 107 | 110 |
| | 30 | 6,970 | 101 | 5,750 | 102 | 5,390 | 102 | 5,030 | 102 | 102 | 107 | 109 |
| | 38 | - | - | - | - | - | - | - | - | - | - | - |
| 16,000 | -54 | 3,580 | 90 | 2,740 | 90 | 2,510 | 91 | 2,300 | 92 | 98 | 106 | 109 |
| | -10 | 4,090 | 89 | 3,250 | 91 | 3,000 | 91 | 2,770 | 92 | 98 | 106 | 109 |
| | 0 | 4,250 | 90 | 3,410 | 91 | 3,160 | 92 | 2,920 | 93 | 98 | 106 | 109 |
| | 10 | 4,610 | 91 | 3,720 | 93 | 3,450 | 93 | 3,190 | 94 | 98 | 106 | 108 |
| | 20 | 5,300 | 94 | 4,280 | 95 | 3,980 | 96 | 3,680 | 96 | 99 | 105 | 107 |
| | 30 | 6,180 | 97 | 5,030 | 98 | 4,690 | 99 | 4,350 | 99 | 99 | 104 | 106 |
| | 38 | 7,430 | 99 | 6,200 | 99 | 5,820 | 99 | 5,440 | 99 | 99 | 104 | 105 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 8, IPS OFF

| Pressure Altitude: 7,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 15,000 | -54 | 3,550 | 90 | 2,700 | 90 | 2,440 | 90 | 2,200 | 90 | 95 | 104 | 107 |
| | -10 | 4,040 | 90 | 3,130 | 90 | 2,860 | 90 | 2,600 | 90 | 95 | 104 | 107 |
| | 0 | 4,170 | 89 | 3,240 | 90 | 2,960 | 90 | 2,690 | 90 | 95 | 104 | 107 |
| | 10 | 4,370 | 89 | 3,400 | 89 | 3,130 | 90 | 2,870 | 90 | 95 | 103 | 106 |
| | 20 | 4,770 | 90 | 3,840 | 91 | 3,550 | 92 | 3,270 | 92 | 95 | 102 | 104 |
| | 30 | 5,490 | 93 | 4,440 | 94 | 4,120 | 94 | 3,810 | 95 | 96 | 101 | 103 |
| | 38 | 6,370 | 95 | 5,210 | 96 | 4,880 | 96 | 4,550 | 96 | 96 | 101 | 102 |
| 14,000 | -54 | 3,530 | 90 | 2,690 | 90 | 2,440 | 90 | 2,200 | 90 | 91 | 102 | 106 |
| | -10 | 4,010 | 90 | 3,110 | 90 | 2,850 | 90 | 2,580 | 90 | 91 | 102 | 106 |
| | 0 | 4,120 | 90 | 3,210 | 90 | 2,940 | 90 | 2,680 | 90 | 91 | 101 | 105 |
| | 10 | 4,300 | 89 | 3,360 | 89 | 3,070 | 89 | 2,790 | 89 | 92 | 101 | 104 |
| | 20 | 4,580 | 89 | 3,570 | 89 | 3,270 | 89 | 2,970 | 89 | 92 | 100 | 102 |
| | 30 | 4,940 | 89 | 3,930 | 89 | 3,640 | 90 | 3,350 | 90 | 92 | 99 | 100 |
| | 38 | 5,560 | 91 | 4,500 | 92 | 4,190 | 92 | 3,880 | 92 | 93 | 98 | 100 |
| 13,000 | -54 | 3,510 | 91 | 2,690 | 91 | 2,440 | 91 | 2,210 | 91 | 91 | 102 | 107 |
| | -10 | 3,980 | 90 | 3,110 | 90 | 2,840 | 90 | 2,590 | 90 | 91 | 102 | 106 |
| | 0 | 4,090 | 90 | 3,200 | 90 | 2,930 | 90 | 2,680 | 90 | 90 | 101 | 105 |
| | 10 | 4,250 | 90 | 3,330 | 90 | 3,050 | 90 | 2,780 | 90 | 90 | 100 | 104 |
| | 20 | 4,500 | 89 | 3,520 | 89 | 3,230 | 89 | 2,930 | 89 | 89 | 98 | 101 |
| | 30 | 4,820 | 89 | 3,760 | 89 | 3,450 | 89 | 3,140 | 89 | 89 | 97 | 99 |
| | 38 | 5,140 | 88 | 4,020 | 88 | 3,710 | 88 | 3,400 | 88 | 89 | 95 | 97 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 8, IPS OFF

9 Pressure Altitude: 8,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 8,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,880 | 100 | 3,880 | 101 | 3,580 | 102 | 3,290 | 103 | 107 | 114 | 116 |
| | -10 | 5,830 | 102 | 4,700 | 103 | 4,360 | 103 | 4,040 | 104 | 107 | 113 | 116 |
| | 0 | 6,250 | 103 | 5,050 | 104 | 4,690 | 104 | 4,340 | 105 | 107 | 113 | 115 |
| | 10 | 6,970 | 105 | 5,650 | 106 | 5,240 | 106 | 4,870 | 106 | 108 | 113 | 115 |
| | 20 | 8,310 | 108 | 6,850 | 108 | 6,440 | 108 | 6,010 | 108 | 108 | 112 | 114 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 35 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 4,400 | 97 | 3,510 | 99 | 3,240 | 100 | 2,990 | 100 | 105 | 112 | 115 |
| | -10 | 5,250 | 99 | 4,260 | 100 | 3,950 | 101 | 3,660 | 101 | 105 | 112 | 114 |
| | 0 | 5,640 | 100 | 4,580 | 101 | 4,250 | 102 | 3,950 | 102 | 105 | 112 | 114 |
| | 10 | 6,330 | 102 | 5,160 | 103 | 4,800 | 103 | 4,450 | 104 | 106 | 111 | 113 |
| | 20 | 7,420 | 105 | 6,110 | 106 | 5,710 | 106 | 5,320 | 106 | 106 | 111 | 113 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 35 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 4,290 | 96 | 3,420 | 98 | 3,160 | 99 | 2,900 | 99 | 104 | 111 | 114 |
| | -10 | 5,110 | 98 | 4,140 | 99 | 3,840 | 100 | 3,550 | 100 | 104 | 111 | 114 |
| | 0 | 5,480 | 99 | 4,450 | 100 | 4,130 | 100 | 3,830 | 101 | 105 | 111 | 113 |
| | 10 | 6,140 | 100 | 5,000 | 102 | 4,650 | 102 | 4,320 | 103 | 105 | 111 | 113 |
| | 20 | 7,170 | 103 | 5,890 | 104 | 5,510 | 105 | 5,120 | 105 | 106 | 110 | 112 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 35 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 3,920 | 92 | 3,120 | 94 | 2,870 | 95 | 2,640 | 95 | 101 | 109 | 112 |
| | -10 | 4,660 | 94 | 3,770 | 95 | 3,490 | 96 | 3,230 | 96 | 101 | 109 | 111 |
| | 0 | 4,990 | 95 | 4,030 | 96 | 3,740 | 97 | 3,470 | 97 | 101 | 108 | 111 |
| | 10 | 5,560 | 96 | 4,510 | 98 | 4,190 | 98 | 3,880 | 99 | 102 | 108 | 110 |
| | 20 | 6,430 | 99 | 5,240 | 100 | 4,890 | 101 | 4,540 | 101 | 102 | 107 | 109 |
| | 30 | 7,870 | 102 | 6,570 | 102 | 6,180 | 102 | 5,780 | 102 | 102 | 107 | 108 |
| | 35 | - | - | - | - | - | - | - | - | - | - | - |
| 16,000 | -54 | 3,690 | 90 | 2,840 | 90 | 2,610 | 91 | 2,390 | 92 | 98 | 106 | 109 |
| | -10 | 4,240 | 90 | 3,420 | 91 | 3,170 | 92 | 2,920 | 92 | 98 | 106 | 109 |
| | 0 | 4,530 | 91 | 3,650 | 92 | 3,390 | 93 | 3,130 | 93 | 98 | 106 | 108 |
| | 10 | 5,030 | 92 | 4,060 | 94 | 3,770 | 94 | 3,490 | 95 | 98 | 105 | 108 |
| | 20 | 5,760 | 95 | 4,670 | 96 | 4,340 | 97 | 4,010 | 97 | 99 | 105 | 107 |
| | 30 | 6,840 | 98 | 5,600 | 99 | 5,260 | 99 | 4,920 | 99 | 99 | 104 | 106 |
| | 35 | 7,800 | 99 | 6,510 | 99 | 6,110 | 99 | 5,720 | 99 | 99 | 104 | 105 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 8, IPS OFF

| Pressure Altitude: 8,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 15,000 | -54 | 3,660 | 90 | 2,800 | 90 | 2,530 | 90 | 2,290 | 90 | 95 | 104 | 107 |
| | -10 | 4,180 | 90 | 3,250 | 90 | 2,970 | 90 | 2,700 | 90 | 95 | 104 | 107 |
| | 0 | 4,350 | 89 | 3,380 | 89 | 3,090 | 89 | 2,820 | 89 | 95 | 103 | 106 |
| | 10 | 4,610 | 89 | 3,650 | 90 | 3,380 | 90 | 3,130 | 91 | 95 | 103 | 105 |
| | 20 | 5,160 | 91 | 4,160 | 92 | 3,860 | 93 | 3,570 | 93 | 95 | 102 | 104 |
| | 30 | 6,020 | 94 | 4,890 | 95 | 4,550 | 95 | 4,220 | 96 | 96 | 101 | 103 |
| | 35 | 6,640 | 95 | 5,460 | 96 | 5,120 | 96 | 4,780 | 96 | 96 | 101 | 102 |
| 14,000 | -54 | 3,630 | 90 | 2,780 | 90 | 2,530 | 90 | 2,280 | 90 | 91 | 102 | 106 |
| | -10 | 4,140 | 90 | 3,230 | 90 | 2,950 | 90 | 2,690 | 90 | 91 | 102 | 105 |
| | 0 | 4,290 | 89 | 3,350 | 89 | 3,070 | 89 | 2,790 | 89 | 91 | 101 | 104 |
| | 10 | 4,520 | 89 | 3,540 | 89 | 3,230 | 89 | 2,950 | 89 | 92 | 100 | 103 |
| | 20 | 4,830 | 89 | 3,780 | 89 | 3,470 | 89 | 3,160 | 89 | 92 | 99 | 101 |
| | 30 | 5,320 | 89 | 4,280 | 90 | 3,980 | 91 | 3,670 | 91 | 92 | 98 | 100 |
| | 35 | 5,790 | 91 | 4,690 | 92 | 4,380 | 92 | 4,070 | 92 | 93 | 98 | 100 |
| 13,000 | -54 | 3,620 | 90 | 2,780 | 91 | 2,530 | 91 | 2,290 | 91 | 91 | 102 | 107 |
| | -10 | 4,110 | 90 | 3,210 | 90 | 2,940 | 90 | 2,680 | 90 | 90 | 101 | 105 |
| | 0 | 4,250 | 90 | 3,330 | 90 | 3,050 | 90 | 2,780 | 90 | 90 | 101 | 104 |
| | 10 | 4,460 | 89 | 3,490 | 89 | 3,200 | 89 | 2,920 | 89 | 90 | 99 | 102 |
| | 20 | 4,730 | 89 | 3,700 | 89 | 3,400 | 89 | 3,100 | 89 | 89 | 98 | 100 |
| | 30 | 5,100 | 88 | 4,000 | 89 | 3,670 | 89 | 3,340 | 89 | 89 | 96 | 98 |
| | 35 | 5,320 | 88 | 4,180 | 88 | 3,850 | 88 | 3,520 | 88 | 89 | 95 | 97 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 8, IPS OFF

10 Pressure Altitude: 9,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 9,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 5,150 | 100 | 4,110 | 102 | 3,800 | 102 | 3,500 | 103 | 107 | 114 | 116 |
| | -10 | 6,350 | 103 | 5,130 | 104 | 4,760 | 104 | 4,410 | 105 | 107 | 113 | 115 |
| | 0 | 6,840 | 104 | 5,550 | 105 | 5,150 | 105 | 4,780 | 106 | 108 | 113 | 115 |
| | 10 | 7,780 | 106 | 6,300 | 107 | 5,870 | 107 | 5,460 | 107 | 108 | 113 | 115 |
| | 20 | 9,780 | 108 | 8,090 | 108 | 7,580 | 108 | 7,100 | 108 | 108 | 112 | 114 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 33 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 4,650 | 98 | 3,720 | 99 | 3,440 | 100 | 3,170 | 100 | 105 | 112 | 115 |
| | -10 | 5,720 | 100 | 4,650 | 101 | 4,310 | 101 | 4,000 | 102 | 105 | 112 | 114 |
| | 0 | 6,180 | 101 | 5,040 | 102 | 4,690 | 102 | 4,350 | 103 | 106 | 112 | 114 |
| | 10 | 7,010 | 103 | 5,720 | 104 | 5,340 | 104 | 4,960 | 105 | 106 | 111 | 113 |
| | 20 | 8,450 | 106 | 7,010 | 106 | 6,590 | 106 | 6,170 | 106 | 106 | 111 | 112 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 33 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 4,530 | 96 | 3,630 | 98 | 3,350 | 99 | 3,080 | 99 | 104 | 111 | 114 |
| | -10 | 5,570 | 98 | 4,510 | 100 | 4,190 | 100 | 3,890 | 101 | 104 | 111 | 113 |
| | 0 | 6,010 | 100 | 4,890 | 101 | 4,550 | 101 | 4,220 | 102 | 105 | 111 | 113 |
| | 10 | 6,790 | 101 | 5,550 | 103 | 5,170 | 103 | 4,800 | 103 | 105 | 110 | 112 |
| | 20 | 8,100 | 104 | 6,730 | 105 | 6,310 | 105 | 5,900 | 105 | 105 | 110 | 112 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 33 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 4,140 | 92 | 3,300 | 94 | 3,050 | 95 | 2,800 | 96 | 101 | 109 | 112 |
| | -10 | 5,070 | 94 | 4,100 | 96 | 3,800 | 96 | 3,520 | 97 | 101 | 109 | 111 |
| | 0 | 5,460 | 96 | 4,420 | 97 | 4,110 | 97 | 3,810 | 98 | 102 | 108 | 110 |
| | 10 | 6,130 | 97 | 4,980 | 99 | 4,640 | 99 | 4,300 | 100 | 102 | 108 | 110 |
| | 20 | 7,180 | 100 | 5,870 | 102 | 5,500 | 102 | 5,130 | 102 | 102 | 107 | 109 |
| | 30 | 9,390 | 102 | 7,870 | 102 | 7,400 | 102 | 6,930 | 102 | 102 | 107 | 108 |
| | 33 | - | - | - | - | - | - | - | - | - | - | - |
| 16,000 | -54 | 3,870 | 90 | 3,000 | 90 | 2,770 | 91 | 2,540 | 92 | 98 | 106 | 109 |
| | -10 | 4,600 | 90 | 3,710 | 92 | 3,440 | 93 | 3,180 | 93 | 98 | 106 | 108 |
| | 0 | 4,950 | 91 | 4,000 | 93 | 3,710 | 94 | 3,430 | 94 | 98 | 106 | 108 |
| | 10 | 5,520 | 93 | 4,470 | 95 | 4,160 | 95 | 3,850 | 96 | 99 | 105 | 107 |
| | 20 | 6,400 | 96 | 5,200 | 97 | 4,850 | 98 | 4,490 | 98 | 99 | 104 | 106 |
| | 30 | 7,850 | 99 | 6,520 | 99 | 6,130 | 99 | 5,730 | 99 | 99 | 104 | 105 |
| | 33 | - | - | - | - | - | - | - | - | - | - | - |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 8, IPS OFF

| Pressure Altitude: 9,000 feet | | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|--|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS | |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | | |
| 15,000 | -54 | 3,840 | 90 | 2,940 | 90 | 2,670 | 90 | 2,420 | 90 | 95 | 104 | 107 | |
| | -10 | 4,420 | 89 | 3,450 | 89 | 3,150 | 89 | 2,880 | 89 | 95 | 103 | 106 | |
| | 0 | 4,630 | 89 | 3,620 | 89 | 3,340 | 90 | 3,090 | 90 | 95 | 103 | 106 | |
| | 10 | 4,980 | 89 | 4,010 | 91 | 3,720 | 91 | 3,440 | 92 | 95 | 103 | 105 | |
| | 20 | 5,700 | 92 | 4,620 | 93 | 4,290 | 94 | 3,960 | 94 | 95 | 102 | 104 | |
| | 30 | 6,750 | 95 | 5,550 | 96 | 5,200 | 96 | 4,840 | 96 | 96 | 101 | 103 | |
| | 33 | 7,220 | 96 | 6,000 | 96 | 5,620 | 96 | 5,250 | 96 | 96 | 101 | 102 | |
| 14,000 | -54 | 3,800 | 90 | 2,930 | 90 | 2,660 | 90 | 2,410 | 90 | 91 | 102 | 106 | |
| | -10 | 4,380 | 89 | 3,420 | 90 | 3,130 | 90 | 2,850 | 90 | 91 | 101 | 104 | |
| | 0 | 4,550 | 89 | 3,570 | 89 | 3,260 | 89 | 2,980 | 89 | 92 | 101 | 104 | |
| | 10 | 4,830 | 89 | 3,780 | 89 | 3,470 | 89 | 3,160 | 89 | 92 | 100 | 103 | |
| | 20 | 5,200 | 89 | 4,110 | 89 | 3,810 | 89 | 3,500 | 90 | 92 | 99 | 101 | |
| | 30 | 5,930 | 90 | 4,790 | 92 | 4,460 | 92 | 4,140 | 92 | 92 | 98 | 100 | |
| | 33 | 6,260 | 91 | 5,080 | 92 | 4,750 | 92 | 4,420 | 92 | 92 | 98 | 100 | |
| 13,000 | -54 | 3,790 | 90 | 2,920 | 90 | 2,670 | 90 | 2,410 | 90 | 91 | 102 | 106 | |
| | -10 | 4,330 | 90 | 3,400 | 90 | 3,110 | 90 | 2,840 | 90 | 90 | 101 | 104 | |
| | 0 | 4,500 | 89 | 3,530 | 89 | 3,230 | 89 | 2,950 | 89 | 90 | 100 | 103 | |
| | 10 | 4,750 | 89 | 3,730 | 89 | 3,420 | 89 | 3,120 | 89 | 89 | 99 | 102 | |
| | 20 | 5,070 | 89 | 3,980 | 89 | 3,650 | 89 | 3,330 | 89 | 89 | 97 | 99 | |
| | 30 | 5,500 | 88 | 4,320 | 88 | 3,980 | 88 | 3,630 | 88 | 89 | 95 | 97 | |
| | 33 | 5,660 | 88 | 4,450 | 88 | 4,130 | 88 | 3,800 | 88 | 89 | 95 | 97 | |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 8, IPS OFF

11 Pressure Altitude: 10,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| For NAI ON, multiply IPS OFF field length determined from this table by 1.01. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 10,000 feet | | | | | | | | | | | | |
|--------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 5,490 | 101 | 4,390 | 102 | 4,060 | 103 | 3,740 | 103 | 107 | 113 | 116 |
| | -10 | 6,920 | 104 | 5,600 | 105 | 5,210 | 105 | 4,830 | 105 | 108 | 113 | 115 |
| | 0 | 7,510 | 105 | 6,100 | 106 | 5,680 | 106 | 5,280 | 107 | 108 | 113 | 115 |
| | 10 | 8,670 | 107 | 7,040 | 108 | 6,560 | 108 | 6,150 | 108 | 108 | 113 | 114 |
| | 20 | - | - | - | - | - | - | - | - | - | - | - |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 31 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 4,960 | 98 | 3,980 | 100 | 3,680 | 100 | 3,400 | 101 | 105 | 112 | 114 |
| | -10 | 6,230 | 101 | 5,070 | 102 | 4,720 | 102 | 4,380 | 103 | 105 | 112 | 114 |
| | 0 | 6,800 | 102 | 5,550 | 103 | 5,170 | 103 | 4,800 | 104 | 106 | 111 | 113 |
| | 10 | 7,740 | 103 | 6,340 | 105 | 5,930 | 105 | 5,510 | 105 | 106 | 111 | 113 |
| | 20 | 9,750 | 106 | 8,170 | 106 | 7,690 | 106 | 7,220 | 106 | 106 | 111 | 112 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 31 | - | - | - | - | - | - | - | - | - | - | - |
| 18,000 | -54 | 4,830 | 97 | 3,870 | 99 | 3,580 | 99 | 3,310 | 100 | 104 | 111 | 114 |
| | -10 | 6,050 | 99 | 4,930 | 101 | 4,590 | 101 | 4,260 | 102 | 105 | 111 | 113 |
| | 0 | 6,600 | 101 | 5,380 | 102 | 5,010 | 102 | 4,660 | 103 | 105 | 111 | 113 |
| | 10 | 7,500 | 102 | 6,140 | 103 | 5,730 | 104 | 5,330 | 104 | 105 | 110 | 112 |
| | 20 | 9,270 | 105 | 7,770 | 105 | 7,310 | 105 | 6,850 | 105 | 105 | 110 | 111 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 31 | - | - | - | - | - | - | - | - | - | - | - |
| 17,000 | -54 | 4,410 | 93 | 3,530 | 95 | 3,260 | 95 | 3,000 | 96 | 101 | 109 | 111 |
| | -10 | 5,500 | 95 | 4,470 | 97 | 4,150 | 97 | 3,850 | 98 | 101 | 108 | 110 |
| | 0 | 5,970 | 97 | 4,860 | 98 | 4,520 | 98 | 4,200 | 99 | 102 | 108 | 110 |
| | 10 | 6,740 | 98 | 5,500 | 99 | 5,120 | 100 | 4,750 | 100 | 102 | 108 | 110 |
| | 20 | 8,020 | 102 | 6,630 | 102 | 6,230 | 102 | 5,830 | 102 | 102 | 107 | 109 |
| | 30 | - | - | - | - | - | - | - | - | - | - | - |
| | 31 | - | - | - | - | - | - | - | - | - | - | - |
| 16,000 | -54 | 4,070 | 90 | 3,210 | 91 | 2,960 | 92 | 2,720 | 92 | 98 | 106 | 109 |
| | -10 | 4,990 | 91 | 4,040 | 93 | 3,740 | 93 | 3,460 | 94 | 98 | 106 | 108 |
| | 0 | 5,400 | 92 | 4,380 | 94 | 4,060 | 94 | 3,760 | 95 | 98 | 105 | 108 |
| | 10 | 6,050 | 94 | 4,920 | 95 | 4,570 | 96 | 4,230 | 96 | 99 | 105 | 107 |
| | 20 | 7,110 | 97 | 5,800 | 98 | 5,420 | 99 | 5,030 | 99 | 100 | 104 | 106 |
| | 30 | 9,130 | 99 | 7,640 | 99 | 7,180 | 99 | 6,720 | 99 | 99 | 104 | 105 |
| | 31 | - | - | - | - | - | - | - | - | - | - | - |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 8, IPS OFF

| Pressure Altitude: 10,000 feet | | | | | | | | | | | | | |
|--------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|--|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS | |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | | |
| 15,000 | -54 | 4,020 | 90 | 3,100 | 90 | 2,820 | 90 | 2,550 | 90 | 95 | 104 | 107 | |
| | -10 | 4,700 | 89 | 3,670 | 89 | 3,370 | 89 | 3,120 | 90 | 95 | 103 | 106 | |
| | 0 | 4,930 | 89 | 3,940 | 90 | 3,650 | 90 | 3,380 | 91 | 95 | 103 | 105 | |
| | 10 | 5,430 | 90 | 4,390 | 91 | 4,080 | 92 | 3,780 | 92 | 95 | 102 | 104 | |
| | 20 | 6,310 | 93 | 5,120 | 94 | 4,760 | 94 | 4,410 | 95 | 96 | 101 | 103 | |
| | 30 | 7,630 | 96 | 6,350 | 96 | 5,960 | 96 | 5,570 | 96 | 96 | 101 | 102 | |
| | 31 | 7,880 | 96 | 6,570 | 96 | 6,170 | 96 | 5,770 | 96 | 96 | 101 | 102 | |
| 14,000 | -54 | 3,990 | 90 | 3,080 | 90 | 2,800 | 90 | 2,540 | 90 | 91 | 102 | 105 | |
| | -10 | 4,630 | 89 | 3,620 | 89 | 3,320 | 89 | 3,030 | 89 | 92 | 101 | 104 | |
| | 0 | 4,850 | 89 | 3,800 | 89 | 3,490 | 89 | 3,180 | 89 | 92 | 100 | 103 | |
| | 10 | 5,170 | 89 | 4,050 | 89 | 3,720 | 89 | 3,390 | 89 | 92 | 100 | 102 | |
| | 20 | 5,590 | 88 | 4,510 | 90 | 4,190 | 90 | 3,870 | 91 | 92 | 99 | 100 | |
| | 30 | 6,610 | 91 | 5,370 | 92 | 5,030 | 92 | 4,690 | 92 | 92 | 98 | 100 | |
| | 31 | 6,760 | 92 | 5,520 | 92 | 5,170 | 92 | 4,820 | 92 | 92 | 98 | 99 | |
| 13,000 | -54 | 3,970 | 90 | 3,080 | 90 | 2,800 | 90 | 2,540 | 90 | 91 | 102 | 106 | |
| | -10 | 4,570 | 89 | 3,590 | 90 | 3,290 | 90 | 3,010 | 90 | 90 | 100 | 103 | |
| | 0 | 4,770 | 89 | 3,760 | 89 | 3,440 | 89 | 3,150 | 89 | 90 | 99 | 102 | |
| | 10 | 5,060 | 89 | 3,980 | 89 | 3,660 | 89 | 3,340 | 89 | 89 | 98 | 101 | |
| | 20 | 5,450 | 88 | 4,280 | 88 | 3,940 | 88 | 3,600 | 89 | 89 | 96 | 98 | |
| | 30 | 5,950 | 88 | 4,680 | 88 | 4,360 | 88 | 4,040 | 88 | 89 | 95 | 97 | |
| | 31 | 6,020 | 88 | 4,770 | 88 | 4,440 | 88 | 4,120 | 88 | 89 | 95 | 96 | |



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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Takeoff, Wet Runway, No Slope, Flaps 8, IPS ON

1 Pressure Altitude: Sea level

| Associated Conditions | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: Sea level | | | | | | | | | | | | |
|------------------------------|------------|----------|---------------------|----------|---------------------|----------|---------------------|----------|---------------------|------------------|----------------|-----|
| Wind Factor: | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R | V _{LOF} | V ₂ | |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | KIAS | KIAS | |
| 18,740 | -54 | 3,840 | 103 | 3,000 | 105 | 2,740 | 106 | 2,500 | 106 | 111 | 116 | 119 |
| | -50 | 3,900 | 103 | 3,050 | 105 | 2,790 | 106 | 2,540 | 106 | 110 | 116 | 119 |
| | -40 | 4,030 | 103 | 3,160 | 105 | 2,900 | 105 | 2,650 | 106 | 110 | 116 | 119 |
| | -30 | 4,170 | 103 | 3,280 | 105 | 3,020 | 105 | 2,760 | 106 | 110 | 116 | 119 |
| | -20 | 4,300 | 103 | 3,400 | 105 | 3,130 | 105 | 2,870 | 106 | 111 | 116 | 119 |
| | -10 | 4,430 | 103 | 3,520 | 105 | 3,250 | 105 | 2,970 | 106 | 110 | 116 | 119 |
| | 0 | 4,580 | 103 | 3,650 | 105 | 3,360 | 105 | 3,090 | 106 | 110 | 116 | 119 |
| | 10 | 4,720 | 103 | 3,770 | 105 | 3,480 | 105 | 3,200 | 106 | 110 | 116 | 119 |
| 18,300 | -54 | 3,650 | 100 | 2,850 | 102 | 2,610 | 103 | 2,380 | 104 | 109 | 114 | 117 |
| | -50 | 3,700 | 100 | 2,900 | 102 | 2,650 | 103 | 2,420 | 104 | 109 | 114 | 117 |
| | -40 | 3,820 | 100 | 3,010 | 102 | 2,760 | 103 | 2,520 | 103 | 109 | 114 | 117 |
| | -30 | 3,950 | 100 | 3,120 | 102 | 2,860 | 103 | 2,620 | 103 | 109 | 115 | 118 |
| | -20 | 4,080 | 100 | 3,230 | 102 | 2,970 | 103 | 2,730 | 103 | 109 | 115 | 118 |
| | -10 | 4,200 | 100 | 3,350 | 102 | 3,080 | 103 | 2,830 | 103 | 109 | 115 | 118 |
| | 0 | 4,330 | 100 | 3,460 | 102 | 3,190 | 103 | 2,930 | 103 | 109 | 115 | 118 |
| | 10 | 4,480 | 100 | 3,580 | 102 | 3,300 | 103 | 3,040 | 103 | 109 | 115 | 118 |
| 18,000 | -54 | 3,560 | 99 | 2,770 | 101 | 2,540 | 102 | 2,310 | 102 | 108 | 114 | 117 |
| | -50 | 3,600 | 99 | 2,820 | 101 | 2,580 | 102 | 2,350 | 102 | 108 | 114 | 117 |
| | -40 | 3,720 | 99 | 2,930 | 101 | 2,680 | 102 | 2,450 | 102 | 108 | 114 | 117 |
| | -30 | 3,850 | 99 | 3,030 | 101 | 2,780 | 101 | 2,550 | 102 | 108 | 114 | 117 |
| | -20 | 3,970 | 99 | 3,140 | 101 | 2,890 | 101 | 2,650 | 102 | 108 | 114 | 117 |
| | -10 | 4,090 | 99 | 3,250 | 101 | 2,990 | 101 | 2,750 | 102 | 108 | 114 | 117 |
| | 0 | 4,220 | 99 | 3,360 | 101 | 3,100 | 101 | 2,850 | 102 | 108 | 114 | 117 |
| | 10 | 4,350 | 99 | 3,480 | 101 | 3,210 | 101 | 2,960 | 102 | 108 | 114 | 117 |
| 17,000 | -54 | 3,240 | 94 | 2,520 | 97 | 2,310 | 98 | 2,100 | 98 | 104 | 111 | 114 |
| | -50 | 3,290 | 94 | 2,560 | 97 | 2,340 | 98 | 2,130 | 98 | 105 | 111 | 114 |
| | -40 | 3,400 | 94 | 2,660 | 97 | 2,430 | 97 | 2,220 | 98 | 105 | 111 | 114 |
| | -30 | 3,510 | 95 | 2,750 | 97 | 2,530 | 97 | 2,310 | 98 | 105 | 111 | 114 |
| | -20 | 3,620 | 95 | 2,850 | 97 | 2,620 | 97 | 2,400 | 98 | 104 | 111 | 114 |
| | -10 | 3,730 | 95 | 2,960 | 97 | 2,720 | 97 | 2,490 | 98 | 105 | 111 | 114 |
| | 0 | 3,850 | 95 | 3,050 | 97 | 2,810 | 97 | 2,580 | 98 | 104 | 111 | 114 |
| | 10 | 3,970 | 95 | 3,160 | 97 | 2,910 | 97 | 2,670 | 98 | 104 | 111 | 114 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 8, IPS ON

| Pressure Altitude: Sea level | | | | | | | | | | | | |
|------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 2,990 | 90 | 2,290 | 92 | 2,090 | 93 | 1,890 | 94 | 101 | 108 | 112 |
| | -50 | 3,020 | 90 | 2,320 | 92 | 2,120 | 93 | 1,930 | 94 | 101 | 108 | 112 |
| | -40 | 3,110 | 90 | 2,410 | 92 | 2,200 | 93 | 2,010 | 94 | 101 | 108 | 112 |
| | -30 | 3,200 | 90 | 2,500 | 92 | 2,290 | 93 | 2,090 | 94 | 101 | 108 | 112 |
| | -20 | 3,300 | 90 | 2,590 | 92 | 2,380 | 93 | 2,170 | 94 | 101 | 108 | 112 |
| | -10 | 3,400 | 90 | 2,680 | 93 | 2,460 | 93 | 2,250 | 94 | 101 | 108 | 112 |
| | 0 | 3,500 | 90 | 2,770 | 93 | 2,550 | 93 | 2,340 | 94 | 101 | 109 | 112 |
| 15,000 | 10 | 3,610 | 90 | 2,860 | 93 | 2,640 | 93 | 2,420 | 94 | 101 | 109 | 112 |
| | -54 | 2,960 | 91 | 2,200 | 91 | 1,960 | 91 | 1,750 | 91 | 98 | 105 | 109 |
| | -50 | 3,000 | 91 | 2,230 | 91 | 1,990 | 91 | 1,780 | 91 | 98 | 105 | 109 |
| | -40 | 3,090 | 91 | 2,300 | 91 | 2,070 | 91 | 1,840 | 91 | 98 | 105 | 109 |
| | -30 | 3,180 | 90 | 2,380 | 90 | 2,140 | 91 | 1,920 | 91 | 98 | 106 | 109 |
| | -20 | 3,270 | 90 | 2,450 | 90 | 2,210 | 90 | 1,990 | 90 | 98 | 106 | 109 |
| | -10 | 3,350 | 90 | 2,540 | 90 | 2,290 | 90 | 2,050 | 90 | 98 | 106 | 109 |
| 14,000 | 0 | 3,440 | 90 | 2,610 | 90 | 2,360 | 90 | 2,120 | 90 | 98 | 106 | 109 |
| | 10 | 3,530 | 90 | 2,690 | 90 | 2,430 | 90 | 2,190 | 90 | 98 | 106 | 109 |
| | -54 | 2,950 | 91 | 2,200 | 91 | 1,970 | 91 | 1,760 | 91 | 94 | 103 | 107 |
| | -50 | 2,990 | 91 | 2,230 | 91 | 2,000 | 91 | 1,790 | 91 | 94 | 103 | 107 |
| | -40 | 3,080 | 91 | 2,310 | 91 | 2,070 | 91 | 1,850 | 91 | 94 | 103 | 107 |
| | -30 | 3,160 | 91 | 2,370 | 91 | 2,140 | 91 | 1,920 | 91 | 94 | 103 | 107 |
| | -20 | 3,250 | 91 | 2,450 | 91 | 2,210 | 91 | 1,980 | 91 | 94 | 103 | 107 |
| 13,000 | -10 | 3,330 | 91 | 2,530 | 91 | 2,290 | 91 | 2,050 | 91 | 94 | 103 | 107 |
| | 0 | 3,420 | 90 | 2,600 | 90 | 2,360 | 90 | 2,120 | 90 | 94 | 103 | 107 |
| | 10 | 3,500 | 90 | 2,680 | 90 | 2,430 | 90 | 2,190 | 90 | 94 | 103 | 107 |
| | -54 | 2,960 | 91 | 2,210 | 91 | 1,980 | 91 | 1,770 | 91 | 92 | 102 | 107 |
| | -50 | 2,990 | 91 | 2,230 | 91 | 2,010 | 91 | 1,800 | 91 | 92 | 102 | 107 |
| | -40 | 3,080 | 91 | 2,310 | 91 | 2,080 | 91 | 1,870 | 91 | 92 | 102 | 107 |
| | -30 | 3,160 | 91 | 2,390 | 91 | 2,150 | 91 | 1,930 | 91 | 92 | 102 | 107 |



2 Pressure Altitude: 1,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 1,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 3,960 | 103 | 3,100 | 105 | 2,840 | 106 | 2,590 | 106 | 110 | 116 | 119 |
| | -50 | 4,010 | 103 | 3,150 | 105 | 2,880 | 106 | 2,640 | 106 | 110 | 116 | 119 |
| | -40 | 4,150 | 103 | 3,270 | 105 | 3,000 | 105 | 2,750 | 106 | 111 | 116 | 119 |
| | -30 | 4,290 | 103 | 3,390 | 105 | 3,120 | 105 | 2,860 | 106 | 110 | 116 | 119 |
| | -20 | 4,430 | 103 | 3,520 | 105 | 3,230 | 105 | 2,970 | 106 | 110 | 116 | 119 |
| | -10 | 4,570 | 103 | 3,640 | 105 | 3,360 | 105 | 3,080 | 106 | 110 | 116 | 119 |
| | 0 | 4,720 | 103 | 3,770 | 105 | 3,470 | 105 | 3,200 | 106 | 111 | 116 | 119 |
| | 10 | 4,870 | 103 | 3,900 | 105 | 3,600 | 105 | 3,320 | 106 | 111 | 116 | 119 |
| 18,300 | -54 | 3,760 | 100 | 2,950 | 102 | 2,700 | 103 | 2,470 | 103 | 109 | 114 | 117 |
| | -50 | 3,810 | 100 | 2,990 | 102 | 2,740 | 103 | 2,510 | 103 | 109 | 115 | 118 |
| | -40 | 3,940 | 100 | 3,110 | 102 | 2,850 | 103 | 2,610 | 103 | 109 | 115 | 118 |
| | -30 | 4,070 | 100 | 3,220 | 102 | 2,960 | 103 | 2,720 | 103 | 109 | 115 | 118 |
| | -20 | 4,200 | 100 | 3,340 | 102 | 3,070 | 103 | 2,820 | 103 | 109 | 115 | 118 |
| | -10 | 4,330 | 100 | 3,460 | 102 | 3,190 | 103 | 2,930 | 103 | 109 | 115 | 118 |
| | 0 | 4,470 | 100 | 3,570 | 102 | 3,300 | 103 | 3,040 | 103 | 109 | 115 | 118 |
| | 10 | 4,610 | 100 | 3,700 | 102 | 3,420 | 103 | 3,150 | 103 | 109 | 115 | 118 |
| 18,000 | -54 | 3,660 | 99 | 2,860 | 101 | 2,620 | 102 | 2,400 | 102 | 108 | 114 | 117 |
| | -50 | 3,710 | 99 | 2,910 | 101 | 2,670 | 102 | 2,440 | 102 | 108 | 114 | 117 |
| | -40 | 3,830 | 99 | 3,020 | 101 | 2,770 | 101 | 2,540 | 102 | 108 | 114 | 117 |
| | -30 | 3,960 | 99 | 3,130 | 101 | 2,880 | 101 | 2,640 | 102 | 108 | 114 | 117 |
| | -20 | 4,090 | 99 | 3,240 | 101 | 2,990 | 101 | 2,740 | 102 | 108 | 114 | 117 |
| | -10 | 4,220 | 99 | 3,360 | 101 | 3,090 | 101 | 2,850 | 102 | 108 | 114 | 117 |
| | 0 | 4,350 | 99 | 3,470 | 101 | 3,210 | 101 | 2,950 | 102 | 108 | 114 | 117 |
| | 10 | 4,480 | 99 | 3,600 | 101 | 3,320 | 101 | 3,060 | 102 | 108 | 114 | 117 |
| 17,000 | -54 | 3,340 | 94 | 2,600 | 97 | 2,380 | 97 | 2,170 | 98 | 105 | 111 | 114 |
| | -50 | 3,380 | 94 | 2,640 | 97 | 2,420 | 97 | 2,210 | 98 | 104 | 111 | 114 |
| | -40 | 3,500 | 95 | 2,750 | 97 | 2,520 | 97 | 2,300 | 98 | 104 | 111 | 114 |
| | -30 | 3,610 | 95 | 2,850 | 97 | 2,610 | 97 | 2,390 | 98 | 104 | 111 | 114 |
| | -20 | 3,730 | 95 | 2,950 | 97 | 2,710 | 97 | 2,480 | 98 | 104 | 111 | 114 |
| | -10 | 3,840 | 95 | 3,050 | 97 | 2,810 | 97 | 2,580 | 98 | 105 | 111 | 114 |
| | 0 | 3,960 | 95 | 3,160 | 97 | 2,910 | 97 | 2,670 | 98 | 104 | 111 | 114 |
| | 10 | 4,090 | 95 | 3,260 | 97 | 3,010 | 97 | 2,770 | 98 | 104 | 111 | 114 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 8, IPS ON

| Pressure Altitude: 1,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,060 | 90 | 2,360 | 92 | 2,160 | 93 | 1,960 | 94 | 101 | 108 | 112 |
| | -50 | 3,100 | 90 | 2,400 | 92 | 2,190 | 93 | 2,000 | 94 | 101 | 108 | 112 |
| | -40 | 3,190 | 90 | 2,490 | 92 | 2,280 | 93 | 2,080 | 94 | 101 | 108 | 112 |
| | -30 | 3,290 | 90 | 2,580 | 92 | 2,370 | 93 | 2,160 | 94 | 101 | 108 | 112 |
| | -20 | 3,390 | 90 | 2,680 | 92 | 2,460 | 93 | 2,250 | 94 | 101 | 108 | 112 |
| | -10 | 3,500 | 90 | 2,770 | 93 | 2,540 | 93 | 2,330 | 94 | 101 | 109 | 112 |
| | 0 | 3,610 | 90 | 2,860 | 93 | 2,640 | 93 | 2,420 | 94 | 101 | 109 | 112 |
| | 10 | 3,720 | 91 | 2,960 | 93 | 2,730 | 93 | 2,510 | 94 | 101 | 109 | 112 |
| 15,000 | -54 | 3,040 | 91 | 2,260 | 91 | 2,030 | 91 | 1,810 | 91 | 98 | 106 | 109 |
| | -50 | 3,080 | 91 | 2,290 | 91 | 2,060 | 91 | 1,830 | 91 | 98 | 106 | 109 |
| | -40 | 3,170 | 90 | 2,370 | 91 | 2,130 | 91 | 1,910 | 91 | 98 | 106 | 109 |
| | -30 | 3,260 | 90 | 2,450 | 90 | 2,210 | 90 | 1,980 | 90 | 98 | 106 | 109 |
| | -20 | 3,350 | 90 | 2,530 | 90 | 2,280 | 90 | 2,050 | 90 | 98 | 106 | 109 |
| | -10 | 3,440 | 90 | 2,610 | 90 | 2,360 | 90 | 2,120 | 90 | 98 | 106 | 109 |
| | 0 | 3,540 | 90 | 2,690 | 90 | 2,440 | 90 | 2,190 | 90 | 98 | 106 | 109 |
| | 10 | 3,630 | 90 | 2,770 | 90 | 2,510 | 90 | 2,270 | 90 | 98 | 106 | 109 |
| 14,000 | -54 | 3,020 | 91 | 2,260 | 91 | 2,030 | 91 | 1,810 | 91 | 94 | 103 | 107 |
| | -50 | 3,060 | 91 | 2,290 | 91 | 2,060 | 91 | 1,840 | 91 | 94 | 103 | 107 |
| | -40 | 3,150 | 91 | 2,370 | 91 | 2,130 | 91 | 1,910 | 91 | 94 | 103 | 107 |
| | -30 | 3,240 | 91 | 2,440 | 91 | 2,210 | 91 | 1,980 | 91 | 94 | 103 | 107 |
| | -20 | 3,330 | 91 | 2,520 | 91 | 2,280 | 91 | 2,050 | 91 | 94 | 103 | 107 |
| | -10 | 3,420 | 90 | 2,600 | 90 | 2,360 | 90 | 2,120 | 90 | 94 | 103 | 107 |
| | 0 | 3,510 | 90 | 2,680 | 90 | 2,430 | 90 | 2,190 | 90 | 94 | 103 | 107 |
| | 10 | 3,600 | 90 | 2,760 | 90 | 2,500 | 90 | 2,260 | 90 | 94 | 104 | 107 |
| 13,000 | -54 | 3,030 | 91 | 2,270 | 91 | 2,040 | 91 | 1,830 | 91 | 92 | 102 | 107 |
| | -50 | 3,060 | 91 | 2,300 | 91 | 2,070 | 91 | 1,860 | 91 | 92 | 102 | 107 |
| | -40 | 3,150 | 91 | 2,380 | 91 | 2,140 | 91 | 1,920 | 91 | 92 | 102 | 107 |
| | -30 | 3,240 | 91 | 2,450 | 91 | 2,220 | 91 | 1,990 | 91 | 91 | 102 | 107 |
| | -20 | 3,320 | 91 | 2,530 | 91 | 2,290 | 91 | 2,060 | 91 | 91 | 102 | 107 |
| | -10 | 3,410 | 91 | 2,600 | 91 | 2,360 | 91 | 2,130 | 91 | 91 | 102 | 106 |
| | 0 | 3,500 | 91 | 2,680 | 91 | 2,430 | 91 | 2,200 | 91 | 91 | 102 | 106 |
| | 10 | 3,580 | 90 | 2,750 | 90 | 2,510 | 91 | 2,270 | 91 | 91 | 102 | 106 |



3 Pressure Altitude: 2,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 2,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,070 | 103 | 3,200 | 105 | 2,930 | 105 | 2,680 | 106 | 110 | 116 | 119 |
| | -50 | 4,130 | 103 | 3,250 | 105 | 2,980 | 105 | 2,730 | 106 | 110 | 116 | 119 |
| | -40 | 4,270 | 103 | 3,380 | 105 | 3,110 | 105 | 2,850 | 106 | 111 | 116 | 119 |
| | -30 | 4,410 | 103 | 3,510 | 105 | 3,230 | 105 | 2,960 | 106 | 110 | 116 | 119 |
| | -20 | 4,570 | 103 | 3,630 | 105 | 3,350 | 105 | 3,080 | 106 | 110 | 116 | 119 |
| | -10 | 4,710 | 103 | 3,770 | 105 | 3,470 | 105 | 3,200 | 106 | 110 | 116 | 119 |
| | 0 | 4,860 | 103 | 3,900 | 105 | 3,600 | 105 | 3,320 | 106 | 111 | 116 | 119 |
| | 10 | 5,020 | 103 | 4,030 | 105 | 3,730 | 105 | 3,440 | 106 | 111 | 116 | 119 |
| 18,300 | -54 | 3,870 | 100 | 3,040 | 102 | 2,790 | 103 | 2,550 | 103 | 109 | 114 | 117 |
| | -50 | 3,920 | 100 | 3,090 | 102 | 2,840 | 103 | 2,600 | 103 | 109 | 115 | 118 |
| | -40 | 4,050 | 100 | 3,210 | 102 | 2,950 | 103 | 2,700 | 103 | 109 | 115 | 118 |
| | -30 | 4,190 | 100 | 3,330 | 102 | 3,060 | 103 | 2,810 | 103 | 109 | 115 | 118 |
| | -20 | 4,320 | 100 | 3,450 | 102 | 3,180 | 103 | 2,920 | 103 | 109 | 115 | 118 |
| | -10 | 4,470 | 100 | 3,570 | 102 | 3,300 | 103 | 3,030 | 103 | 109 | 115 | 118 |
| | 0 | 4,600 | 100 | 3,690 | 102 | 3,410 | 103 | 3,150 | 103 | 109 | 115 | 118 |
| | 10 | 4,750 | 100 | 3,820 | 102 | 3,540 | 103 | 3,270 | 103 | 109 | 115 | 118 |
| 18,000 | -54 | 3,760 | 99 | 2,950 | 101 | 2,710 | 102 | 2,480 | 102 | 108 | 114 | 117 |
| | -50 | 3,810 | 99 | 3,000 | 101 | 2,750 | 102 | 2,520 | 102 | 108 | 114 | 117 |
| | -40 | 3,940 | 99 | 3,120 | 101 | 2,870 | 101 | 2,630 | 102 | 108 | 114 | 117 |
| | -30 | 4,080 | 99 | 3,240 | 101 | 2,980 | 101 | 2,730 | 102 | 108 | 114 | 117 |
| | -20 | 4,210 | 99 | 3,350 | 101 | 3,090 | 101 | 2,840 | 102 | 108 | 114 | 117 |
| | -10 | 4,340 | 99 | 3,470 | 101 | 3,200 | 101 | 2,950 | 102 | 108 | 114 | 117 |
| | 0 | 4,480 | 99 | 3,590 | 101 | 3,320 | 101 | 3,060 | 102 | 108 | 114 | 117 |
| | 10 | 4,620 | 99 | 3,720 | 101 | 3,440 | 101 | 3,170 | 102 | 108 | 114 | 117 |
| 17,000 | -54 | 3,430 | 95 | 2,690 | 97 | 2,460 | 98 | 2,250 | 98 | 105 | 111 | 114 |
| | -50 | 3,480 | 95 | 2,730 | 97 | 2,500 | 97 | 2,290 | 98 | 105 | 111 | 114 |
| | -40 | 3,600 | 95 | 2,830 | 97 | 2,600 | 97 | 2,380 | 98 | 104 | 111 | 114 |
| | -30 | 3,720 | 95 | 2,940 | 97 | 2,700 | 97 | 2,480 | 98 | 104 | 111 | 114 |
| | -20 | 3,840 | 95 | 3,040 | 97 | 2,800 | 97 | 2,570 | 98 | 104 | 111 | 114 |
| | -10 | 3,960 | 95 | 3,150 | 97 | 2,910 | 97 | 2,670 | 98 | 104 | 111 | 114 |
| | 0 | 4,080 | 95 | 3,260 | 97 | 3,010 | 97 | 2,770 | 98 | 104 | 111 | 114 |
| | 10 | 4,210 | 95 | 3,370 | 97 | 3,120 | 97 | 2,880 | 98 | 104 | 112 | 114 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 8, IPS ON

| Pressure Altitude: 2,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,140 | 90 | 2,440 | 92 | 2,230 | 93 | 2,030 | 94 | 101 | 108 | 112 |
| | -50 | 3,180 | 90 | 2,480 | 92 | 2,270 | 93 | 2,060 | 94 | 101 | 108 | 112 |
| | -40 | 3,280 | 90 | 2,570 | 92 | 2,360 | 93 | 2,150 | 94 | 101 | 108 | 112 |
| | -30 | 3,380 | 90 | 2,670 | 92 | 2,450 | 93 | 2,240 | 94 | 101 | 108 | 112 |
| | -20 | 3,490 | 90 | 2,760 | 93 | 2,540 | 93 | 2,330 | 94 | 101 | 109 | 112 |
| | -10 | 3,610 | 90 | 2,860 | 93 | 2,630 | 93 | 2,420 | 94 | 101 | 109 | 112 |
| | 0 | 3,720 | 91 | 2,960 | 93 | 2,730 | 93 | 2,510 | 94 | 101 | 109 | 112 |
| | 10 | 3,840 | 91 | 3,060 | 93 | 2,820 | 93 | 2,600 | 94 | 101 | 109 | 112 |
| 15,000 | -54 | 3,110 | 91 | 2,330 | 91 | 2,090 | 91 | 1,870 | 91 | 98 | 106 | 109 |
| | -50 | 3,160 | 90 | 2,360 | 91 | 2,120 | 91 | 1,890 | 91 | 98 | 106 | 109 |
| | -40 | 3,250 | 90 | 2,440 | 90 | 2,200 | 90 | 1,970 | 90 | 98 | 106 | 109 |
| | -30 | 3,340 | 90 | 2,530 | 90 | 2,280 | 90 | 2,050 | 90 | 98 | 106 | 109 |
| | -20 | 3,440 | 90 | 2,610 | 90 | 2,360 | 90 | 2,120 | 90 | 98 | 106 | 109 |
| | -10 | 3,530 | 90 | 2,690 | 90 | 2,440 | 90 | 2,190 | 90 | 98 | 106 | 109 |
| | 0 | 3,630 | 90 | 2,770 | 90 | 2,510 | 90 | 2,270 | 90 | 98 | 106 | 109 |
| | 10 | 3,720 | 90 | 2,850 | 90 | 2,590 | 90 | 2,350 | 90 | 98 | 106 | 109 |
| 14,000 | -54 | 3,100 | 91 | 2,320 | 91 | 2,090 | 91 | 1,870 | 91 | 94 | 103 | 107 |
| | -50 | 3,140 | 91 | 2,360 | 91 | 2,120 | 91 | 1,900 | 91 | 94 | 103 | 107 |
| | -40 | 3,230 | 91 | 2,440 | 91 | 2,200 | 91 | 1,970 | 91 | 94 | 103 | 107 |
| | -30 | 3,320 | 91 | 2,520 | 91 | 2,280 | 91 | 2,040 | 91 | 94 | 103 | 107 |
| | -20 | 3,410 | 90 | 2,600 | 90 | 2,350 | 90 | 2,120 | 91 | 94 | 103 | 107 |
| | -10 | 3,510 | 90 | 2,680 | 90 | 2,430 | 90 | 2,190 | 90 | 94 | 103 | 107 |
| | 0 | 3,600 | 90 | 2,760 | 90 | 2,510 | 90 | 2,260 | 90 | 94 | 103 | 107 |
| | 10 | 3,690 | 90 | 2,840 | 90 | 2,580 | 90 | 2,340 | 90 | 94 | 103 | 107 |
| 13,000 | -54 | 3,100 | 91 | 2,340 | 91 | 2,100 | 91 | 1,880 | 91 | 92 | 102 | 107 |
| | -50 | 3,140 | 91 | 2,360 | 91 | 2,130 | 91 | 1,910 | 91 | 92 | 102 | 107 |
| | -40 | 3,230 | 91 | 2,440 | 91 | 2,210 | 91 | 1,980 | 91 | 92 | 102 | 107 |
| | -30 | 3,310 | 91 | 2,520 | 91 | 2,280 | 91 | 2,060 | 91 | 91 | 102 | 107 |
| | -20 | 3,400 | 91 | 2,600 | 91 | 2,360 | 91 | 2,120 | 91 | 91 | 102 | 106 |
| | -10 | 3,500 | 91 | 2,680 | 91 | 2,430 | 91 | 2,200 | 91 | 91 | 102 | 106 |
| | 0 | 3,590 | 90 | 2,760 | 90 | 2,500 | 91 | 2,270 | 91 | 91 | 102 | 106 |
| | 10 | 3,680 | 90 | 2,830 | 90 | 2,580 | 90 | 2,340 | 90 | 91 | 102 | 106 |



4 Pressure Altitude: 3,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 3,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,190 | 103 | 3,300 | 105 | 3,030 | 105 | 2,780 | 106 | 110 | 116 | 119 |
| | -50 | 4,240 | 103 | 3,360 | 105 | 3,090 | 105 | 2,820 | 106 | 111 | 116 | 119 |
| | -40 | 4,400 | 103 | 3,490 | 105 | 3,210 | 105 | 2,950 | 106 | 110 | 116 | 119 |
| | -30 | 4,550 | 103 | 3,620 | 105 | 3,340 | 105 | 3,060 | 106 | 111 | 116 | 119 |
| | -20 | 4,700 | 103 | 3,760 | 105 | 3,470 | 105 | 3,190 | 106 | 110 | 116 | 119 |
| | -10 | 4,860 | 103 | 3,890 | 105 | 3,600 | 105 | 3,310 | 106 | 110 | 116 | 119 |
| | 0 | 5,010 | 103 | 4,030 | 105 | 3,720 | 105 | 3,440 | 106 | 110 | 116 | 119 |
| | 10 | 5,190 | 104 | 4,200 | 105 | 3,890 | 105 | 3,590 | 106 | 111 | 116 | 119 |
| 18,300 | -54 | 3,980 | 100 | 3,140 | 102 | 2,880 | 103 | 2,640 | 103 | 109 | 115 | 118 |
| | -50 | 4,030 | 100 | 3,190 | 102 | 2,930 | 103 | 2,690 | 103 | 109 | 115 | 118 |
| | -40 | 4,170 | 100 | 3,310 | 102 | 3,050 | 103 | 2,800 | 103 | 109 | 115 | 118 |
| | -30 | 4,310 | 100 | 3,440 | 102 | 3,170 | 103 | 2,910 | 103 | 109 | 115 | 118 |
| | -20 | 4,450 | 100 | 3,560 | 102 | 3,280 | 102 | 3,030 | 103 | 109 | 115 | 118 |
| | -10 | 4,600 | 100 | 3,680 | 102 | 3,410 | 102 | 3,140 | 103 | 109 | 115 | 118 |
| | 0 | 4,740 | 100 | 3,810 | 102 | 3,530 | 102 | 3,260 | 103 | 109 | 115 | 118 |
| | 10 | 4,900 | 100 | 3,960 | 102 | 3,670 | 103 | 3,390 | 103 | 109 | 115 | 118 |
| 18,000 | -54 | 3,870 | 99 | 3,050 | 101 | 2,800 | 101 | 2,560 | 102 | 108 | 114 | 117 |
| | -50 | 3,920 | 99 | 3,100 | 101 | 2,850 | 101 | 2,610 | 102 | 108 | 114 | 117 |
| | -40 | 4,060 | 99 | 3,220 | 101 | 2,960 | 101 | 2,720 | 102 | 108 | 114 | 117 |
| | -30 | 4,190 | 99 | 3,340 | 101 | 3,080 | 101 | 2,830 | 102 | 108 | 114 | 117 |
| | -20 | 4,330 | 99 | 3,460 | 101 | 3,190 | 101 | 2,940 | 102 | 108 | 114 | 117 |
| | -10 | 4,470 | 99 | 3,580 | 101 | 3,310 | 101 | 3,050 | 102 | 108 | 114 | 117 |
| | 0 | 4,610 | 99 | 3,710 | 101 | 3,430 | 101 | 3,170 | 102 | 108 | 114 | 117 |
| | 10 | 4,770 | 99 | 3,850 | 101 | 3,570 | 101 | 3,300 | 102 | 108 | 114 | 117 |
| 17,000 | -54 | 3,530 | 95 | 2,770 | 97 | 2,550 | 97 | 2,320 | 98 | 104 | 111 | 114 |
| | -50 | 3,580 | 95 | 2,820 | 97 | 2,590 | 97 | 2,360 | 98 | 104 | 111 | 114 |
| | -40 | 3,700 | 95 | 2,930 | 97 | 2,690 | 97 | 2,460 | 98 | 104 | 111 | 114 |
| | -30 | 3,830 | 95 | 3,040 | 97 | 2,790 | 97 | 2,560 | 98 | 104 | 111 | 114 |
| | -20 | 3,950 | 95 | 3,150 | 97 | 2,900 | 97 | 2,660 | 98 | 104 | 111 | 114 |
| | -10 | 4,080 | 95 | 3,250 | 97 | 3,010 | 97 | 2,760 | 98 | 104 | 111 | 114 |
| | 0 | 4,200 | 95 | 3,370 | 97 | 3,110 | 97 | 2,870 | 98 | 104 | 112 | 114 |
| | 10 | 4,350 | 95 | 3,500 | 97 | 3,230 | 97 | 2,980 | 98 | 104 | 112 | 114 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 8, IPS ON

| Pressure Altitude: 3,000 feet | | | | | | | | | | | | |
|--------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,220 | 90 | 2,520 | 92 | 2,300 | 93 | 2,100 | 94 | 101 | 108 | 112 |
| | -50 | 3,260 | 90 | 2,560 | 92 | 2,340 | 93 | 2,140 | 94 | 101 | 108 | 112 |
| | -40 | 3,370 | 90 | 2,660 | 92 | 2,430 | 93 | 2,230 | 94 | 101 | 109 | 112 |
| | -30 | 3,490 | 90 | 2,750 | 92 | 2,530 | 93 | 2,320 | 94 | 101 | 109 | 112 |
| | -20 | 3,600 | 90 | 2,850 | 92 | 2,630 | 93 | 2,410 | 94 | 101 | 109 | 112 |
| | -10 | 3,710 | 90 | 2,950 | 93 | 2,730 | 93 | 2,500 | 94 | 101 | 109 | 112 |
| | 0 | 3,830 | 91 | 3,060 | 93 | 2,820 | 93 | 2,590 | 94 | 101 | 109 | 112 |
| | 10 | 3,960 | 91 | 3,170 | 93 | 2,930 | 93 | 2,700 | 94 | 101 | 109 | 112 |
| 15,000 | -54 | 3,200 | 90 | 2,400 | 90 | 2,150 | 90 | 1,930 | 91 | 98 | 106 | 109 |
| | -50 | 3,240 | 90 | 2,430 | 90 | 2,190 | 90 | 1,960 | 90 | 98 | 106 | 109 |
| | -40 | 3,330 | 90 | 2,510 | 90 | 2,270 | 90 | 2,040 | 90 | 98 | 106 | 109 |
| | -30 | 3,440 | 90 | 2,600 | 90 | 2,350 | 90 | 2,110 | 90 | 98 | 106 | 109 |
| | -20 | 3,530 | 90 | 2,680 | 90 | 2,430 | 90 | 2,190 | 90 | 98 | 106 | 109 |
| | -10 | 3,620 | 90 | 2,770 | 90 | 2,510 | 90 | 2,270 | 90 | 98 | 106 | 110 |
| | 0 | 3,730 | 90 | 2,860 | 90 | 2,600 | 90 | 2,350 | 90 | 98 | 106 | 110 |
| | 10 | 3,830 | 90 | 2,940 | 90 | 2,670 | 90 | 2,440 | 90 | 98 | 106 | 109 |
| 14,000 | -54 | 3,180 | 91 | 2,390 | 91 | 2,150 | 91 | 1,930 | 91 | 94 | 103 | 107 |
| | -50 | 3,220 | 91 | 2,430 | 91 | 2,180 | 91 | 1,960 | 91 | 94 | 103 | 107 |
| | -40 | 3,310 | 91 | 2,510 | 91 | 2,270 | 91 | 2,040 | 91 | 94 | 103 | 107 |
| | -30 | 3,410 | 90 | 2,590 | 90 | 2,350 | 90 | 2,110 | 90 | 94 | 103 | 107 |
| | -20 | 3,500 | 90 | 2,670 | 90 | 2,430 | 90 | 2,190 | 90 | 94 | 103 | 108 |
| | -10 | 3,600 | 90 | 2,760 | 90 | 2,510 | 90 | 2,260 | 90 | 94 | 104 | 108 |
| | 0 | 3,700 | 90 | 2,840 | 90 | 2,580 | 90 | 2,340 | 90 | 94 | 104 | 108 |
| | 10 | 3,790 | 90 | 2,930 | 90 | 2,660 | 90 | 2,420 | 90 | 94 | 104 | 107 |
| 13,000 | -54 | 3,180 | 91 | 2,400 | 91 | 2,160 | 91 | 1,940 | 91 | 92 | 102 | 107 |
| | -50 | 3,210 | 91 | 2,430 | 91 | 2,190 | 91 | 1,970 | 91 | 92 | 102 | 107 |
| | -40 | 3,300 | 91 | 2,510 | 91 | 2,270 | 91 | 2,050 | 91 | 91 | 102 | 107 |
| | -30 | 3,400 | 91 | 2,600 | 91 | 2,350 | 91 | 2,120 | 91 | 91 | 102 | 107 |
| | -20 | 3,490 | 91 | 2,670 | 91 | 2,430 | 91 | 2,190 | 91 | 91 | 102 | 106 |
| | -10 | 3,590 | 90 | 2,760 | 91 | 2,510 | 91 | 2,270 | 91 | 91 | 102 | 106 |
| | 0 | 3,670 | 90 | 2,840 | 90 | 2,580 | 90 | 2,340 | 90 | 91 | 102 | 106 |
| | 10 | 3,770 | 90 | 2,920 | 90 | 2,660 | 90 | 2,420 | 90 | 91 | 102 | 106 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 8, IPS ON

5 Pressure Altitude: 4,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 4,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,310 | 103 | 3,410 | 105 | 3,140 | 105 | 2,870 | 106 | 110 | 116 | 119 |
| | -50 | 4,370 | 103 | 3,470 | 105 | 3,190 | 105 | 2,920 | 106 | 110 | 116 | 119 |
| | -40 | 4,530 | 103 | 3,610 | 105 | 3,320 | 105 | 3,050 | 106 | 111 | 116 | 119 |
| | -30 | 4,690 | 103 | 3,740 | 105 | 3,450 | 105 | 3,170 | 106 | 111 | 116 | 119 |
| | -20 | 4,850 | 103 | 3,880 | 105 | 3,580 | 105 | 3,300 | 106 | 111 | 116 | 119 |
| | -10 | 5,000 | 103 | 4,020 | 105 | 3,720 | 105 | 3,430 | 106 | 111 | 116 | 119 |
| | 0 | 5,170 | 103 | 4,160 | 105 | 3,860 | 105 | 3,560 | 106 | 111 | 116 | 119 |
| | 10 | 5,400 | 104 | 4,430 | 106 | 4,110 | 106 | 3,800 | 107 | 111 | 116 | 119 |
| 18,300 | -54 | 4,090 | 100 | 3,240 | 102 | 2,980 | 103 | 2,730 | 103 | 109 | 115 | 118 |
| | -50 | 4,150 | 100 | 3,290 | 102 | 3,030 | 103 | 2,780 | 103 | 109 | 115 | 118 |
| | -40 | 4,290 | 100 | 3,420 | 102 | 3,150 | 103 | 2,900 | 103 | 109 | 115 | 118 |
| | -30 | 4,440 | 100 | 3,540 | 102 | 3,280 | 102 | 3,010 | 103 | 109 | 115 | 118 |
| | -20 | 4,580 | 100 | 3,680 | 102 | 3,400 | 102 | 3,130 | 103 | 109 | 115 | 118 |
| | -10 | 4,730 | 100 | 3,810 | 102 | 3,530 | 102 | 3,250 | 103 | 109 | 115 | 118 |
| | 0 | 4,880 | 100 | 3,940 | 102 | 3,650 | 102 | 3,380 | 103 | 109 | 115 | 118 |
| | 10 | 5,100 | 101 | 4,130 | 102 | 3,830 | 103 | 3,550 | 104 | 109 | 115 | 117 |
| 18,000 | -54 | 3,980 | 99 | 3,150 | 101 | 2,900 | 101 | 2,660 | 102 | 108 | 114 | 117 |
| | -50 | 4,030 | 99 | 3,200 | 101 | 2,940 | 101 | 2,700 | 102 | 108 | 114 | 117 |
| | -40 | 4,180 | 99 | 3,320 | 101 | 3,060 | 101 | 2,810 | 102 | 108 | 114 | 117 |
| | -30 | 4,320 | 99 | 3,450 | 101 | 3,180 | 101 | 2,930 | 102 | 108 | 114 | 117 |
| | -20 | 4,460 | 99 | 3,570 | 101 | 3,300 | 101 | 3,040 | 102 | 108 | 114 | 117 |
| | -10 | 4,610 | 99 | 3,700 | 101 | 3,420 | 101 | 3,160 | 102 | 108 | 114 | 117 |
| | 0 | 4,750 | 99 | 3,830 | 101 | 3,550 | 101 | 3,280 | 102 | 108 | 114 | 117 |
| | 10 | 4,960 | 100 | 4,010 | 101 | 3,720 | 102 | 3,440 | 102 | 108 | 114 | 117 |
| 17,000 | -54 | 3,630 | 94 | 2,860 | 97 | 2,620 | 97 | 2,400 | 98 | 104 | 111 | 114 |
| | -50 | 3,680 | 95 | 2,910 | 97 | 2,670 | 97 | 2,440 | 98 | 104 | 111 | 114 |
| | -40 | 3,810 | 95 | 3,020 | 97 | 2,780 | 97 | 2,550 | 98 | 104 | 111 | 114 |
| | -30 | 3,940 | 95 | 3,130 | 97 | 2,890 | 97 | 2,650 | 98 | 104 | 111 | 114 |
| | -20 | 4,070 | 95 | 3,250 | 97 | 3,000 | 97 | 2,760 | 98 | 104 | 112 | 114 |
| | -10 | 4,200 | 95 | 3,360 | 97 | 3,110 | 97 | 2,860 | 98 | 104 | 112 | 114 |
| | 0 | 4,340 | 95 | 3,480 | 97 | 3,220 | 97 | 2,970 | 98 | 104 | 112 | 114 |
| | 10 | 4,520 | 96 | 3,640 | 97 | 3,370 | 98 | 3,120 | 98 | 104 | 112 | 114 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 8, IPS ON

| Pressure Altitude: 4,000 feet | | | | | | | | | | | | |
|--------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,310 | 90 | 2,600 | 92 | 2,380 | 93 | 2,170 | 94 | 101 | 108 | 112 |
| | -50 | 3,350 | 90 | 2,640 | 92 | 2,420 | 93 | 2,210 | 94 | 101 | 108 | 112 |
| | -40 | 3,470 | 90 | 2,740 | 92 | 2,520 | 93 | 2,310 | 94 | 101 | 109 | 112 |
| | -30 | 3,590 | 90 | 2,840 | 92 | 2,620 | 93 | 2,400 | 94 | 101 | 109 | 112 |
| | -20 | 3,710 | 90 | 2,950 | 93 | 2,710 | 93 | 2,500 | 94 | 101 | 109 | 112 |
| | -10 | 3,820 | 91 | 3,050 | 93 | 2,810 | 93 | 2,590 | 94 | 101 | 109 | 112 |
| | 0 | 3,940 | 91 | 3,160 | 93 | 2,920 | 93 | 2,690 | 94 | 101 | 109 | 112 |
| | 10 | 4,100 | 91 | 3,300 | 93 | 3,050 | 94 | 2,820 | 94 | 101 | 109 | 112 |
| 15,000 | -54 | 3,280 | 90 | 2,470 | 90 | 2,220 | 90 | 1,990 | 90 | 98 | 106 | 109 |
| | -50 | 3,320 | 90 | 2,500 | 90 | 2,260 | 90 | 2,020 | 90 | 98 | 106 | 109 |
| | -40 | 3,420 | 90 | 2,590 | 90 | 2,340 | 90 | 2,100 | 90 | 98 | 106 | 109 |
| | -30 | 3,520 | 90 | 2,680 | 90 | 2,430 | 90 | 2,180 | 90 | 98 | 106 | 110 |
| | -20 | 3,620 | 90 | 2,770 | 90 | 2,510 | 90 | 2,260 | 90 | 98 | 106 | 110 |
| | -10 | 3,730 | 90 | 2,860 | 90 | 2,590 | 90 | 2,340 | 90 | 98 | 106 | 110 |
| | 0 | 3,830 | 90 | 2,940 | 90 | 2,680 | 90 | 2,430 | 90 | 98 | 106 | 110 |
| | 10 | 3,930 | 90 | 3,030 | 90 | 2,770 | 90 | 2,540 | 90 | 98 | 106 | 109 |
| 14,000 | -54 | 3,260 | 91 | 2,460 | 91 | 2,220 | 91 | 2,000 | 91 | 94 | 103 | 107 |
| | -50 | 3,300 | 91 | 2,500 | 91 | 2,250 | 91 | 2,030 | 91 | 94 | 103 | 107 |
| | -40 | 3,400 | 90 | 2,580 | 90 | 2,340 | 91 | 2,100 | 91 | 94 | 103 | 107 |
| | -30 | 3,500 | 90 | 2,670 | 90 | 2,420 | 90 | 2,180 | 90 | 94 | 103 | 108 |
| | -20 | 3,590 | 90 | 2,750 | 90 | 2,500 | 90 | 2,260 | 90 | 94 | 103 | 108 |
| | -10 | 3,700 | 90 | 2,840 | 90 | 2,580 | 90 | 2,340 | 90 | 94 | 104 | 108 |
| | 0 | 3,800 | 90 | 2,930 | 90 | 2,660 | 90 | 2,420 | 90 | 94 | 104 | 108 |
| | 10 | 3,890 | 90 | 3,010 | 90 | 2,750 | 90 | 2,500 | 90 | 94 | 104 | 107 |
| 13,000 | -54 | 3,250 | 91 | 2,470 | 91 | 2,230 | 91 | 2,000 | 91 | 91 | 102 | 107 |
| | -50 | 3,290 | 91 | 2,500 | 91 | 2,260 | 91 | 2,030 | 91 | 91 | 102 | 107 |
| | -40 | 3,390 | 91 | 2,590 | 91 | 2,340 | 91 | 2,110 | 91 | 91 | 102 | 107 |
| | -30 | 3,490 | 91 | 2,670 | 91 | 2,420 | 91 | 2,190 | 91 | 91 | 102 | 107 |
| | -20 | 3,580 | 90 | 2,750 | 91 | 2,510 | 91 | 2,270 | 91 | 91 | 102 | 106 |
| | -10 | 3,680 | 90 | 2,840 | 90 | 2,580 | 90 | 2,340 | 90 | 91 | 102 | 106 |
| | 0 | 3,770 | 90 | 2,920 | 90 | 2,660 | 90 | 2,420 | 90 | 91 | 102 | 106 |
| | 10 | 3,870 | 90 | 3,010 | 90 | 2,740 | 90 | 2,500 | 90 | 91 | 102 | 106 |



6 Pressure Altitude: 5,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 5,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,430 | 103 | 3,520 | 105 | 3,240 | 105 | 2,970 | 106 | 110 | 116 | 119 |
| | -50 | 4,500 | 103 | 3,580 | 105 | 3,290 | 105 | 3,030 | 106 | 111 | 116 | 119 |
| | -40 | 4,660 | 103 | 3,720 | 105 | 3,430 | 105 | 3,160 | 106 | 110 | 116 | 119 |
| | -30 | 4,830 | 103 | 3,860 | 104 | 3,570 | 105 | 3,290 | 106 | 110 | 116 | 119 |
| | -20 | 4,990 | 103 | 4,010 | 105 | 3,710 | 105 | 3,420 | 105 | 111 | 116 | 119 |
| | -10 | 5,160 | 103 | 4,160 | 105 | 3,850 | 105 | 3,550 | 106 | 111 | 117 | 119 |
| | 0 | 5,340 | 103 | 4,300 | 105 | 3,990 | 105 | 3,690 | 106 | 110 | 116 | 119 |
| | 10 | 5,630 | 105 | 4,700 | 107 | 4,360 | 107 | 4,030 | 108 | 111 | 116 | 118 |
| 18,300 | -54 | 4,210 | 100 | 3,340 | 102 | 3,080 | 103 | 2,830 | 103 | 109 | 115 | 118 |
| | -50 | 4,270 | 100 | 3,390 | 102 | 3,130 | 103 | 2,870 | 103 | 109 | 115 | 118 |
| | -40 | 4,420 | 100 | 3,530 | 102 | 3,260 | 102 | 3,000 | 103 | 109 | 115 | 118 |
| | -30 | 4,570 | 100 | 3,660 | 102 | 3,380 | 102 | 3,120 | 103 | 109 | 115 | 118 |
| | -20 | 4,720 | 100 | 3,800 | 102 | 3,520 | 102 | 3,240 | 103 | 109 | 115 | 118 |
| | -10 | 4,870 | 100 | 3,930 | 102 | 3,640 | 102 | 3,370 | 103 | 109 | 115 | 118 |
| | 0 | 5,030 | 100 | 4,070 | 102 | 3,780 | 102 | 3,500 | 103 | 109 | 115 | 118 |
| | 10 | 5,310 | 102 | 4,310 | 103 | 4,010 | 103 | 3,720 | 104 | 109 | 115 | 117 |
| 18,000 | -54 | 4,090 | 99 | 3,250 | 101 | 2,990 | 101 | 2,740 | 102 | 108 | 114 | 117 |
| | -50 | 4,150 | 99 | 3,300 | 101 | 3,040 | 101 | 2,790 | 102 | 108 | 114 | 117 |
| | -40 | 4,300 | 99 | 3,430 | 101 | 3,170 | 101 | 2,910 | 102 | 108 | 114 | 117 |
| | -30 | 4,450 | 99 | 3,560 | 101 | 3,290 | 101 | 3,030 | 102 | 108 | 114 | 117 |
| | -20 | 4,590 | 99 | 3,690 | 101 | 3,410 | 101 | 3,150 | 102 | 108 | 114 | 117 |
| | -10 | 4,750 | 99 | 3,830 | 101 | 3,540 | 101 | 3,270 | 102 | 108 | 114 | 117 |
| | 0 | 4,900 | 99 | 3,960 | 101 | 3,670 | 101 | 3,400 | 102 | 108 | 114 | 117 |
| | 10 | 5,170 | 100 | 4,190 | 102 | 3,890 | 102 | 3,610 | 103 | 108 | 114 | 116 |
| 17,000 | -54 | 3,740 | 95 | 2,950 | 97 | 2,720 | 97 | 2,490 | 98 | 105 | 111 | 114 |
| | -50 | 3,790 | 95 | 3,000 | 97 | 2,760 | 97 | 2,530 | 98 | 105 | 111 | 114 |
| | -40 | 3,920 | 95 | 3,120 | 97 | 2,870 | 97 | 2,640 | 98 | 104 | 111 | 114 |
| | -30 | 4,060 | 95 | 3,240 | 97 | 2,990 | 97 | 2,750 | 98 | 104 | 111 | 114 |
| | -20 | 4,190 | 95 | 3,350 | 97 | 3,100 | 97 | 2,860 | 98 | 104 | 112 | 114 |
| | -10 | 4,330 | 95 | 3,480 | 97 | 3,220 | 97 | 2,970 | 98 | 104 | 112 | 115 |
| | 0 | 4,470 | 95 | 3,600 | 97 | 3,330 | 97 | 3,070 | 98 | 104 | 112 | 115 |
| | 10 | 4,700 | 96 | 3,800 | 98 | 3,520 | 98 | 3,260 | 99 | 104 | 111 | 114 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 8, IPS ON

| Pressure Altitude: 5,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,410 | 90 | 2,680 | 92 | 2,460 | 93 | 2,250 | 94 | 101 | 108 | 112 |
| | -50 | 3,450 | 90 | 2,720 | 92 | 2,500 | 93 | 2,290 | 94 | 101 | 109 | 112 |
| | -40 | 3,570 | 90 | 2,830 | 92 | 2,600 | 93 | 2,390 | 94 | 101 | 109 | 112 |
| | -30 | 3,690 | 90 | 2,940 | 92 | 2,700 | 93 | 2,490 | 94 | 101 | 109 | 112 |
| | -20 | 3,820 | 90 | 3,050 | 92 | 2,810 | 93 | 2,580 | 94 | 101 | 109 | 112 |
| | -10 | 3,940 | 91 | 3,160 | 93 | 2,910 | 93 | 2,680 | 94 | 101 | 109 | 112 |
| | 0 | 4,060 | 91 | 3,270 | 93 | 3,020 | 93 | 2,790 | 94 | 101 | 109 | 112 |
| | 10 | 4,270 | 92 | 3,440 | 94 | 3,180 | 94 | 2,940 | 95 | 101 | 109 | 111 |
| 15,000 | -54 | 3,370 | 90 | 2,540 | 90 | 2,290 | 90 | 2,060 | 90 | 98 | 106 | 109 |
| | -50 | 3,410 | 90 | 2,580 | 90 | 2,330 | 90 | 2,090 | 90 | 98 | 106 | 109 |
| | -40 | 3,520 | 90 | 2,670 | 90 | 2,410 | 90 | 2,180 | 90 | 98 | 106 | 109 |
| | -30 | 3,620 | 90 | 2,760 | 90 | 2,500 | 90 | 2,260 | 90 | 98 | 106 | 110 |
| | -20 | 3,730 | 90 | 2,860 | 90 | 2,590 | 90 | 2,340 | 90 | 98 | 106 | 110 |
| | -10 | 3,830 | 90 | 2,940 | 90 | 2,680 | 90 | 2,430 | 90 | 98 | 106 | 110 |
| | 0 | 3,930 | 90 | 3,040 | 90 | 2,760 | 90 | 2,520 | 90 | 98 | 106 | 110 |
| | 10 | 4,040 | 90 | 3,130 | 90 | 2,880 | 90 | 2,650 | 91 | 98 | 106 | 109 |
| 14,000 | -54 | 3,350 | 91 | 2,530 | 91 | 2,290 | 91 | 2,060 | 91 | 94 | 103 | 107 |
| | -50 | 3,390 | 90 | 2,570 | 90 | 2,330 | 91 | 2,090 | 91 | 94 | 103 | 107 |
| | -40 | 3,490 | 90 | 2,660 | 90 | 2,410 | 90 | 2,180 | 90 | 94 | 104 | 108 |
| | -30 | 3,590 | 90 | 2,750 | 90 | 2,500 | 90 | 2,250 | 90 | 94 | 104 | 108 |
| | -20 | 3,690 | 90 | 2,840 | 90 | 2,580 | 90 | 2,340 | 90 | 94 | 104 | 108 |
| | -10 | 3,800 | 90 | 2,930 | 90 | 2,670 | 90 | 2,410 | 90 | 94 | 104 | 108 |
| | 0 | 3,900 | 90 | 3,020 | 90 | 2,750 | 90 | 2,500 | 90 | 94 | 104 | 108 |
| | 10 | 4,000 | 90 | 3,110 | 90 | 2,840 | 90 | 2,580 | 90 | 94 | 103 | 107 |
| 13,000 | -54 | 3,340 | 91 | 2,540 | 91 | 2,300 | 91 | 2,070 | 91 | 91 | 102 | 107 |
| | -50 | 3,380 | 91 | 2,570 | 91 | 2,330 | 91 | 2,100 | 91 | 91 | 102 | 107 |
| | -40 | 3,480 | 91 | 2,660 | 91 | 2,410 | 91 | 2,180 | 91 | 91 | 102 | 107 |
| | -30 | 3,580 | 91 | 2,750 | 91 | 2,500 | 91 | 2,260 | 91 | 91 | 102 | 106 |
| | -20 | 3,670 | 90 | 2,840 | 90 | 2,580 | 90 | 2,340 | 90 | 91 | 102 | 106 |
| | -10 | 3,770 | 90 | 2,930 | 90 | 2,670 | 90 | 2,420 | 90 | 91 | 102 | 106 |
| | 0 | 3,870 | 90 | 3,010 | 90 | 2,750 | 90 | 2,500 | 90 | 91 | 102 | 106 |
| | 10 | 3,970 | 90 | 3,100 | 90 | 2,830 | 90 | 2,580 | 90 | 91 | 101 | 105 |



7 Pressure Altitude: 6,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 6,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,570 | 103 | 3,640 | 105 | 3,360 | 105 | 3,080 | 106 | 111 | 116 | 119 |
| | -50 | 4,640 | 103 | 3,710 | 105 | 3,410 | 105 | 3,140 | 106 | 111 | 116 | 119 |
| | -40 | 4,820 | 103 | 3,850 | 105 | 3,560 | 105 | 3,280 | 106 | 110 | 116 | 119 |
| | -30 | 4,980 | 103 | 4,000 | 105 | 3,700 | 105 | 3,410 | 105 | 110 | 116 | 119 |
| | -20 | 5,160 | 103 | 4,150 | 105 | 3,840 | 105 | 3,550 | 106 | 111 | 117 | 119 |
| | -10 | 5,330 | 103 | 4,300 | 105 | 3,990 | 105 | 3,690 | 105 | 111 | 117 | 119 |
| | 0 | 5,570 | 104 | 4,520 | 105 | 4,190 | 106 | 3,880 | 106 | 111 | 116 | 119 |
| | 10 | 6,070 | 106 | 5,140 | 108 | 4,780 | 108 | 4,420 | 109 | 111 | 116 | 118 |
| 18,300 | -54 | 4,340 | 100 | 3,460 | 102 | 3,180 | 102 | 2,930 | 103 | 109 | 115 | 118 |
| | -50 | 4,400 | 100 | 3,510 | 102 | 3,240 | 102 | 2,980 | 103 | 109 | 115 | 118 |
| | -40 | 4,550 | 100 | 3,650 | 102 | 3,370 | 102 | 3,110 | 103 | 109 | 115 | 118 |
| | -30 | 4,710 | 100 | 3,790 | 102 | 3,500 | 102 | 3,240 | 103 | 109 | 115 | 118 |
| | -20 | 4,870 | 100 | 3,930 | 102 | 3,640 | 102 | 3,370 | 103 | 109 | 115 | 118 |
| | -10 | 5,030 | 100 | 4,070 | 102 | 3,780 | 102 | 3,500 | 103 | 109 | 115 | 118 |
| | 0 | 5,240 | 101 | 4,260 | 102 | 3,950 | 103 | 3,660 | 103 | 109 | 115 | 118 |
| | 10 | 5,720 | 103 | 4,660 | 104 | 4,330 | 105 | 4,020 | 105 | 109 | 115 | 117 |
| 18,000 | -54 | 4,220 | 99 | 3,360 | 101 | 3,100 | 101 | 2,840 | 102 | 108 | 114 | 117 |
| | -50 | 4,280 | 99 | 3,410 | 101 | 3,150 | 101 | 2,890 | 102 | 108 | 114 | 117 |
| | -40 | 4,430 | 99 | 3,550 | 101 | 3,270 | 101 | 3,020 | 102 | 108 | 114 | 117 |
| | -30 | 4,590 | 99 | 3,680 | 101 | 3,410 | 101 | 3,140 | 102 | 108 | 114 | 117 |
| | -20 | 4,740 | 99 | 3,820 | 101 | 3,540 | 101 | 3,270 | 102 | 108 | 114 | 117 |
| | -10 | 4,900 | 99 | 3,960 | 101 | 3,670 | 101 | 3,390 | 102 | 108 | 114 | 117 |
| | 0 | 5,100 | 100 | 4,140 | 101 | 3,840 | 102 | 3,560 | 102 | 108 | 114 | 117 |
| | 10 | 5,560 | 102 | 4,520 | 103 | 4,210 | 103 | 3,900 | 104 | 108 | 114 | 116 |
| 17,000 | -54 | 3,850 | 95 | 3,050 | 97 | 2,810 | 97 | 2,580 | 98 | 104 | 111 | 114 |
| | -50 | 3,900 | 95 | 3,100 | 97 | 2,860 | 97 | 2,620 | 98 | 104 | 111 | 114 |
| | -40 | 4,040 | 95 | 3,220 | 97 | 2,980 | 97 | 2,740 | 98 | 104 | 111 | 114 |
| | -30 | 4,180 | 95 | 3,350 | 97 | 3,100 | 97 | 2,850 | 98 | 104 | 112 | 115 |
| | -20 | 4,320 | 95 | 3,470 | 97 | 3,210 | 97 | 2,960 | 98 | 104 | 112 | 115 |
| | -10 | 4,460 | 95 | 3,600 | 97 | 3,330 | 97 | 3,080 | 98 | 104 | 112 | 115 |
| | 0 | 4,650 | 95 | 3,760 | 97 | 3,480 | 98 | 3,220 | 98 | 104 | 112 | 114 |
| | 10 | 5,050 | 97 | 4,090 | 99 | 3,800 | 99 | 3,520 | 100 | 105 | 111 | 113 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 8, IPS ON

| Pressure Altitude: 6,000 feet | | | | | | | | | | | | |
|--------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,510 | 90 | 2,770 | 92 | 2,550 | 93 | 2,330 | 94 | 101 | 109 | 112 |
| | -50 | 3,560 | 90 | 2,820 | 92 | 2,590 | 93 | 2,370 | 94 | 101 | 109 | 112 |
| | -40 | 3,680 | 90 | 2,930 | 92 | 2,700 | 93 | 2,480 | 94 | 101 | 109 | 112 |
| | -30 | 3,810 | 90 | 3,040 | 93 | 2,800 | 93 | 2,580 | 94 | 101 | 109 | 112 |
| | -20 | 3,940 | 91 | 3,150 | 93 | 2,910 | 93 | 2,680 | 94 | 101 | 109 | 112 |
| | -10 | 4,060 | 91 | 3,260 | 93 | 3,020 | 93 | 2,790 | 94 | 101 | 109 | 112 |
| | 0 | 4,220 | 91 | 3,410 | 93 | 3,160 | 94 | 2,910 | 94 | 101 | 109 | 112 |
| | 10 | 4,560 | 93 | 3,690 | 95 | 3,420 | 95 | 3,170 | 96 | 101 | 108 | 111 |
| 15,000 | -54 | 3,450 | 90 | 2,620 | 90 | 2,370 | 90 | 2,130 | 90 | 98 | 106 | 110 |
| | -50 | 3,500 | 90 | 2,660 | 90 | 2,400 | 90 | 2,160 | 90 | 98 | 106 | 110 |
| | -40 | 3,610 | 90 | 2,750 | 90 | 2,500 | 90 | 2,250 | 90 | 98 | 106 | 110 |
| | -30 | 3,720 | 90 | 2,850 | 90 | 2,580 | 90 | 2,340 | 90 | 98 | 106 | 110 |
| | -20 | 3,820 | 90 | 2,940 | 90 | 2,680 | 90 | 2,420 | 90 | 98 | 106 | 110 |
| | -10 | 3,930 | 90 | 3,040 | 90 | 2,760 | 90 | 2,520 | 90 | 98 | 106 | 110 |
| | 0 | 4,040 | 90 | 3,130 | 90 | 2,860 | 90 | 2,630 | 90 | 98 | 106 | 109 |
| | 10 | 4,200 | 89 | 3,330 | 90 | 3,080 | 91 | 2,840 | 92 | 98 | 106 | 108 |
| 14,000 | -54 | 3,430 | 90 | 2,610 | 90 | 2,360 | 90 | 2,130 | 90 | 94 | 103 | 108 |
| | -50 | 3,480 | 90 | 2,650 | 90 | 2,400 | 90 | 2,160 | 90 | 94 | 103 | 108 |
| | -40 | 3,580 | 90 | 2,740 | 90 | 2,490 | 90 | 2,250 | 90 | 94 | 103 | 108 |
| | -30 | 3,690 | 90 | 2,830 | 90 | 2,580 | 90 | 2,330 | 90 | 94 | 104 | 108 |
| | -20 | 3,800 | 90 | 2,930 | 90 | 2,660 | 90 | 2,410 | 90 | 94 | 104 | 108 |
| | -10 | 3,900 | 90 | 3,020 | 90 | 2,750 | 90 | 2,500 | 90 | 94 | 104 | 108 |
| | 0 | 4,000 | 90 | 3,110 | 90 | 2,840 | 90 | 2,580 | 90 | 94 | 104 | 107 |
| | 10 | 4,140 | 90 | 3,230 | 90 | 2,950 | 90 | 2,690 | 90 | 94 | 103 | 106 |
| 13,000 | -54 | 3,420 | 91 | 2,620 | 91 | 2,370 | 91 | 2,140 | 91 | 91 | 102 | 107 |
| | -50 | 3,460 | 91 | 2,650 | 91 | 2,400 | 91 | 2,170 | 91 | 91 | 102 | 107 |
| | -40 | 3,570 | 91 | 2,740 | 91 | 2,490 | 91 | 2,260 | 91 | 91 | 102 | 106 |
| | -30 | 3,670 | 90 | 2,830 | 90 | 2,580 | 90 | 2,340 | 90 | 91 | 102 | 106 |
| | -20 | 3,770 | 90 | 2,920 | 90 | 2,660 | 90 | 2,420 | 90 | 91 | 102 | 106 |
| | -10 | 3,870 | 90 | 3,010 | 90 | 2,750 | 90 | 2,500 | 90 | 91 | 102 | 106 |
| | 0 | 3,980 | 90 | 3,100 | 90 | 2,840 | 90 | 2,580 | 90 | 91 | 102 | 106 |
| | 10 | 4,110 | 90 | 3,210 | 90 | 2,940 | 90 | 2,670 | 90 | 91 | 101 | 104 |



8 Pressure Altitude: 7,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 7,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 4,810 | 103 | 3,840 | 104 | 3,550 | 105 | 3,260 | 106 | 110 | 116 | 119 |
| | -50 | 4,890 | 103 | 3,900 | 105 | 3,600 | 105 | 3,320 | 106 | 111 | 116 | 119 |
| | -40 | 5,070 | 103 | 4,060 | 105 | 3,760 | 105 | 3,470 | 105 | 110 | 116 | 119 |
| | -30 | 5,250 | 103 | 4,220 | 104 | 3,910 | 105 | 3,610 | 105 | 110 | 116 | 119 |
| | -20 | 5,430 | 103 | 4,380 | 104 | 4,060 | 105 | 3,750 | 105 | 110 | 117 | 119 |
| | -10 | 5,660 | 104 | 4,580 | 105 | 4,250 | 105 | 3,930 | 106 | 111 | 116 | 119 |
| | 0 | 5,980 | 105 | 4,920 | 106 | 4,560 | 107 | 4,230 | 107 | 111 | 116 | 119 |
| | 10 | 6,730 | 108 | 5,750 | 109 | 5,350 | 110 | 4,970 | 110 | 111 | 116 | 118 |
| 18,300 | -54 | 4,460 | 100 | 3,570 | 102 | 3,290 | 102 | 3,040 | 103 | 109 | 115 | 118 |
| | -50 | 4,530 | 100 | 3,630 | 102 | 3,350 | 102 | 3,090 | 103 | 109 | 115 | 118 |
| | -40 | 4,690 | 100 | 3,770 | 102 | 3,490 | 102 | 3,220 | 103 | 109 | 115 | 118 |
| | -30 | 4,860 | 100 | 3,920 | 102 | 3,630 | 102 | 3,350 | 103 | 109 | 115 | 118 |
| | -20 | 5,020 | 100 | 4,060 | 102 | 3,770 | 102 | 3,490 | 103 | 109 | 115 | 118 |
| | -10 | 5,230 | 101 | 4,240 | 102 | 3,940 | 103 | 3,650 | 103 | 109 | 115 | 118 |
| | 0 | 5,520 | 102 | 4,500 | 103 | 4,180 | 103 | 3,880 | 104 | 109 | 115 | 117 |
| | 10 | 6,210 | 104 | 5,070 | 106 | 4,730 | 106 | 4,400 | 106 | 109 | 114 | 117 |
| 18,000 | -54 | 4,340 | 99 | 3,470 | 101 | 3,200 | 101 | 2,950 | 102 | 108 | 114 | 117 |
| | -50 | 4,410 | 99 | 3,530 | 101 | 3,250 | 101 | 3,000 | 102 | 108 | 114 | 117 |
| | -40 | 4,570 | 99 | 3,660 | 101 | 3,390 | 101 | 3,130 | 102 | 108 | 114 | 117 |
| | -30 | 4,730 | 99 | 3,810 | 101 | 3,530 | 101 | 3,260 | 102 | 108 | 114 | 117 |
| | -20 | 4,880 | 99 | 3,950 | 101 | 3,660 | 101 | 3,390 | 102 | 108 | 114 | 117 |
| | -10 | 5,090 | 99 | 4,120 | 101 | 3,830 | 101 | 3,550 | 102 | 108 | 114 | 117 |
| | 0 | 5,370 | 100 | 4,370 | 102 | 4,060 | 102 | 3,760 | 103 | 108 | 114 | 116 |
| | 10 | 6,030 | 103 | 4,930 | 104 | 4,580 | 105 | 4,260 | 105 | 108 | 114 | 116 |
| 17,000 | -54 | 3,960 | 95 | 3,150 | 97 | 2,910 | 97 | 2,670 | 98 | 104 | 111 | 114 |
| | -50 | 4,020 | 95 | 3,200 | 97 | 2,960 | 97 | 2,720 | 98 | 104 | 111 | 114 |
| | -40 | 4,160 | 95 | 3,330 | 97 | 3,080 | 97 | 2,840 | 98 | 104 | 112 | 115 |
| | -30 | 4,310 | 95 | 3,460 | 97 | 3,200 | 97 | 2,950 | 98 | 104 | 112 | 115 |
| | -20 | 4,460 | 95 | 3,590 | 97 | 3,330 | 97 | 3,070 | 98 | 104 | 112 | 115 |
| | -10 | 4,640 | 95 | 3,750 | 97 | 3,470 | 98 | 3,220 | 98 | 104 | 112 | 114 |
| | 0 | 4,890 | 96 | 3,960 | 98 | 3,680 | 98 | 3,400 | 99 | 104 | 111 | 114 |
| | 10 | 5,460 | 99 | 4,440 | 100 | 4,130 | 101 | 3,830 | 101 | 105 | 111 | 113 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 8, IPS ON

| Pressure Altitude: 7,000 feet | | | | | | | | | | | | |
|--------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,610 | 90 | 2,870 | 92 | 2,640 | 93 | 2,420 | 94 | 101 | 109 | 112 |
| | -50 | 3,660 | 90 | 2,910 | 92 | 2,680 | 93 | 2,460 | 94 | 101 | 109 | 112 |
| | -40 | 3,790 | 90 | 3,030 | 92 | 2,790 | 93 | 2,570 | 94 | 101 | 109 | 112 |
| | -30 | 3,930 | 91 | 3,140 | 92 | 2,900 | 93 | 2,680 | 94 | 101 | 109 | 112 |
| | -20 | 4,060 | 91 | 3,260 | 93 | 3,010 | 93 | 2,780 | 94 | 101 | 109 | 112 |
| | -10 | 4,220 | 91 | 3,400 | 93 | 3,150 | 94 | 2,910 | 94 | 101 | 109 | 112 |
| | 0 | 4,440 | 92 | 3,580 | 94 | 3,320 | 94 | 3,080 | 95 | 101 | 109 | 111 |
| | 10 | 4,930 | 94 | 3,990 | 96 | 3,710 | 96 | 3,430 | 97 | 101 | 108 | 110 |
| 15,000 | -54 | 3,550 | 90 | 2,700 | 90 | 2,440 | 90 | 2,200 | 90 | 98 | 106 | 110 |
| | -50 | 3,590 | 90 | 2,740 | 90 | 2,480 | 90 | 2,240 | 90 | 98 | 106 | 110 |
| | -40 | 3,710 | 90 | 2,840 | 90 | 2,570 | 90 | 2,330 | 90 | 98 | 106 | 110 |
| | -30 | 3,820 | 90 | 2,940 | 90 | 2,670 | 90 | 2,420 | 90 | 98 | 106 | 110 |
| | -20 | 3,930 | 90 | 3,030 | 90 | 2,760 | 90 | 2,510 | 90 | 98 | 106 | 110 |
| | -10 | 4,040 | 90 | 3,130 | 90 | 2,860 | 90 | 2,630 | 90 | 98 | 106 | 110 |
| | 0 | 4,170 | 89 | 3,250 | 90 | 3,000 | 90 | 2,770 | 91 | 98 | 106 | 109 |
| | 10 | 4,450 | 90 | 3,580 | 91 | 3,320 | 92 | 3,070 | 93 | 98 | 105 | 108 |
| 14,000 | -54 | 3,530 | 90 | 2,690 | 90 | 2,440 | 90 | 2,200 | 90 | 94 | 104 | 108 |
| | -50 | 3,570 | 90 | 2,730 | 90 | 2,470 | 90 | 2,240 | 90 | 94 | 104 | 108 |
| | -40 | 3,680 | 90 | 2,820 | 90 | 2,570 | 90 | 2,320 | 90 | 94 | 104 | 108 |
| | -30 | 3,790 | 90 | 2,920 | 90 | 2,660 | 90 | 2,410 | 90 | 94 | 104 | 108 |
| | -20 | 3,900 | 90 | 3,020 | 90 | 2,750 | 90 | 2,500 | 90 | 94 | 104 | 108 |
| | -10 | 4,010 | 90 | 3,110 | 90 | 2,850 | 90 | 2,580 | 90 | 94 | 104 | 107 |
| | 0 | 4,120 | 90 | 3,210 | 90 | 2,940 | 90 | 2,680 | 90 | 94 | 103 | 107 |
| | 10 | 4,320 | 89 | 3,370 | 89 | 3,080 | 89 | 2,800 | 89 | 94 | 103 | 105 |
| 13,000 | -54 | 3,510 | 91 | 2,690 | 91 | 2,440 | 91 | 2,210 | 91 | 91 | 102 | 107 |
| | -50 | 3,550 | 91 | 2,730 | 91 | 2,480 | 91 | 2,240 | 91 | 91 | 102 | 107 |
| | -40 | 3,660 | 90 | 2,820 | 90 | 2,570 | 90 | 2,330 | 90 | 91 | 102 | 106 |
| | -30 | 3,770 | 90 | 2,920 | 90 | 2,660 | 90 | 2,420 | 90 | 91 | 102 | 106 |
| | -20 | 3,870 | 90 | 3,010 | 90 | 2,750 | 90 | 2,500 | 90 | 91 | 102 | 106 |
| | -10 | 3,980 | 90 | 3,110 | 90 | 2,840 | 90 | 2,590 | 90 | 91 | 102 | 106 |
| | 0 | 4,090 | 90 | 3,200 | 90 | 2,930 | 90 | 2,680 | 90 | 91 | 101 | 105 |
| | 10 | 4,270 | 90 | 3,340 | 90 | 3,050 | 90 | 2,780 | 90 | 91 | 101 | 103 |



9 Pressure Altitude: 8,000 feet

| Associated Conditions | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|----------------------|
| Anti-skid: ON | | | | | | | | | | | Lift Dump: Operative |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | |

| Pressure Altitude: 8,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 5,060 | 103 | 4,050 | 104 | 3,740 | 105 | 3,450 | 105 | 111 | 116 | 119 |
| | -50 | 5,130 | 103 | 4,110 | 104 | 3,800 | 105 | 3,510 | 105 | 110 | 116 | 119 |
| | -40 | 5,320 | 103 | 4,280 | 104 | 3,970 | 105 | 3,660 | 105 | 111 | 117 | 119 |
| | -30 | 5,520 | 103 | 4,450 | 104 | 4,120 | 105 | 3,820 | 105 | 111 | 117 | 119 |
| | -20 | 5,760 | 104 | 4,660 | 105 | 4,320 | 105 | 4,000 | 106 | 111 | 116 | 119 |
| | -10 | 6,070 | 105 | 4,920 | 106 | 4,570 | 106 | 4,230 | 107 | 111 | 116 | 119 |
| | 0 | 6,540 | 106 | 5,430 | 107 | 5,050 | 108 | 4,680 | 108 | 111 | 116 | 118 |
| | 10 | 7,520 | 109 | 6,510 | 111 | 6,060 | 111 | 5,640 | 111 | 111 | 116 | 118 |
| 18,300 | -54 | 4,610 | 100 | 3,700 | 102 | 3,420 | 102 | 3,150 | 103 | 109 | 115 | 118 |
| | -50 | 4,680 | 100 | 3,760 | 102 | 3,480 | 102 | 3,210 | 103 | 109 | 115 | 118 |
| | -40 | 4,850 | 100 | 3,910 | 102 | 3,620 | 102 | 3,350 | 103 | 109 | 115 | 118 |
| | -30 | 5,020 | 100 | 4,060 | 102 | 3,770 | 102 | 3,490 | 103 | 109 | 115 | 118 |
| | -20 | 5,230 | 101 | 4,240 | 102 | 3,950 | 103 | 3,650 | 103 | 109 | 115 | 118 |
| | -10 | 5,510 | 101 | 4,480 | 103 | 4,170 | 103 | 3,870 | 104 | 109 | 115 | 117 |
| | 0 | 5,930 | 103 | 4,840 | 104 | 4,510 | 104 | 4,190 | 105 | 109 | 115 | 117 |
| | 10 | 6,810 | 106 | 5,580 | 107 | 5,210 | 107 | 4,860 | 108 | 109 | 114 | 116 |
| 18,000 | -54 | 4,490 | 99 | 3,600 | 100 | 3,320 | 101 | 3,060 | 102 | 108 | 114 | 117 |
| | -50 | 4,550 | 99 | 3,660 | 100 | 3,380 | 101 | 3,110 | 102 | 108 | 114 | 117 |
| | -40 | 4,720 | 99 | 3,800 | 100 | 3,520 | 101 | 3,250 | 102 | 108 | 114 | 117 |
| | -30 | 4,890 | 99 | 3,950 | 100 | 3,660 | 101 | 3,390 | 102 | 108 | 114 | 117 |
| | -20 | 5,090 | 99 | 4,130 | 101 | 3,830 | 101 | 3,550 | 102 | 108 | 114 | 117 |
| | -10 | 5,360 | 100 | 4,360 | 102 | 4,050 | 102 | 3,760 | 103 | 108 | 114 | 117 |
| | 0 | 5,770 | 102 | 4,700 | 103 | 4,370 | 103 | 4,060 | 104 | 108 | 114 | 116 |
| | 10 | 6,600 | 104 | 5,410 | 106 | 5,040 | 106 | 4,690 | 106 | 108 | 113 | 115 |
| 17,000 | -54 | 4,090 | 95 | 3,270 | 96 | 3,020 | 97 | 2,770 | 98 | 104 | 112 | 115 |
| | -50 | 4,150 | 95 | 3,320 | 96 | 3,070 | 97 | 2,820 | 98 | 104 | 112 | 115 |
| | -40 | 4,300 | 95 | 3,450 | 96 | 3,200 | 97 | 2,950 | 98 | 104 | 112 | 115 |
| | -30 | 4,460 | 95 | 3,590 | 97 | 3,320 | 97 | 3,070 | 98 | 104 | 112 | 115 |
| | -20 | 4,640 | 95 | 3,750 | 97 | 3,480 | 97 | 3,220 | 98 | 104 | 112 | 114 |
| | -10 | 4,880 | 96 | 3,960 | 98 | 3,670 | 98 | 3,400 | 99 | 105 | 111 | 114 |
| | 0 | 5,240 | 97 | 4,250 | 99 | 3,950 | 99 | 3,660 | 100 | 105 | 111 | 114 |
| | 10 | 5,950 | 100 | 4,850 | 101 | 4,510 | 102 | 4,190 | 102 | 105 | 111 | 113 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 8, IPS ON

| Pressure Altitude: 8,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,730 | 90 | 2,970 | 92 | 2,740 | 93 | 2,510 | 94 | 101 | 109 | 112 |
| | -50 | 3,780 | 90 | 3,020 | 92 | 2,780 | 93 | 2,560 | 94 | 101 | 109 | 112 |
| | -40 | 3,930 | 90 | 3,140 | 92 | 2,900 | 93 | 2,670 | 94 | 101 | 109 | 112 |
| | -30 | 4,060 | 91 | 3,260 | 93 | 3,010 | 93 | 2,780 | 94 | 101 | 109 | 112 |
| | -20 | 4,220 | 91 | 3,400 | 93 | 3,150 | 94 | 2,910 | 94 | 101 | 109 | 112 |
| | -10 | 4,440 | 92 | 3,580 | 94 | 3,320 | 94 | 3,070 | 95 | 101 | 109 | 111 |
| | 0 | 4,750 | 93 | 3,840 | 95 | 3,570 | 95 | 3,300 | 96 | 101 | 108 | 111 |
| 15,000 | 10 | 5,350 | 96 | 4,350 | 97 | 4,040 | 97 | 3,750 | 98 | 102 | 108 | 110 |
| | -54 | 3,660 | 90 | 2,800 | 90 | 2,530 | 90 | 2,290 | 90 | 98 | 106 | 110 |
| | -50 | 3,700 | 90 | 2,830 | 90 | 2,570 | 90 | 2,320 | 90 | 98 | 106 | 110 |
| | -40 | 3,820 | 90 | 2,940 | 90 | 2,670 | 90 | 2,420 | 90 | 98 | 106 | 110 |
| | -30 | 3,940 | 90 | 3,040 | 90 | 2,770 | 90 | 2,520 | 90 | 98 | 106 | 110 |
| | -20 | 4,050 | 90 | 3,140 | 90 | 2,860 | 90 | 2,630 | 90 | 98 | 106 | 110 |
| | -10 | 4,180 | 90 | 3,250 | 90 | 3,000 | 90 | 2,770 | 91 | 98 | 106 | 109 |
| 14,000 | 0 | 4,350 | 89 | 3,470 | 90 | 3,210 | 91 | 2,970 | 92 | 98 | 106 | 108 |
| | 10 | 4,800 | 91 | 3,890 | 93 | 3,610 | 93 | 3,330 | 94 | 98 | 105 | 107 |
| | -54 | 3,630 | 90 | 2,780 | 90 | 2,530 | 90 | 2,280 | 90 | 94 | 104 | 108 |
| | -50 | 3,680 | 90 | 2,820 | 90 | 2,560 | 90 | 2,320 | 90 | 94 | 104 | 108 |
| | -40 | 3,790 | 90 | 2,920 | 90 | 2,660 | 90 | 2,410 | 90 | 94 | 104 | 108 |
| | -30 | 3,910 | 90 | 3,030 | 90 | 2,750 | 90 | 2,500 | 90 | 94 | 104 | 108 |
| | -20 | 4,020 | 90 | 3,120 | 90 | 2,850 | 90 | 2,590 | 90 | 94 | 104 | 107 |
| 13,000 | -10 | 4,140 | 90 | 3,230 | 90 | 2,950 | 90 | 2,690 | 90 | 94 | 103 | 107 |
| | 0 | 4,290 | 89 | 3,350 | 89 | 3,070 | 89 | 2,790 | 89 | 94 | 103 | 106 |
| | 10 | 4,530 | 89 | 3,550 | 89 | 3,250 | 89 | 2,970 | 89 | 95 | 102 | 105 |
| | -54 | 3,620 | 90 | 2,780 | 91 | 2,530 | 91 | 2,290 | 91 | 91 | 102 | 107 |
| | -50 | 3,660 | 90 | 2,820 | 90 | 2,570 | 90 | 2,320 | 90 | 91 | 102 | 107 |
| | -40 | 3,770 | 90 | 2,920 | 90 | 2,660 | 90 | 2,410 | 90 | 91 | 102 | 106 |
| | -30 | 3,880 | 90 | 3,020 | 90 | 2,750 | 90 | 2,500 | 90 | 91 | 102 | 106 |
| | -20 | 3,990 | 90 | 3,120 | 90 | 2,850 | 90 | 2,590 | 90 | 91 | 102 | 106 |
| | -10 | 4,110 | 90 | 3,210 | 90 | 2,940 | 90 | 2,680 | 90 | 91 | 101 | 105 |
| | 0 | 4,250 | 90 | 3,330 | 90 | 3,050 | 90 | 2,780 | 90 | 91 | 101 | 104 |
| | 10 | 4,460 | 89 | 3,490 | 89 | 3,200 | 89 | 2,920 | 89 | 91 | 100 | 103 |



10 Pressure Altitude: 9,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 9,000 feet | | | | | | | | | | | | |
|-------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 5,350 | 103 | 4,290 | 105 | 3,970 | 105 | 3,660 | 106 | 110 | 116 | 119 |
| | -50 | 5,430 | 103 | 4,360 | 105 | 4,040 | 105 | 3,730 | 106 | 110 | 116 | 119 |
| | -40 | 5,630 | 103 | 4,540 | 105 | 4,200 | 105 | 3,890 | 106 | 110 | 116 | 119 |
| | -30 | 5,880 | 104 | 4,750 | 105 | 4,400 | 105 | 4,080 | 106 | 111 | 116 | 119 |
| | -20 | 6,180 | 105 | 5,010 | 106 | 4,650 | 106 | 4,310 | 106 | 111 | 116 | 119 |
| | -10 | 6,610 | 106 | 5,380 | 107 | 5,000 | 107 | 4,630 | 107 | 111 | 116 | 118 |
| | 0 | 7,200 | 107 | 6,030 | 109 | 5,610 | 109 | 5,210 | 109 | 111 | 116 | 118 |
| | 10 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 4,870 | 100 | 3,920 | 102 | 3,630 | 102 | 3,350 | 103 | 109 | 115 | 118 |
| | -50 | 4,950 | 100 | 3,980 | 102 | 3,690 | 102 | 3,410 | 103 | 109 | 115 | 118 |
| | -40 | 5,130 | 100 | 4,150 | 102 | 3,840 | 102 | 3,560 | 103 | 109 | 115 | 118 |
| | -30 | 5,340 | 101 | 4,330 | 102 | 4,030 | 103 | 3,730 | 103 | 109 | 115 | 118 |
| | -20 | 5,620 | 101 | 4,570 | 103 | 4,250 | 103 | 3,940 | 104 | 109 | 115 | 117 |
| | -10 | 6,000 | 103 | 4,900 | 104 | 4,560 | 104 | 4,240 | 105 | 109 | 115 | 117 |
| | 0 | 6,530 | 104 | 5,350 | 105 | 4,980 | 105 | 4,630 | 106 | 109 | 114 | 117 |
| | 10 | 7,640 | 107 | 6,290 | 108 | 5,880 | 109 | 5,510 | 109 | 109 | 114 | 116 |
| 18,000 | -54 | 4,740 | 99 | 3,810 | 101 | 3,530 | 101 | 3,260 | 102 | 108 | 114 | 117 |
| | -50 | 4,810 | 99 | 3,870 | 101 | 3,590 | 101 | 3,310 | 102 | 108 | 114 | 117 |
| | -40 | 4,990 | 99 | 4,030 | 101 | 3,740 | 101 | 3,460 | 102 | 108 | 114 | 117 |
| | -30 | 5,200 | 99 | 4,210 | 101 | 3,910 | 102 | 3,620 | 102 | 108 | 114 | 117 |
| | -20 | 5,460 | 100 | 4,440 | 102 | 4,120 | 102 | 3,820 | 103 | 108 | 114 | 117 |
| | -10 | 5,840 | 101 | 4,760 | 103 | 4,430 | 103 | 4,110 | 103 | 108 | 114 | 116 |
| | 0 | 6,350 | 103 | 5,190 | 104 | 4,830 | 104 | 4,490 | 105 | 108 | 114 | 116 |
| | 10 | 7,400 | 106 | 6,080 | 107 | 5,680 | 107 | 5,300 | 108 | 109 | 113 | 115 |
| 17,000 | -54 | 4,330 | 95 | 3,470 | 97 | 3,200 | 97 | 2,950 | 98 | 104 | 111 | 114 |
| | -50 | 4,400 | 95 | 3,520 | 97 | 3,250 | 97 | 3,000 | 98 | 104 | 112 | 114 |
| | -40 | 4,550 | 95 | 3,660 | 97 | 3,400 | 97 | 3,130 | 98 | 104 | 112 | 114 |
| | -30 | 4,740 | 95 | 3,830 | 97 | 3,550 | 98 | 3,280 | 98 | 104 | 112 | 114 |
| | -20 | 4,970 | 96 | 4,030 | 98 | 3,740 | 98 | 3,460 | 99 | 104 | 111 | 114 |
| | -10 | 5,310 | 97 | 4,310 | 98 | 4,000 | 99 | 3,710 | 99 | 105 | 111 | 114 |
| | 0 | 5,750 | 98 | 4,680 | 100 | 4,360 | 100 | 4,040 | 101 | 105 | 111 | 113 |
| | 10 | 6,630 | 101 | 5,420 | 103 | 5,060 | 103 | 4,710 | 104 | 105 | 111 | 112 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 8, IPS ON

| Pressure Altitude: 9,000 feet | | | | | | | | | | | | |
|--------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 3,940 | 91 | 3,150 | 93 | 2,900 | 93 | 2,670 | 94 | 101 | 109 | 112 |
| | -50 | 4,000 | 91 | 3,200 | 93 | 2,950 | 93 | 2,720 | 94 | 101 | 109 | 112 |
| | -40 | 4,150 | 91 | 3,330 | 93 | 3,080 | 93 | 2,840 | 94 | 101 | 109 | 112 |
| | -30 | 4,310 | 91 | 3,470 | 93 | 3,220 | 94 | 2,970 | 94 | 101 | 109 | 112 |
| | -20 | 4,520 | 92 | 3,650 | 94 | 3,380 | 94 | 3,130 | 95 | 101 | 109 | 112 |
| | -10 | 4,810 | 93 | 3,890 | 94 | 3,610 | 95 | 3,350 | 96 | 101 | 109 | 111 |
| | 0 | 5,190 | 94 | 4,220 | 96 | 3,920 | 96 | 3,630 | 97 | 101 | 108 | 111 |
| 15,000 | 10 | 5,930 | 97 | 4,840 | 98 | 4,500 | 99 | 4,180 | 99 | 102 | 108 | 110 |
| | -54 | 3,840 | 90 | 2,940 | 90 | 2,670 | 90 | 2,420 | 90 | 98 | 106 | 109 |
| | -50 | 3,880 | 90 | 2,980 | 90 | 2,710 | 90 | 2,460 | 90 | 98 | 106 | 110 |
| | -40 | 4,010 | 90 | 3,090 | 90 | 2,820 | 90 | 2,570 | 90 | 98 | 106 | 110 |
| | -30 | 4,130 | 90 | 3,200 | 90 | 2,920 | 90 | 2,690 | 90 | 98 | 106 | 109 |
| | -20 | 4,260 | 90 | 3,320 | 90 | 3,060 | 90 | 2,820 | 91 | 98 | 106 | 109 |
| | -10 | 4,420 | 89 | 3,520 | 90 | 3,260 | 91 | 3,010 | 91 | 98 | 106 | 109 |
| 14,000 | 0 | 4,680 | 90 | 3,790 | 91 | 3,520 | 92 | 3,250 | 92 | 98 | 106 | 108 |
| | 10 | 5,310 | 92 | 4,310 | 94 | 4,000 | 94 | 3,710 | 95 | 98 | 105 | 107 |
| | -54 | 3,800 | 90 | 2,930 | 90 | 2,660 | 90 | 2,410 | 90 | 94 | 104 | 107 |
| | -50 | 3,850 | 90 | 2,970 | 90 | 2,700 | 90 | 2,450 | 90 | 94 | 104 | 108 |
| | -40 | 3,970 | 90 | 3,080 | 90 | 2,800 | 90 | 2,540 | 90 | 94 | 104 | 108 |
| | -30 | 4,090 | 90 | 3,180 | 90 | 2,910 | 90 | 2,640 | 90 | 94 | 104 | 107 |
| | -20 | 4,220 | 90 | 3,290 | 90 | 3,010 | 90 | 2,740 | 90 | 94 | 103 | 107 |
| 13,000 | -10 | 4,380 | 89 | 3,420 | 90 | 3,130 | 90 | 2,850 | 90 | 94 | 103 | 106 |
| | 0 | 4,550 | 89 | 3,570 | 89 | 3,260 | 89 | 2,980 | 89 | 94 | 103 | 105 |
| | 10 | 4,850 | 89 | 3,850 | 89 | 3,550 | 90 | 3,280 | 90 | 95 | 102 | 104 |
| | -54 | 3,790 | 90 | 2,920 | 90 | 2,670 | 90 | 2,410 | 90 | 91 | 102 | 106 |
| | -50 | 3,830 | 90 | 2,970 | 90 | 2,700 | 90 | 2,450 | 90 | 91 | 102 | 106 |
| | -40 | 3,950 | 90 | 3,070 | 90 | 2,800 | 90 | 2,540 | 90 | 91 | 102 | 106 |
| | -30 | 4,070 | 90 | 3,170 | 90 | 2,900 | 90 | 2,640 | 90 | 91 | 102 | 106 |
| 12,000 | -20 | 4,190 | 90 | 3,280 | 90 | 3,000 | 90 | 2,740 | 90 | 91 | 101 | 105 |
| | -10 | 4,330 | 90 | 3,400 | 90 | 3,110 | 90 | 2,840 | 90 | 91 | 101 | 105 |
| | 0 | 4,500 | 89 | 3,530 | 89 | 3,230 | 89 | 2,950 | 89 | 91 | 101 | 104 |
| | 10 | 4,760 | 89 | 3,740 | 89 | 3,420 | 89 | 3,130 | 89 | 91 | 100 | 102 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 8, IPS ON

11 Pressure Altitude: 10,000 feet

| Associated Conditions | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Anti-skid: ON | Lift Dump: Operative | | | | | | | | | | | | | | | | | | | | | |
| Operative engine: TO detent (ATR activated). | | | | | | | | | | | | | | | | | | | | | | |
| Inoperative engine: Windmilling. | | | | | | | | | | | | | | | | | | | | | | |
| All distances are given in feet (ft). | | | | | | | | | | | | | | | | | | | | | | |
| All speeds are given in Knots Indicated Airspeed. | | | | | | | | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | | | | | | | | |

| Pressure Altitude: 10,000 feet | | | | | | | | | | | | |
|--------------------------------|-----------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|------------------------|--------------------------|------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V _R KIAS | V _{LOF} KIAS | V ₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | | | |
| 18,740 | -54 | 5,710 | 104 | 4,590 | 105 | 4,250 | 106 | 3,920 | 106 | 111 | 116 | 119 |
| | -50 | 5,800 | 104 | 4,670 | 105 | 4,320 | 106 | 3,990 | 106 | 110 | 116 | 119 |
| | -40 | 6,010 | 104 | 4,860 | 105 | 4,500 | 106 | 4,160 | 106 | 110 | 116 | 119 |
| | -30 | 6,340 | 105 | 5,130 | 106 | 4,770 | 106 | 4,410 | 107 | 111 | 116 | 119 |
| | -20 | 6,740 | 106 | 5,470 | 107 | 5,080 | 107 | 4,710 | 107 | 111 | 116 | 118 |
| | -10 | 7,220 | 107 | 5,870 | 108 | 5,460 | 108 | 5,070 | 108 | 111 | 116 | 118 |
| | 0 | - | - | - | - | - | - | - | - | - | - | - |
| | 10 | - | - | - | - | - | - | - | - | - | - | - |
| 18,300 | -54 | 5,200 | 101 | 4,200 | 103 | 3,890 | 103 | 3,590 | 104 | 109 | 115 | 117 |
| | -50 | 5,280 | 101 | 4,260 | 103 | 3,950 | 103 | 3,650 | 104 | 109 | 115 | 117 |
| | -40 | 5,480 | 101 | 4,430 | 103 | 4,120 | 103 | 3,820 | 104 | 109 | 115 | 117 |
| | -30 | 5,760 | 102 | 4,690 | 103 | 4,360 | 103 | 4,040 | 104 | 109 | 115 | 117 |
| | -20 | 6,110 | 102 | 4,980 | 104 | 4,650 | 104 | 4,310 | 105 | 109 | 115 | 117 |
| | -10 | 6,550 | 104 | 5,360 | 105 | 5,000 | 105 | 4,640 | 105 | 109 | 114 | 117 |
| | 0 | 7,200 | 105 | 5,900 | 106 | 5,510 | 106 | 5,130 | 107 | 109 | 114 | 116 |
| | 10 | 8,590 | 108 | 7,120 | 109 | 6,710 | 109 | 6,310 | 109 | 109 | 114 | 116 |
| 18,000 | -54 | 5,060 | 100 | 4,080 | 101 | 3,780 | 102 | 3,490 | 102 | 108 | 114 | 117 |
| | -50 | 5,140 | 100 | 4,140 | 101 | 3,840 | 102 | 3,550 | 102 | 108 | 114 | 117 |
| | -40 | 5,320 | 100 | 4,310 | 101 | 4,000 | 102 | 3,700 | 102 | 108 | 114 | 117 |
| | -30 | 5,610 | 100 | 4,550 | 102 | 4,230 | 102 | 3,930 | 103 | 108 | 114 | 116 |
| | -20 | 5,950 | 101 | 4,850 | 102 | 4,510 | 103 | 4,190 | 103 | 108 | 114 | 116 |
| | -10 | 6,360 | 102 | 5,200 | 103 | 4,840 | 104 | 4,510 | 104 | 108 | 114 | 116 |
| | 0 | 6,980 | 104 | 5,730 | 105 | 5,340 | 105 | 4,970 | 106 | 108 | 113 | 115 |
| | 10 | 8,300 | 107 | 6,840 | 108 | 6,420 | 108 | 6,030 | 108 | 108 | 113 | 115 |
| 17,000 | -54 | 4,620 | 96 | 3,710 | 97 | 3,420 | 98 | 3,160 | 99 | 104 | 111 | 114 |
| | -50 | 4,680 | 96 | 3,770 | 97 | 3,490 | 98 | 3,210 | 99 | 104 | 111 | 114 |
| | -40 | 4,850 | 96 | 3,910 | 97 | 3,630 | 98 | 3,360 | 98 | 104 | 111 | 114 |
| | -30 | 5,100 | 96 | 4,130 | 98 | 3,830 | 98 | 3,550 | 99 | 104 | 111 | 114 |
| | -20 | 5,410 | 97 | 4,390 | 98 | 4,080 | 99 | 3,780 | 99 | 105 | 111 | 114 |
| | -10 | 5,780 | 98 | 4,710 | 99 | 4,380 | 100 | 4,060 | 100 | 105 | 111 | 113 |
| | 0 | 6,300 | 100 | 5,150 | 101 | 4,800 | 101 | 4,460 | 102 | 105 | 111 | 113 |
| | 10 | 7,390 | 103 | 6,070 | 104 | 5,670 | 104 | 5,280 | 105 | 105 | 110 | 112 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Takeoff, Wet Runway, No Slope, Flaps 8, IPS ON

| Pressure Altitude: 10,000 feet | | | | | | | | | | | | |
|---------------------------------------|-----------|-------------------|------------------------|-------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------------------|---------------------------------|-------------------------------|
| Wind Factor: | | TAIL 10 KT | | 0 KT | | HEAD 10 KT | | HEAD 20 KT | | V_R KIAS | V_{LOF} KIAS | V₂ KIAS |
| Weight LB | OAT °C | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | Dist. FT | V ₁ KIAS | | | |
| 16,000 | -54 | 4,200 | 91 | 3,360 | 93 | 3,100 | 94 | 2,860 | 95 | 101 | 109 | 111 |
| | -50 | 4,260 | 91 | 3,410 | 93 | 3,160 | 94 | 2,900 | 95 | 101 | 109 | 111 |
| | -40 | 4,410 | 91 | 3,550 | 93 | 3,290 | 94 | 3,030 | 95 | 101 | 109 | 112 |
| | -30 | 4,640 | 92 | 3,740 | 94 | 3,470 | 94 | 3,210 | 95 | 101 | 109 | 111 |
| | -20 | 4,900 | 93 | 3,970 | 94 | 3,680 | 95 | 3,410 | 95 | 101 | 109 | 111 |
| | -10 | 5,220 | 94 | 4,250 | 95 | 3,940 | 96 | 3,650 | 96 | 101 | 108 | 111 |
| | 0 | 5,690 | 95 | 4,630 | 96 | 4,300 | 97 | 3,990 | 97 | 101 | 108 | 110 |
| 15,000 | 10 | 6,590 | 98 | 5,390 | 99 | 5,010 | 100 | 4,660 | 100 | 102 | 108 | 109 |
| | -54 | 4,020 | 90 | 3,100 | 90 | 2,820 | 90 | 2,580 | 90 | 98 | 106 | 109 |
| | -50 | 4,070 | 90 | 3,140 | 90 | 2,860 | 90 | 2,630 | 90 | 98 | 106 | 109 |
| | -40 | 4,200 | 90 | 3,250 | 90 | 2,980 | 90 | 2,740 | 90 | 98 | 106 | 109 |
| | -30 | 4,350 | 89 | 3,390 | 90 | 3,130 | 90 | 2,890 | 91 | 98 | 106 | 109 |
| | -20 | 4,520 | 89 | 3,590 | 90 | 3,320 | 91 | 3,070 | 91 | 98 | 106 | 109 |
| | -10 | 4,720 | 89 | 3,820 | 91 | 3,540 | 92 | 3,280 | 92 | 98 | 106 | 108 |
| 14,000 | 0 | 5,120 | 91 | 4,150 | 92 | 3,850 | 93 | 3,570 | 93 | 98 | 105 | 108 |
| | 10 | 5,860 | 94 | 4,780 | 95 | 4,440 | 95 | 4,120 | 96 | 98 | 105 | 107 |
| | -54 | 3,990 | 90 | 3,080 | 90 | 2,800 | 90 | 2,540 | 90 | 94 | 103 | 107 |
| | -50 | 4,040 | 90 | 3,130 | 90 | 2,840 | 90 | 2,580 | 90 | 94 | 103 | 107 |
| | -40 | 4,170 | 90 | 3,240 | 90 | 2,950 | 90 | 2,690 | 90 | 94 | 103 | 107 |
| | -30 | 4,310 | 90 | 3,360 | 90 | 3,070 | 90 | 2,790 | 90 | 94 | 103 | 107 |
| | -20 | 4,470 | 89 | 3,480 | 90 | 3,190 | 90 | 2,910 | 90 | 94 | 103 | 106 |
| 13,000 | -10 | 4,630 | 89 | 3,620 | 89 | 3,320 | 89 | 3,030 | 89 | 94 | 103 | 106 |
| | 0 | 4,850 | 89 | 3,800 | 89 | 3,490 | 89 | 3,190 | 89 | 95 | 103 | 105 |
| | 10 | 5,220 | 89 | 4,230 | 90 | 3,920 | 91 | 3,630 | 91 | 95 | 102 | 104 |
| | -54 | 3,970 | 90 | 3,080 | 90 | 2,800 | 90 | 2,540 | 90 | 91 | 102 | 106 |
| | -50 | 4,020 | 90 | 3,120 | 90 | 2,840 | 90 | 2,590 | 90 | 91 | 102 | 106 |
| | -40 | 4,140 | 90 | 3,230 | 90 | 2,950 | 90 | 2,690 | 90 | 91 | 102 | 106 |
| | -30 | 4,280 | 90 | 3,350 | 90 | 3,060 | 90 | 2,790 | 90 | 91 | 101 | 105 |
| PC24-A15-60-0558-00A-030A-A | -20 | 4,420 | 90 | 3,460 | 90 | 3,170 | 90 | 2,900 | 90 | 91 | 101 | 105 |
| | -10 | 4,570 | 89 | 3,590 | 90 | 3,290 | 90 | 3,010 | 90 | 91 | 101 | 104 |
| | 0 | 4,770 | 89 | 3,760 | 89 | 3,440 | 89 | 3,150 | 89 | 91 | 100 | 103 |
| | 10 | 5,090 | 89 | 4,000 | 89 | 3,670 | 89 | 3,350 | 89 | 91 | 99 | 101 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 8, IPS ON

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, No Slope, Flaps 8, IPS ON

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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FLAPS 8 WET RUNWAY SLOPE CORRECTIONS

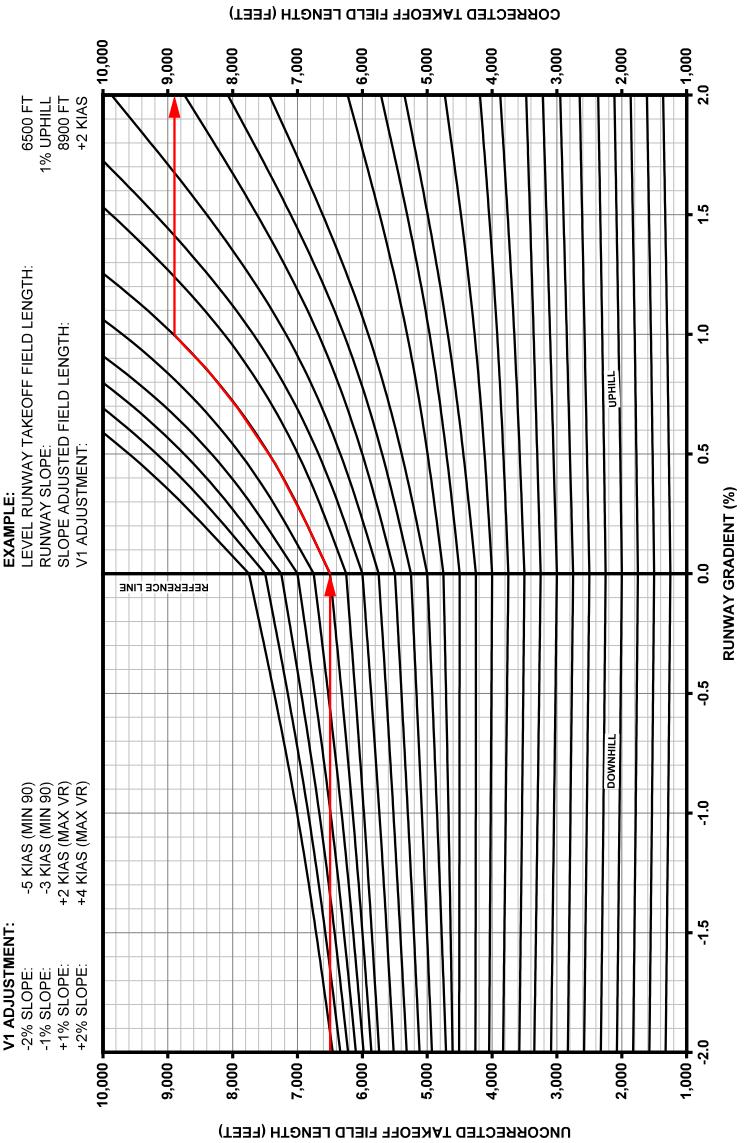


Figure 5-TO-13-1: Wet Runway Slope Adjustments - Flaps 8



Section 5 - Performance, Cockpit Handbook (Authority approved)
Takeoff, Wet Runway, Slope Adjustment, Flaps 8

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

This Page Intentionally Left Blank



Maximum Continuous Thrust

1 Maximum Continuous Thrust – IPS OFF

Use the charts contained in this paragraph to determine the applicable maximum continuous thrust N1 %.

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

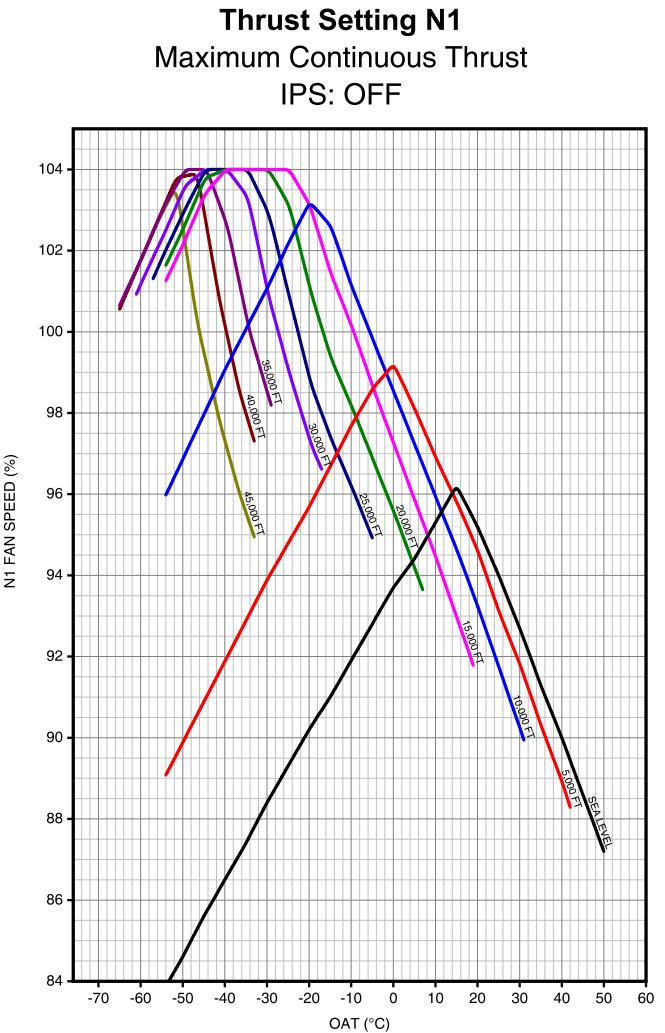


Figure 5-CL-1-1: Maximum Continuous Thrust - N1% - IPS OFF



2 Maximum Continuous Thrust – NAI ON

Use the charts contained in this paragraph to determine the applicable maximum continuous thrust N1 %.

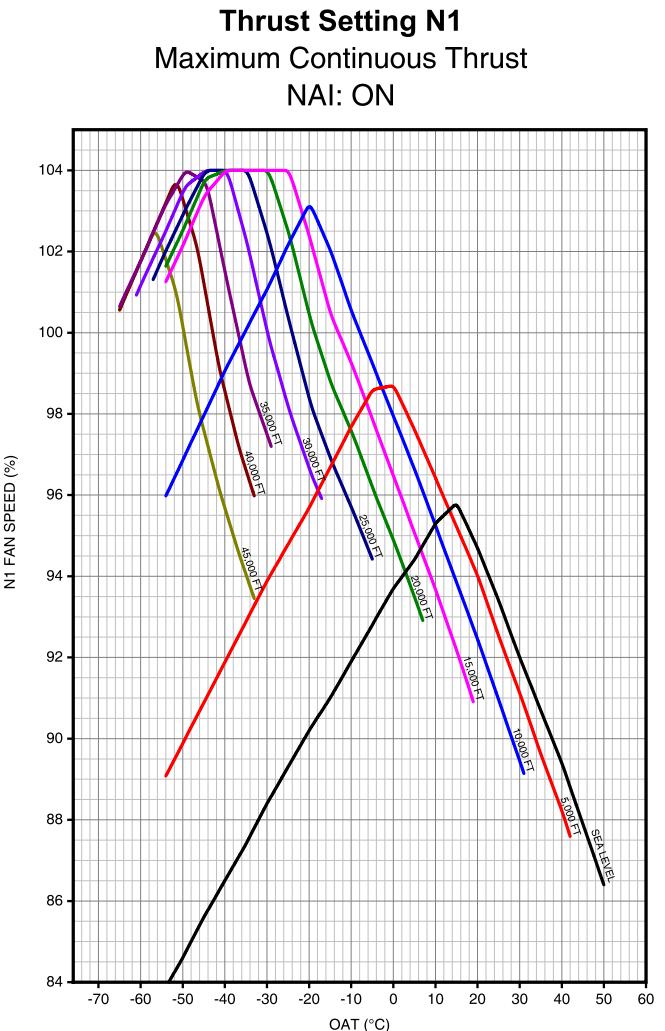


Figure 5-CL-1-2: Maximum Continuous Thrust - N1% - NAI ON



3 Maximum Continuous Thrust – IPS ON

Use the charts contained in this paragraph to determine the applicable maximum continuous thrust N1 %.

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

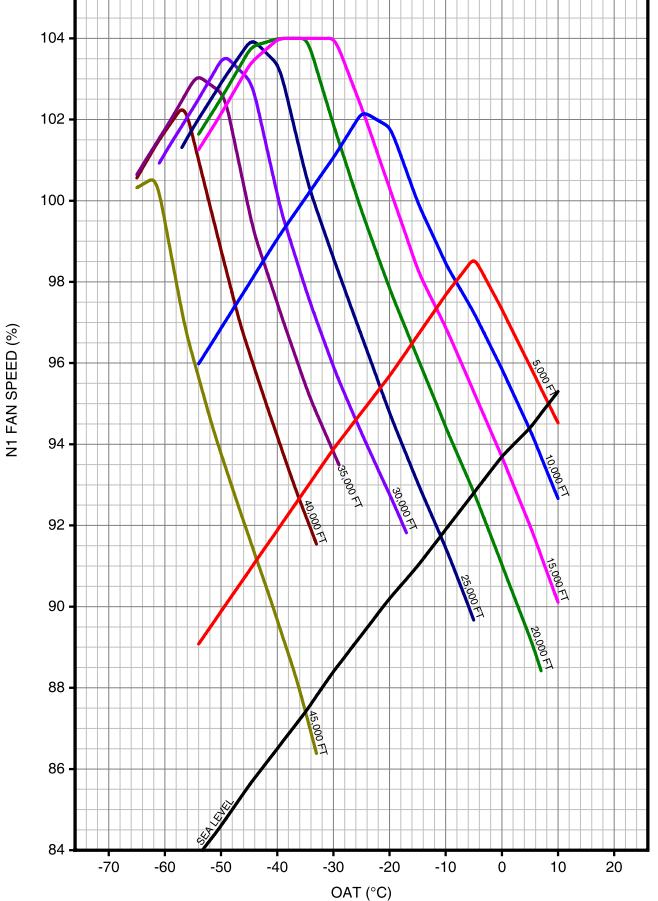


Figure 5-CL-1-3: Maximum Continuous Thrust - N1% - IPS ON



Obstacle Clearance - Takeoff Flight Path

1 Obstruction Clearance Charts

Note

The horizontal distance from reference zero scale is in thousands of feet in the Close Obstacle chart.

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



CLOSE OBSTACLE - NET TAKEOFF FLIGHT PATH

EXAMPLE: (UNIT OF HORIZONTAL DISTANCE IS 1000 FT)

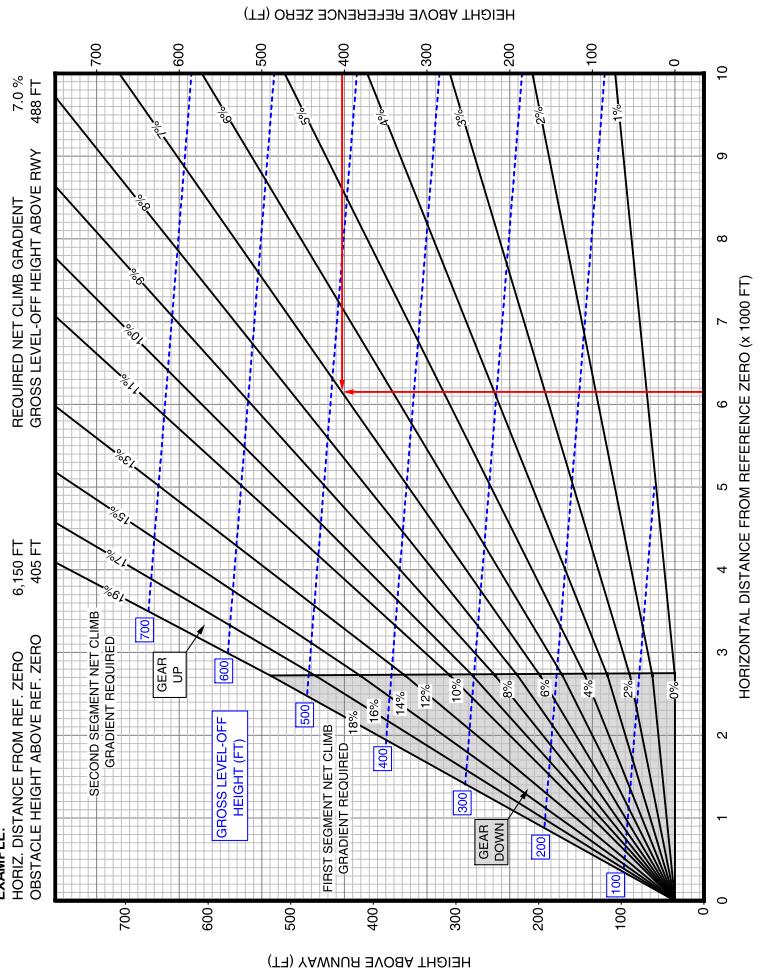


Figure 5-CL-2-1: Close Obstacle - Net Takeoff Flight Path

**Note**

The horizontal distance from reference zero scale is in nautical miles in the Distant Obstacle chart.

DISTANT OBSTACLE - NET TAKEOFF FLIGHT PATH

(1) UNIT OF HORIZONTAL DISTANCE IS NM)

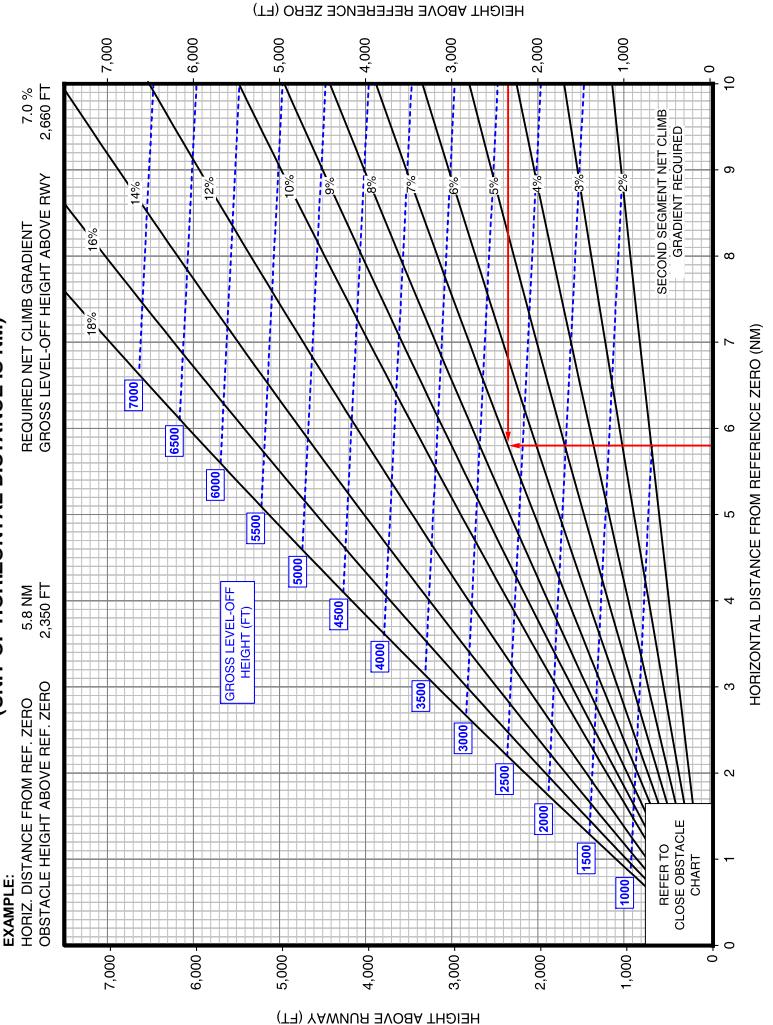


Figure 5-CL-2-2: Distant Obstacle - Net Takeoff Flight Path



2 Acceleration Distance – V_2 To 170 KIAS

Use [Table 5-CL-2-1](#) to determine the distance required to accelerate from V_2 to V_{ENR} (170 KIAS), assuming that the flaps are retracted at 130 KIAS and, subsequently, the remaining engine is brought to MCT. For the second segment climb gradient, refer to [Second Segment Climb, Flaps 15](#) or to [Second Segment Climb, Flaps 8](#).

Table 5-CL-2-1: Distance Required To Accelerate From V_2 to V_{ENR}

| Second Segment Net Climb Gradient (%) | Distance Required To Accelerate From V_2 to V_{ENR} (nm) |
|---------------------------------------|--|
| 1.2 | 15.7 |
| 2 | 12.7 |
| 3 | 10.3 |
| 4 | 8.6 |
| 5 | 7.3 |
| 6 | 6.2 |
| 7 | 5.3 |
| 8 | 4.5 |
| 9 | 3.8 |
| 10 | 3.2 |
| 12 | 2.1 |
| 14 | 1.2 |
| 16 | 0.4 |

Note

The table is valid for all takeoff flap settings

3 Final Segment Climb – Horizontal Climb Distance Required

Refer to the PC-24 FCOM Performance Data, Climb Performance, Obstacle Clearance section for horizontal climb distance requirements.



1ST SEGMENT NET CLIMB GRADIENT

FLAPS 8°, IPS OFF

ASSOCIATED CONDITIONS:
 ANTI-ICE : OFF
 LANDING GEAR : DOWN
 INOP. ENGINE : WINDMILLING
 OPERATIVE ENGINE : TAKEOFF-DETENT (ATR ACTIVATED)
 V_{10} : V_{10} - REFER TO TAKEOFF DATA FOR ACTUAL V_{10}

REDUCE NET CLIMB GRADIENT BY:
 NAI ON : 0.4%
 ATR INOP : 1.5%

EXAMPLE:
 OAT : 15 °C
 ALTITUDE : 6,000 FT
 WEIGHT : 154,011 LB
 HEADWIND : 17 KT
 TAILWIND : 6 KT
 NET CLIMB GRADIENT : 6.6 %

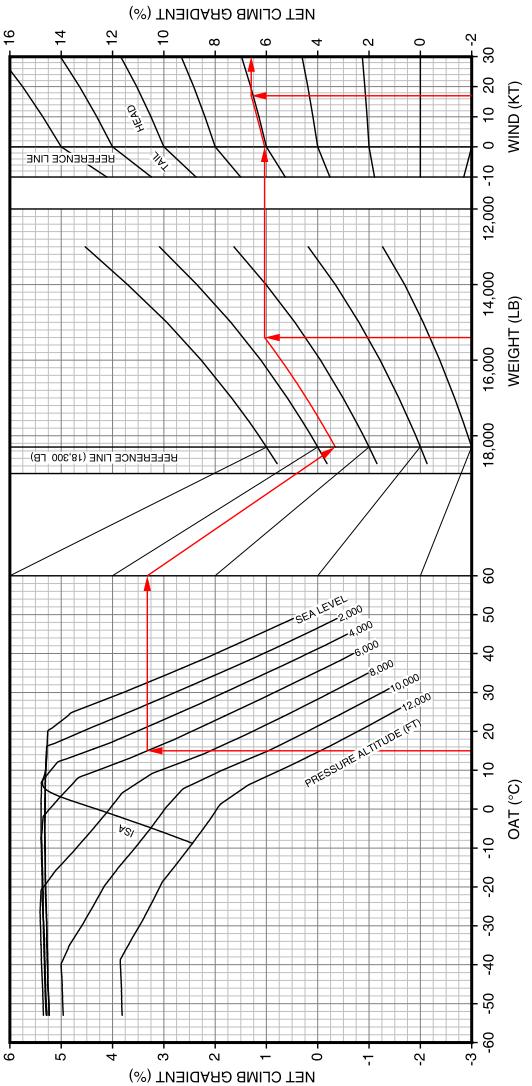


Figure 5-CL-3-1: First Segment Net Climb Gradient, Flaps 8 - IPS OFF



First Segment Net Climb Gradient, Flaps 8 - IPS ON

1ST SEGMENT NET CLIMB GRADIENT

FLAPS 8°, IPS ON

ASSOCIATED CONDITIONS:
 ANTI-ICE : ON
 LANDNG GEAR : DOWN
 INOP. ENGINE : N/A
 OPERATIVE ENGINE : TAKEOFF-DETENT (ATR ACTIVATED)
 SPEED : $V_{100} - \text{REFER TO TAKEOFF DATA FOR ACTUAL } V_{100}$

REDUCE NET CLIMB GRADIENT BY:
 ATR INOP : 1.5 %

EXAMPLE:
 OAT : 0 °C
 ALTITUDE : 8,000 FT
 WEIGHT : 10,740 LB
 NET CLIMB GRADIENT : 3.5 %

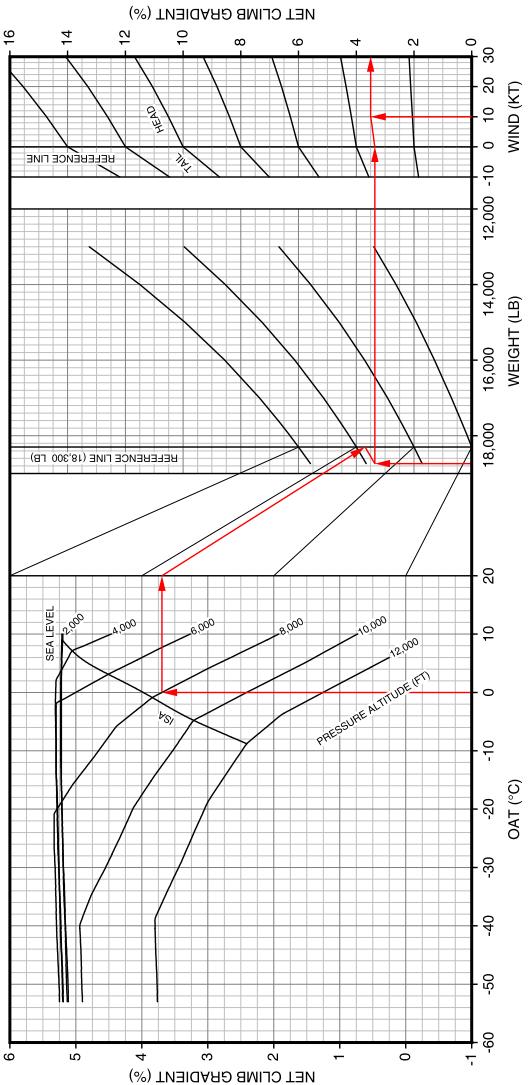


Figure 5-CL-3-2: First Segment Net Climb Gradient, Flaps 8 - IPS ON



1ST SEGMENT NET CLIMB GRADIENT

FLAPS 15°, IPS OFF

ASSOCIATED CONDITIONS:
 ANTI-ICE : OFF
 LANDING GEAR : DOWN
 INOP. ENGINE : WINDMILLING
 OPERATIVE ENGINE : TAKEOFF-DETENT (ATR ACTIVATED)
 V_{10} : V_{10} - REFER TO TAKEOFF DATA FOR ACTUAL V_{10}

REDUCE NET CLIMB GRADIENT BY:

NAI ON : 0.4 %
 ATR INOP : 1.5 %
EXAMPLE:
 OAT : 15 °C
 ALTITUDE : 6,000 FT
 WEIGHT : 154,011 LB
 HEADWIND : 17 KT
 NET CLIMB GRADIENT : 5.7 %

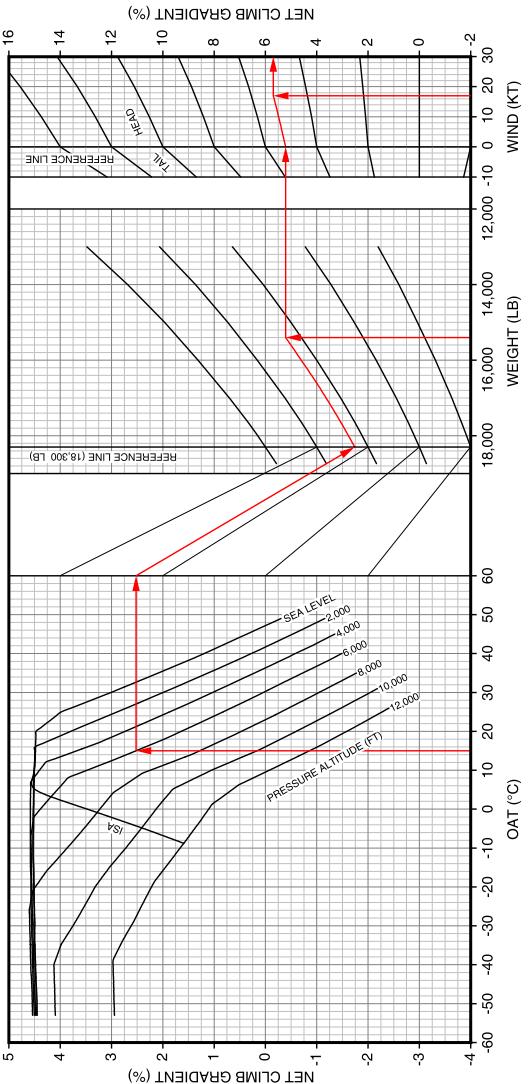


Figure 5-CL-4-1: First Segment Net Climb Gradient - IPS OFF



First Segment Climb Net Gradient – IPS ON

1ST SEGMENT NET CLIMB GRADIENT

FLAPS 15°, IPS ON

ASSOCIATED CONDITIONS:
 ANTI-ICE : ON
 LANDNG GEAR : DOWN
 INOP. ENGINE : MANDATING
 OPERATIVE ENGINE : TAKEOFF-DETENT (AT ACTIVATED)
 SPEED : V_{100}^{ref} - REFER TO TAKEOFF DATA FOR ACTUAL V_{100}

REDUCE NET CLIMB GRADIENT BY:
 ATR INOP : 1.5 %

EXAMPLE:
 OAT : -5 °C
 ALTITUDE : 12,000 FT
 WEIGHT : 15,400 LB
 HEADWIND : 15 KT
 TAILWIND : 3.6 KT
 NET CLIMB GRADIENT

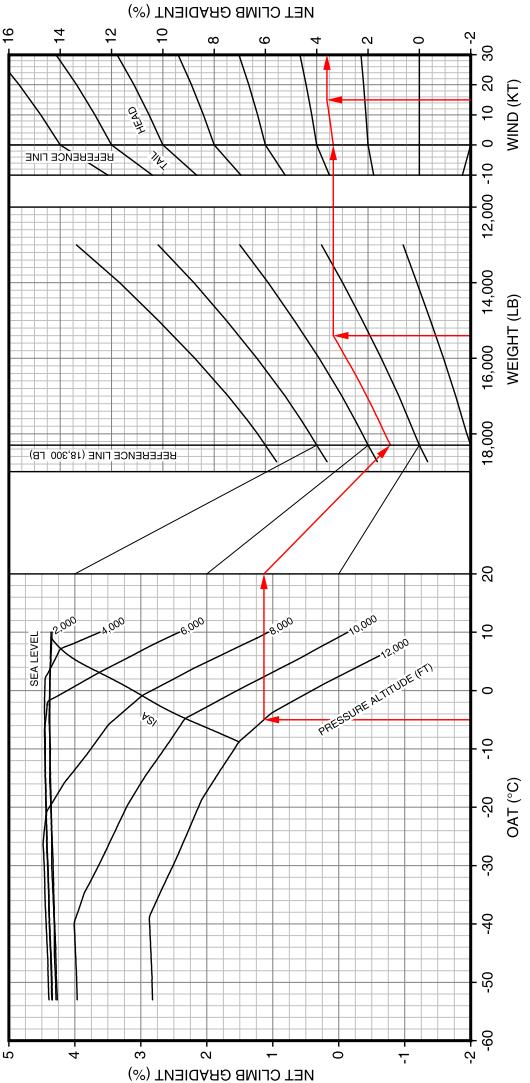


Figure 5-CL-4-2: First Segment Net Climb Gradient - IPS ON



2ND SEGMENT NET CLIMB GRADIENT

FLAPS 8°, IPS OFF

ASSOCIATED CONDITIONS:
 ANTI-ICE : OFF
 LANDING GEAR : UP
 INOP. ENGINE : WINDMILLING
 OPERATIVE ENGINE : TAKEOFF-DETENT (ATR ACTIVATED)
 SPEED : V_s. REFER TO TAKEOFF DATA FOR ACTUAL V_s

EXAMPLE:

OAT : 12°C
 ALTITUDE : 8,000 FT
 WEIGHT : 13,500 LB
 HEADWIND : 15 KT
 NET CLIMB GRADIENT : 6.9 %

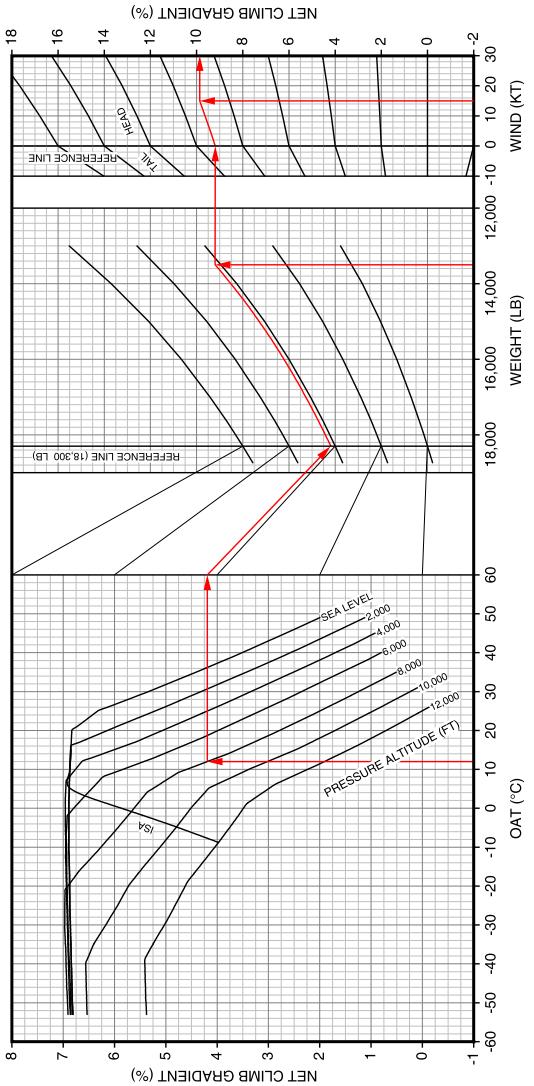


Figure 5-CL-5-1: Second Segment Net Climb Gradient, Flaps 8 - IPS OFF



Second Segment Net Climb Gradient, Flaps 8 - IPS ON

2ND SEGMENT NET CLIMB GRADIENT

FLAPS 8°, IPS ON

ASSOCIATED CONDITIONS:
 ANTI-ICE : ON
 LANDING GEAR : UP
 INOP. ENGINE : WINDMILLING
 OPERATIVE ENGINE : TAKEOFF-DETENT (ATR ACTIVATED)
 SPEED : V_2 - REFER TO TAKEOFF DATA FOR ACTUAL V_2

REDUCE NET CLIMB GRADIENT BY:
 ATR INOP : 1.5 %

EXAMPLE:

OAT : -2 °C
 ALTITUDE : 8,000 FT
 WEIGHT : 16,250 LB
 HEADWIND : 15 KT

NET CLIMB GRADIENT : 11.3 %

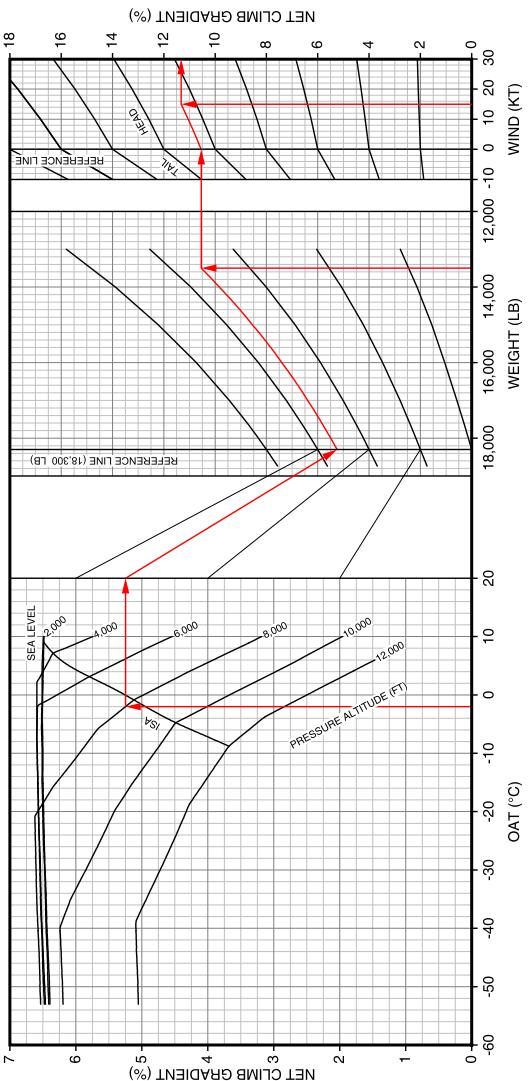


Figure 5-CL-5-2: Second Segment Net Climb Gradient, Flaps 8 - IPS ON



2ND SEGMENT NET CLIMB GRADIENT

FLAPS 15°, IPS OFF

ASSOCIATED CONDITIONS:
 ANTI-ICE : OFF
 LANDING GEAR : UP
 INOP. ENGINE : WINDMILLING
 OPERATIVE ENGINE : TAKEOFF-DETENT (ATR ACTIVATED)
 SPEED : V_2 . REFER TO TAKEOFF DATA FOR ACTUAL V_2

EXAMPLE:

OAT : 12°C
 ALTITUDE : 8,000 FT
 WEIGHT : 13,500 LB
 HEADWIND : 15 KT
 NET CLIMB GRADIENT : 8.7 %

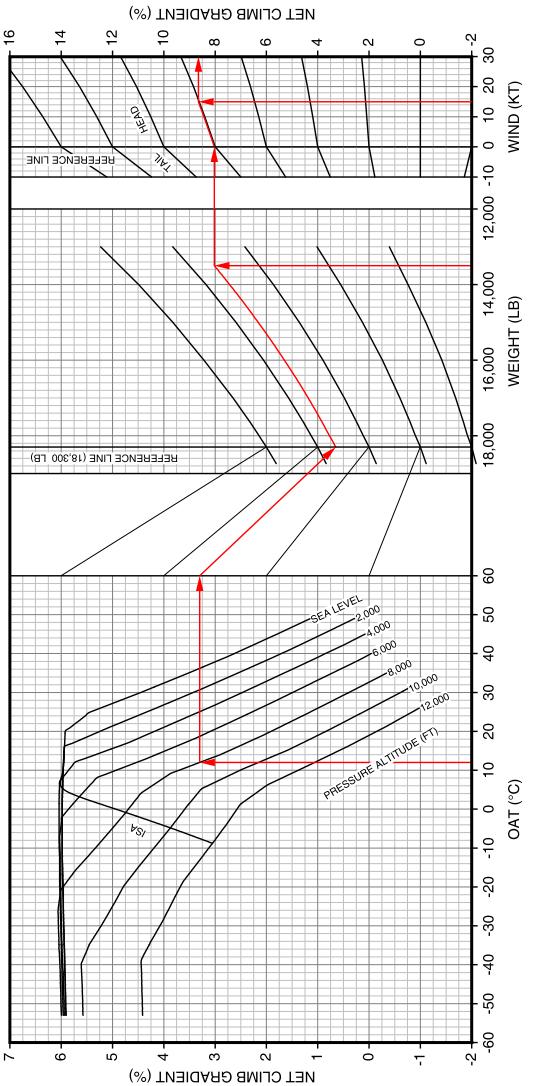


Figure 5-CL-6-1: Second Segment Net Climb Gradient - % IPS OFF



Second Segment Climb Net Gradient – IPS ON

2ND SEGMENT NET CLIMB GRADIENT

FLAPS 15°, IPS ON

ASSOCIATED CONDITIONS:
 ANTI-ICE : ON
 LANDING GEAR : UP
 INOP. ENGINE : WINDMILLING
 OPERATIVE ENGINE : TAKEOFF-DETENT (ATR ACTIVATED)
 SPEED : V_s - REFER TO TAKEOFF DATA FOR ACTUAL

REDUCE NET CLIMB GRADIENT BY:
 ATR INOP : 1.7%

EXAMPLE:
 OAT : -12 °C
 ALTITUDE : 12,000 FT
 WEIGHT : 13,500 LB
 HEADWIND : 15 KT
 : 6.7 %

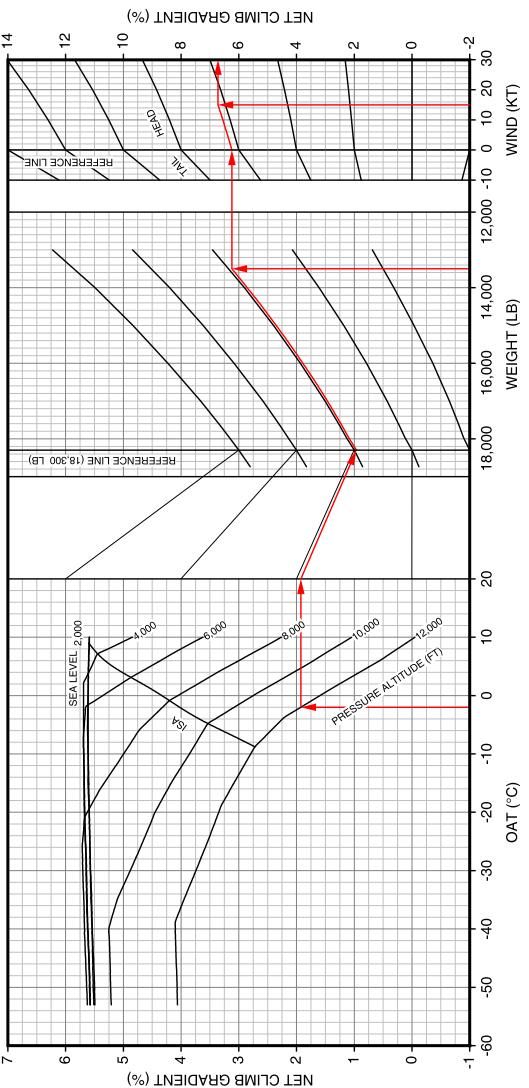


Figure 5-CL-6-2: Second Segment Net Climb Gradient - % IPS ON



OEI NET CLIMB GRADIENT

FLAPS UP, IPS OFF

ASSOCIATED CONDITIONS:

ANTI-ICE : OFF

LANDING GEAR : UP

NO. ENGINE : WINDMILLING

OPERATIVE ENGINE : MAX CONTINUOUS

SPEED : V_{REF} (170 KIAS)

REDUCE NET CLIMB GRADIENT BY:
0.5%

NAI ON

EXAMPLE:
OAT
ALTITUDE
WEIGHT
HEADWIND
NET CLIMB GRADIENT

: 15 °C

: 10,000 FT

: 10,500 LB

: 10 KT

: 16,000 FT

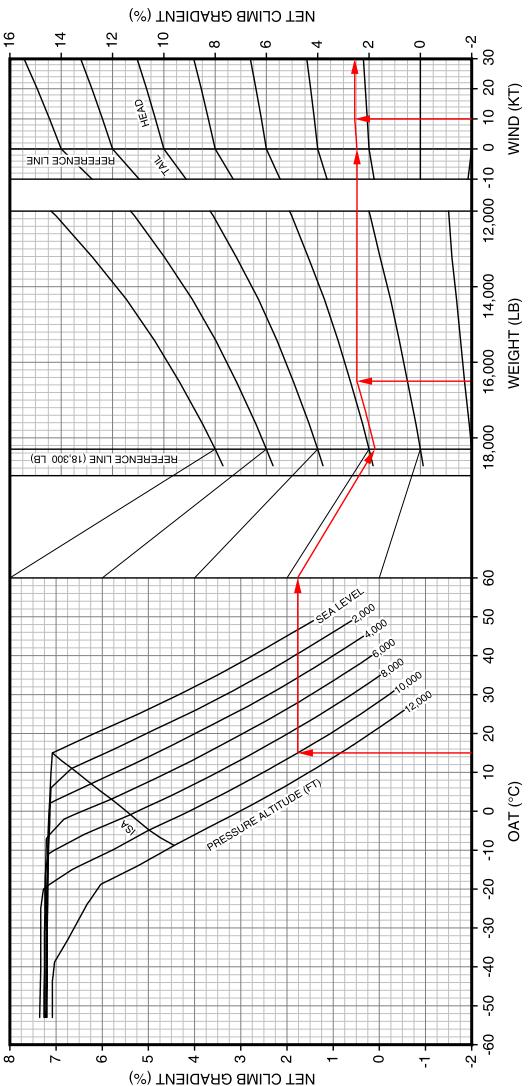


Figure 5-CL-7-1: Initial Climb - Net Climb Gradient - % - IPS OFF



2

Initial Climb Climb Gradient - IPS ON

OEI NET CLIMB GRADIENT
FLAPS UP, IPS ON

ASSOCIATED CONDITIONS:

ANTI-ICE : OFF

LANDING GEAR : UP

NO. ENGINE : ONE

OPERATIVE ENGINE : MAX CONTINUOUS

SPEED : V_{EHR} (170 KIAS)

EXAMPLE:

OAT

ALITUDE

HEADWIND

NET CLIMB GRADIENT

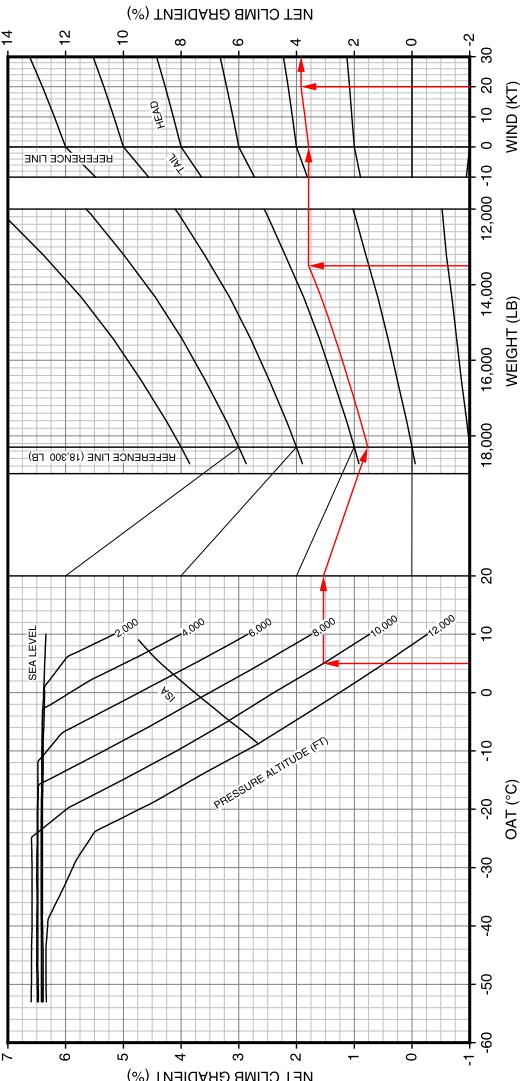
: 5 °C
: 10,000 FT
: 13,500 LB: 20 KT
: 3.8 %

Figure 5-CL-7-2: Initial Climb - Net Climb Gradient - % - IPS ON



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

Enroute Climb Gradient, OEI

1 OEI Enroute Climb / Descent Gradient - IPS OFF

Note

To get the net flight path, diminish the above gross gradient by 1.1%.



OEI EN-ROUTE CLIMB GRADIENT

FLAPS UP, IPS OFF

ASSOCIATED CONDITIONS:
 ANTI-ICKE : OFF
 LANDING GEAR : UP
 INOP. ENGINE : WINDMILLING
 OPERATIVE ENGINE : MAX. CONTINUOUS
 SPEED : V_{ENR} (170 KIAS)

REDUCE GROSS CLIMB GRADIENT BY:
 N/A ON : 0.5 %

EXAMPLE:

OAT : 5 °C
 ALTITUDE : 10,000 FT
 HEADWIND : 13500 LB
 GROSS CLIMB GRADIENT : 7.2 %

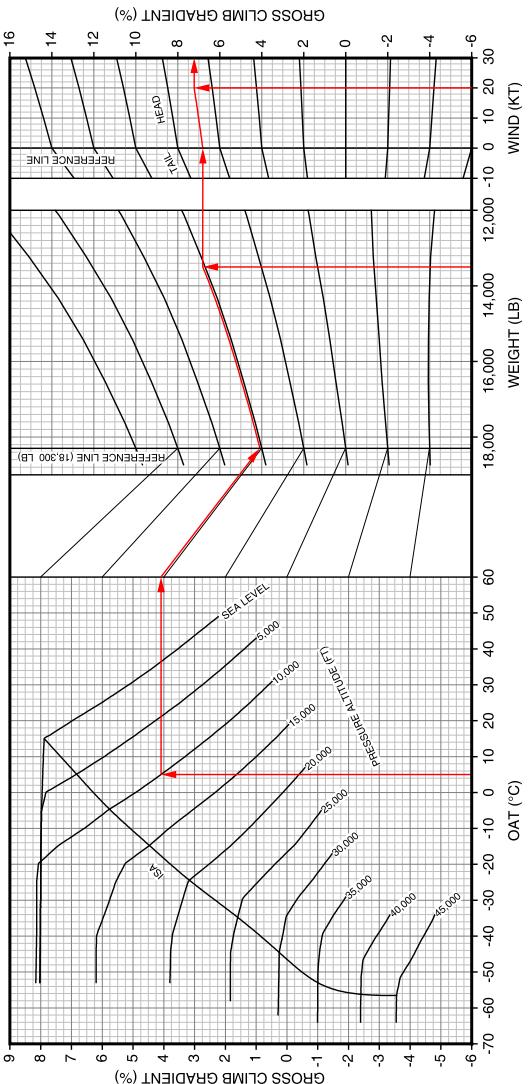


Figure 5-CL-8-1: OEI Enroute Climb / Descent Gradient - IPS OFF



OEI EN-ROUTE CLIMB GRADIENT FLAPS UP, IPS ON

ASSOCIATED CONDITIONS:
 ANTI-ICE : ON
 LANDING GEAR : UP
 INOP. ENGINE : WINDMILLING
 OPERATIVE ENGINE : MAX CONTINUOUS
 SPEED : V_{EN} (170 KIAS)

EXAMPLE:

OAT : 5 °C
 ALTITUDE : 10,000 FT
 WEIGHT : 13,500 LB
 HEADWIND : 20 KT
 GROSS CLIMB GRADIENT : 4.7 %

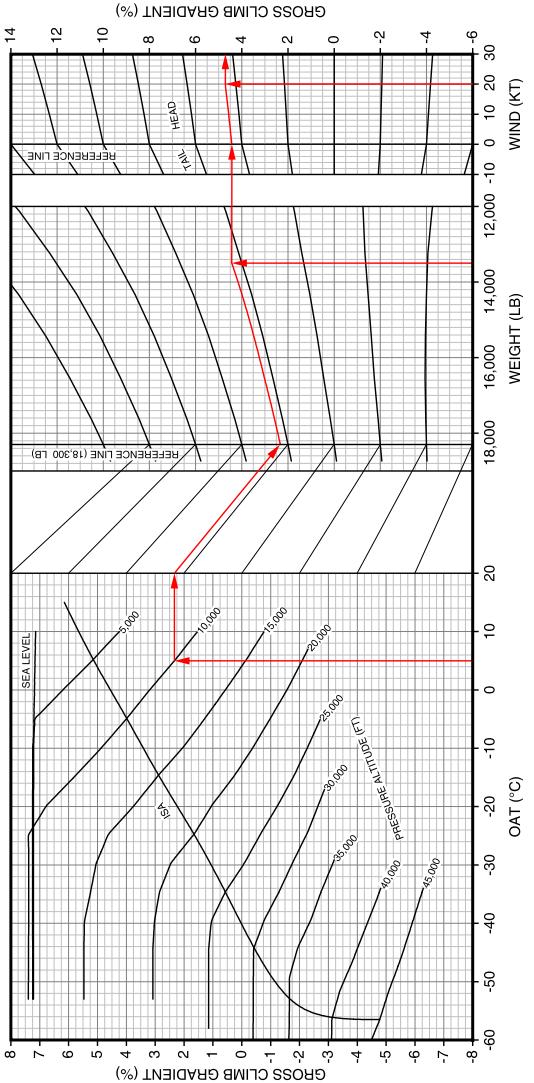


Figure 5-CL-8-2: OEI Enroute Climb / Descent Gradient - IPS ON



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

This Page Intentionally Left Blank



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

Enroute Rate of Climb, OEI

1 OEI Enroute Rate of Climb - IPS OFF

Note

To get the net flight path, diminish the above gross gradient by 1.1%.



OEI EN-ROUTE CLIMB RATE
FLAPS UP, IPS OFF

ASSOCIATED CONDITIONS:
 ANTI-ICE : OFF
 LANDING GEAR : UP
 INOP. ENGINE : WINDMILLING
 OPERATIVE ENGINE : MAX. CONTINUOUS
 SPEED : V_{EHR} (170 KIAS)

REDUCE RATE OF CLIMB BY:
 NAL ON : 100 FPM

EXAMPLE:
 OAT : 5 °C
 ALTITUDE : 10,000 FT
 WEIGHT : 13,500 LB
 RATE OF CLIMB : 1,370 FPM

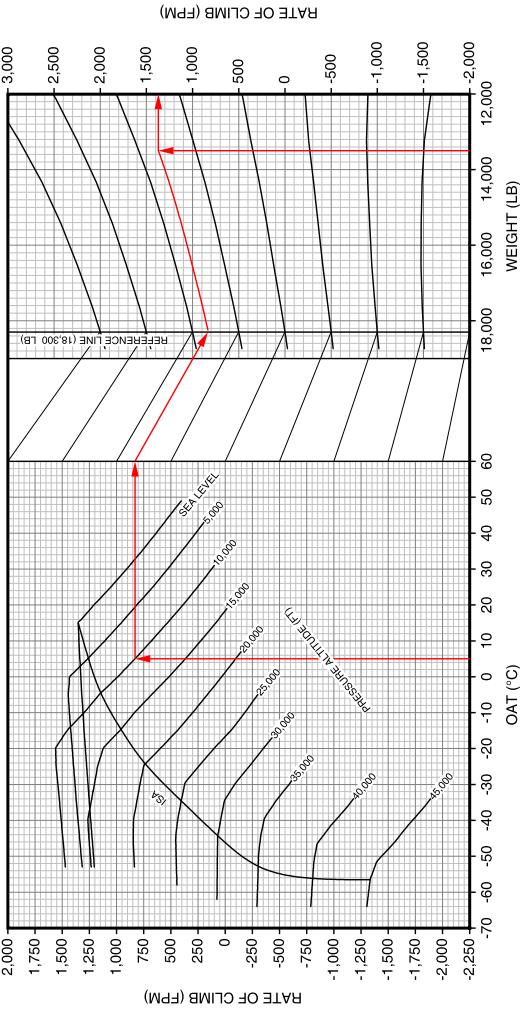


Figure 5-CL-9-1: OEI Enroute Rate of Climb - IPS OFF



OEI EN-ROUTE CLIMB RATE FLAPS UP, IPS ON

ASSOCIATED CONDITIONS:
ANTI-ICE : ON
LANDING GEAR : UP
INOP. ENGINE : WINDMILLING
OPERATIVE ENGINE : MAX CONTINUOUS
SPEED : V_{REF}(170) KIAS

EXAMPLE:

OAT : 5 °C
ALTIMETER : 1000 FT
WEIGHT : 13,500 LB
RATE OF CLIMB : 900 FPM

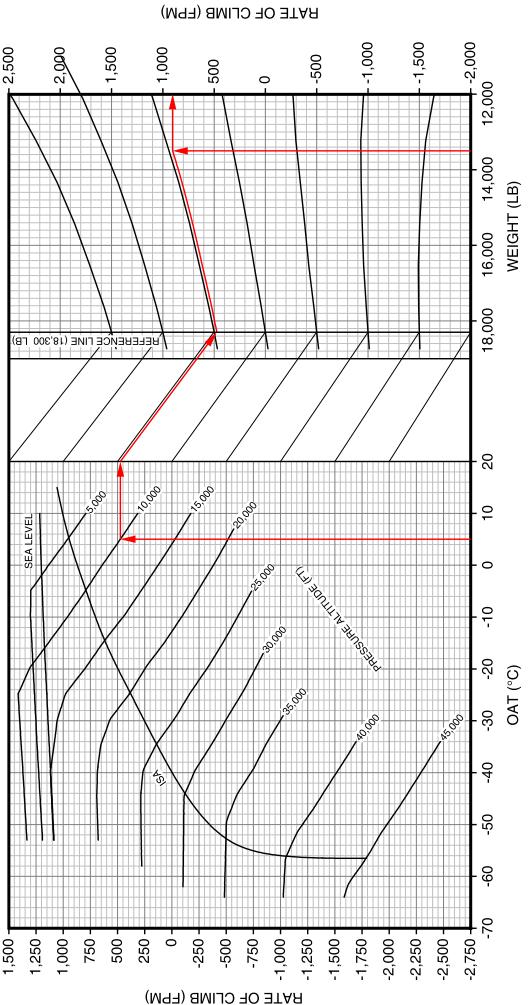


Figure 5-CL-9-2: OEI Enroute Rate of Climb - IPS ON



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

This Page Intentionally Left Blank



Cruise Climb, AEO, IPS OFF

1 Pressure Altitude: 5,000 Feet

| Associated Conditions | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | |
| Notes | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | |

| ISA DEV | TEMP | MIN: ISA -59°C | | | | MAX: ISA +37°C | | | |
|---------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -60 | MINS | 1.4 | 1.3 | 1.3 | 1.2 | 1.1 | 1.1 | 1.0 | 0.9 |
| | NM | 4 | 3 | 3 | 3 | 3 | 3 | 2 | 2 |
| | LB | 68 | 66 | 65 | 61 | 57 | 54 | 50 | 46 |
| | FPM | 3,821 | 3,923 | 3,994 | 4,249 | 4,536 | 4,862 | 5,230 | 5,646 |
| | GRAD % | 20.2 | 20.8 | 21.2 | 22.6 | 24.2 | 26.1 | 28.2 | 30.6 |
| -50 | MINS | 1.3 | 1.3 | 1.3 | 1.2 | 1.1 | 1.0 | 1.0 | 0.9 |
| | NM | 4 | 4 | 3 | 3 | 3 | 3 | 2 | 2 |
| | LB | 69 | 67 | 66 | 62 | 58 | 54 | 50 | 47 |
| | FPM | 3,907 | 4,011 | 4,084 | 4,345 | 4,638 | 4,971 | 5,347 | 5,773 |
| | GRAD % | 20.2 | 20.8 | 21.2 | 22.6 | 24.2 | 26.1 | 28.2 | 30.6 |
| -40 | MINS | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.0 | 1.0 | 0.9 |
| | NM | 4 | 4 | 3 | 3 | 3 | 3 | 2 | 2 |
| | LB | 69 | 67 | 66 | 62 | 58 | 54 | 50 | 47 |
| | FPM | 3,993 | 4,100 | 4,174 | 4,441 | 4,741 | 5,081 | 5,465 | 5,900 |
| | GRAD % | 20.2 | 20.8 | 21.2 | 22.6 | 24.2 | 26.1 | 28.2 | 30.6 |
| -30 | MINS | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.0 | 0.9 | 0.9 |
| | NM | 4 | 4 | 3 | 3 | 3 | 3 | 2 | 2 |
| | LB | 69 | 68 | 66 | 62 | 59 | 55 | 51 | 47 |
| | FPM | 4,076 | 4,185 | 4,260 | 4,532 | 4,839 | 5,186 | 5,578 | 6,022 |
| | GRAD % | 20.2 | 20.8 | 21.2 | 22.6 | 24.2 | 26.1 | 28.2 | 30.6 |
| -20 | MINS | 1.2 | 1.2 | 1.2 | 1.1 | 1.0 | 1.0 | 0.9 | 0.8 |
| | NM | 4 | 4 | 3 | 3 | 3 | 3 | 2 | 2 |
| | LB | 70 | 68 | 67 | 63 | 59 | 55 | 51 | 48 |
| | FPM | 4,158 | 4,269 | 4,346 | 4,624 | 4,936 | 5,290 | 5,690 | 6,143 |
| | GRAD % | 20.2 | 20.8 | 21.2 | 22.6 | 24.2 | 26.1 | 28.2 | 30.6 |
| -10 | MINS | 1.2 | 1.2 | 1.2 | 1.1 | 1.0 | 1.0 | 0.9 | 0.8 |
| | NM | 4 | 4 | 3 | 3 | 3 | 3 | 2 | 2 |
| | LB | 71 | 69 | 67 | 63 | 59 | 56 | 52 | 48 |
| | FPM | 4,234 | 4,347 | 4,425 | 4,708 | 5,026 | 5,387 | 5,794 | 6,255 |
| | GRAD % | 20.2 | 20.8 | 21.2 | 22.6 | 24.2 | 26 | 28.2 | 30.6 |
| 0 | MINS | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.0 | 0.9 | 0.9 |
| | NM | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 2 |
| | LB | 72 | 70 | 69 | 65 | 61 | 57 | 53 | 49 |
| | FPM | 3,848 | 3,953 | 4,025 | 4,285 | 4,577 | 4,908 | 5,282 | 5,704 |
| | GRAD % | 18 | 18.5 | 18.8 | 20.1 | 21.5 | 23.1 | 25 | 27.2 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Cruise Climb, AEO, IPS OFF

| Pressure Altitude: 5,000 Feet | | | | | | | | | |
|-------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -59°C | | | | MAX: ISA +37°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| 10 | MINS | 1.5 | 1.5 | 1.5 | 1.4 | 1.3 | 1.2 | 1.1 | 1.0 |
| | NM | 5 | 5 | 5 | 4 | 4 | 4 | 3 | 3 |
| | LB | 78 | 76 | 75 | 70 | 66 | 61 | 57 | 53 |
| | FPM | 3,165 | 3,255 | 3,315 | 3,533 | 3,779 | 4,057 | 4,373 | 4,725 |
| | GRAD % | 14.4 | 14.9 | 15.1 | 16.2 | 17.3 | 18.6 | 20.1 | 21.8 |
| 20 | MINS | 1.9 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 |
| | NM | 6 | 6 | 6 | 6 | 5 | 5 | 4 | 4 |
| | LB | 87 | 85 | 83 | 78 | 73 | 68 | 63 | 58 |
| | FPM | 2,517 | 2,592 | 2,642 | 2,821 | 3,022 | 3,250 | 3,510 | 3,795 |
| | GRAD % | 11.2 | 11.6 | 11.8 | 12.6 | 13.5 | 14.6 | 15.8 | 17.1 |
| 30 | MINS | 2.5 | 2.4 | 2.4 | 2.2 | 2.0 | 1.9 | 1.8 | 1.6 |
| | NM | 9 | 8 | 8 | 8 | 7 | 6 | 6 | 5 |
| | LB | 101 | 98 | 96 | 89 | 83 | 77 | 72 | 66 |
| | FPM | 1,935 | 1,997 | 2,036 | 2,180 | 2,342 | 2,525 | 2,734 | 2,960 |
| | GRAD % | 8.5 | 8.8 | 8.9 | 9.6 | 10.3 | 11.1 | 12 | 13 |
| 40 | MINS | 3.4 | 3.3 | 3.2 | 3.0 | 2.8 | 2.6 | 2.4 | 2.2 |
| | NM | 12 | 12 | 11 | 11 | 10 | 9 | 8 | 8 |
| | LB | 123 | 119 | 117 | 109 | 101 | 93 | 86 | 79 |
| | FPM | 1,392 | 1,441 | 1,471 | 1,582 | 1,707 | 1,848 | 2,009 | 2,180 |
| | GRAD % | 6 | 6.2 | 6.3 | 6.8 | 7.4 | 8 | 8.7 | 9.4 |



2 Pressure Altitude: 10,000 Feet

| Associated Conditions | | | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | | | |
| Notes | | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | |

| Pressure Altitude: 10,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -49°C | | | | MAX: ISA +35°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -50 | MINS | 2.6 | 2.5 | 2.4 | 2.3 | 2.2 | 2.0 | 1.9 | 1.7 |
| | NM | 8 | 7 | 7 | 7 | 6 | 6 | 5 | 5 |
| | LB | 132 | 129 | 126 | 119 | 111 | 104 | 97 | 90 |
| | FPM | 4,242 | 4,354 | 4,433 | 4,717 | 5,036 | 5,398 | 5,806 | 6,269 |
| | GRAD % | 20.5 | 21 | 21.4 | 22.9 | 24.5 | 26.4 | 28.5 | 31 |
| -40 | MINS | 2.5 | 2.4 | 2.4 | 2.2 | 2.1 | 2.0 | 1.8 | 1.7 |
| | NM | 8 | 7 | 7 | 7 | 6 | 6 | 5 | 5 |
| | LB | 133 | 129 | 127 | 120 | 112 | 105 | 97 | 90 |
| | FPM | 4,343 | 4,457 | 4,538 | 4,828 | 5,155 | 5,526 | 5,943 | 6,417 |
| | GRAD % | 20.5 | 21.1 | 21.5 | 22.9 | 24.5 | 26.4 | 28.6 | 31.1 |
| -30 | MINS | 2.4 | 2.4 | 2.3 | 2.2 | 2.1 | 1.9 | 1.8 | 1.7 |
| | NM | 8 | 7 | 7 | 7 | 6 | 6 | 5 | 5 |
| | LB | 134 | 130 | 128 | 120 | 113 | 105 | 98 | 91 |
| | FPM | 4,440 | 4,557 | 4,639 | 4,936 | 5,270 | 5,649 | 6,076 | 6,560 |
| | GRAD % | 20.5 | 21.1 | 21.5 | 22.9 | 24.6 | 26.4 | 28.6 | 31.1 |
| -20 | MINS | 2.4 | 2.3 | 2.3 | 2.2 | 2.0 | 1.9 | 1.8 | 1.6 |
| | NM | 8 | 7 | 7 | 7 | 6 | 6 | 5 | 5 |
| | LB | 135 | 131 | 129 | 121 | 114 | 106 | 99 | 91 |
| | FPM | 4,532 | 4,651 | 4,735 | 5,039 | 5,380 | 5,766 | 6,202 | 6,696 |
| | GRAD % | 20.5 | 21.1 | 21.5 | 22.9 | 24.6 | 26.4 | 28.6 | 31.1 |
| -10 | MINS | 2.4 | 2.3 | 2.3 | 2.1 | 2.0 | 1.9 | 1.7 | 1.6 |
| | NM | 8 | 8 | 7 | 7 | 6 | 6 | 5 | 5 |
| | LB | 136 | 133 | 130 | 122 | 115 | 107 | 100 | 92 |
| | FPM | 4,368 | 4,483 | 4,565 | 4,858 | 5,188 | 5,563 | 5,985 | 6,463 |
| | GRAD % | 19.3 | 19.9 | 20.2 | 21.6 | 23.1 | 24.9 | 26.9 | 29.3 |
| 0 | MINS | 2.6 | 2.5 | 2.5 | 2.3 | 2.2 | 2.0 | 1.9 | 1.8 |
| | NM | 9 | 9 | 8 | 8 | 7 | 7 | 6 | 6 |
| | LB | 141 | 138 | 135 | 127 | 119 | 111 | 103 | 96 |
| | FPM | 3,684 | 3,785 | 3,855 | 4,107 | 4,390 | 4,712 | 5,075 | 5,484 |
| | GRAD % | 15.9 | 16.4 | 16.7 | 17.8 | 19.1 | 20.5 | 22.2 | 24.1 |
| 10 | MINS | 3.2 | 3.1 | 3.0 | 2.8 | 2.7 | 2.5 | 2.3 | 2.1 |
| | NM | 11 | 11 | 11 | 10 | 9 | 8 | 8 | 7 |
| | LB | 154 | 150 | 147 | 138 | 129 | 120 | 112 | 103 |
| | FPM | 2,954 | 3,039 | 3,097 | 3,304 | 3,538 | 3,803 | 4,103 | 4,437 |
| | GRAD % | 12.5 | 12.8 | 13.1 | 14 | 15 | 16.1 | 17.4 | 18.9 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Cruise Climb, AEO, IPS OFF

| Pressure Altitude: 10,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -49°C | | | | MAX: ISA +35°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| 20 | MINS | 4.0 | 3.9 | 3.8 | 3.6 | 3.3 | 3.1 | 2.9 | 2.7 |
| | NM | 14 | 14 | 14 | 13 | 12 | 11 | 10 | 9 |
| | LB | 173 | 168 | 165 | 154 | 144 | 134 | 124 | 115 |
| | FPM | 2,296 | 2,366 | 2,412 | 2,580 | 2,769 | 2,982 | 3,226 | 3,492 |
| | GRAD % | 9.5 | 9.8 | 10 | 10.7 | 11.5 | 12.4 | 13.4 | 14.5 |
| 30 | MINS | 5.2 | 5.1 | 5.0 | 4.6 | 4.3 | 4.0 | 3.7 | 3.4 |
| | NM | 19 | 19 | 18 | 17 | 16 | 15 | 14 | 12 |
| | LB | 201 | 195 | 191 | 179 | 166 | 154 | 143 | 132 |
| | FPM | 1,700 | 1,756 | 1,792 | 1,924 | 2,072 | 2,240 | 2,431 | 2,637 |
| | GRAD % | 6.9 | 7.1 | 7.3 | 7.8 | 8.4 | 9.1 | 9.9 | 10.7 |
| 40 | MINS | 7.3 | 7.1 | 6.9 | 6.4 | 6.0 | 5.5 | 5.1 | 4.7 |
| | NM | 28 | 27 | 26 | 24 | 23 | 21 | 19 | 17 |
| | LB | 251 | 242 | 237 | 221 | 205 | 189 | 174 | 160 |
| | FPM | 1,162 | 1,204 | 1,231 | 1,331 | 1,442 | 1,569 | 1,712 | 1,863 |
| | GRAD % | 4.6 | 4.8 | 4.9 | 5.3 | 5.8 | 6.3 | 6.8 | 7.4 |



3 Pressure Altitude: 15,000 Feet

| Associated Conditions | | | | | | | | | | | | | | |
|---|--|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|
| Thrust: MCT | | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | |
| Notes | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | |

| Pressure Altitude: 15,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -39°C | | | | MAX: ISA +33°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -40 | MINS | 3.6 | 3.6 | 3.5 | 3.3 | 3.1 | 2.9 | 2.7 | 2.5 |
| | NM | 12 | 12 | 11 | 11 | 10 | 9 | 8 | 8 |
| | LB | 194 | 189 | 186 | 175 | 164 | 153 | 142 | 132 |
| | FPM | 4,038 | 4,146 | 4,222 | 4,497 | 4,806 | 5,156 | 5,551 | 5,997 |
| | GRAD % | 17.6 | 18.1 | 18.5 | 19.7 | 21.1 | 22.7 | 24.6 | 26.7 |
| -30 | MINS | 3.6 | 3.5 | 3.4 | 3.2 | 3.0 | 2.8 | 2.6 | 2.4 |
| | NM | 12 | 12 | 11 | 11 | 10 | 9 | 8 | 8 |
| | LB | 196 | 191 | 187 | 176 | 165 | 154 | 143 | 133 |
| | FPM | 4,133 | 4,244 | 4,321 | 4,602 | 4,919 | 5,277 | 5,681 | 6,138 |
| | GRAD % | 17.6 | 18.1 | 18.5 | 19.7 | 21.1 | 22.7 | 24.6 | 26.7 |
| -20 | MINS | 3.5 | 3.4 | 3.4 | 3.2 | 3.0 | 2.8 | 2.6 | 2.4 |
| | NM | 12 | 12 | 11 | 11 | 10 | 9 | 8 | 8 |
| | LB | 197 | 192 | 189 | 177 | 166 | 155 | 144 | 134 |
| | FPM | 4,067 | 4,176 | 4,253 | 4,530 | 4,843 | 5,197 | 5,596 | 6,046 |
| | GRAD % | 17 | 17.4 | 17.8 | 19 | 20.3 | 21.9 | 23.6 | 25.7 |
| -10 | MINS | 3.6 | 3.5 | 3.4 | 3.2 | 3.0 | 2.8 | 2.6 | 2.4 |
| | NM | 12 | 12 | 12 | 11 | 10 | 10 | 9 | 8 |
| | LB | 200 | 194 | 191 | 180 | 168 | 157 | 146 | 135 |
| | FPM | 3,955 | 4,062 | 4,137 | 4,408 | 4,713 | 5,059 | 5,449 | 5,889 |
| | GRAD % | 16.1 | 16.6 | 16.9 | 18 | 19.3 | 20.8 | 22.5 | 24.4 |
| 0 | MINS | 4.0 | 3.9 | 3.8 | 3.6 | 3.4 | 3.1 | 2.9 | 2.7 |
| | NM | 14 | 14 | 14 | 13 | 12 | 11 | 10 | 9 |
| | LB | 209 | 204 | 200 | 188 | 176 | 164 | 152 | 141 |
| | FPM | 3,379 | 3,473 | 3,538 | 3,774 | 4,040 | 4,341 | 4,682 | 5,063 |
| | GRAD % | 13.5 | 13.9 | 14.1 | 15.1 | 16.2 | 17.4 | 18.8 | 20.4 |
| 10 | MINS | 5.0 | 4.8 | 4.7 | 4.4 | 4.1 | 3.8 | 3.6 | 3.3 |
| | NM | 18 | 18 | 17 | 16 | 15 | 14 | 13 | 12 |
| | LB | 229 | 222 | 218 | 205 | 191 | 178 | 165 | 153 |
| | FPM | 2,711 | 2,790 | 2,844 | 3,040 | 3,260 | 3,509 | 3,792 | 4,105 |
| | GRAD % | 10.6 | 10.9 | 11.1 | 11.9 | 12.7 | 13.7 | 14.9 | 16.1 |
| 20 | MINS | 6.3 | 6.1 | 6.0 | 5.6 | 5.2 | 4.9 | 4.5 | 4.2 |
| | NM | 24 | 23 | 23 | 21 | 20 | 18 | 17 | 16 |
| | LB | 259 | 251 | 246 | 231 | 215 | 200 | 185 | 171 |
| | FPM | 2,043 | 2,106 | 2,149 | 2,304 | 2,478 | 2,676 | 2,901 | 3,145 |
| | GRAD % | 7.8 | 8 | 8.2 | 8.8 | 9.5 | 10.2 | 11.1 | 12.1 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Cruise Climb, AEO, IPS OFF

| Pressure Altitude: 15,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -39°C | | | | MAX: ISA +33°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| 30 | MINS | 8.4 | 8.2 | 8.0 | 7.4 | 6.9 | 6.4 | 5.9 | 5.4 |
| | NM | 33 | 32 | 31 | 29 | 27 | 25 | 23 | 21 |
| | LB | 306 | 297 | 291 | 271 | 252 | 233 | 215 | 199 |
| | FPM | 1,440 | 1,489 | 1,522 | 1,640 | 1,774 | 1,925 | 2,097 | 2,280 |
| | GRAD % | 5.4 | 5.6 | 5.7 | 6.1 | 6.7 | 7.2 | 7.9 | 8.6 |
| 40 | MINS | 12.2 | 11.8 | 11.5 | 10.6 | 9.8 | 9.1 | 8.3 | 7.6 |
| | NM | 49 | 47 | 46 | 43 | 39 | 36 | 33 | 30 |
| | LB | 393 | 379 | 371 | 344 | 317 | 292 | 268 | 247 |
| | FPM | 903 | 937 | 961 | 1,047 | 1,144 | 1,254 | 1,377 | 1,505 |
| | GRAD % | 3.3 | 3.5 | 3.5 | 3.9 | 4.2 | 4.6 | 5.1 | 5.5 |


4 Pressure Altitude: 17,000 Feet

| Associated Conditions | | | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | | | |
| Notes | | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | |

| Pressure Altitude: 17,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -35°C | | | | MAX: ISA +33°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -40 | MINS | 4.2 | 4.1 | 4.0 | 3.8 | 3.5 | 3.3 | 3.0 | 2.8 |
| | NM | 14 | 14 | 13 | 12 | 12 | 11 | 10 | 9 |
| | LB | 219 | 213 | 210 | 197 | 184 | 172 | 160 | 148 |
| | FPM | 3,703 | 3,804 | 3,874 | 4,129 | 4,416 | 4,741 | 5,108 | 5,521 |
| | GRAD % | 15.6 | 16.1 | 16.4 | 17.5 | 18.7 | 20.2 | 21.8 | 23.7 |
| -30 | MINS | 4.1 | 4.0 | 3.9 | 3.7 | 3.4 | 3.2 | 3.0 | 2.8 |
| | NM | 14 | 14 | 13 | 12 | 12 | 11 | 10 | 9 |
| | LB | 221 | 215 | 211 | 198 | 186 | 173 | 161 | 149 |
| | FPM | 3,789 | 3,892 | 3,964 | 4,225 | 4,519 | 4,851 | 5,226 | 5,649 |
| | GRAD % | 15.6 | 16.1 | 16.4 | 17.5 | 18.7 | 20.2 | 21.8 | 23.7 |
| -20 | MINS | 4.0 | 4.0 | 3.9 | 3.6 | 3.4 | 3.2 | 3.0 | 2.7 |
| | NM | 14 | 14 | 13 | 13 | 12 | 11 | 10 | 9 |
| | LB | 222 | 217 | 213 | 200 | 187 | 175 | 162 | 150 |
| | FPM | 3,789 | 3,892 | 3,965 | 4,226 | 4,520 | 4,854 | 5,230 | 5,653 |
| | GRAD % | 15.3 | 15.7 | 16 | 17.1 | 18.3 | 19.7 | 21.3 | 23.1 |
| -10 | MINS | 4.1 | 4.0 | 3.9 | 3.7 | 3.4 | 3.2 | 3.0 | 2.8 |
| | NM | 15 | 14 | 14 | 13 | 12 | 11 | 10 | 9 |
| | LB | 225 | 219 | 215 | 202 | 189 | 177 | 164 | 152 |
| | FPM | 3,673 | 3,774 | 3,844 | 4,099 | 4,386 | 4,711 | 5,077 | 5,489 |
| | GRAD % | 14.5 | 14.9 | 15.2 | 16.2 | 17.4 | 18.7 | 20.2 | 22 |
| 0 | MINS | 4.6 | 4.5 | 4.4 | 4.1 | 3.9 | 3.6 | 3.4 | 3.1 |
| | NM | 17 | 17 | 16 | 15 | 14 | 13 | 12 | 11 |
| | LB | 236 | 230 | 226 | 212 | 198 | 185 | 172 | 159 |
| | FPM | 3,251 | 3,341 | 3,405 | 3,634 | 3,892 | 4,184 | 4,515 | 4,883 |
| | GRAD % | 12.5 | 12.9 | 13.1 | 14.1 | 15.1 | 16.2 | 17.6 | 19 |
| 10 | MINS | 5.7 | 5.5 | 5.4 | 5.1 | 4.8 | 4.4 | 4.1 | 3.8 |
| | NM | 22 | 21 | 21 | 19 | 18 | 17 | 15 | 14 |
| | LB | 258 | 251 | 246 | 231 | 216 | 201 | 186 | 172 |
| | FPM | 2,607 | 2,683 | 2,735 | 2,925 | 3,139 | 3,382 | 3,657 | 3,960 |
| | GRAD % | 9.8 | 10.1 | 10.3 | 11.1 | 11.9 | 12.8 | 13.9 | 15 |
| 20 | MINS | 7.3 | 7.1 | 7.0 | 6.5 | 6.1 | 5.6 | 5.2 | 4.8 |
| | NM | 29 | 28 | 27 | 25 | 23 | 22 | 20 | 18 |
| | LB | 294 | 285 | 280 | 261 | 244 | 226 | 209 | 193 |
| | FPM | 1,941 | 2,001 | 2,043 | 2,193 | 2,361 | 2,552 | 2,769 | 3,004 |
| | GRAD % | 7.2 | 7.4 | 7.6 | 8.1 | 8.7 | 9.5 | 10.3 | 11.1 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Cruise Climb, AEO, IPS OFF

| Pressure Altitude: 17,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -35°C | | | | MAX: ISA +33°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| 30 | MINS | 9.9 | 9.6 | 9.4 | 8.7 | 8.1 | 7.5 | 6.9 | 6.4 |
| | NM | 39 | 38 | 37 | 35 | 32 | 30 | 27 | 25 |
| | LB | 350 | 339 | 332 | 310 | 288 | 266 | 245 | 226 |
| | FPM | 1,344 | 1,389 | 1,421 | 1,535 | 1,663 | 1,807 | 1,971 | 2,145 |
| | GRAD % | 4.9 | 5 | 5.2 | 5.6 | 6 | 6.6 | 7.2 | 7.8 |
| 40 | MINS | 14.5 | 14.0 | 13.7 | 12.7 | 11.7 | 10.7 | 9.8 | 9.0 |
| | NM | 60 | 58 | 56 | 52 | 48 | 44 | 40 | 37 |
| | LB | 455 | 440 | 430 | 398 | 367 | 337 | 309 | 284 |
| | FPM | 811 | 843 | 866 | 947 | 1,039 | 1,142 | 1,258 | 1,378 |
| | GRAD % | 2.9 | 3 | 3.1 | 3.4 | 3.7 | 4.1 | 4.5 | 4.9 |

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5 Pressure Altitude: 19,000 Feet

| Associated Conditions | | | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | | | |
| Notes | | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | |

| Pressure Altitude: 19,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -31°C | | | | MAX: ISA +32°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -40 | MINS | 4.7 | 4.6 | 4.5 | 4.3 | 4.0 | 3.7 | 3.4 | 3.2 |
| | NM | 16 | 16 | 15 | 14 | 13 | 12 | 11 | 10 |
| | LB | 244 | 238 | 233 | 219 | 205 | 192 | 178 | 165 |
| | FPM | 3,380 | 3,473 | 3,538 | 3,774 | 4,039 | 4,340 | 4,680 | 5,060 |
| | GRAD % | 13.8 | 14.2 | 14.5 | 15.5 | 16.6 | 17.8 | 19.3 | 20.9 |
| -30 | MINS | 4.6 | 4.5 | 4.4 | 4.2 | 3.9 | 3.6 | 3.4 | 3.1 |
| | NM | 16 | 16 | 15 | 14 | 13 | 12 | 11 | 10 |
| | LB | 246 | 239 | 235 | 221 | 207 | 193 | 179 | 166 |
| | FPM | 3,457 | 3,552 | 3,619 | 3,860 | 4,132 | 4,439 | 4,787 | 5,175 |
| | GRAD % | 13.8 | 14.2 | 14.5 | 15.4 | 16.6 | 17.8 | 19.3 | 20.9 |
| -20 | MINS | 4.6 | 4.5 | 4.4 | 4.1 | 3.9 | 3.6 | 3.4 | 3.1 |
| | NM | 16 | 16 | 16 | 15 | 14 | 13 | 12 | 11 |
| | LB | 248 | 241 | 237 | 223 | 209 | 195 | 181 | 167 |
| | FPM | 3,523 | 3,620 | 3,688 | 3,934 | 4,211 | 4,524 | 4,878 | 5,274 |
| | GRAD % | 13.8 | 14.1 | 14.4 | 15.4 | 16.5 | 17.8 | 19.2 | 20.8 |
| -10 | MINS | 4.6 | 4.5 | 4.4 | 4.2 | 3.9 | 3.6 | 3.4 | 3.1 |
| | NM | 17 | 17 | 16 | 15 | 14 | 13 | 12 | 11 |
| | LB | 251 | 244 | 240 | 225 | 211 | 197 | 183 | 169 |
| | FPM | 3,406 | 3,500 | 3,566 | 3,806 | 4,075 | 4,380 | 4,725 | 5,110 |
| | GRAD % | 13 | 13.4 | 13.6 | 14.6 | 15.6 | 16.8 | 18.2 | 19.7 |
| 0 | MINS | 5.2 | 5.1 | 5.0 | 4.7 | 4.4 | 4.1 | 3.8 | 3.5 |
| | NM | 20 | 19 | 19 | 18 | 16 | 15 | 14 | 13 |
| | LB | 263 | 256 | 251 | 236 | 221 | 206 | 191 | 177 |
| | FPM | 3,103 | 3,191 | 3,252 | 3,473 | 3,722 | 4,004 | 4,323 | 4,677 |
| | GRAD % | 11.6 | 11.9 | 12.2 | 13 | 13.9 | 15 | 16.2 | 17.6 |
| 10 | MINS | 6.5 | 6.3 | 6.2 | 5.8 | 5.4 | 5.0 | 4.7 | 4.3 |
| | NM | 25 | 24 | 24 | 22 | 21 | 19 | 18 | 16 |
| | LB | 288 | 280 | 275 | 258 | 241 | 224 | 208 | 192 |
| | FPM | 2,452 | 2,524 | 2,575 | 2,756 | 2,961 | 3,192 | 3,455 | 3,743 |
| | GRAD % | 9 | 9.2 | 9.4 | 10.1 | 10.8 | 11.7 | 12.7 | 13.7 |
| 20 | MINS | 8.4 | 8.1 | 8.0 | 7.4 | 6.9 | 6.4 | 6.0 | 5.5 |
| | NM | 33 | 32 | 32 | 30 | 27 | 25 | 23 | 22 |
| | LB | 329 | 319 | 313 | 293 | 273 | 253 | 234 | 216 |
| | FPM | 1,826 | 1,883 | 1,923 | 2,067 | 2,228 | 2,412 | 2,619 | 2,843 |
| | GRAD % | 6.5 | 6.7 | 6.9 | 7.4 | 8 | 8.6 | 9.4 | 10.2 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Cruise Climb, AEO, IPS OFF

| Pressure Altitude: 19,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -31°C | | | | MAX: ISA +32°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| 30 | MINS | 11.4 | 11.0 | 10.8 | 10.1 | 9.3 | 8.6 | 7.9 | 7.3 |
| | NM | 47 | 45 | 44 | 41 | 38 | 35 | 32 | 30 |
| | LB | 395 | 383 | 375 | 349 | 324 | 300 | 276 | 254 |
| | FPM | 1,243 | 1,286 | 1,316 | 1,424 | 1,546 | 1,685 | 1,841 | 2,005 |
| | GRAD % | 4.4 | 4.5 | 4.6 | 5 | 5.4 | 5.9 | 6.5 | 7 |
| 40 | MINS | 17.1 | 16.5 | 16.1 | 14.9 | 13.7 | 12.6 | 11.5 | 10.6 |
| | NM | 72 | 69 | 68 | 63 | 57 | 53 | 48 | 44 |
| | LB | 523 | 504 | 493 | 455 | 419 | 385 | 352 | 323 |
| | FPM | 722 | 752 | 773 | 850 | 936 | 1,034 | 1,143 | 1,254 |
| | GRAD % | 2.5 | 2.6 | 2.7 | 2.9 | 3.2 | 3.6 | 3.9 | 4.3 |



6 Pressure Altitude: 21,000 Feet

| Associated Conditions | | | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | | | |
| Notes | | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | |

| Pressure Altitude: 21,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -28°C | | | | MAX: ISA +31°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -30 | MINS | 5.2 | 5.1 | 5.0 | 4.7 | 4.4 | 4.1 | 3.8 | 3.5 |
| | NM | 19 | 18 | 18 | 17 | 16 | 14 | 13 | 12 |
| | LB | 271 | 264 | 259 | 244 | 228 | 213 | 198 | 183 |
| | FPM | 3,142 | 3,229 | 3,291 | 3,514 | 3,765 | 4,049 | 4,369 | 4,727 |
| | GRAD % | 12.1 | 12.5 | 12.7 | 13.6 | 14.6 | 15.7 | 17 | 18.4 |
| -20 | MINS | 5.2 | 5.1 | 5.0 | 4.7 | 4.4 | 4.1 | 3.8 | 3.5 |
| | NM | 19 | 18 | 18 | 17 | 16 | 15 | 13 | 12 |
| | LB | 273 | 266 | 262 | 246 | 230 | 214 | 199 | 185 |
| | FPM | 3,210 | 3,300 | 3,363 | 3,591 | 3,847 | 4,137 | 4,465 | 4,830 |
| | GRAD % | 12.1 | 12.5 | 12.7 | 13.6 | 14.6 | 15.7 | 17 | 18.4 |
| -10 | MINS | 5.3 | 5.1 | 5.0 | 4.7 | 4.4 | 4.1 | 3.8 | 3.5 |
| | NM | 20 | 19 | 19 | 18 | 16 | 15 | 14 | 13 |
| | LB | 277 | 270 | 265 | 249 | 233 | 217 | 202 | 187 |
| | FPM | 3,144 | 3,232 | 3,294 | 3,518 | 3,771 | 4,056 | 4,379 | 4,738 |
| | GRAD % | 11.6 | 11.9 | 12.2 | 13 | 14 | 15 | 16.3 | 17.6 |
| 0 | MINS | 5.9 | 5.8 | 5.6 | 5.3 | 5.0 | 4.6 | 4.3 | 4.0 |
| | NM | 23 | 22 | 22 | 20 | 19 | 17 | 16 | 15 |
| | LB | 290 | 282 | 277 | 260 | 243 | 227 | 210 | 195 |
| | FPM | 2,985 | 3,070 | 3,130 | 3,345 | 3,587 | 3,861 | 4,170 | 4,513 |
| | GRAD % | 10.8 | 11.1 | 11.3 | 12.1 | 13 | 14 | 15.2 | 16.4 |
| 10 | MINS | 7.3 | 7.1 | 7.0 | 6.6 | 6.1 | 5.7 | 5.3 | 4.9 |
| | NM | 29 | 28 | 28 | 26 | 24 | 22 | 21 | 19 |
| | LB | 319 | 310 | 304 | 285 | 266 | 247 | 229 | 212 |
| | FPM | 2,286 | 2,354 | 2,401 | 2,574 | 2,768 | 2,988 | 3,237 | 3,508 |
| | GRAD % | 8.1 | 8.3 | 8.5 | 9.1 | 9.8 | 10.6 | 11.5 | 12.5 |
| 20 | MINS | 9.5 | 9.2 | 9.0 | 8.4 | 7.9 | 7.3 | 6.7 | 6.2 |
| | NM | 39 | 38 | 37 | 34 | 32 | 29 | 27 | 25 |
| | LB | 365 | 354 | 347 | 325 | 302 | 280 | 259 | 239 |
| | FPM | 1,696 | 1,750 | 1,788 | 1,925 | 2,079 | 2,253 | 2,450 | 2,661 |
| | GRAD % | 5.9 | 6.1 | 6.2 | 6.7 | 7.2 | 7.8 | 8.5 | 9.2 |
| 30 | MINS | 13.1 | 12.7 | 12.4 | 11.5 | 10.7 | 9.9 | 9.1 | 8.4 |
| | NM | 55 | 53 | 52 | 48 | 45 | 41 | 38 | 35 |
| | LB | 443 | 428 | 420 | 390 | 362 | 334 | 308 | 284 |
| | FPM | 1,134 | 1,174 | 1,202 | 1,305 | 1,421 | 1,552 | 1,699 | 1,853 |
| | GRAD % | 3.9 | 4 | 4.1 | 4.4 | 4.8 | 5.3 | 5.8 | 6.3 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Cruise Climb, AEO, IPS OFF

| Pressure Altitude: 21,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -28°C | | | | MAX: ISA +31°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| 40 | MINS | 20.1 | 19.4 | 18.9 | 17.4 | 16.0 | 14.6 | 13.4 | 12.2 |
| | NM | 87 | 83 | 81 | 75 | 69 | 63 | 57 | 52 |
| | LB | 597 | 575 | 561 | 517 | 475 | 436 | 398 | 365 |
| | FPM | 620 | 648 | 667 | 739 | 819 | 911 | 1,011 | 1,112 |
| | GRAD % | 2.1 | 2.2 | 2.2 | 2.5 | 2.7 | 3 | 3.4 | 3.7 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

PC24-A15-60-050-00A-030A-A



7 Pressure Altitude: 23,000 Feet

| Associated Conditions | | | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | | | |
| Notes | | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | |

| Pressure Altitude: 23,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -25°C | | | | MAX: ISA +30°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -30 | MINS | 5.9 | 5.8 | 5.6 | 5.3 | 5.0 | 4.6 | 4.3 | 4.0 |
| | NM | 22 | 21 | 21 | 19 | 18 | 17 | 15 | 14 |
| | LB | 297 | 289 | 284 | 267 | 250 | 233 | 216 | 200 |
| | FPM | 2,834 | 2,914 | 2,971 | 3,176 | 3,406 | 3,668 | 3,963 | 4,289 |
| | GRAD % | 10.6 | 10.9 | 11.1 | 11.9 | 12.8 | 13.8 | 14.9 | 16.1 |
| -20 | MINS | 5.8 | 5.7 | 5.6 | 5.2 | 4.9 | 4.6 | 4.2 | 3.9 |
| | NM | 22 | 21 | 21 | 20 | 18 | 17 | 16 | 14 |
| | LB | 300 | 292 | 287 | 269 | 252 | 235 | 218 | 202 |
| | FPM | 2,898 | 2,980 | 3,038 | 3,248 | 3,483 | 3,751 | 4,052 | 4,386 |
| | GRAD % | 10.6 | 10.9 | 11.1 | 11.9 | 12.8 | 13.7 | 14.9 | 16.1 |
| -10 | MINS | 5.9 | 5.8 | 5.7 | 5.3 | 5.0 | 4.6 | 4.3 | 4.0 |
| | NM | 23 | 22 | 22 | 20 | 19 | 17 | 16 | 15 |
| | LB | 304 | 296 | 290 | 272 | 255 | 238 | 221 | 204 |
| | FPM | 2,888 | 2,971 | 3,029 | 3,238 | 3,474 | 3,741 | 4,043 | 4,376 |
| | GRAD % | 10.3 | 10.6 | 10.8 | 11.6 | 12.4 | 13.4 | 14.5 | 15.7 |
| 0 | MINS | 6.6 | 6.4 | 6.3 | 5.9 | 5.5 | 5.1 | 4.8 | 4.4 |
| | NM | 26 | 25 | 25 | 23 | 22 | 20 | 18 | 17 |
| | LB | 317 | 309 | 303 | 284 | 266 | 248 | 230 | 213 |
| | FPM | 2,784 | 2,865 | 2,921 | 3,125 | 3,354 | 3,614 | 3,907 | 4,230 |
| | GRAD % | 9.7 | 10 | 10.2 | 10.9 | 11.7 | 12.7 | 13.7 | 14.9 |
| 10 | MINS | 8.2 | 8.0 | 7.8 | 7.4 | 6.9 | 6.4 | 5.9 | 5.4 |
| | NM | 33 | 32 | 32 | 30 | 28 | 26 | 24 | 22 |
| | LB | 350 | 340 | 334 | 312 | 292 | 271 | 251 | 232 |
| | FPM | 2,164 | 2,230 | 2,276 | 2,442 | 2,628 | 2,840 | 3,080 | 3,339 |
| | GRAD % | 7.4 | 7.6 | 7.8 | 8.4 | 9 | 9.7 | 10.6 | 11.5 |
| 20 | MINS | 10.8 | 10.4 | 10.2 | 9.5 | 8.9 | 8.2 | 7.6 | 7.0 |
| | NM | 45 | 43 | 42 | 40 | 37 | 34 | 31 | 29 |
| | LB | 402 | 390 | 383 | 357 | 333 | 308 | 285 | 263 |
| | FPM | 1,543 | 1,594 | 1,629 | 1,758 | 1,902 | 2,066 | 2,251 | 2,447 |
| | GRAD % | 5.2 | 5.3 | 5.5 | 5.9 | 6.4 | 6.9 | 7.6 | 8.2 |
| 30 | MINS | 15.0 | 14.5 | 14.2 | 13.2 | 12.2 | 11.2 | 10.3 | 9.5 |
| | NM | 64 | 62 | 61 | 56 | 52 | 48 | 44 | 40 |
| | LB | 493 | 477 | 467 | 434 | 402 | 371 | 341 | 314 |
| | FPM | 1,006 | 1,043 | 1,070 | 1,166 | 1,274 | 1,396 | 1,533 | 1,674 |
| | GRAD % | 3.3 | 3.4 | 3.5 | 3.8 | 4.2 | 4.6 | 5 | 5.5 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Cruise Climb, AEO, IPS OFF

| Pressure Altitude: 23,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -25°C | | | | MAX: ISA +30°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| 40 | MINS | 23.7 | 22.8 | 22.2 | 20.4 | 18.6 | 17.0 | 15.5 | 14.2 |
| | NM | 105 | 101 | 98 | 90 | 82 | 75 | 68 | 62 |
| | LB | 681 | 655 | 639 | 587 | 538 | 492 | 448 | 411 |
| | FPM | 506 | 531 | 549 | 615 | 689 | 772 | 863 | 953 |
| | GRAD % | 1.6 | 1.7 | 1.8 | 2 | 2.2 | 2.5 | 2.8 | 3.1 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

PC24-A15-60-050-00A-030A-A



8 Pressure Altitude: 25,000 Feet

| Associated Conditions | | | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | | | |
| Notes | | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | |

| Pressure Altitude: 25,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -23°C | | | | MAX: ISA +29°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -30 | MINS | 6.7 | 6.5 | 6.4 | 6.0 | 5.6 | 5.2 | 4.8 | 4.5 |
| | NM | 25 | 24 | 24 | 22 | 21 | 19 | 18 | 16 |
| | LB | 324 | 315 | 309 | 290 | 272 | 253 | 235 | 218 |
| | FPM | 2,539 | 2,613 | 2,665 | 2,853 | 3,064 | 3,303 | 3,574 | 3,870 |
| | GRAD % | 9.2 | 9.5 | 9.6 | 10.3 | 11.1 | 12 | 13 | 14.1 |
| -20 | MINS | 6.6 | 6.4 | 6.3 | 5.9 | 5.5 | 5.1 | 4.8 | 4.4 |
| | NM | 25 | 25 | 24 | 23 | 21 | 19 | 18 | 16 |
| | LB | 327 | 318 | 312 | 293 | 274 | 255 | 237 | 220 |
| | FPM | 2,600 | 2,675 | 2,729 | 2,921 | 3,137 | 3,382 | 3,659 | 3,962 |
| | GRAD % | 9.2 | 9.5 | 9.6 | 10.3 | 11.1 | 12 | 13 | 14.1 |
| -10 | MINS | 6.6 | 6.5 | 6.4 | 6.0 | 5.6 | 5.2 | 4.8 | 4.5 |
| | NM | 26 | 25 | 25 | 23 | 22 | 20 | 19 | 17 |
| | LB | 331 | 322 | 316 | 297 | 278 | 259 | 240 | 222 |
| | FPM | 2,642 | 2,719 | 2,773 | 2,968 | 3,188 | 3,437 | 3,719 | 4,027 |
| | GRAD % | 9.1 | 9.4 | 9.6 | 10.3 | 11 | 11.9 | 12.9 | 14 |
| 0 | MINS | 7.4 | 7.2 | 7.0 | 6.6 | 6.2 | 5.7 | 5.3 | 4.9 |
| | NM | 30 | 29 | 28 | 26 | 25 | 23 | 21 | 19 |
| | LB | 345 | 336 | 330 | 309 | 289 | 269 | 250 | 231 |
| | FPM | 2,538 | 2,612 | 2,665 | 2,855 | 3,068 | 3,310 | 3,583 | 3,881 |
| | GRAD % | 8.6 | 8.8 | 9 | 9.7 | 10.4 | 11.2 | 12.2 | 13.2 |
| 10 | MINS | 9.2 | 8.9 | 8.8 | 8.2 | 7.6 | 7.1 | 6.6 | 6.1 |
| | NM | 38 | 37 | 36 | 34 | 31 | 29 | 27 | 25 |
| | LB | 381 | 370 | 363 | 340 | 317 | 295 | 273 | 252 |
| | FPM | 2,043 | 2,106 | 2,150 | 2,310 | 2,490 | 2,694 | 2,924 | 3,172 |
| | GRAD % | 6.8 | 7 | 7.1 | 7.6 | 8.2 | 8.9 | 9.7 | 10.5 |
| 20 | MINS | 12.1 | 11.7 | 11.5 | 10.7 | 10.0 | 9.2 | 8.5 | 7.9 |
| | NM | 52 | 50 | 49 | 46 | 42 | 39 | 36 | 33 |
| | LB | 441 | 428 | 420 | 392 | 364 | 337 | 311 | 287 |
| | FPM | 1,405 | 1,453 | 1,486 | 1,607 | 1,744 | 1,898 | 2,072 | 2,255 |
| | GRAD % | 4.6 | 4.7 | 4.8 | 5.2 | 5.7 | 6.2 | 6.7 | 7.3 |
| 30 | MINS | 17.1 | 16.5 | 16.2 | 15.0 | 13.8 | 12.7 | 11.7 | 10.8 |
| | NM | 75 | 72 | 71 | 66 | 60 | 56 | 51 | 47 |
| | LB | 547 | 529 | 517 | 480 | 444 | 409 | 376 | 346 |
| | FPM | 882 | 917 | 942 | 1,031 | 1,132 | 1,246 | 1,373 | 1,502 |
| | GRAD % | 2.8 | 2.9 | 3 | 3.3 | 3.6 | 4 | 4.4 | 4.8 |



9 Pressure Altitude: 27,000 Feet

| Associated Conditions | | | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | | | |
| Notes | | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | |

| Pressure Altitude: 27,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -21°C | | | | MAX: ISA +29°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -30 | MINS | 7.5 | 7.3 | 7.2 | 6.7 | 6.3 | 5.8 | 5.4 | 5.0 |
| | NM | 29 | 28 | 28 | 26 | 24 | 22 | 21 | 19 |
| | LB | 351 | 342 | 336 | 315 | 294 | 274 | 255 | 236 |
| | FPM | 2,251 | 2,319 | 2,366 | 2,537 | 2,730 | 2,948 | 3,194 | 3,462 |
| | GRAD % | 7.9 | 8.1 | 8.3 | 8.9 | 9.6 | 10.3 | 11.2 | 12.2 |
| -20 | MINS | 7.4 | 7.2 | 7.1 | 6.6 | 6.2 | 5.8 | 5.4 | 5.0 |
| | NM | 29 | 28 | 28 | 26 | 24 | 22 | 21 | 19 |
| | LB | 354 | 345 | 339 | 318 | 297 | 277 | 257 | 238 |
| | FPM | 2,305 | 2,374 | 2,423 | 2,598 | 2,795 | 3,018 | 3,271 | 3,545 |
| | GRAD % | 7.9 | 8.1 | 8.3 | 8.9 | 9.6 | 10.3 | 11.2 | 12.2 |
| -10 | MINS | 7.4 | 7.2 | 7.1 | 6.7 | 6.2 | 5.8 | 5.4 | 5.0 |
| | NM | 30 | 29 | 29 | 27 | 25 | 23 | 21 | 20 |
| | LB | 359 | 349 | 343 | 322 | 301 | 280 | 260 | 241 |
| | FPM | 2,360 | 2,430 | 2,480 | 2,659 | 2,861 | 3,089 | 3,347 | 3,628 |
| | GRAD % | 7.9 | 8.1 | 8.3 | 8.9 | 9.6 | 10.3 | 11.2 | 12.2 |
| 0 | MINS | 8.2 | 8.0 | 7.8 | 7.3 | 6.8 | 6.4 | 5.9 | 5.4 |
| | NM | 34 | 33 | 32 | 30 | 28 | 26 | 24 | 22 |
| | LB | 374 | 364 | 357 | 335 | 313 | 291 | 270 | 250 |
| | FPM | 2,289 | 2,358 | 2,406 | 2,582 | 2,780 | 3,003 | 3,256 | 3,530 |
| | GRAD % | 7.5 | 7.7 | 7.9 | 8.4 | 9.1 | 9.8 | 10.7 | 11.6 |
| 10 | MINS | 10.2 | 9.9 | 9.7 | 9.1 | 8.5 | 7.9 | 7.3 | 6.7 |
| | NM | 43 | 42 | 41 | 38 | 36 | 33 | 30 | 28 |
| | LB | 413 | 402 | 394 | 368 | 344 | 319 | 295 | 273 |
| | FPM | 1,925 | 1,985 | 2,028 | 2,182 | 2,355 | 2,551 | 2,772 | 3,008 |
| | GRAD % | 6.2 | 6.3 | 6.5 | 7 | 7.5 | 8.2 | 8.9 | 9.6 |
| 20 | MINS | 13.6 | 13.2 | 12.9 | 12.0 | 11.2 | 10.3 | 9.5 | 8.8 |
| | NM | 59 | 57 | 56 | 52 | 48 | 45 | 41 | 38 |
| | LB | 482 | 468 | 458 | 427 | 397 | 368 | 339 | 313 |
| | FPM | 1,295 | 1,341 | 1,373 | 1,488 | 1,618 | 1,766 | 1,931 | 2,104 |
| | GRAD % | 4.1 | 4.2 | 4.3 | 4.7 | 5.1 | 5.5 | 6.1 | 6.6 |
| 30 | MINS | 19.5 | 18.8 | 18.4 | 17.0 | 15.7 | 14.4 | 13.2 | 12.2 |
| | NM | 88 | 85 | 83 | 76 | 70 | 65 | 59 | 54 |
| | LB | 605 | 585 | 572 | 530 | 489 | 450 | 413 | 380 |
| | FPM | 775 | 808 | 831 | 915 | 1,009 | 1,116 | 1,235 | 1,354 |
| | GRAD % | 2.4 | 2.5 | 2.6 | 2.8 | 3.1 | 3.4 | 3.8 | 4.2 |



10 Pressure Altitude: 29,000 Feet

| Associated Conditions | | | | | | | | | | | | | | |
|---|--|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|
| Thrust: MCT | | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | |
| Notes | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | |

| Pressure Altitude: 29,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -18°C | | | | MAX: ISA +28°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -20 | MINS | 8.3 | 8.1 | 7.9 | 7.4 | 7.0 | 6.5 | 6.0 | 5.6 |
| | NM | 34 | 33 | 32 | 30 | 28 | 26 | 24 | 22 |
| | LB | 383 | 373 | 366 | 343 | 321 | 299 | 277 | 257 |
| | FPM | 2,011 | 2,073 | 2,117 | 2,275 | 2,454 | 2,656 | 2,883 | 3,127 |
| | GRAD % | 6.6 | 6.9 | 7 | 7.5 | 8.1 | 8.8 | 9.5 | 10.4 |
| -10 | MINS | 8.4 | 8.1 | 8.0 | 7.5 | 7.0 | 6.5 | 6.0 | 5.6 |
| | NM | 35 | 34 | 33 | 31 | 29 | 27 | 25 | 23 |
| | LB | 388 | 378 | 371 | 348 | 325 | 302 | 281 | 260 |
| | FPM | 2,061 | 2,125 | 2,169 | 2,332 | 2,514 | 2,721 | 2,954 | 3,204 |
| | GRAD % | 6.7 | 6.9 | 7 | 7.5 | 8.1 | 8.8 | 9.6 | 10.4 |
| 0 | MINS | 9.1 | 8.9 | 8.7 | 8.1 | 7.6 | 7.1 | 6.5 | 6.0 |
| | NM | 39 | 37 | 37 | 34 | 32 | 30 | 27 | 25 |
| | LB | 404 | 393 | 386 | 361 | 337 | 314 | 291 | 269 |
| | FPM | 2,033 | 2,096 | 2,141 | 2,302 | 2,484 | 2,689 | 2,920 | 3,169 |
| | GRAD % | 6.4 | 6.6 | 6.8 | 7.3 | 7.8 | 8.5 | 9.2 | 10 |
| 10 | MINS | 11.3 | 10.9 | 10.7 | 10.0 | 9.3 | 8.7 | 8.0 | 7.4 |
| | NM | 49 | 47 | 46 | 43 | 40 | 37 | 34 | 32 |
| | LB | 446 | 433 | 425 | 397 | 370 | 344 | 318 | 294 |
| | FPM | 1,810 | 1,868 | 1,909 | 2,057 | 2,223 | 2,412 | 2,624 | 2,850 |
| | GRAD % | 5.6 | 5.8 | 5.9 | 6.4 | 6.9 | 7.5 | 8.1 | 8.8 |
| 20 | MINS | 15.2 | 14.7 | 14.4 | 13.4 | 12.4 | 11.5 | 10.6 | 9.8 |
| | NM | 68 | 66 | 64 | 60 | 55 | 51 | 47 | 43 |
| | LB | 525 | 509 | 498 | 464 | 431 | 399 | 367 | 339 |
| | FPM | 1,202 | 1,246 | 1,276 | 1,387 | 1,513 | 1,654 | 1,812 | 1,976 |
| | GRAD % | 3.6 | 3.8 | 3.9 | 4.2 | 4.6 | 5 | 5.5 | 6 |
| 30 | MINS | 22.3 | 21.5 | 21.0 | 19.4 | 17.8 | 16.4 | 15.0 | 13.7 |
| | NM | 103 | 100 | 97 | 89 | 82 | 75 | 69 | 63 |
| | LB | 671 | 648 | 633 | 585 | 539 | 495 | 454 | 417 |
| | FPM | 653 | 683 | 705 | 783 | 870 | 970 | 1,078 | 1,185 |
| | GRAD % | 1.9 | 2 | 2.1 | 2.3 | 2.6 | 2.9 | 3.2 | 3.5 |



11 Pressure Altitude: 31,000 Feet

| Associated Conditions | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | |
| Notes | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | |

| Pressure Altitude: 31,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -16°C | | | | MAX: ISA +27°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| -20 | MINS | 9.4 | 9.1 | 9.0 | 8.4 | 7.8 | 7.3 | 6.7 | 6.2 |
| | NM | 39 | 38 | 37 | 35 | 32 | 30 | 28 | 25 |
| | LB | 414 | 403 | 396 | 371 | 346 | 322 | 299 | 276 |
| | FPM | 1,730 | 1,786 | 1,825 | 1,968 | 2,128 | 2,310 | 2,513 | 2,730 |
| | GRAD % | 5.5 | 5.7 | 5.8 | 6.3 | 6.8 | 7.4 | 8 | 8.7 |
| -10 | MINS | 9.4 | 9.1 | 9.0 | 8.4 | 7.8 | 7.3 | 6.7 | 6.2 |
| | NM | 40 | 39 | 38 | 36 | 33 | 31 | 28 | 26 |
| | LB | 420 | 408 | 401 | 375 | 351 | 326 | 302 | 280 |
| | FPM | 1,771 | 1,828 | 1,869 | 2,014 | 2,179 | 2,365 | 2,572 | 2,795 |
| | GRAD % | 5.5 | 5.7 | 5.8 | 6.3 | 6.8 | 7.4 | 8 | 8.7 |
| 0 | MINS | 10.2 | 9.9 | 9.7 | 9.1 | 8.4 | 7.8 | 7.3 | 6.7 |
| | NM | 44 | 43 | 42 | 39 | 36 | 34 | 31 | 29 |
| | LB | 436 | 424 | 416 | 390 | 364 | 338 | 313 | 289 |
| | FPM | 1,780 | 1,838 | 1,879 | 2,026 | 2,192 | 2,379 | 2,589 | 2,813 |
| | GRAD % | 5.4 | 5.6 | 5.7 | 6.2 | 6.7 | 7.3 | 7.9 | 8.6 |
| 10 | MINS | 12.4 | 12.0 | 11.8 | 11.0 | 10.3 | 9.5 | 8.8 | 8.1 |
| | NM | 55 | 53 | 52 | 49 | 45 | 42 | 39 | 36 |
| | LB | 480 | 466 | 457 | 427 | 398 | 369 | 341 | 315 |
| | FPM | 1,663 | 1,718 | 1,757 | 1,897 | 2,056 | 2,235 | 2,434 | 2,647 |
| | GRAD % | 5 | 5.1 | 5.2 | 5.7 | 6.1 | 6.7 | 7.3 | 7.9 |
| 20 | MINS | 16.9 | 16.4 | 16.1 | 14.9 | 13.8 | 12.8 | 11.7 | 10.8 |
| | NM | 78 | 75 | 74 | 68 | 63 | 58 | 53 | 49 |
| | LB | 570 | 552 | 541 | 503 | 466 | 431 | 397 | 366 |
| | FPM | 1,083 | 1,125 | 1,154 | 1,259 | 1,378 | 1,512 | 1,660 | 1,813 |
| | GRAD % | 3.2 | 3.3 | 3.4 | 3.7 | 4 | 4.4 | 4.9 | 5.3 |
| 30 | MINS | 25.7 | 24.8 | 24.2 | 22.2 | 20.3 | 18.6 | 17.0 | 15.6 |
| | NM | 123 | 118 | 115 | 105 | 96 | 88 | 80 | 73 |
| | LB | 747 | 720 | 703 | 647 | 595 | 545 | 498 | 457 |
| | FPM | 525 | 553 | 573 | 644 | 725 | 816 | 913 | 1,009 |
| | GRAD % | 1.5 | 1.6 | 1.6 | 1.8 | 2.1 | 2.3 | 2.6 | 2.9 |



12 Pressure Altitude: 33,000 Feet

| Associated Conditions | | | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | | | |
| Notes | | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | |

| Pressure Altitude: 33,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -13°C | | | | MAX: ISA +26°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -20 | MINS | 10.6 | 10.4 | 10.2 | 9.5 | 8.8 | 8.2 | 7.6 | 7.0 |
| | NM | 46 | 45 | 44 | 41 | 38 | 35 | 32 | 30 |
| | LB | 448 | 436 | 427 | 400 | 373 | 347 | 322 | 297 |
| | FPM | 1,457 | 1,506 | 1,541 | 1,668 | 1,811 | 1,974 | 2,154 | 2,344 |
| | GRAD % | 4.5 | 4.7 | 4.8 | 5.2 | 5.6 | 6.1 | 6.7 | 7.3 |
| -10 | MINS | 10.6 | 10.3 | 10.1 | 9.5 | 8.8 | 8.2 | 7.6 | 7.0 |
| | NM | 47 | 45 | 44 | 41 | 39 | 36 | 33 | 30 |
| | LB | 453 | 441 | 433 | 405 | 378 | 351 | 325 | 301 |
| | FPM | 1,491 | 1,542 | 1,578 | 1,708 | 1,855 | 2,020 | 2,205 | 2,399 |
| | GRAD % | 4.5 | 4.7 | 4.8 | 5.2 | 5.6 | 6.1 | 6.7 | 7.2 |
| 0 | MINS | 11.4 | 11.0 | 10.8 | 10.1 | 9.4 | 8.8 | 8.1 | 7.5 |
| | NM | 51 | 49 | 48 | 45 | 42 | 39 | 36 | 33 |
| | LB | 470 | 457 | 449 | 420 | 391 | 364 | 337 | 311 |
| | FPM | 1,523 | 1,575 | 1,612 | 1,744 | 1,894 | 2,063 | 2,251 | 2,449 |
| | GRAD % | 4.5 | 4.6 | 4.8 | 5.1 | 5.6 | 6.1 | 6.6 | 7.2 |
| 10 | MINS | 13.7 | 13.3 | 13.0 | 12.2 | 11.3 | 10.5 | 9.7 | 8.9 |
| | NM | 62 | 61 | 59 | 55 | 51 | 47 | 44 | 40 |
| | LB | 516 | 501 | 491 | 459 | 427 | 396 | 366 | 338 |
| | FPM | 1,430 | 1,480 | 1,515 | 1,643 | 1,787 | 1,950 | 2,129 | 2,319 |
| | GRAD % | 4.1 | 4.3 | 4.4 | 4.7 | 5.2 | 5.6 | 6.1 | 6.7 |
| 20 | MINS | 18.9 | 18.3 | 17.9 | 16.6 | 15.4 | 14.2 | 13.0 | 12.0 |
| | NM | 89 | 86 | 84 | 78 | 72 | 66 | 61 | 56 |
| | LB | 619 | 599 | 586 | 545 | 505 | 466 | 428 | 395 |
| | FPM | 928 | 967 | 993 | 1,091 | 1,200 | 1,324 | 1,459 | 1,598 |
| | GRAD % | 2.6 | 2.7 | 2.8 | 3.1 | 3.4 | 3.7 | 4.1 | 4.5 |
| 30 | MINS | 30.1 | 28.9 | 28.2 | 25.7 | 23.4 | 21.3 | 19.4 | 17.8 |
| | NM | 149 | 143 | 139 | 126 | 115 | 104 | 94 | 86 |
| | LB | 840 | 808 | 788 | 722 | 661 | 603 | 550 | 504 |
| | FPM | 389 | 414 | 431 | 496 | 568 | 650 | 735 | 818 |
| | GRAD % | 1.1 | 1.1 | 1.2 | 1.4 | 1.6 | 1.8 | 2 | 2.3 |



13 Pressure Altitude: 35,000 Feet

| Associated Conditions | | | | | | | | | |
|---|--|---|--|--------------------|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | Gear and Flaps: UP | | | | | |
| | | | | Notes | | | | | |
| Grayed values for interpolation only. | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | |

| Pressure Altitude: 35,000 Feet | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -10°C | | | | MAX: ISA +26°C | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -20 | MINS | 12.2 | 11.8 | 11.6 | 10.8 | 10.0 | 9.3 | 8.6 |
| | NM | 54 | 52 | 51 | 48 | 44 | 41 | 38 |
| | LB | 485 | 471 | 462 | 432 | 403 | 374 | 320 |
| | FPM | 1,202 | 1,246 | 1,277 | 1,389 | 1,516 | 1,660 | 1,821 |
| | GRAD % | 3.6 | 3.7 | 3.8 | 4.2 | 4.6 | 5 | 5.5 |
| -10 | MINS | 12.1 | 11.8 | 11.5 | 10.8 | 10.0 | 9.3 | 8.6 |
| | NM | 55 | 53 | 52 | 49 | 45 | 42 | 38 |
| | LB | 491 | 477 | 468 | 438 | 408 | 379 | 351 |
| | FPM | 1,232 | 1,278 | 1,309 | 1,424 | 1,554 | 1,702 | 1,867 |
| | GRAD % | 3.6 | 3.7 | 3.8 | 4.2 | 4.6 | 5 | 5.5 |
| 0 | MINS | 12.8 | 12.4 | 12.2 | 11.4 | 10.6 | 9.8 | 9.1 |
| | NM | 59 | 57 | 56 | 52 | 48 | 45 | 41 |
| | LB | 508 | 494 | 484 | 453 | 422 | 391 | 362 |
| | FPM | 1,256 | 1,303 | 1,335 | 1,452 | 1,585 | 1,735 | 1,903 |
| | GRAD % | 3.6 | 3.7 | 3.8 | 4.2 | 4.5 | 5 | 5.4 |
| 10 | MINS | 15.2 | 14.8 | 14.5 | 13.5 | 12.5 | 11.6 | 10.7 |
| | NM | 71 | 69 | 68 | 63 | 58 | 54 | 50 |
| | LB | 556 | 540 | 529 | 494 | 459 | 425 | 393 |
| | FPM | 1,199 | 1,244 | 1,276 | 1,390 | 1,520 | 1,666 | 1,830 |
| | GRAD % | 3.4 | 3.5 | 3.6 | 3.9 | 4.3 | 4.7 | 5.1 |
| 20 | MINS | 21.3 | 20.6 | 20.2 | 18.6 | 17.2 | 15.8 | 14.5 |
| | NM | 104 | 100 | 98 | 90 | 83 | 76 | 70 |
| | LB | 674 | 652 | 638 | 592 | 547 | 504 | 463 |
| | FPM | 758 | 793 | 817 | 905 | 1,004 | 1,117 | 1,241 |
| | GRAD % | 2.1 | 2.2 | 2.2 | 2.5 | 2.8 | 3.1 | 3.4 |
| 30 | MINS | 36.5 | 34.9 | 33.8 | 30.6 | 27.6 | 24.9 | 22.5 |
| | NM | 188 | 179 | 173 | 156 | 140 | 126 | 114 |
| | LB | 969 | 928 | 902 | 820 | 744 | 675 | 613 |
| | FPM | 253 | 275 | 290 | 347 | 411 | 485 | 560 |
| | GRAD % | 0.7 | 0.7 | 0.8 | 0.9 | 1.1 | 1.3 | 1.5 |



14 Pressure Altitude: 37,000 Feet

| Associated Conditions | | | | | | | | | |
|---|--|---|--|--------------------|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | Gear and Flaps: UP | | | | | |
| Notes | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | |

| Pressure Altitude: 37,000 Feet | | | | | | | | |
|--------------------------------|--------|---------------|--------|--------|--------|----------------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -8°C | | | | MAX: ISA +23°C | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -10 | MINS | 13.8 | 13.4 | 13.1 | 12.2 | 11.3 | 10.5 | 9.7 |
| | NM | 65 | 63 | 61 | 57 | 53 | 48 | 45 |
| | LB | 531 | 515 | 505 | 471 | 439 | 407 | 376 |
| | FPM | 1,196 | 1,254 | 1,294 | 1,434 | 1,571 | 1,727 | 1,905 |
| | GRAD % | 3.5 | 3.7 | 3.8 | 4.2 | 4.6 | 5.1 | 5.6 |
| 0 | MINS | 14.5 | 14.0 | 13.8 | 12.8 | 11.9 | 11.0 | 10.1 |
| | NM | 69 | 67 | 65 | 60 | 56 | 52 | 47 |
| | LB | 549 | 533 | 522 | 487 | 453 | 420 | 388 |
| | FPM | 1,224 | 1,284 | 1,325 | 1,468 | 1,608 | 1,767 | 1,950 |
| | GRAD % | 3.5 | 3.7 | 3.8 | 4.2 | 4.6 | 5.1 | 5.6 |
| 10 | MINS | 17.0 | 16.4 | 16.1 | 15.0 | 13.9 | 12.8 | 11.8 |
| | NM | 82 | 79 | 77 | 72 | 66 | 61 | 56 |
| | LB | 598 | 580 | 568 | 529 | 492 | 455 | 419 |
| | FPM | 1,195 | 1,254 | 1,295 | 1,436 | 1,575 | 1,733 | 1,915 |
| | GRAD % | 3.4 | 3.5 | 3.6 | 4 | 4.4 | 4.9 | 5.4 |
| 20 | MINS | 24.0 | 23.2 | 22.6 | 20.8 | 19.2 | 17.6 | 16.1 |
| | NM | 120 | 115 | 112 | 103 | 95 | 87 | 79 |
| | LB | 733 | 708 | 692 | 640 | 590 | 543 | 498 |
| | FPM | 739 | 787 | 821 | 933 | 1,041 | 1,164 | 1,305 |
| | GRAD % | 2 | 2.2 | 2.3 | 2.6 | 2.9 | 3.2 | 3.6 |
| 30 | MINS | 44.5 | 42.0 | 40.6 | 36.2 | 32.3 | 28.9 | 26.0 |
| | NM | 236 | 223 | 215 | 190 | 169 | 150 | 135 |
| | LB | 1,120 | 1,064 | 1,030 | 926 | 834 | 751 | 678 |
| | FPM | 213 | 247 | 272 | 341 | 412 | 493 | 586 |
| | GRAD % | 0.6 | 0.7 | 0.7 | 0.9 | 1.1 | 1.3 | 1.6 |



15 Pressure Altitude: 39,000 Feet

| Associated Conditions | | | |
|---|--|---|--------------------|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | Gear and Flaps: UP |
| Notes | | | |
| Grayed values for interpolation only. | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | |

| Pressure Altitude: 39,000 Feet | | | | | | | | | |
|--------------------------------|--------|---------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -8°C | | | | MAX: ISA +23°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| -10 | MINS | 15.7 | 15.2 | 14.8 | 13.7 | 12.7 | 11.7 | 10.8 | 9.9 |
| | NM | 75 | 72 | 71 | 65 | 60 | 55 | 51 | 47 |
| | LB | 570 | 553 | 541 | 504 | 468 | 433 | 400 | 369 |
| | FPM | 957 | 1,013 | 1,052 | 1,186 | 1,336 | 1,484 | 1,644 | 1,830 |
| | GRAD % | 2.8 | 3 | 3.1 | 3.5 | 3.9 | 4.4 | 4.8 | 5.4 |
| 0 | MINS | 16.3 | 15.8 | 15.4 | 14.3 | 13.2 | 12.2 | 11.2 | 10.3 |
| | NM | 79 | 76 | 75 | 69 | 64 | 59 | 54 | 49 |
| | LB | 589 | 570 | 559 | 520 | 483 | 447 | 412 | 380 |
| | FPM | 981 | 1,039 | 1,079 | 1,216 | 1,369 | 1,520 | 1,684 | 1,875 |
| | GRAD % | 2.8 | 3 | 3.1 | 3.5 | 3.9 | 4.4 | 4.8 | 5.4 |
| 10 | MINS | 18.8 | 18.2 | 17.8 | 16.5 | 15.2 | 14.0 | 12.9 | 11.9 |
| | NM | 92 | 89 | 87 | 81 | 74 | 68 | 63 | 57 |
| | LB | 640 | 619 | 606 | 563 | 522 | 482 | 444 | 409 |
| | FPM | 951 | 1,008 | 1,048 | 1,184 | 1,337 | 1,486 | 1,649 | 1,838 |
| | GRAD % | 2.7 | 2.8 | 2.9 | 3.3 | 3.8 | 4.2 | 4.6 | 5.2 |
| 20 | MINS | 27.4 | 26.3 | 25.6 | 23.4 | 21.4 | 19.6 | 17.9 | 16.3 |
| | NM | 140 | 134 | 130 | 119 | 108 | 99 | 90 | 82 |
| | LB | 799 | 769 | 750 | 690 | 634 | 582 | 532 | 488 |
| | FPM | 453 | 499 | 530 | 636 | 755 | 864 | 983 | 1,121 |
| | GRAD % | 1.2 | 1.4 | 1.5 | 1.8 | 2.1 | 2.4 | 2.7 | 3.1 |
| 30 | MINS | - | 59.5 | 55.2 | 45.3 | 39.2 | 34.4 | 30.4 | 27.2 |
| | NM | - | 330 | 304 | 246 | 211 | 184 | 162 | 144 |
| | LB | - | 1,359 | 1,277 | 1,081 | 950 | 844 | 754 | 679 |
| | FPM | - | 29 | 46 | 115 | 193 | 258 | 333 | 422 |
| | GRAD % | - | 0.1 | 0.1 | 0.3 | 0.5 | 0.7 | 0.9 | 1.1 |



16 Pressure Altitude: 41,000 Feet

| Associated Conditions | | | |
|---|---|--------------------|--|
| Thrust: MCT | Indicated Airspeed: 200 KIAS / 0.60 MACH | Gear and Flaps: UP | |
| Notes | | | |
| Grayed values for interpolation only. | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | |

| Pressure Altitude: 41,000 Feet | | | | | | | | | |
|--------------------------------|--------|---------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -8°C | | | | MAX: ISA +23°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| -10 | MINS | 18.1 | 17.4 | 17.0 | 15.6 | 14.4 | 13.2 | 12.1 | 11.1 |
| | NM | 88 | 85 | 83 | 76 | 70 | 64 | 58 | 53 |
| | LB | 616 | 596 | 583 | 540 | 500 | 462 | 425 | 391 |
| | FPM | 723 | 781 | 822 | 952 | 1,094 | 1,247 | 1,412 | 1,579 |
| | GRAD % | 2.1 | 2.3 | 2.4 | 2.8 | 3.2 | 3.7 | 4.2 | 4.7 |
| 0 | MINS | 18.6 | 18.0 | 17.5 | 16.1 | 14.8 | 13.6 | 12.5 | 11.5 |
| | NM | 92 | 89 | 87 | 80 | 73 | 67 | 61 | 56 |
| | LB | 635 | 614 | 600 | 556 | 515 | 475 | 438 | 403 |
| | FPM | 743 | 803 | 845 | 977 | 1,122 | 1,279 | 1,448 | 1,620 |
| | GRAD % | 2.1 | 2.3 | 2.4 | 2.8 | 3.2 | 3.7 | 4.2 | 4.7 |
| 10 | MINS | 21.3 | 20.5 | 20.0 | 18.4 | 16.9 | 15.5 | 14.2 | 13.1 |
| | NM | 107 | 103 | 100 | 92 | 84 | 77 | 70 | 64 |
| | LB | 689 | 666 | 650 | 602 | 556 | 512 | 471 | 433 |
| | FPM | 672 | 731 | 772 | 901 | 1,043 | 1,196 | 1,360 | 1,526 |
| | GRAD % | 1.9 | 2.1 | 2.2 | 2.5 | 2.9 | 3.4 | 3.8 | 4.3 |
| 20 | MINS | 34.0 | 32.1 | 30.9 | 27.6 | 24.8 | 22.4 | 20.3 | 18.4 |
| | NM | 180 | 169 | 162 | 144 | 128 | 116 | 104 | 94 |
| | LB | 915 | 870 | 843 | 762 | 693 | 631 | 575 | 525 |
| | FPM | 176 | 223 | 252 | 350 | 457 | 571 | 689 | 804 |
| | GRAD % | 0.5 | 0.6 | 0.7 | 1 | 1.3 | 1.6 | 1.9 | 2.2 |
| 30 | MINS | - | - | - | - | - | 51.2 | 41.0 | 34.6 |
| | NM | - | - | - | - | - | 287 | 227 | 189 |
| | LB | - | - | - | - | - | 1,098 | 913 | 792 |
| | FPM | - | - | - | - | - | 31 | 88 | 155 |
| | GRAD % | - | - | - | - | - | 0.1 | 0.2 | 0.4 |



17 Pressure Altitude: 43,000 Feet

| Associated Conditions | | | |
|---|--|---|--------------------|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | Gear and Flaps: UP |
| Notes | | | |
| Grayed values for interpolation only. | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | |

| Pressure Altitude: 43,000 Feet | | | | | | | | | |
|--------------------------------|--------|---------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -8°C | | | | MAX: ISA +23°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| -10 | MINS | 21.4 | 20.4 | 19.8 | 18.0 | 16.4 | 15.0 | 13.7 | 12.5 |
| | NM | 107 | 102 | 99 | 89 | 81 | 74 | 67 | 61 |
| | LB | 675 | 650 | 633 | 583 | 536 | 493 | 453 | 416 |
| | FPM | 497 | 550 | 587 | 721 | 865 | 1,013 | 1,174 | 1,357 |
| | GRAD % | 1.5 | 1.6 | 1.7 | 2.1 | 2.5 | 3 | 3.5 | 4 |
| 0 | MINS | 21.9 | 20.9 | 20.3 | 18.5 | 16.8 | 15.4 | 14.0 | 12.8 |
| | NM | 111 | 106 | 103 | 93 | 84 | 77 | 70 | 63 |
| | LB | 694 | 668 | 652 | 599 | 552 | 507 | 466 | 427 |
| | FPM | 509 | 563 | 601 | 738 | 885 | 1,036 | 1,201 | 1,387 |
| | GRAD % | 1.5 | 1.6 | 1.7 | 2.1 | 2.5 | 3 | 3.5 | 4 |
| 10 | MINS | 25.2 | 24.1 | 23.3 | 21.1 | 19.2 | 17.5 | 15.9 | 14.5 |
| | NM | 130 | 124 | 120 | 108 | 98 | 88 | 80 | 73 |
| | LB | 761 | 730 | 711 | 651 | 597 | 548 | 502 | 460 |
| | FPM | 363 | 414 | 449 | 580 | 718 | 860 | 1,013 | 1,187 |
| | GRAD % | 1 | 1.2 | 1.3 | 1.6 | 2 | 2.4 | 2.8 | 3.3 |
| 20 | MINS | - | - | - | 38.0 | 31.5 | 27.2 | 24.0 | 21.5 |
| | NM | - | - | - | 206 | 168 | 145 | 127 | 113 |
| | LB | - | - | - | 922 | 796 | 706 | 633 | 572 |
| | FPM | - | - | - | 77 | 173 | 279 | 389 | 512 |
| | GRAD % | - | - | - | 0.2 | 0.5 | 0.8 | 1.1 | 1.4 |



18 Pressure Altitude: 45,000 Feet

| Associated Conditions | | | | | | | | | |
|---|--|---|--|--------------------|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | Gear and Flaps: UP | | | | | |
| Notes | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | |

| Pressure Altitude: 45,000 Feet | | | | | | | | | |
|--------------------------------|--------|---------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -8°C | | | | MAX: ISA +23°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -10 | MINS | 26.7 | 25.1 | 24.1 | 21.4 | 19.1 | 17.2 | 15.6 | 14.1 |
| | NM | 137 | 128 | 123 | 108 | 96 | 86 | 78 | 70 |
| | LB | 761 | 725 | 702 | 637 | 580 | 529 | 484 | 442 |
| | FPM | 269 | 325 | 364 | 489 | 624 | 779 | 935 | 1,106 |
| | GRAD % | 0.8 | 1 | 1.1 | 1.4 | 1.8 | 2.3 | 2.8 | 3.3 |
| 0 | MINS | 27.1 | 25.5 | 24.5 | 21.8 | 19.5 | 17.6 | 15.9 | 14.4 |
| | NM | 141 | 132 | 127 | 112 | 100 | 89 | 80 | 73 |
| | LB | 782 | 745 | 722 | 654 | 596 | 544 | 497 | 454 |
| | FPM | 270 | 327 | 367 | 494 | 632 | 790 | 949 | 1,123 |
| | GRAD % | 0.8 | 0.9 | 1.1 | 1.4 | 1.8 | 2.3 | 2.7 | 3.2 |
| 10 | MINS | 36.1 | 32.5 | 30.6 | 26.1 | 22.9 | 20.4 | 18.4 | 16.6 |
| | NM | 194 | 173 | 162 | 137 | 119 | 106 | 94 | 85 |
| | LB | 932 | 863 | 826 | 731 | 657 | 595 | 540 | 492 |
| | FPM | 55 | 104 | 137 | 249 | 373 | 516 | 656 | 809 |
| | GRAD % | 0.2 | 0.3 | 0.4 | 0.7 | 1.1 | 1.5 | 1.8 | 2.3 |
| 20 | MINS | - | - | - | - | - | - | 33.2 | 27.4 |
| | NM | - | - | - | - | - | - | 182 | 148 |
| | LB | - | - | - | - | - | - | 758 | 653 |
| | FPM | - | - | - | - | - | - | 95 | 199 |
| | GRAD % | - | - | - | - | - | - | 0.3 | 0.6 |



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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Cruise Climb, AEO, IPS ON

1 Pressure Altitude: 5,000 Feet

| Associated Conditions | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | |
| Notes | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | |

| ISA DEV | Pressure Altitude: 5,000 Feet | | | | | | | | |
|---------|-------------------------------|--------|----------------|--------|--------|---------------|--------|--------|-------|
| | TEMP | | MIN: ISA -59°C | | | MAX: ISA +4°C | | | |
| TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 | |
| -60 | MINS | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.0 | 0.9 |
| | NM | 4 | 4 | 3 | 3 | 3 | 3 | 2 | 2 |
| | LB | 70 | 69 | 67 | 63 | 59 | 55 | 52 | 48 |
| | FPM | 3,796 | 3,897 | 3,968 | 4,221 | 4,507 | 4,830 | 5,196 | 5,609 |
| | GRAD % | 20.1 | 20.6 | 21 | 22.4 | 24 | 25.9 | 28 | 30.4 |
| -50 | MINS | 1.3 | 1.3 | 1.3 | 1.2 | 1.1 | 1.0 | 1.0 | 0.9 |
| | NM | 4 | 4 | 3 | 3 | 3 | 3 | 2 | 2 |
| | LB | 71 | 69 | 68 | 64 | 60 | 56 | 52 | 48 |
| | FPM | 3,882 | 3,985 | 4,057 | 4,317 | 4,609 | 4,939 | 5,313 | 5,736 |
| | GRAD % | 20.1 | 20.6 | 21 | 22.4 | 24 | 25.9 | 28 | 30.4 |
| -40 | MINS | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.0 | 1.0 | 0.9 |
| | NM | 4 | 4 | 3 | 3 | 3 | 3 | 2 | 2 |
| | LB | 71 | 69 | 68 | 64 | 60 | 56 | 52 | 48 |
| | FPM | 3,967 | 4,073 | 4,147 | 4,412 | 4,710 | 5,048 | 5,430 | 5,862 |
| | GRAD % | 20.1 | 20.7 | 21 | 22.5 | 24.1 | 25.9 | 28 | 30.4 |
| -30 | MINS | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.0 | 0.9 | 0.9 |
| | NM | 4 | 4 | 3 | 3 | 3 | 3 | 2 | 2 |
| | LB | 72 | 70 | 69 | 65 | 61 | 57 | 53 | 49 |
| | FPM | 4,050 | 4,159 | 4,234 | 4,504 | 4,809 | 5,154 | 5,544 | 5,985 |
| | GRAD % | 20.1 | 20.7 | 21 | 22.5 | 24.1 | 25.9 | 28 | 30.4 |
| -20 | MINS | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.0 | 0.9 | 0.8 |
| | NM | 4 | 4 | 3 | 3 | 3 | 3 | 2 | 2 |
| | LB | 72 | 71 | 69 | 65 | 61 | 57 | 53 | 49 |
| | FPM | 4,131 | 4,242 | 4,318 | 4,594 | 4,905 | 5,257 | 5,655 | 6,105 |
| | GRAD % | 20.1 | 20.7 | 21 | 22.5 | 24.1 | 25.9 | 28 | 30.4 |
| -10 | MINS | 1.2 | 1.2 | 1.2 | 1.1 | 1.0 | 1.0 | 0.9 | 0.8 |
| | NM | 4 | 4 | 3 | 3 | 3 | 3 | 2 | 2 |
| | LB | 73 | 71 | 70 | 66 | 62 | 58 | 54 | 50 |
| | FPM | 4,201 | 4,313 | 4,391 | 4,672 | 4,988 | 5,346 | 5,750 | 6,208 |
| | GRAD % | 20 | 20.6 | 21 | 22.4 | 24 | 25.8 | 27.9 | 30.4 |
| 0 | MINS | 1.4 | 1.4 | 1.4 | 1.3 | 1.2 | 1.1 | 1.0 | 1.0 |
| | NM | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 3 |
| | LB | 78 | 76 | 75 | 70 | 66 | 61 | 57 | 53 |
| | FPM | 3,429 | 3,525 | 3,590 | 3,824 | 4,087 | 4,385 | 4,723 | 5,102 |
| | GRAD % | 16 | 16.4 | 16.7 | 17.8 | 19.1 | 20.6 | 22.2 | 24.1 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Cruise Climb, AEO, IPS ON

| Pressure Altitude: 5,000 Feet | | | | | | | | | |
|-------------------------------|--------|----------------|--------|--------|--------|---------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -59°C | | | | MAX: ISA +4°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| 10 | MINS | 1.8 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 |
| | NM | 6 | 6 | 6 | 5 | 5 | 4 | 4 | 4 |
| | LB | 87 | 85 | 83 | 78 | 73 | 68 | 63 | 58 |
| | FPM | 2,680 | 2,759 | 2,811 | 3,000 | 3,212 | 3,452 | 3,726 | 4,028 |
| | GRAD % | 12.2 | 12.6 | 12.8 | 13.7 | 14.7 | 15.8 | 17.1 | 18.5 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



2 Pressure Altitude: 10,000 Feet

| Associated Conditions | | | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | | | |
| Notes | | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | |

| Pressure Altitude: 10,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -49°C | | | | MAX: ISA +14°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -50 | MINS | 2.6 | 2.5 | 2.5 | 2.3 | 2.2 | 2.0 | 1.9 | 1.7 |
| | NM | 8 | 8 | 7 | 7 | 6 | 6 | 5 | 5 |
| | LB | 137 | 133 | 131 | 123 | 115 | 107 | 100 | 93 |
| | FPM | 4,218 | 4,329 | 4,407 | 4,690 | 5,007 | 5,367 | 5,773 | 6,234 |
| | GRAD % | 20.4 | 20.9 | 21.3 | 22.7 | 24.4 | 26.2 | 28.4 | 30.8 |
| -40 | MINS | 2.5 | 2.4 | 2.4 | 2.3 | 2.1 | 2.0 | 1.8 | 1.7 |
| | NM | 8 | 8 | 7 | 7 | 6 | 6 | 5 | 5 |
| | LB | 137 | 134 | 132 | 124 | 116 | 108 | 101 | 93 |
| | FPM | 4,316 | 4,430 | 4,510 | 4,799 | 5,124 | 5,493 | 5,908 | 6,379 |
| | GRAD % | 20.4 | 20.9 | 21.3 | 22.8 | 24.4 | 26.3 | 28.4 | 30.9 |
| -30 | MINS | 2.5 | 2.4 | 2.4 | 2.2 | 2.1 | 1.9 | 1.8 | 1.7 |
| | NM | 8 | 8 | 7 | 7 | 6 | 6 | 5 | 5 |
| | LB | 139 | 135 | 133 | 125 | 117 | 109 | 101 | 94 |
| | FPM | 4,414 | 4,530 | 4,612 | 4,908 | 5,240 | 5,617 | 6,041 | 6,523 |
| | GRAD % | 20.4 | 20.9 | 21.3 | 22.8 | 24.4 | 26.3 | 28.4 | 30.9 |
| -20 | MINS | 2.4 | 2.4 | 2.3 | 2.2 | 2.0 | 1.9 | 1.8 | 1.6 |
| | NM | 8 | 8 | 7 | 7 | 6 | 6 | 5 | 5 |
| | LB | 140 | 136 | 134 | 126 | 118 | 110 | 102 | 95 |
| | FPM | 4,504 | 4,623 | 4,706 | 5,008 | 5,347 | 5,731 | 6,164 | 6,656 |
| | GRAD % | 20.4 | 20.9 | 21.3 | 22.8 | 24.4 | 26.3 | 28.4 | 30.9 |
| -10 | MINS | 2.5 | 2.4 | 2.4 | 2.2 | 2.1 | 1.9 | 1.8 | 1.7 |
| | NM | 8 | 8 | 8 | 7 | 7 | 6 | 6 | 5 |
| | LB | 142 | 139 | 136 | 128 | 120 | 112 | 104 | 96 |
| | FPM | 3,928 | 4,034 | 4,108 | 4,374 | 4,674 | 5,014 | 5,398 | 5,831 |
| | GRAD % | 17.3 | 17.8 | 18.1 | 19.4 | 20.7 | 22.3 | 24.1 | 26.2 |
| 0 | MINS | 2.9 | 2.9 | 2.8 | 2.6 | 2.5 | 2.3 | 2.1 | 2.0 |
| | NM | 10 | 10 | 10 | 9 | 8 | 8 | 7 | 6 |
| | LB | 153 | 149 | 146 | 137 | 129 | 120 | 111 | 103 |
| | FPM | 3,181 | 3,271 | 3,332 | 3,553 | 3,802 | 4,084 | 4,404 | 4,761 |
| | GRAD % | 13.7 | 14.1 | 14.4 | 15.3 | 16.4 | 17.7 | 19.1 | 20.7 |
| 10 | MINS | 3.8 | 3.6 | 3.6 | 3.4 | 3.1 | 2.9 | 2.7 | 2.5 |
| | NM | 13 | 13 | 13 | 12 | 11 | 10 | 9 | 9 |
| | LB | 173 | 168 | 165 | 154 | 144 | 134 | 124 | 115 |
| | FPM | 2,449 | 2,521 | 2,570 | 2,747 | 2,946 | 3,171 | 3,427 | 3,709 |
| | GRAD % | 10.3 | 10.6 | 10.8 | 11.6 | 12.4 | 13.4 | 14.5 | 15.7 |



Section 5 - Performance, Cockpit Handbook (Authority approved) Cruise Climb, AEO, IPS ON

| Pressure Altitude: 10,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -49°C | | | | MAX: ISA +14°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| 20 | MINS | 5.0 | 4.8 | 4.8 | 4.4 | 4.1 | 3.8 | 3.6 | 3.3 |
| | NM | 18 | 18 | 17 | 16 | 15 | 14 | 13 | 12 |
| | LB | 203 | 197 | 193 | 181 | 168 | 156 | 144 | 133 |
| | FPM | 1,764 | 1,821 | 1,859 | 1,994 | 2,146 | 2,318 | 2,515 | 2,726 |
| | GRAD % | 7.3 | 7.5 | 7.7 | 8.2 | 8.9 | 9.6 | 10.4 | 11.3 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



3 Pressure Altitude: 15,000 Feet

| Associated Conditions | | | | | | | | | | | | | | |
|---|--|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|
| Thrust: MCT | | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | |
| Notes | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | |

| Pressure Altitude: 15,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -39°C | | | | MAX: ISA +24°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -40 | MINS | 3.7 | 3.6 | 3.5 | 3.3 | 3.1 | 2.9 | 2.7 | 2.5 |
| | NM | 12 | 12 | 11 | 11 | 10 | 9 | 8 | 8 |
| | LB | 201 | 196 | 192 | 181 | 169 | 158 | 147 | 136 |
| | FPM | 4,012 | 4,120 | 4,195 | 4,468 | 4,775 | 5,124 | 5,516 | 5,960 |
| | GRAD % | 17.5 | 18 | 18.3 | 19.6 | 21 | 22.6 | 24.4 | 26.5 |
| -30 | MINS | 3.6 | 3.5 | 3.4 | 3.2 | 3.0 | 2.8 | 2.6 | 2.4 |
| | NM | 12 | 12 | 11 | 11 | 10 | 9 | 8 | 8 |
| | LB | 203 | 197 | 194 | 182 | 171 | 159 | 148 | 137 |
| | FPM | 4,105 | 4,215 | 4,293 | 4,572 | 4,886 | 5,243 | 5,644 | 6,098 |
| | GRAD % | 17.5 | 18 | 18.3 | 19.6 | 21 | 22.6 | 24.4 | 26.5 |
| -20 | MINS | 3.6 | 3.5 | 3.4 | 3.2 | 3.0 | 2.8 | 2.6 | 2.4 |
| | NM | 12 | 12 | 12 | 11 | 10 | 9 | 9 | 8 |
| | LB | 204 | 199 | 196 | 184 | 172 | 161 | 149 | 138 |
| | FPM | 4,041 | 4,150 | 4,226 | 4,502 | 4,812 | 5,164 | 5,561 | 6,009 |
| | GRAD % | 16.9 | 17.3 | 17.7 | 18.8 | 20.2 | 21.7 | 23.5 | 25.5 |
| -10 | MINS | 3.8 | 3.7 | 3.6 | 3.4 | 3.2 | 3.0 | 2.8 | 2.6 |
| | NM | 13 | 13 | 13 | 12 | 11 | 10 | 9 | 9 |
| | LB | 210 | 205 | 201 | 189 | 177 | 165 | 153 | 142 |
| | FPM | 3,674 | 3,774 | 3,844 | 4,098 | 4,384 | 4,707 | 5,073 | 5,484 |
| | GRAD % | 15 | 15.4 | 15.7 | 16.7 | 17.9 | 19.3 | 20.9 | 22.7 |
| 0 | MINS | 4.6 | 4.5 | 4.4 | 4.1 | 3.8 | 3.6 | 3.3 | 3.1 |
| | NM | 17 | 16 | 16 | 15 | 14 | 13 | 12 | 11 |
| | LB | 228 | 222 | 217 | 204 | 191 | 178 | 165 | 153 |
| | FPM | 2,878 | 2,960 | 3,017 | 3,222 | 3,453 | 3,715 | 4,012 | 4,341 |
| | GRAD % | 11.4 | 11.8 | 12 | 12.8 | 13.8 | 14.8 | 16.1 | 17.4 |
| 10 | MINS | 5.9 | 5.8 | 5.6 | 5.3 | 4.9 | 4.6 | 4.2 | 3.9 |
| | NM | 22 | 22 | 21 | 20 | 18 | 17 | 16 | 14 |
| | LB | 259 | 251 | 247 | 231 | 215 | 200 | 185 | 171 |
| | FPM | 2,157 | 2,222 | 2,267 | 2,428 | 2,610 | 2,816 | 3,050 | 3,306 |
| | GRAD % | 8.4 | 8.6 | 8.8 | 9.5 | 10.2 | 11 | 11.9 | 12.9 |
| 20 | MINS | 8.1 | 7.8 | 7.7 | 7.2 | 6.7 | 6.2 | 5.7 | 5.3 |
| | NM | 31 | 30 | 30 | 28 | 26 | 24 | 22 | 20 |
| | LB | 310 | 301 | 295 | 275 | 256 | 237 | 219 | 202 |
| | FPM | 1,474 | 1,523 | 1,556 | 1,676 | 1,811 | 1,965 | 2,138 | 2,324 |
| | GRAD % | 5.6 | 5.8 | 5.9 | 6.4 | 6.9 | 7.5 | 8.2 | 8.9 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Cruise Climb, AEO, IPS ON

| Pressure Altitude: 15,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -39°C | | | | MAX: ISA +24°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| 30 | MINS | 12.2 | 11.7 | 11.5 | 10.6 | 9.8 | 9.0 | 8.3 | 7.6 |
| | NM | 48 | 46 | 45 | 42 | 39 | 36 | 33 | 30 |
| | LB | 407 | 393 | 384 | 356 | 329 | 303 | 278 | 256 |
| | FPM | 859 | 891 | 914 | 997 | 1,091 | 1,196 | 1,315 | 1,438 |
| | GRAD % | 3.2 | 3.3 | 3.4 | 3.7 | 4.1 | 4.5 | 4.9 | 5.4 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

PC24-A15-60-0524-00A-030A-A


4 Pressure Altitude: 17,000 Feet

| Associated Conditions | | | | | | | | | | | | | | |
|---|--|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|
| Thrust: MCT | | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | |
| Notes | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | |

| Pressure Altitude: 17,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -35°C | | | | MAX: ISA +28°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -40 | MINS | 4.2 | 4.1 | 4.0 | 3.8 | 3.5 | 3.3 | 3.1 | 2.8 |
| | NM | 14 | 14 | 13 | 12 | 12 | 11 | 10 | 9 |
| | LB | 227 | 221 | 217 | 204 | 191 | 178 | 166 | 153 |
| | FPM | 3,677 | 3,777 | 3,847 | 4,100 | 4,385 | 4,708 | 5,072 | 5,483 |
| | GRAD % | 15.5 | 16 | 16.3 | 17.4 | 18.6 | 20 | 21.6 | 23.5 |
| -30 | MINS | 4.1 | 4.0 | 3.9 | 3.7 | 3.5 | 3.2 | 3.0 | 2.8 |
| | NM | 14 | 14 | 13 | 12 | 12 | 11 | 10 | 9 |
| | LB | 229 | 223 | 219 | 205 | 192 | 180 | 167 | 155 |
| | FPM | 3,762 | 3,864 | 3,936 | 4,195 | 4,487 | 4,817 | 5,190 | 5,609 |
| | GRAD % | 15.5 | 16 | 16.3 | 17.4 | 18.6 | 20 | 21.6 | 23.5 |
| -20 | MINS | 4.1 | 4.0 | 3.9 | 3.7 | 3.4 | 3.2 | 3.0 | 2.8 |
| | NM | 14 | 14 | 14 | 13 | 12 | 11 | 10 | 9 |
| | LB | 231 | 225 | 221 | 207 | 194 | 181 | 168 | 156 |
| | FPM | 3,762 | 3,864 | 3,936 | 4,196 | 4,488 | 4,819 | 5,192 | 5,613 |
| | GRAD % | 15.2 | 15.6 | 15.9 | 17 | 18.2 | 19.6 | 21.2 | 23 |
| -10 | MINS | 4.3 | 4.2 | 4.1 | 3.9 | 3.6 | 3.4 | 3.2 | 2.9 |
| | NM | 16 | 15 | 15 | 14 | 13 | 12 | 11 | 10 |
| | LB | 237 | 231 | 227 | 213 | 199 | 186 | 173 | 160 |
| | FPM | 3,581 | 3,679 | 3,748 | 3,997 | 4,277 | 4,595 | 4,953 | 5,355 |
| | GRAD % | 14.1 | 14.5 | 14.8 | 15.8 | 16.9 | 18.2 | 19.7 | 21.4 |
| 0 | MINS | 5.3 | 5.2 | 5.1 | 4.7 | 4.4 | 4.1 | 3.8 | 3.5 |
| | NM | 20 | 19 | 19 | 17 | 16 | 15 | 14 | 13 |
| | LB | 258 | 250 | 246 | 231 | 216 | 201 | 186 | 172 |
| | FPM | 2,818 | 2,898 | 2,954 | 3,157 | 3,385 | 3,643 | 3,935 | 4,259 |
| | GRAD % | 10.9 | 11.2 | 11.4 | 12.2 | 13.1 | 14.1 | 15.2 | 16.5 |
| 10 | MINS | 6.9 | 6.7 | 6.6 | 6.1 | 5.7 | 5.3 | 4.9 | 4.5 |
| | NM | 26 | 26 | 25 | 23 | 22 | 20 | 19 | 17 |
| | LB | 294 | 285 | 280 | 262 | 244 | 227 | 210 | 194 |
| | FPM | 2,038 | 2,100 | 2,143 | 2,298 | 2,473 | 2,671 | 2,895 | 3,139 |
| | GRAD % | 7.7 | 7.9 | 8.1 | 8.7 | 9.3 | 10.1 | 10.9 | 11.9 |
| 20 | MINS | 9.5 | 9.2 | 9.0 | 8.4 | 7.8 | 7.2 | 6.7 | 6.2 |
| | NM | 37 | 36 | 35 | 33 | 31 | 28 | 26 | 24 |
| | LB | 355 | 344 | 337 | 315 | 292 | 271 | 250 | 230 |
| | FPM | 1,363 | 1,409 | 1,440 | 1,555 | 1,683 | 1,829 | 1,994 | 2,169 |
| | GRAD % | 5 | 5.2 | 5.3 | 5.7 | 6.2 | 6.8 | 7.4 | 8 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Cruise Climb, AEO, IPS ON

| Pressure Altitude: 17,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -35°C | | | | MAX: ISA +28°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| 30 | MINS | 14.6 | 14.1 | 13.8 | 12.8 | 11.8 | 10.8 | 9.9 | 9.1 |
| | NM | 59 | 57 | 56 | 52 | 47 | 44 | 40 | 37 |
| | LB | 476 | 459 | 449 | 416 | 383 | 352 | 323 | 297 |
| | FPM | 752 | 783 | 804 | 881 | 968 | 1,067 | 1,176 | 1,289 |
| | GRAD % | 2.7 | 2.8 | 2.9 | 3.2 | 3.5 | 3.9 | 4.3 | 4.7 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



5 Pressure Altitude: 19,000 Feet

| Associated Conditions | | | | | | | | | | | | | | |
|---|--|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|
| Thrust: MCT | | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | |
| Notes | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | |

| Pressure Altitude: 19,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -31°C | | | | MAX: ISA +32°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| -40 | MINS | 4.8 | 4.6 | 4.6 | 4.3 | 4.0 | 3.7 | 3.5 | 3.2 |
| | NM | 16 | 16 | 16 | 14 | 13 | 12 | 12 | 11 |
| | LB | 253 | 246 | 242 | 227 | 213 | 198 | 184 | 171 |
| | FPM | 3,354 | 3,446 | 3,511 | 3,745 | 4,009 | 4,307 | 4,644 | 5,022 |
| | GRAD % | 13.7 | 14.1 | 14.4 | 15.3 | 16.4 | 17.7 | 19.1 | 20.8 |
| -30 | MINS | 4.7 | 4.5 | 4.5 | 4.2 | 3.9 | 3.7 | 3.4 | 3.2 |
| | NM | 16 | 16 | 16 | 14 | 13 | 13 | 12 | 11 |
| | LB | 255 | 248 | 244 | 229 | 214 | 200 | 186 | 172 |
| | FPM | 3,430 | 3,525 | 3,591 | 3,831 | 4,100 | 4,406 | 4,750 | 5,137 |
| | GRAD % | 13.7 | 14.1 | 14.3 | 15.3 | 16.4 | 17.7 | 19.1 | 20.7 |
| -20 | MINS | 4.6 | 4.5 | 4.4 | 4.2 | 3.9 | 3.6 | 3.4 | 3.1 |
| | NM | 16 | 16 | 16 | 15 | 14 | 13 | 12 | 11 |
| | LB | 257 | 250 | 246 | 231 | 216 | 202 | 187 | 174 |
| | FPM | 3,493 | 3,589 | 3,656 | 3,900 | 4,175 | 4,486 | 4,837 | 5,230 |
| | GRAD % | 13.6 | 14 | 14.3 | 15.3 | 16.4 | 17.6 | 19 | 20.7 |
| -10 | MINS | 4.9 | 4.8 | 4.7 | 4.4 | 4.1 | 3.8 | 3.6 | 3.3 |
| | NM | 18 | 17 | 17 | 16 | 15 | 14 | 13 | 12 |
| | LB | 264 | 257 | 252 | 237 | 222 | 207 | 192 | 178 |
| | FPM | 3,367 | 3,461 | 3,526 | 3,763 | 4,030 | 4,332 | 4,673 | 5,054 |
| | GRAD % | 12.9 | 13.2 | 13.5 | 14.4 | 15.4 | 16.6 | 18 | 19.5 |
| 0 | MINS | 6.0 | 5.9 | 5.8 | 5.4 | 5.0 | 4.7 | 4.4 | 4.0 |
| | NM | 23 | 22 | 22 | 20 | 19 | 18 | 16 | 15 |
| | LB | 287 | 280 | 274 | 257 | 241 | 224 | 208 | 192 |
| | FPM | 2,666 | 2,742 | 2,796 | 2,990 | 3,209 | 3,456 | 3,737 | 4,046 |
| | GRAD % | 9.9 | 10.2 | 10.4 | 11.2 | 12 | 12.9 | 14 | 15.2 |
| 10 | MINS | 7.9 | 7.7 | 7.5 | 7.0 | 6.6 | 6.1 | 5.6 | 5.2 |
| | NM | 31 | 30 | 29 | 27 | 25 | 24 | 22 | 20 |
| | LB | 330 | 320 | 314 | 294 | 274 | 254 | 235 | 217 |
| | FPM | 1,906 | 1,965 | 2,006 | 2,154 | 2,321 | 2,510 | 2,723 | 2,955 |
| | GRAD % | 7 | 7.2 | 7.3 | 7.9 | 8.5 | 9.2 | 10 | 10.8 |
| 20 | MINS | 11.0 | 10.7 | 10.5 | 9.8 | 9.1 | 8.4 | 7.7 | 7.1 |
| | NM | 44 | 43 | 42 | 39 | 36 | 33 | 31 | 28 |
| | LB | 402 | 390 | 382 | 356 | 330 | 306 | 282 | 260 |
| | FPM | 1,244 | 1,286 | 1,316 | 1,424 | 1,546 | 1,683 | 1,838 | 2,002 |
| | GRAD % | 4.4 | 4.6 | 4.7 | 5.1 | 5.5 | 6 | 6.6 | 7.2 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Cruise Climb, AEO, IPS ON

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| Pressure Altitude: 19,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -31°C | | | | MAX: ISA +32°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| 30 | MINS | 17.5 | 16.9 | 16.5 | 15.2 | 14.0 | 12.8 | 11.7 | 10.7 |
| | NM | 73 | 70 | 68 | 63 | 58 | 53 | 48 | 44 |
| | LB | 552 | 532 | 520 | 480 | 442 | 406 | 371 | 341 |
| | FPM | 646 | 675 | 694 | 766 | 847 | 938 | 1,039 | 1,141 |
| | GRAD % | 2.3 | 2.4 | 2.4 | 2.7 | 3 | 3.3 | 3.6 | 4 |
| 40 | MINS | 46.2 | 43.1 | 41.3 | 35.8 | 31.3 | 27.5 | 24.4 | 21.9 |
| | NM | 203 | 189 | 181 | 156 | 136 | 119 | 105 | 94 |
| | LB | 1,207 | 1,130 | 1,084 | 947 | 832 | 734 | 653 | 589 |
| | FPM | 99 | 112 | 122 | 158 | 199 | 246 | 292 | 337 |
| | GRAD % | 0.3 | 0.4 | 0.4 | 0.5 | 0.7 | 0.9 | 1 | 1.2 |



6 Pressure Altitude: 21,000 Feet

| Associated Conditions | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | |
| Notes | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | |

| Pressure Altitude: 21,000 Feet | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -28°C | | | | MAX: ISA +31°C | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 |
| -30 | MINS | 5.3 | 5.1 | 5.0 | 4.7 | 4.4 | 4.1 | 3.8 |
| | NM | 19 | 18 | 18 | 17 | 16 | 14 | 13 |
| | LB | 281 | 274 | 269 | 253 | 237 | 221 | 205 |
| | FPM | 3,111 | 3,199 | 3,260 | 3,481 | 3,729 | 4,011 | 4,329 |
| | GRAD % | 12 | 12.4 | 12.6 | 13.5 | 14.4 | 15.6 | 16.8 |
| -20 | MINS | 5.2 | 5.1 | 5.0 | 4.7 | 4.4 | 4.1 | 3.8 |
| | NM | 19 | 19 | 18 | 17 | 16 | 15 | 14 |
| | LB | 284 | 276 | 271 | 255 | 239 | 223 | 207 |
| | FPM | 3,183 | 3,272 | 3,334 | 3,560 | 3,815 | 4,103 | 4,428 |
| | GRAD % | 12 | 12.4 | 12.6 | 13.5 | 14.4 | 15.6 | 16.8 |
| -10 | MINS | 5.5 | 5.4 | 5.3 | 5.0 | 4.6 | 4.3 | 4.0 |
| | NM | 21 | 20 | 20 | 18 | 17 | 16 | 15 |
| | LB | 291 | 284 | 278 | 261 | 245 | 228 | 212 |
| | FPM | 3,118 | 3,206 | 3,267 | 3,490 | 3,741 | 4,024 | 4,345 |
| | GRAD % | 11.5 | 11.8 | 12.1 | 12.9 | 13.9 | 14.9 | 16.1 |
| 0 | MINS | 6.8 | 6.6 | 6.5 | 6.1 | 5.7 | 5.3 | 4.9 |
| | NM | 26 | 26 | 25 | 23 | 22 | 20 | 19 |
| | LB | 318 | 309 | 303 | 284 | 266 | 247 | 229 |
| | FPM | 2,493 | 2,565 | 2,616 | 2,801 | 3,009 | 3,244 | 3,510 |
| | GRAD % | 9 | 9.3 | 9.4 | 10.1 | 10.9 | 11.7 | 12.7 |
| 10 | MINS | 9.0 | 8.7 | 8.6 | 8.0 | 7.4 | 6.9 | 6.4 |
| | NM | 36 | 35 | 34 | 32 | 30 | 27 | 25 |
| | LB | 366 | 355 | 349 | 326 | 304 | 282 | 261 |
| | FPM | 1,773 | 1,828 | 1,867 | 2,008 | 2,167 | 2,346 | 2,550 |
| | GRAD % | 6.3 | 6.5 | 6.6 | 7.1 | 7.7 | 8.3 | 9 |
| 20 | MINS | 12.7 | 12.3 | 12.1 | 11.2 | 10.4 | 9.6 | 8.8 |
| | NM | 52 | 51 | 50 | 46 | 43 | 39 | 36 |
| | LB | 452 | 438 | 429 | 399 | 370 | 342 | 315 |
| | FPM | 1,124 | 1,164 | 1,192 | 1,293 | 1,408 | 1,537 | 1,683 |
| | GRAD % | 3.9 | 4 | 4.1 | 4.5 | 4.9 | 5.3 | 5.8 |
| 30 | MINS | 20.9 | 20.1 | 19.6 | 18.0 | 16.5 | 15.1 | 13.8 |
| | NM | 89 | 86 | 83 | 77 | 70 | 64 | 58 |
| | LB | 638 | 615 | 600 | 552 | 507 | 464 | 423 |
| | FPM | 532 | 558 | 576 | 642 | 716 | 799 | 891 |
| | GRAD % | 1.8 | 1.9 | 2 | 2.2 | 2.4 | 2.7 | 3 |



Section 5 - Performance, Cockpit Handbook (Authority approved) Cruise Climb, AEO, IPS ON

| Pressure Altitude: 21,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -28°C | | | | MAX: ISA +31°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| 40 | MINS | 81.7 | 72.5 | 67.4 | 54.2 | 45.0 | 38.0 | 33.0 | 29.3 |
| | NM | 377 | 333 | 309 | 246 | 203 | 170 | 148 | 131 |
| | LB | 1,982 | 1,772 | 1,655 | 1,349 | 1,131 | 964 | 843 | 750 |
| | FPM | 30 | 39 | 46 | 73 | 106 | 146 | 180 | 217 |
| | GRAD % | 0.1 | 0.1 | 0.2 | 0.2 | 0.4 | 0.5 | 0.6 | 0.7 |

PC24-A15-60-0524-00A-030A-A



7 Pressure Altitude: 23,000 Feet

| Associated Conditions | | | | | | | | | | | | | | |
|---|--|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|
| Thrust: MCT | | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | |
| Notes | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | |

| Pressure Altitude: 23,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -25°C | | | | MAX: ISA +30°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -30 | MINS | 6.0 | 5.8 | 5.7 | 5.3 | 5.0 | 4.7 | 4.3 | 4.0 |
| | NM | 22 | 21 | 21 | 19 | 18 | 17 | 15 | 14 |
| | LB | 308 | 300 | 295 | 277 | 259 | 242 | 224 | 208 |
| | FPM | 2,807 | 2,887 | 2,943 | 3,146 | 3,375 | 3,634 | 3,926 | 4,250 |
| | GRAD % | 10.5 | 10.8 | 11 | 11.8 | 12.6 | 13.6 | 14.7 | 16 |
| -20 | MINS | 5.9 | 5.7 | 5.6 | 5.3 | 4.9 | 4.6 | 4.3 | 4.0 |
| | NM | 22 | 21 | 21 | 20 | 18 | 17 | 16 | 14 |
| | LB | 311 | 303 | 298 | 280 | 262 | 244 | 226 | 210 |
| | FPM | 2,871 | 2,953 | 3,011 | 3,219 | 3,452 | 3,717 | 4,016 | 4,347 |
| | GRAD % | 10.5 | 10.8 | 11 | 11.8 | 12.6 | 13.6 | 14.7 | 16 |
| -10 | MINS | 6.2 | 6.0 | 5.9 | 5.6 | 5.2 | 4.8 | 4.5 | 4.2 |
| | NM | 24 | 23 | 23 | 21 | 20 | 18 | 17 | 16 |
| | LB | 319 | 311 | 305 | 286 | 268 | 250 | 232 | 215 |
| | FPM | 2,862 | 2,944 | 3,002 | 3,210 | 3,444 | 3,709 | 4,008 | 4,338 |
| | GRAD % | 10.2 | 10.5 | 10.7 | 11.5 | 12.3 | 13.3 | 14.4 | 15.6 |
| 0 | MINS | 7.6 | 7.4 | 7.3 | 6.8 | 6.4 | 5.9 | 5.5 | 5.1 |
| | NM | 30 | 29 | 29 | 27 | 25 | 23 | 21 | 20 |
| | LB | 349 | 339 | 333 | 312 | 291 | 271 | 251 | 232 |
| | FPM | 2,327 | 2,396 | 2,444 | 2,620 | 2,817 | 3,041 | 3,294 | 3,569 |
| | GRAD % | 8.1 | 8.4 | 8.5 | 9.2 | 9.8 | 10.6 | 11.5 | 12.5 |
| 10 | MINS | 10.2 | 9.9 | 9.7 | 9.0 | 8.4 | 7.8 | 7.2 | 6.6 |
| | NM | 41 | 40 | 39 | 37 | 34 | 32 | 29 | 27 |
| | LB | 404 | 392 | 384 | 359 | 335 | 310 | 287 | 265 |
| | FPM | 1,630 | 1,682 | 1,719 | 1,852 | 2,002 | 2,172 | 2,364 | 2,568 |
| | GRAD % | 5.6 | 5.7 | 5.9 | 6.3 | 6.8 | 7.4 | 8.1 | 8.8 |
| 20 | MINS | 14.6 | 14.2 | 13.9 | 12.9 | 11.9 | 11.0 | 10.1 | 9.3 |
| | NM | 62 | 60 | 58 | 54 | 50 | 46 | 42 | 39 |
| | LB | 505 | 489 | 478 | 445 | 412 | 380 | 350 | 322 |
| | FPM | 975 | 1,012 | 1,038 | 1,131 | 1,237 | 1,356 | 1,489 | 1,626 |
| | GRAD % | 3.3 | 3.4 | 3.5 | 3.8 | 4.1 | 4.5 | 5 | 5.4 |
| 30 | MINS | 25.3 | 24.3 | 23.6 | 21.6 | 19.7 | 17.9 | 16.3 | 14.9 |
| | NM | 111 | 106 | 103 | 94 | 86 | 78 | 71 | 65 |
| | LB | 743 | 714 | 696 | 638 | 583 | 532 | 484 | 443 |
| | FPM | 391 | 414 | 430 | 488 | 553 | 626 | 706 | 783 |
| | GRAD % | 1.3 | 1.4 | 1.4 | 1.6 | 1.8 | 2.1 | 2.3 | 2.6 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Cruise Climb, AEO, IPS ON

| Pressure Altitude: 23,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -25°C | | | | MAX: ISA +30°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| 40 | MINS | - | - | - | - | - | - | 53.9 | 45.0 |
| | NM | - | - | - | - | - | - | 254 | 210 |
| | LB | - | - | - | - | - | - | 1,278 | 1,078 |
| | FPM | - | - | - | - | - | - | 21 | 44 |
| | GRAD % | - | - | - | - | - | - | 0.1 | 0.1 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



8 Pressure Altitude: 25,000 Feet

| Associated Conditions | | | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | | | |
| Notes | | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | |

| Pressure Altitude: 25,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -23°C | | | | MAX: ISA +29°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -30 | MINS | 6.7 | 6.5 | 6.4 | 6.0 | 5.6 | 5.2 | 4.9 | 4.5 |
| | NM | 25 | 25 | 24 | 22 | 21 | 19 | 18 | 16 |
| | LB | 336 | 327 | 322 | 302 | 282 | 263 | 244 | 226 |
| | FPM | 2,512 | 2,585 | 2,637 | 2,823 | 3,032 | 3,269 | 3,537 | 3,831 |
| | GRAD % | 9.1 | 9.4 | 9.5 | 10.2 | 11 | 11.9 | 12.8 | 13.9 |
| -20 | MINS | 6.6 | 6.4 | 6.3 | 5.9 | 5.6 | 5.2 | 4.8 | 4.4 |
| | NM | 25 | 25 | 24 | 23 | 21 | 20 | 18 | 17 |
| | LB | 340 | 331 | 325 | 305 | 285 | 266 | 247 | 228 |
| | FPM | 2,572 | 2,647 | 2,700 | 2,890 | 3,104 | 3,347 | 3,621 | 3,922 |
| | GRAD % | 9.1 | 9.4 | 9.5 | 10.2 | 11 | 11.9 | 12.8 | 13.9 |
| -10 | MINS | 6.9 | 6.7 | 6.6 | 6.2 | 5.8 | 5.4 | 5.0 | 4.6 |
| | NM | 27 | 26 | 26 | 24 | 23 | 21 | 19 | 18 |
| | LB | 348 | 339 | 332 | 312 | 292 | 272 | 252 | 233 |
| | FPM | 2,614 | 2,690 | 2,744 | 2,938 | 3,156 | 3,403 | 3,682 | 3,987 |
| | GRAD % | 9 | 9.3 | 9.5 | 10.2 | 10.9 | 11.8 | 12.8 | 13.8 |
| 0 | MINS | 8.5 | 8.3 | 8.1 | 7.6 | 7.1 | 6.6 | 6.1 | 5.7 |
| | NM | 35 | 34 | 33 | 31 | 29 | 26 | 24 | 22 |
| | LB | 380 | 370 | 363 | 340 | 317 | 295 | 273 | 253 |
| | FPM | 2,152 | 2,217 | 2,263 | 2,429 | 2,615 | 2,827 | 3,066 | 3,324 |
| | GRAD % | 7.3 | 7.5 | 7.6 | 8.2 | 8.8 | 9.6 | 10.4 | 11.3 |
| 10 | MINS | 11.4 | 11.1 | 10.9 | 10.2 | 9.4 | 8.8 | 8.1 | 7.5 |
| | NM | 48 | 46 | 45 | 42 | 39 | 36 | 33 | 31 |
| | LB | 443 | 430 | 422 | 394 | 366 | 340 | 314 | 290 |
| | FPM | 1,500 | 1,550 | 1,585 | 1,711 | 1,853 | 2,014 | 2,195 | 2,387 |
| | GRAD % | 5 | 5.1 | 5.2 | 5.7 | 6.1 | 6.7 | 7.3 | 7.9 |
| 20 | MINS | 16.9 | 16.3 | 16.0 | 14.8 | 13.7 | 12.6 | 11.6 | 10.6 |
| | NM | 73 | 70 | 69 | 64 | 59 | 54 | 50 | 45 |
| | LB | 564 | 545 | 533 | 495 | 458 | 422 | 388 | 357 |
| | FPM | 832 | 865 | 889 | 975 | 1,071 | 1,180 | 1,302 | 1,425 |
| | GRAD % | 2.7 | 2.8 | 2.9 | 3.2 | 3.5 | 3.8 | 4.2 | 4.6 |
| 30 | MINS | 31.4 | 30.0 | 29.2 | 26.4 | 23.9 | 21.6 | 19.5 | 17.8 |
| | NM | 142 | 136 | 132 | 119 | 107 | 97 | 87 | 79 |
| | LB | 884 | 846 | 823 | 748 | 679 | 615 | 558 | 509 |
| | FPM | 266 | 286 | 300 | 351 | 408 | 473 | 541 | 606 |
| | GRAD % | 0.8 | 0.9 | 1 | 1.1 | 1.3 | 1.5 | 1.7 | 1.9 |


9 Pressure Altitude: 27,000 Feet

| Associated Conditions | | | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | | | |
| Notes | | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | |

| Pressure Altitude: 27,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -21°C | | | | MAX: ISA +29°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| -30 | MINS | 7.6 | 7.4 | 7.2 | 6.8 | 6.3 | 5.9 | 5.5 | 5.0 |
| | NM | 29 | 28 | 28 | 26 | 24 | 22 | 21 | 19 |
| | LB | 365 | 356 | 349 | 328 | 306 | 285 | 265 | 245 |
| | FPM | 2,223 | 2,290 | 2,337 | 2,506 | 2,697 | 2,913 | 3,156 | 3,421 |
| | GRAD % | 7.8 | 8 | 8.2 | 8.8 | 9.4 | 10.2 | 11.1 | 12 |
| -20 | MINS | 7.4 | 7.2 | 7.1 | 6.7 | 6.2 | 5.8 | 5.4 | 5.0 |
| | NM | 29 | 29 | 28 | 26 | 24 | 23 | 21 | 19 |
| | LB | 369 | 359 | 353 | 331 | 309 | 288 | 267 | 247 |
| | FPM | 2,276 | 2,345 | 2,393 | 2,566 | 2,761 | 2,982 | 3,232 | 3,503 |
| | GRAD % | 7.8 | 8 | 8.2 | 8.8 | 9.4 | 10.2 | 11.1 | 12 |
| -10 | MINS | 7.7 | 7.5 | 7.4 | 6.9 | 6.5 | 6.0 | 5.6 | 5.2 |
| | NM | 31 | 30 | 30 | 28 | 26 | 24 | 22 | 20 |
| | LB | 378 | 367 | 361 | 338 | 316 | 294 | 273 | 253 |
| | FPM | 2,330 | 2,400 | 2,449 | 2,627 | 2,827 | 3,053 | 3,308 | 3,585 |
| | GRAD % | 7.8 | 8 | 8.2 | 8.8 | 9.5 | 10.2 | 11.1 | 12 |
| 0 | MINS | 9.5 | 9.2 | 9.0 | 8.5 | 7.9 | 7.3 | 6.8 | 6.3 |
| | NM | 39 | 38 | 37 | 35 | 33 | 30 | 28 | 26 |
| | LB | 413 | 401 | 394 | 369 | 344 | 320 | 296 | 274 |
| | FPM | 2,018 | 2,081 | 2,125 | 2,284 | 2,462 | 2,665 | 2,893 | 3,139 |
| | GRAD % | 6.6 | 6.8 | 6.9 | 7.5 | 8 | 8.7 | 9.5 | 10.3 |
| 10 | MINS | 12.8 | 12.4 | 12.2 | 11.4 | 10.6 | 9.8 | 9.0 | 8.3 |
| | NM | 55 | 53 | 52 | 49 | 45 | 42 | 38 | 35 |
| | LB | 484 | 470 | 460 | 430 | 400 | 370 | 342 | 315 |
| | FPM | 1,355 | 1,401 | 1,434 | 1,553 | 1,686 | 1,837 | 2,007 | 2,185 |
| | GRAD % | 4.3 | 4.5 | 4.6 | 5 | 5.4 | 5.9 | 6.4 | 7 |
| 20 | MINS | 19.4 | 18.8 | 18.4 | 17.0 | 15.7 | 14.4 | 13.2 | 12.1 |
| | NM | 86 | 83 | 82 | 75 | 69 | 63 | 58 | 53 |
| | LB | 629 | 608 | 594 | 550 | 508 | 468 | 429 | 395 |
| | FPM | 713 | 745 | 767 | 846 | 936 | 1,037 | 1,149 | 1,261 |
| | GRAD % | 2.2 | 2.3 | 2.4 | 2.7 | 2.9 | 3.2 | 3.6 | 3.9 |
| 30 | MINS | 40.7 | 38.6 | 37.2 | 33.2 | 29.6 | 26.4 | 23.7 | 21.5 |
| | NM | 192 | 182 | 175 | 155 | 138 | 123 | 110 | 99 |
| | LB | 1,086 | 1,033 | 999 | 895 | 803 | 721 | 650 | 591 |
| | FPM | 169 | 186 | 199 | 244 | 295 | 354 | 412 | 468 |
| | GRAD % | 0.5 | 0.6 | 0.6 | 0.8 | 0.9 | 1.1 | 1.3 | 1.4 |



10 Pressure Altitude: 29,000 Feet

| Associated Conditions | | | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | | | |
| Notes | | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | |

| Pressure Altitude: 29,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -18°C | | | | MAX: ISA +28°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -20 | MINS | 8.4 | 8.2 | 8.0 | 7.5 | 7.0 | 6.5 | 6.0 | 5.6 |
| | NM | 34 | 33 | 32 | 30 | 28 | 26 | 24 | 22 |
| | LB | 400 | 389 | 382 | 358 | 335 | 312 | 289 | 267 |
| | FPM | 1,980 | 2,042 | 2,085 | 2,242 | 2,418 | 2,617 | 2,841 | 3,083 |
| | GRAD % | 6.5 | 6.7 | 6.9 | 7.4 | 8 | 8.7 | 9.4 | 10.2 |
| -10 | MINS | 8.6 | 8.4 | 8.3 | 7.7 | 7.2 | 6.7 | 6.2 | 5.8 |
| | NM | 36 | 35 | 34 | 32 | 30 | 27 | 25 | 23 |
| | LB | 409 | 398 | 390 | 366 | 342 | 318 | 295 | 273 |
| | FPM | 2,030 | 2,093 | 2,138 | 2,298 | 2,478 | 2,683 | 2,912 | 3,160 |
| | GRAD % | 6.6 | 6.8 | 6.9 | 7.4 | 8 | 8.7 | 9.4 | 10.2 |
| 0 | MINS | 10.5 | 10.2 | 10.0 | 9.4 | 8.7 | 8.1 | 7.5 | 6.9 |
| | NM | 45 | 43 | 43 | 40 | 37 | 34 | 32 | 29 |
| | LB | 446 | 434 | 425 | 398 | 371 | 345 | 319 | 295 |
| | FPM | 1,852 | 1,911 | 1,953 | 2,103 | 2,271 | 2,463 | 2,677 | 2,907 |
| | GRAD % | 5.8 | 6 | 6.2 | 6.6 | 7.2 | 7.8 | 8.5 | 9.2 |
| 10 | MINS | 14.4 | 14.0 | 13.7 | 12.7 | 11.8 | 10.9 | 10.1 | 9.3 |
| | NM | 63 | 61 | 60 | 56 | 52 | 48 | 44 | 40 |
| | LB | 528 | 512 | 502 | 468 | 435 | 402 | 371 | 342 |
| | FPM | 1,203 | 1,246 | 1,277 | 1,387 | 1,512 | 1,653 | 1,810 | 1,973 |
| | GRAD % | 3.7 | 3.8 | 3.9 | 4.3 | 4.7 | 5.1 | 5.6 | 6.1 |
| 20 | MINS | 22.5 | 21.7 | 21.2 | 19.6 | 18.0 | 16.5 | 15.1 | 13.8 |
| | NM | 103 | 99 | 97 | 89 | 82 | 75 | 68 | 62 |
| | LB | 703 | 679 | 663 | 612 | 564 | 518 | 474 | 436 |
| | FPM | 595 | 623 | 644 | 717 | 800 | 894 | 995 | 1,096 |
| | GRAD % | 1.8 | 1.9 | 1.9 | 2.2 | 2.4 | 2.7 | 3 | 3.3 |
| 30 | MINS | 58.2 | 53.9 | 51.3 | 44.0 | 38.2 | 33.4 | 29.6 | 26.6 |
| | NM | 288 | 266 | 253 | 215 | 185 | 161 | 142 | 128 |
| | LB | 1,451 | 1,352 | 1,293 | 1,122 | 983 | 867 | 773 | 698 |
| | FPM | 75 | 90 | 100 | 138 | 183 | 234 | 281 | 327 |
| | GRAD % | 0.2 | 0.3 | 0.3 | 0.4 | 0.5 | 0.7 | 0.8 | 1 |



11 Pressure Altitude: 31,000 Feet

| Associated Conditions | | | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | | | |
| Notes | | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | |

| Pressure Altitude: 31,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -16°C | | | | MAX: ISA +27°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -20 | MINS | 9.5 | 9.2 | 9.0 | 8.5 | 7.9 | 7.3 | 6.8 | 6.3 |
| | NM | 40 | 38 | 38 | 35 | 33 | 30 | 28 | 26 |
| | LB | 433 | 421 | 413 | 387 | 362 | 336 | 312 | 289 |
| | FPM | 1,700 | 1,755 | 1,794 | 1,935 | 2,093 | 2,272 | 2,473 | 2,687 |
| | GRAD % | 5.4 | 5.6 | 5.7 | 6.2 | 6.7 | 7.3 | 7.9 | 8.6 |
| -10 | MINS | 9.7 | 9.4 | 9.3 | 8.7 | 8.1 | 7.5 | 7.0 | 6.4 |
| | NM | 41 | 40 | 39 | 37 | 34 | 32 | 29 | 27 |
| | LB | 442 | 430 | 422 | 395 | 369 | 343 | 318 | 294 |
| | FPM | 1,741 | 1,797 | 1,837 | 1,981 | 2,143 | 2,327 | 2,531 | 2,750 |
| | GRAD % | 5.4 | 5.6 | 5.7 | 6.2 | 6.7 | 7.3 | 7.9 | 8.6 |
| 0 | MINS | 11.6 | 11.3 | 11.1 | 10.4 | 9.6 | 9.0 | 8.3 | 7.6 |
| | NM | 51 | 49 | 48 | 45 | 42 | 39 | 36 | 33 |
| | LB | 481 | 467 | 458 | 429 | 400 | 371 | 343 | 317 |
| | FPM | 1,745 | 1,802 | 1,842 | 1,987 | 2,150 | 2,335 | 2,540 | 2,760 |
| | GRAD % | 5.3 | 5.5 | 5.6 | 6.1 | 6.6 | 7.1 | 7.8 | 8.4 |
| 10 | MINS | 16.1 | 15.6 | 15.3 | 14.2 | 13.2 | 12.2 | 11.2 | 10.3 |
| | NM | 73 | 70 | 69 | 64 | 59 | 55 | 50 | 46 |
| | LB | 574 | 557 | 546 | 508 | 471 | 436 | 402 | 371 |
| | FPM | 1,117 | 1,159 | 1,189 | 1,295 | 1,415 | 1,551 | 1,701 | 1,857 |
| | GRAD % | 3.3 | 3.5 | 3.5 | 3.9 | 4.2 | 4.6 | 5.1 | 5.5 |
| 20 | MINS | 26.1 | 25.2 | 24.5 | 22.5 | 20.6 | 18.8 | 17.2 | 15.7 |
| | NM | 123 | 118 | 115 | 106 | 96 | 88 | 80 | 73 |
| | LB | 786 | 758 | 740 | 681 | 625 | 572 | 523 | 480 |
| | FPM | 522 | 549 | 569 | 639 | 718 | 808 | 903 | 997 |
| | GRAD % | 1.5 | 1.6 | 1.7 | 1.9 | 2.1 | 2.4 | 2.6 | 2.9 |
| 30 | MINS | 94.1 | 83.5 | 77.5 | 62.1 | 51.3 | 43.3 | 37.8 | 33.6 |
| | NM | 494 | 435 | 402 | 318 | 260 | 218 | 189 | 167 |
| | LB | 2,179 | 1,953 | 1,823 | 1,488 | 1,249 | 1,067 | 939 | 839 |
| | FPM | 41 | 50 | 58 | 89 | 127 | 173 | 211 | 251 |
| | GRAD % | 0.1 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 |



12 Pressure Altitude: 33,000 Feet

| Associated Conditions | | | | | | | | | | | | | | |
|---|--|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|
| Thrust: MCT | | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | |
| Notes | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | |

| Pressure Altitude: 33,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -13°C | | | | MAX: ISA +26°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -20 | MINS | 10.8 | 10.5 | 10.3 | 9.6 | 8.9 | 8.3 | 7.7 | 7.1 |
| | NM | 46 | 45 | 44 | 41 | 38 | 35 | 33 | 30 |
| | LB | 469 | 456 | 447 | 419 | 391 | 363 | 336 | 311 |
| | FPM | 1,430 | 1,479 | 1,514 | 1,639 | 1,780 | 1,940 | 2,118 | 2,305 |
| | GRAD % | 4.4 | 4.6 | 4.7 | 5.1 | 5.5 | 6 | 6.5 | 7.1 |
| -10 | MINS | 11.0 | 10.7 | 10.4 | 9.8 | 9.1 | 8.4 | 7.8 | 7.2 |
| | NM | 48 | 47 | 46 | 43 | 40 | 37 | 34 | 31 |
| | LB | 478 | 465 | 456 | 427 | 398 | 370 | 343 | 317 |
| | FPM | 1,465 | 1,515 | 1,550 | 1,679 | 1,823 | 1,987 | 2,168 | 2,360 |
| | GRAD % | 4.4 | 4.6 | 4.7 | 5.1 | 5.5 | 6 | 6.5 | 7.1 |
| 0 | MINS | 12.9 | 12.5 | 12.2 | 11.4 | 10.6 | 9.9 | 9.1 | 8.4 |
| | NM | 57 | 56 | 55 | 51 | 47 | 44 | 40 | 37 |
| | LB | 518 | 503 | 493 | 461 | 429 | 398 | 368 | 340 |
| | FPM | 1,498 | 1,550 | 1,586 | 1,717 | 1,865 | 2,032 | 2,216 | 2,412 |
| | GRAD % | 4.4 | 4.6 | 4.7 | 5.1 | 5.5 | 6 | 6.5 | 7.1 |
| 10 | MINS | 18.0 | 17.4 | 17.1 | 15.8 | 14.7 | 13.5 | 12.4 | 11.5 |
| | NM | 83 | 81 | 79 | 73 | 68 | 62 | 57 | 52 |
| | LB | 623 | 604 | 591 | 550 | 510 | 471 | 434 | 400 |
| | FPM | 1,005 | 1,045 | 1,073 | 1,174 | 1,288 | 1,417 | 1,558 | 1,703 |
| | GRAD % | 2.9 | 3 | 3.1 | 3.4 | 3.7 | 4.1 | 4.5 | 4.9 |
| 20 | MINS | 30.3 | 29.1 | 28.4 | 25.9 | 23.6 | 21.5 | 19.5 | 17.9 |
| | NM | 147 | 141 | 138 | 125 | 114 | 103 | 94 | 85 |
| | LB | 880 | 847 | 825 | 756 | 692 | 632 | 576 | 528 |
| | FPM | 427 | 453 | 471 | 537 | 611 | 695 | 782 | 868 |
| | GRAD % | 1.2 | 1.3 | 1.3 | 1.5 | 1.7 | 2 | 2.2 | 2.5 |
| 30 | MINS | - | - | - | - | 74.4 | 59.0 | 50.4 | 43.8 |
| | NM | - | - | - | - | 397 | 311 | 263 | 228 |
| | LB | - | - | - | - | 1,698 | 1,373 | 1,183 | 1,037 |
| | FPM | - | - | - | - | 44 | 75 | 102 | 134 |
| | GRAD % | - | - | - | - | 0.1 | 0.2 | 0.3 | 0.4 |



13 Pressure Altitude: 35,000 Feet

| Associated Conditions | | | | | | | | | |
|---|--|---|--|--------------------|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | Gear and Flaps: UP | | | | | |
| Notes | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | |

| Pressure Altitude: 35,000 Feet | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -10°C | | | | MAX: ISA +26°C | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -20 | MINS | 12.3 | 12.0 | 11.7 | 10.9 | 10.2 | 9.4 | 8.7 |
| | NM | 55 | 53 | 52 | 48 | 45 | 41 | 38 |
| | LB | 508 | 494 | 484 | 453 | 422 | 392 | 363 |
| | FPM | 1,178 | 1,222 | 1,252 | 1,363 | 1,488 | 1,630 | 1,789 |
| | GRAD % | 3.5 | 3.7 | 3.8 | 4.1 | 4.5 | 4.9 | 5.4 |
| -10 | MINS | 12.5 | 12.1 | 11.9 | 11.1 | 10.3 | 9.6 | 8.8 |
| | NM | 57 | 55 | 54 | 50 | 46 | 43 | 39 |
| | LB | 518 | 504 | 494 | 462 | 430 | 399 | 370 |
| | FPM | 1,209 | 1,254 | 1,285 | 1,399 | 1,527 | 1,672 | 1,835 |
| | GRAD % | 3.5 | 3.7 | 3.8 | 4.1 | 4.5 | 4.9 | 5.4 |
| 0 | MINS | 14.3 | 13.9 | 13.6 | 12.7 | 11.8 | 10.9 | 10.1 |
| | NM | 66 | 64 | 63 | 58 | 54 | 50 | 46 |
| | LB | 558 | 542 | 531 | 496 | 461 | 428 | 395 |
| | FPM | 1,235 | 1,280 | 1,312 | 1,428 | 1,559 | 1,707 | 1,873 |
| | GRAD % | 3.5 | 3.7 | 3.8 | 4.1 | 4.5 | 4.9 | 5.4 |
| 10 | MINS | 20.2 | 19.5 | 19.1 | 17.7 | 16.4 | 15.1 | 13.8 |
| | NM | 96 | 93 | 91 | 84 | 77 | 71 | 65 |
| | LB | 677 | 655 | 641 | 595 | 551 | 508 | 468 |
| | FPM | 838 | 874 | 899 | 991 | 1,095 | 1,213 | 1,343 |
| | GRAD % | 2.3 | 2.4 | 2.5 | 2.8 | 3.1 | 3.4 | 4.1 |
| 20 | MINS | 36.1 | 34.5 | 33.5 | 30.4 | 27.5 | 24.8 | 22.5 |
| | NM | 182 | 174 | 169 | 152 | 137 | 123 | 111 |
| | LB | 1,002 | 961 | 934 | 851 | 774 | 702 | 638 |
| | FPM | 282 | 304 | 320 | 378 | 443 | 517 | 594 |
| | GRAD % | 0.8 | 0.8 | 0.9 | 1 | 1.2 | 1.4 | 1.6 |



14 Pressure Altitude: 37,000 Feet

| Associated Conditions | | | | | | | | | |
|---|--|---|--|--------------------|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | Gear and Flaps: UP | | | | | |
| Notes | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | |

| Pressure Altitude: 37,000 Feet | | | | | | | | |
|--------------------------------|--------|---------------|--------|--------|--------|----------------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -8°C | | | | MAX: ISA +23°C | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -10 | MINS | 14.2 | 13.8 | 13.5 | 12.6 | 11.7 | 10.8 | 10.0 |
| | NM | 66 | 64 | 63 | 58 | 54 | 50 | 46 |
| | LB | 561 | 544 | 533 | 498 | 463 | 429 | 397 |
| | FPM | 1,168 | 1,225 | 1,266 | 1,403 | 1,538 | 1,691 | 1,867 |
| | GRAD % | 3.4 | 3.6 | 3.7 | 4.1 | 4.5 | 5 | 5.5 |
| 0 | MINS | 16.0 | 15.6 | 15.2 | 14.2 | 13.1 | 12.2 | 11.2 |
| | NM | 76 | 73 | 72 | 67 | 62 | 57 | 52 |
| | LB | 601 | 583 | 571 | 532 | 495 | 458 | 423 |
| | FPM | 1,198 | 1,257 | 1,298 | 1,437 | 1,575 | 1,732 | 1,912 |
| | GRAD % | 3.4 | 3.6 | 3.7 | 4.1 | 4.5 | 5 | 5.5 |
| 10 | MINS | 22.6 | 21.8 | 21.3 | 19.7 | 18.2 | 16.7 | 15.3 |
| | NM | 110 | 106 | 104 | 96 | 88 | 81 | 74 |
| | LB | 732 | 708 | 692 | 641 | 593 | 546 | 501 |
| | FPM | 827 | 877 | 912 | 1,027 | 1,140 | 1,269 | 1,417 |
| | GRAD % | 2.3 | 2.5 | 2.6 | 2.9 | 3.2 | 3.6 | 4 |
| 20 | MINS | 43.4 | 41.2 | 39.8 | 35.6 | 32.0 | 28.6 | 25.8 |
| | NM | 226 | 214 | 206 | 184 | 164 | 146 | 131 |
| | LB | 1,147 | 1,092 | 1,059 | 955 | 862 | 778 | 704 |
| | FPM | 223 | 258 | 282 | 350 | 420 | 501 | 593 |
| | GRAD % | 0.6 | 0.7 | 0.8 | 1 | 1.2 | 1.4 | 1.6 |



15 Pressure Altitude: 39,000 Feet

| Associated Conditions | | | | | | | | | |
|---|--|---|--|--------------------|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | Gear and Flaps: UP | | | | | |
| Notes | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | |

| Pressure Altitude: 39,000 Feet | | | | | | | | | |
|--------------------------------|--------|---------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -8°C | | | | MAX: ISA +23°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| -10 | MINS | 16.1 | 15.6 | 15.2 | 14.1 | 13.1 | 12.1 | 11.1 | 10.2 |
| | NM | 77 | 74 | 73 | 67 | 62 | 57 | 52 | 48 |
| | LB | 603 | 584 | 572 | 532 | 494 | 458 | 422 | 389 |
| | FPM | 930 | 985 | 1,024 | 1,155 | 1,303 | 1,448 | 1,606 | 1,789 |
| | GRAD % | 2.7 | 2.9 | 3 | 3.4 | 3.8 | 4.3 | 4.7 | 5.3 |
| 0 | MINS | 17.9 | 17.3 | 16.9 | 15.7 | 14.5 | 13.4 | 12.3 | 11.3 |
| | NM | 86 | 83 | 81 | 75 | 69 | 64 | 59 | 54 |
| | LB | 644 | 623 | 610 | 567 | 526 | 487 | 449 | 413 |
| | FPM | 956 | 1,012 | 1,052 | 1,187 | 1,338 | 1,485 | 1,647 | 1,834 |
| | GRAD % | 2.7 | 2.9 | 3 | 3.4 | 3.8 | 4.3 | 4.7 | 5.3 |
| 10 | MINS | 25.7 | 24.7 | 24.0 | 22.1 | 20.2 | 18.5 | 16.9 | 15.5 |
| | NM | 128 | 123 | 120 | 110 | 100 | 91 | 83 | 76 |
| | LB | 795 | 767 | 749 | 690 | 636 | 584 | 535 | 491 |
| | FPM | 487 | 532 | 564 | 670 | 790 | 899 | 1,020 | 1,160 |
| | GRAD % | 1.4 | 1.5 | 1.6 | 1.9 | 2.2 | 2.5 | 2.9 | 3.3 |
| 20 | MINS | - | - | - | 46.0 | 39.5 | 34.6 | 30.5 | 27.3 |
| | NM | - | - | - | 246 | 209 | 182 | 160 | 142 |
| | LB | - | - | - | 1,137 | 995 | 882 | 787 | 709 |
| | FPM | - | - | - | 61 | 133 | 191 | 261 | 343 |
| | GRAD % | - | - | - | 0.2 | 0.4 | 0.5 | 0.7 | 0.9 |



16 Pressure Altitude: 41,000 Feet

| Associated Conditions | | | |
|---|--|---|--------------------|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | Gear and Flaps: UP |
| Notes | | | |
| Grayed values for interpolation only. | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | |

| Pressure Altitude: 41,000 Feet | | | | | | | | |
|--------------------------------|--------|---------------|--------|--------|--------|----------------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -8°C | | | | MAX: ISA +23°C | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -10 | MINS | 18.6 | 17.9 | 17.5 | 16.1 | 14.8 | 13.6 | 12.4 |
| | NM | 91 | 87 | 85 | 78 | 71 | 65 | 60 |
| | LB | 653 | 631 | 617 | 572 | 529 | 488 | 450 |
| | FPM | 696 | 754 | 795 | 921 | 1,061 | 1,212 | 1,374 |
| | GRAD % | 2.1 | 2.2 | 2.3 | 2.7 | 3.1 | 3.6 | 4 |
| 0 | MINS | 20.4 | 19.6 | 19.1 | 17.6 | 16.2 | 14.9 | 13.7 |
| | NM | 100 | 97 | 94 | 86 | 79 | 72 | 66 |
| | LB | 695 | 672 | 656 | 608 | 562 | 518 | 477 |
| | FPM | 660 | 717 | 757 | 883 | 1,022 | 1,172 | 1,333 |
| | GRAD % | 1.9 | 2.1 | 2.2 | 2.5 | 2.9 | 3.4 | 3.8 |
| 10 | MINS | 32.5 | 30.6 | 29.5 | 26.3 | 23.6 | 21.4 | 19.4 |
| | NM | 168 | 158 | 152 | 134 | 120 | 108 | 98 |
| | LB | 919 | 874 | 847 | 767 | 698 | 636 | 580 |
| | FPM | 149 | 194 | 222 | 317 | 420 | 530 | 644 |
| | GRAD % | 0.4 | 0.5 | 0.6 | 0.9 | 1.2 | 1.5 | 1.8 |



17 Pressure Altitude: 43,000 Feet

| Associated Conditions | | | | | | | | | |
|---|--|--|--|--------------------|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | Gear and Flaps: UP | | | | | |
| Notes | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | |

| Pressure Altitude: 43,000 Feet | | | | | | | | | |
|--------------------------------|--------|---------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -8°C | | | | MAX: ISA +23°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -10 | MINS | 22.1 | 21.1 | 20.4 | 18.6 | 16.9 | 15.4 | 14.0 | 12.8 |
| | NM | 110 | 105 | 102 | 92 | 83 | 76 | 69 | 62 |
| | LB | 718 | 691 | 673 | 618 | 569 | 523 | 480 | 440 |
| | FPM | 471 | 523 | 559 | 691 | 832 | 978 | 1,136 | 1,315 |
| | GRAD % | 1.4 | 1.5 | 1.6 | 2 | 2.5 | 2.9 | 3.3 | 3.9 |
| 0 | MINS | 24.6 | 23.4 | 22.7 | 20.5 | 18.6 | 16.9 | 15.4 | 14.1 |
| | NM | 125 | 118 | 114 | 103 | 93 | 84 | 76 | 69 |
| | LB | 773 | 742 | 722 | 661 | 606 | 556 | 510 | 467 |
| | FPM | 323 | 372 | 406 | 531 | 664 | 801 | 947 | 1,114 |
| | GRAD % | 0.9 | 1.1 | 1.2 | 1.5 | 1.9 | 2.3 | 2.7 | 3.2 |
| 10 | MINS | - | - | - | - | 32.6 | 27.4 | 23.9 | 21.2 |
| | NM | - | - | - | - | 173 | 143 | 124 | 110 |
| | LB | - | - | - | - | 839 | 731 | 651 | 587 |
| | FPM | - | - | - | - | 82 | 176 | 277 | 389 |
| | GRAD % | - | - | - | - | 0.2 | 0.5 | 0.8 | 1.1 |



18 Pressure Altitude: 45,000 Feet

| Associated Conditions | | |
|---|---|--------------------|
| Thrust: MCT | Indicated Airspeed: 200 KIAS / 0.60 MACH | Gear and Flaps: UP |
| Notes | | |
| Grayed values for interpolation only. | | |
| Interpolation using data fields containing a '-' is prohibited. | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | |

| Pressure Altitude: 45,000 Feet | | | | | | | | | |
|--------------------------------|--------|---------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -8°C | | | | MAX: ISA +23°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| -10 | MINS | 27.8 | 26.0 | 25.0 | 22.1 | 19.7 | 17.7 | 16.0 | 14.5 |
| | NM | 142 | 133 | 127 | 112 | 99 | 89 | 80 | 72 |
| | LB | 816 | 776 | 751 | 679 | 618 | 563 | 514 | 469 |
| | FPM | 244 | 299 | 337 | 459 | 592 | 744 | 897 | 1,065 |
| | GRAD % | 0.7 | 0.9 | 1 | 1.4 | 1.7 | 2.2 | 2.6 | 3.1 |
| 0 | MINS | - | - | 33.4 | 27.0 | 23.2 | 20.4 | 18.2 | 16.4 |
| | NM | - | - | 176 | 140 | 119 | 104 | 92 | 83 |
| | LB | - | - | 895 | 766 | 680 | 612 | 555 | 505 |
| | FPM | - | - | 47 | 144 | 257 | 389 | 517 | 658 |
| | GRAD % | - | - | 0.1 | 0.4 | 0.7 | 1.1 | 1.5 | 1.9 |



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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Cruise Climb, AEO, NAI ON

1 Pressure Altitude: 5,000 Feet

| Associated Conditions | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | |
| Notes | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | |

| ISA DEV | Pressure Altitude: 5,000 Feet | | | | | | | | |
|---------|-------------------------------|--------|----------------|--------|--------|---------------|--------|--------|-------|
| | TEMP | | MIN: ISA -59°C | | | MAX: ISA +4°C | | | |
| TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 | |
| -60 | MINS | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.0 | 0.9 |
| | NM | 4 | 4 | 3 | 3 | 3 | 3 | 2 | 2 |
| | LB | 69 | 67 | 66 | 62 | 58 | 54 | 50 | 47 |
| | FPM | 3,811 | 3,913 | 3,983 | 4,238 | 4,524 | 4,849 | 5,216 | 5,631 |
| | GRAD % | 20.2 | 20.7 | 21.1 | 22.5 | 24.1 | 26 | 28.1 | 30.5 |
| -50 | MINS | 1.3 | 1.3 | 1.3 | 1.2 | 1.1 | 1.0 | 1.0 | 0.9 |
| | NM | 4 | 4 | 3 | 3 | 3 | 3 | 2 | 2 |
| | LB | 69 | 67 | 66 | 62 | 58 | 54 | 51 | 47 |
| | FPM | 3,897 | 4,001 | 4,073 | 4,333 | 4,626 | 4,958 | 5,333 | 5,758 |
| | GRAD % | 20.2 | 20.7 | 21.1 | 22.5 | 24.1 | 26 | 28.1 | 30.5 |
| -40 | MINS | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.0 | 1.0 | 0.9 |
| | NM | 4 | 4 | 3 | 3 | 3 | 3 | 2 | 2 |
| | LB | 69 | 68 | 66 | 62 | 59 | 55 | 51 | 47 |
| | FPM | 3,983 | 4,089 | 4,163 | 4,429 | 4,728 | 5,068 | 5,451 | 5,885 |
| | GRAD % | 20.2 | 20.7 | 21.1 | 22.5 | 24.2 | 26 | 28.1 | 30.5 |
| -30 | MINS | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.0 | 0.9 | 0.9 |
| | NM | 4 | 4 | 3 | 3 | 3 | 3 | 2 | 2 |
| | LB | 70 | 68 | 67 | 63 | 59 | 55 | 51 | 47 |
| | FPM | 4,065 | 4,174 | 4,249 | 4,521 | 4,826 | 5,173 | 5,564 | 6,006 |
| | GRAD % | 20.2 | 20.7 | 21.1 | 22.5 | 24.1 | 26 | 28.1 | 30.5 |
| -20 | MINS | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.0 | 0.9 | 0.8 |
| | NM | 4 | 4 | 3 | 3 | 3 | 3 | 2 | 2 |
| | LB | 70 | 69 | 67 | 63 | 59 | 55 | 52 | 48 |
| | FPM | 4,147 | 4,257 | 4,334 | 4,611 | 4,923 | 5,276 | 5,675 | 6,127 |
| | GRAD % | 20.2 | 20.7 | 21.1 | 22.5 | 24.2 | 26 | 28.1 | 30.5 |
| -10 | MINS | 1.2 | 1.2 | 1.2 | 1.1 | 1.0 | 1.0 | 0.9 | 0.8 |
| | NM | 4 | 4 | 3 | 3 | 3 | 3 | 2 | 2 |
| | LB | 71 | 69 | 68 | 64 | 60 | 56 | 52 | 48 |
| | FPM | 4,223 | 4,336 | 4,414 | 4,696 | 5,013 | 5,373 | 5,779 | 6,239 |
| | GRAD % | 20.2 | 20.7 | 21.1 | 22.5 | 24.1 | 26 | 28.1 | 30.5 |
| 0 | MINS | 1.3 | 1.3 | 1.3 | 1.2 | 1.1 | 1.0 | 1.0 | 0.9 |
| | NM | 4 | 4 | 4 | 4 | 3 | 3 | 3 | 2 |
| | LB | 73 | 72 | 70 | 66 | 62 | 58 | 54 | 50 |
| | FPM | 3,744 | 3,846 | 3,916 | 4,170 | 4,454 | 4,777 | 5,143 | 5,554 |
| | GRAD % | 17.5 | 18 | 18.3 | 19.5 | 20.9 | 22.5 | 24.3 | 26.4 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Cruise Climb, AEO, NAI ON

| Pressure Altitude: 5,000 Feet | | | | | | | | | |
|-------------------------------|--------|----------------|--------|--------|--------|---------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -59°C | | | | MAX: ISA +4°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| 10 | MINS | 1.6 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 | 1.2 | 1.1 |
| | NM | 5 | 5 | 5 | 5 | 4 | 4 | 4 | 3 |
| | LB | 80 | 78 | 76 | 72 | 67 | 63 | 58 | 54 |
| | FPM | 3,055 | 3,142 | 3,201 | 3,412 | 3,650 | 3,919 | 4,226 | 4,566 |
| | GRAD % | 13.9 | 14.3 | 14.6 | 15.6 | 16.7 | 18 | 19.4 | 21.1 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



2 Pressure Altitude: 10,000 Feet

| Associated Conditions | | | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | | | |
| Notes | | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | |

| Pressure Altitude: 10,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -49°C | | | | MAX: ISA +14°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -50 | MINS | 2.6 | 2.5 | 2.4 | 2.3 | 2.2 | 2.0 | 1.9 | 1.7 |
| | NM | 8 | 7 | 7 | 7 | 6 | 6 | 5 | 5 |
| | LB | 133 | 129 | 127 | 120 | 112 | 105 | 97 | 90 |
| | FPM | 4,233 | 4,344 | 4,423 | 4,706 | 5,025 | 5,386 | 5,793 | 6,255 |
| | GRAD % | 20.4 | 21 | 21.4 | 22.8 | 24.5 | 26.3 | 28.5 | 31 |
| -40 | MINS | 2.5 | 2.4 | 2.4 | 2.2 | 2.1 | 2.0 | 1.8 | 1.7 |
| | NM | 8 | 7 | 7 | 7 | 6 | 6 | 5 | 5 |
| | LB | 134 | 130 | 128 | 120 | 113 | 105 | 98 | 91 |
| | FPM | 4,333 | 4,447 | 4,527 | 4,817 | 5,144 | 5,513 | 5,930 | 6,403 |
| | GRAD % | 20.4 | 21 | 21.4 | 22.8 | 24.5 | 26.4 | 28.5 | 31 |
| -30 | MINS | 2.5 | 2.4 | 2.4 | 2.2 | 2.1 | 1.9 | 1.8 | 1.7 |
| | NM | 8 | 7 | 7 | 7 | 6 | 6 | 5 | 5 |
| | LB | 135 | 131 | 129 | 121 | 114 | 106 | 99 | 91 |
| | FPM | 4,430 | 4,546 | 4,629 | 4,925 | 5,258 | 5,636 | 6,062 | 6,546 |
| | GRAD % | 20.5 | 21 | 21.4 | 22.9 | 24.5 | 26.4 | 28.5 | 31 |
| -20 | MINS | 2.4 | 2.4 | 2.3 | 2.2 | 2.0 | 1.9 | 1.8 | 1.6 |
| | NM | 8 | 7 | 7 | 7 | 6 | 6 | 5 | 5 |
| | LB | 136 | 132 | 130 | 122 | 114 | 107 | 99 | 92 |
| | FPM | 4,522 | 4,641 | 4,725 | 5,027 | 5,368 | 5,754 | 6,188 | 6,682 |
| | GRAD % | 20.5 | 21 | 21.4 | 22.9 | 24.5 | 26.4 | 28.5 | 31 |
| -10 | MINS | 2.4 | 2.3 | 2.3 | 2.2 | 2.0 | 1.9 | 1.8 | 1.6 |
| | NM | 8 | 8 | 7 | 7 | 6 | 6 | 5 | 5 |
| | LB | 137 | 134 | 131 | 123 | 116 | 108 | 100 | 93 |
| | FPM | 4,255 | 4,368 | 4,447 | 4,734 | 5,056 | 5,422 | 5,834 | 6,301 |
| | GRAD % | 18.8 | 19.3 | 19.7 | 21 | 22.5 | 24.3 | 26.2 | 28.5 |
| 0 | MINS | 2.7 | 2.6 | 2.6 | 2.4 | 2.3 | 2.1 | 2.0 | 1.8 |
| | NM | 9 | 9 | 9 | 8 | 7 | 7 | 6 | 6 |
| | LB | 144 | 140 | 137 | 129 | 121 | 113 | 105 | 97 |
| | FPM | 3,558 | 3,656 | 3,724 | 3,968 | 4,243 | 4,554 | 4,907 | 5,302 |
| | GRAD % | 15.4 | 15.8 | 16.1 | 17.2 | 18.4 | 19.8 | 21.4 | 23.2 |
| 10 | MINS | 3.3 | 3.2 | 3.2 | 3.0 | 2.8 | 2.6 | 2.4 | 2.2 |
| | NM | 12 | 11 | 11 | 10 | 10 | 9 | 8 | 7 |
| | LB | 157 | 153 | 150 | 141 | 132 | 123 | 114 | 105 |
| | FPM | 2,832 | 2,914 | 2,969 | 3,170 | 3,395 | 3,650 | 3,940 | 4,261 |
| | GRAD % | 11.9 | 12.3 | 12.5 | 13.4 | 14.4 | 15.5 | 16.7 | 18.1 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Cruise Climb, AEO, NAI ON

| Pressure Altitude: 10,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -49°C | | | | MAX: ISA +14°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| 20 | MINS | 4.2 | 4.1 | 4.0 | 3.7 | 3.5 | 3.2 | 3.0 | 2.8 |
| | NM | 15 | 15 | 14 | 13 | 12 | 12 | 11 | 10 |
| | LB | 178 | 173 | 170 | 159 | 148 | 138 | 127 | 118 |
| | FPM | 2,174 | 2,241 | 2,285 | 2,446 | 2,626 | 2,830 | 3,063 | 3,317 |
| | GRAD % | 9 | 9.3 | 9.4 | 10.1 | 10.9 | 11.7 | 12.7 | 13.8 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

PC24-A15-60-0547-00A-030A-A



3 Pressure Altitude: 15,000 Feet

| Associated Conditions | | | | | | | | | | | | | | |
|---|--|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|
| Thrust: MCT | | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | |
| Notes | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | |

| Pressure Altitude: 15,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -39°C | | | | MAX: ISA +24°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| -40 | MINS | 3.7 | 3.6 | 3.5 | 3.3 | 3.1 | 2.9 | 2.7 | 2.5 |
| | NM | 12 | 12 | 11 | 11 | 10 | 9 | 8 | 8 |
| | LB | 196 | 191 | 187 | 176 | 165 | 154 | 143 | 132 |
| | FPM | 4,029 | 4,137 | 4,213 | 4,487 | 4,795 | 5,144 | 5,538 | 5,984 |
| | GRAD % | 17.6 | 18.1 | 18.4 | 19.6 | 21.1 | 22.7 | 24.5 | 26.6 |
| -30 | MINS | 3.6 | 3.5 | 3.4 | 3.2 | 3.0 | 2.8 | 2.6 | 2.4 |
| | NM | 12 | 12 | 11 | 11 | 10 | 9 | 8 | 8 |
| | LB | 197 | 192 | 189 | 177 | 166 | 155 | 144 | 133 |
| | FPM | 4,123 | 4,233 | 4,311 | 4,591 | 4,907 | 5,264 | 5,667 | 6,123 |
| | GRAD % | 17.6 | 18.1 | 18.4 | 19.7 | 21.1 | 22.7 | 24.5 | 26.6 |
| -20 | MINS | 3.6 | 3.5 | 3.4 | 3.2 | 3.0 | 2.8 | 2.6 | 2.4 |
| | NM | 12 | 12 | 12 | 11 | 10 | 9 | 9 | 8 |
| | LB | 199 | 193 | 190 | 179 | 167 | 156 | 145 | 134 |
| | FPM | 4,057 | 4,166 | 4,243 | 4,520 | 4,831 | 5,184 | 5,582 | 6,032 |
| | GRAD % | 16.9 | 17.4 | 17.7 | 18.9 | 20.3 | 21.8 | 23.6 | 25.6 |
| -10 | MINS | 3.6 | 3.5 | 3.4 | 3.2 | 3.0 | 2.8 | 2.6 | 2.4 |
| | NM | 13 | 12 | 12 | 11 | 10 | 10 | 9 | 8 |
| | LB | 201 | 196 | 193 | 181 | 170 | 158 | 147 | 136 |
| | FPM | 3,945 | 4,052 | 4,127 | 4,397 | 4,702 | 5,047 | 5,436 | 5,875 |
| | GRAD % | 16.1 | 16.5 | 16.9 | 18 | 19.3 | 20.8 | 22.4 | 24.4 |
| 0 | MINS | 4.2 | 4.0 | 4.0 | 3.7 | 3.5 | 3.2 | 3.0 | 2.8 |
| | NM | 15 | 15 | 14 | 13 | 12 | 11 | 11 | 10 |
| | LB | 213 | 207 | 203 | 191 | 179 | 166 | 155 | 143 |
| | FPM | 3,242 | 3,333 | 3,396 | 3,623 | 3,880 | 4,170 | 4,499 | 4,866 |
| | GRAD % | 12.9 | 13.3 | 13.5 | 14.5 | 15.5 | 16.7 | 18.1 | 19.6 |
| 10 | MINS | 5.2 | 5.0 | 4.9 | 4.6 | 4.3 | 4.0 | 3.7 | 3.4 |
| | NM | 19 | 19 | 18 | 17 | 16 | 15 | 14 | 12 |
| | LB | 234 | 227 | 223 | 209 | 196 | 182 | 169 | 156 |
| | FPM | 2,575 | 2,651 | 2,702 | 2,890 | 3,101 | 3,339 | 3,610 | 3,909 |
| | GRAD % | 10 | 10.3 | 10.5 | 11.3 | 12.1 | 13.1 | 14.1 | 15.3 |
| 20 | MINS | 6.6 | 6.4 | 6.3 | 5.9 | 5.5 | 5.1 | 4.7 | 4.4 |
| | NM | 25 | 25 | 24 | 22 | 21 | 19 | 18 | 16 |
| | LB | 267 | 259 | 254 | 238 | 222 | 206 | 190 | 176 |
| | FPM | 1,921 | 1,981 | 2,022 | 2,169 | 2,336 | 2,524 | 2,738 | 2,970 |
| | GRAD % | 7.3 | 7.6 | 7.7 | 8.3 | 8.9 | 9.7 | 10.5 | 11.4 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Cruise Climb, AEO, NAI ON

| Pressure Altitude: 15,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -39°C | | | | MAX: ISA +24°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| 30 | MINS | 9.0 | 8.7 | 8.5 | 7.9 | 7.3 | 6.8 | 6.3 | 5.8 |
| | NM | 35 | 34 | 33 | 31 | 29 | 26 | 24 | 22 |
| | LB | 320 | 310 | 304 | 283 | 263 | 243 | 224 | 207 |
| | FPM | 1,329 | 1,374 | 1,405 | 1,517 | 1,643 | 1,786 | 1,947 | 2,119 |
| | GRAD % | 5 | 5.2 | 5.3 | 5.7 | 6.2 | 6.7 | 7.3 | 8 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



4 Pressure Altitude: 17,000 Feet

| Associated Conditions | | | | | | | | | | | | | | |
|---|--|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|
| Thrust: MCT | | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | |
| Notes | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | |

| Pressure Altitude: 17,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -35°C | | | | MAX: ISA +28°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| -40 | MINS | 4.2 | 4.1 | 4.0 | 3.8 | 3.5 | 3.3 | 3.0 | 2.8 |
| | NM | 14 | 14 | 13 | 12 | 12 | 11 | 10 | 9 |
| | LB | 220 | 215 | 211 | 198 | 186 | 173 | 161 | 149 |
| | FPM | 3,694 | 3,794 | 3,865 | 4,119 | 4,406 | 4,730 | 5,096 | 5,508 |
| | GRAD % | 15.6 | 16 | 16.3 | 17.4 | 18.7 | 20.1 | 21.7 | 23.6 |
| -30 | MINS | 4.1 | 4.0 | 3.9 | 3.7 | 3.4 | 3.2 | 3.0 | 2.8 |
| | NM | 14 | 14 | 13 | 12 | 12 | 11 | 10 | 9 |
| | LB | 222 | 216 | 213 | 200 | 187 | 175 | 162 | 150 |
| | FPM | 3,780 | 3,883 | 3,955 | 4,215 | 4,508 | 4,840 | 5,214 | 5,635 |
| | GRAD % | 15.6 | 16 | 16.3 | 17.4 | 18.7 | 20.1 | 21.8 | 23.6 |
| -20 | MINS | 4.1 | 4.0 | 3.9 | 3.6 | 3.4 | 3.2 | 3.0 | 2.7 |
| | NM | 14 | 14 | 13 | 13 | 12 | 11 | 10 | 9 |
| | LB | 224 | 218 | 214 | 201 | 189 | 176 | 164 | 151 |
| | FPM | 3,779 | 3,881 | 3,954 | 4,214 | 4,508 | 4,840 | 5,215 | 5,637 |
| | GRAD % | 15.2 | 15.7 | 16 | 17.1 | 18.3 | 19.7 | 21.3 | 23.1 |
| -10 | MINS | 4.1 | 4.0 | 4.0 | 3.7 | 3.5 | 3.2 | 3.0 | 2.8 |
| | NM | 15 | 14 | 14 | 13 | 12 | 11 | 10 | 10 |
| | LB | 227 | 221 | 217 | 204 | 191 | 178 | 166 | 153 |
| | FPM | 3,663 | 3,764 | 3,834 | 4,088 | 4,374 | 4,698 | 5,064 | 5,475 |
| | GRAD % | 14.5 | 14.9 | 15.1 | 16.2 | 17.3 | 18.7 | 20.2 | 21.9 |
| 0 | MINS | 4.8 | 4.6 | 4.6 | 4.3 | 4.0 | 3.7 | 3.5 | 3.2 |
| | NM | 18 | 17 | 17 | 16 | 15 | 14 | 12 | 11 |
| | LB | 240 | 234 | 230 | 215 | 202 | 188 | 174 | 161 |
| | FPM | 3,129 | 3,217 | 3,278 | 3,500 | 3,749 | 4,032 | 4,352 | 4,708 |
| | GRAD % | 12.1 | 12.4 | 12.7 | 13.5 | 14.5 | 15.6 | 16.9 | 18.3 |
| 10 | MINS | 5.9 | 5.8 | 5.7 | 5.3 | 5.0 | 4.6 | 4.3 | 4.0 |
| | NM | 23 | 22 | 21 | 20 | 19 | 17 | 16 | 15 |
| | LB | 265 | 257 | 252 | 237 | 221 | 206 | 191 | 176 |
| | FPM | 2,463 | 2,535 | 2,585 | 2,767 | 2,971 | 3,202 | 3,464 | 3,752 |
| | GRAD % | 9.3 | 9.6 | 9.8 | 10.5 | 11.2 | 12.1 | 13.1 | 14.2 |
| 20 | MINS | 7.7 | 7.5 | 7.3 | 6.8 | 6.4 | 5.9 | 5.5 | 5.0 |
| | NM | 30 | 29 | 29 | 27 | 25 | 23 | 21 | 19 |
| | LB | 304 | 295 | 289 | 270 | 252 | 234 | 216 | 199 |
| | FPM | 1,822 | 1,880 | 1,919 | 2,062 | 2,222 | 2,404 | 2,610 | 2,833 |
| | GRAD % | 6.7 | 7 | 7.1 | 7.6 | 8.2 | 8.9 | 9.7 | 10.5 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Cruise Climb, AEO, NAI ON

| Pressure Altitude: 17,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -35°C | | | | MAX: ISA +28°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| 30 | MINS | 10.5 | 10.2 | 10.0 | 9.3 | 8.6 | 8.0 | 7.3 | 6.8 |
| | NM | 42 | 41 | 40 | 37 | 34 | 32 | 29 | 27 |
| | LB | 367 | 355 | 348 | 324 | 301 | 278 | 256 | 236 |
| | FPM | 1,231 | 1,274 | 1,303 | 1,410 | 1,530 | 1,666 | 1,820 | 1,982 |
| | GRAD % | 4.5 | 4.6 | 4.7 | 5.1 | 5.6 | 6 | 6.6 | 7.2 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



5 Pressure Altitude: 19,000 Feet

| Associated Conditions | | | | | | | | | | | | | | |
|---|--|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|
| Thrust: MCT | | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | |
| Notes | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | |

| Pressure Altitude: 19,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -31°C | | | | MAX: ISA +32°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| -40 | MINS | 4.8 | 4.6 | 4.5 | 4.3 | 4.0 | 3.7 | 3.5 | 3.2 |
| | NM | 16 | 16 | 15 | 14 | 13 | 12 | 11 | 11 |
| | LB | 246 | 239 | 235 | 221 | 207 | 193 | 179 | 166 |
| | FPM | 3,371 | 3,464 | 3,529 | 3,764 | 4,029 | 4,329 | 4,668 | 5,047 |
| | GRAD % | 13.8 | 14.2 | 14.4 | 15.4 | 16.5 | 17.8 | 19.2 | 20.9 |
| -30 | MINS | 4.6 | 4.5 | 4.4 | 4.2 | 3.9 | 3.6 | 3.4 | 3.1 |
| | NM | 16 | 16 | 15 | 14 | 13 | 12 | 11 | 11 |
| | LB | 247 | 241 | 237 | 222 | 208 | 194 | 181 | 167 |
| | FPM | 3,448 | 3,543 | 3,610 | 3,850 | 4,121 | 4,428 | 4,774 | 5,162 |
| | GRAD % | 13.8 | 14.1 | 14.4 | 15.4 | 16.5 | 17.8 | 19.2 | 20.9 |
| -20 | MINS | 4.6 | 4.5 | 4.4 | 4.1 | 3.9 | 3.6 | 3.4 | 3.1 |
| | NM | 16 | 16 | 16 | 15 | 14 | 13 | 12 | 11 |
| | LB | 250 | 243 | 239 | 224 | 210 | 196 | 182 | 169 |
| | FPM | 3,513 | 3,610 | 3,678 | 3,923 | 4,199 | 4,512 | 4,865 | 5,261 |
| | GRAD % | 13.7 | 14.1 | 14.4 | 15.4 | 16.5 | 17.7 | 19.2 | 20.8 |
| -10 | MINS | 4.7 | 4.6 | 4.5 | 4.2 | 4.0 | 3.7 | 3.4 | 3.2 |
| | NM | 17 | 17 | 16 | 15 | 14 | 13 | 12 | 11 |
| | LB | 253 | 246 | 242 | 227 | 213 | 198 | 184 | 171 |
| | FPM | 3,397 | 3,491 | 3,557 | 3,796 | 4,064 | 4,369 | 4,712 | 5,096 |
| | GRAD % | 13 | 13.3 | 13.6 | 14.5 | 15.6 | 16.8 | 18.1 | 19.7 |
| 0 | MINS | 5.4 | 5.3 | 5.2 | 4.9 | 4.6 | 4.2 | 3.9 | 3.6 |
| | NM | 20 | 20 | 19 | 18 | 17 | 16 | 15 | 13 |
| | LB | 268 | 261 | 256 | 240 | 225 | 209 | 194 | 180 |
| | FPM | 3,001 | 3,086 | 3,145 | 3,360 | 3,602 | 3,876 | 4,186 | 4,530 |
| | GRAD % | 11.2 | 11.5 | 11.8 | 12.6 | 13.5 | 14.5 | 15.7 | 17 |
| 10 | MINS | 6.8 | 6.6 | 6.5 | 6.0 | 5.6 | 5.2 | 4.9 | 4.5 |
| | NM | 26 | 26 | 25 | 23 | 22 | 20 | 19 | 17 |
| | LB | 296 | 287 | 282 | 264 | 247 | 229 | 213 | 197 |
| | FPM | 2,328 | 2,397 | 2,445 | 2,619 | 2,815 | 3,037 | 3,288 | 3,563 |
| | GRAD % | 8.5 | 8.8 | 8.9 | 9.6 | 10.3 | 11.1 | 12.1 | 13.1 |
| 20 | MINS | 8.8 | 8.6 | 8.4 | 7.8 | 7.3 | 6.8 | 6.2 | 5.8 |
| | NM | 35 | 34 | 33 | 31 | 29 | 27 | 25 | 23 |
| | LB | 341 | 330 | 324 | 303 | 282 | 262 | 242 | 223 |
| | FPM | 1,716 | 1,770 | 1,808 | 1,945 | 2,099 | 2,274 | 2,471 | 2,684 |
| | GRAD % | 6.1 | 6.3 | 6.5 | 7 | 7.5 | 8.1 | 8.9 | 9.6 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Cruise Climb, AEO, NAI ON

| Pressure Altitude: 19,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -31°C | | | | MAX: ISA +32°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| 30 | MINS | 12.2 | 11.8 | 11.6 | 10.8 | 10.0 | 9.2 | 8.5 | 7.8 |
| | NM | 50 | 48 | 47 | 44 | 41 | 37 | 34 | 32 |
| | LB | 415 | 402 | 394 | 366 | 339 | 314 | 289 | 266 |
| | FPM | 1,141 | 1,182 | 1,210 | 1,312 | 1,427 | 1,557 | 1,704 | 1,858 |
| | GRAD % | 4 | 4.2 | 4.2 | 4.6 | 5 | 5.5 | 6 | 6.5 |
| 40 | MINS | 18.9 | 18.2 | 17.8 | 16.3 | 15.0 | 13.7 | 12.5 | 11.5 |
| | NM | 80 | 77 | 75 | 69 | 63 | 58 | 52 | 48 |
| | LB | 566 | 545 | 532 | 490 | 450 | 412 | 377 | 346 |
| | FPM | 628 | 656 | 676 | 747 | 827 | 918 | 1,017 | 1,119 |
| | GRAD % | 2.2 | 2.3 | 2.3 | 2.6 | 2.9 | 3.2 | 3.5 | 3.9 |



6 Pressure Altitude: 21,000 Feet

| Associated Conditions | | | | | | | | | | | | | | |
|---|--|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|
| Thrust: MCT | | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | |
| Notes | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | |

| Pressure Altitude: 21,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -28°C | | | | MAX: ISA +31°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -30 | MINS | 5.2 | 5.1 | 5.0 | 4.7 | 4.4 | 4.1 | 3.8 | 3.5 |
| | NM | 19 | 18 | 18 | 17 | 16 | 14 | 13 | 12 |
| | LB | 273 | 266 | 261 | 245 | 230 | 214 | 199 | 184 |
| | FPM | 3,133 | 3,220 | 3,282 | 3,504 | 3,754 | 4,038 | 4,358 | 4,714 |
| | GRAD % | 12.1 | 12.4 | 12.7 | 13.6 | 14.5 | 15.7 | 16.9 | 18.4 |
| -20 | MINS | 5.2 | 5.1 | 5.0 | 4.7 | 4.4 | 4.1 | 3.8 | 3.5 |
| | NM | 19 | 18 | 18 | 17 | 16 | 15 | 13 | 12 |
| | LB | 275 | 268 | 263 | 247 | 232 | 216 | 201 | 186 |
| | FPM | 3,201 | 3,290 | 3,353 | 3,580 | 3,836 | 4,125 | 4,452 | 4,816 |
| | GRAD % | 12.1 | 12.4 | 12.7 | 13.5 | 14.5 | 15.7 | 16.9 | 18.4 |
| -10 | MINS | 5.3 | 5.2 | 5.1 | 4.8 | 4.5 | 4.2 | 3.9 | 3.6 |
| | NM | 20 | 19 | 19 | 18 | 16 | 15 | 14 | 13 |
| | LB | 279 | 272 | 267 | 251 | 235 | 219 | 203 | 188 |
| | FPM | 3,135 | 3,223 | 3,285 | 3,508 | 3,760 | 4,045 | 4,367 | 4,725 |
| | GRAD % | 11.6 | 11.9 | 12.1 | 13 | 13.9 | 15 | 16.2 | 17.6 |
| 0 | MINS | 6.1 | 5.9 | 5.8 | 5.5 | 5.1 | 4.8 | 4.4 | 4.1 |
| | NM | 24 | 23 | 22 | 21 | 20 | 18 | 17 | 15 |
| | LB | 295 | 287 | 282 | 265 | 247 | 230 | 214 | 198 |
| | FPM | 2,878 | 2,960 | 3,018 | 3,226 | 3,460 | 3,726 | 4,026 | 4,358 |
| | GRAD % | 10.4 | 10.7 | 10.9 | 11.7 | 12.5 | 13.5 | 14.6 | 15.9 |
| 10 | MINS | 7.7 | 7.4 | 7.3 | 6.8 | 6.4 | 5.9 | 5.5 | 5.1 |
| | NM | 30 | 29 | 29 | 27 | 25 | 23 | 21 | 20 |
| | LB | 327 | 318 | 312 | 292 | 273 | 253 | 235 | 217 |
| | FPM | 2,191 | 2,257 | 2,303 | 2,470 | 2,657 | 2,870 | 3,110 | 3,372 |
| | GRAD % | 7.7 | 8 | 8.1 | 8.7 | 9.4 | 10.2 | 11 | 12 |
| 20 | MINS | 10.0 | 9.7 | 9.5 | 8.9 | 8.3 | 7.7 | 7.1 | 6.5 |
| | NM | 41 | 40 | 39 | 36 | 34 | 31 | 29 | 26 |
| | LB | 378 | 367 | 360 | 336 | 313 | 290 | 268 | 247 |
| | FPM | 1,603 | 1,654 | 1,690 | 1,821 | 1,969 | 2,136 | 2,325 | 2,526 |
| | GRAD % | 5.5 | 5.7 | 5.9 | 6.3 | 6.8 | 7.4 | 8.1 | 8.8 |
| 30 | MINS | 14.0 | 13.6 | 13.3 | 12.3 | 11.4 | 10.5 | 9.7 | 8.9 |
| | NM | 59 | 57 | 56 | 52 | 48 | 44 | 40 | 37 |
| | LB | 466 | 451 | 441 | 410 | 380 | 350 | 322 | 297 |
| | FPM | 1,044 | 1,082 | 1,109 | 1,206 | 1,315 | 1,439 | 1,578 | 1,722 |
| | GRAD % | 3.5 | 3.7 | 3.8 | 4.1 | 4.5 | 4.9 | 5.4 | 5.9 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Cruise Climb, AEO, NAI ON

| Pressure Altitude: 21,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -28°C | | | | MAX: ISA +31°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| 40 | MINS | 22.3 | 21.5 | 20.9 | 19.2 | 17.6 | 16.0 | 14.6 | 13.4 |
| | NM | 97 | 93 | 90 | 83 | 76 | 69 | 63 | 57 |
| | LB | 649 | 625 | 610 | 560 | 513 | 469 | 428 | 392 |
| | FPM | 536 | 562 | 580 | 646 | 721 | 805 | 897 | 989 |
| | GRAD % | 1.8 | 1.9 | 1.9 | 2.2 | 2.4 | 2.7 | 3 | 3.3 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



7 Pressure Altitude: 23,000 Feet

| Associated Conditions | | | | | | | | | | | | | | |
|---|--|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|
| Thrust: MCT | | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | |
| Notes | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | |

| Pressure Altitude: 23,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -25°C | | | | MAX: ISA +30°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| -30 | MINS | 5.9 | 5.8 | 5.7 | 5.3 | 5.0 | 4.6 | 4.3 | 4.0 |
| | NM | 22 | 21 | 21 | 19 | 18 | 17 | 15 | 14 |
| | LB | 299 | 291 | 286 | 269 | 251 | 234 | 218 | 202 |
| | FPM | 2,824 | 2,905 | 2,961 | 3,166 | 3,395 | 3,656 | 3,950 | 4,275 |
| | GRAD % | 10.6 | 10.9 | 11.1 | 11.8 | 12.7 | 13.7 | 14.8 | 16.1 |
| -20 | MINS | 5.9 | 5.7 | 5.6 | 5.3 | 4.9 | 4.6 | 4.3 | 3.9 |
| | NM | 22 | 21 | 21 | 20 | 18 | 17 | 16 | 14 |
| | LB | 302 | 294 | 289 | 271 | 254 | 236 | 220 | 203 |
| | FPM | 2,889 | 2,972 | 3,030 | 3,239 | 3,474 | 3,740 | 4,041 | 4,373 |
| | GRAD % | 10.6 | 10.9 | 11.1 | 11.8 | 12.7 | 13.7 | 14.8 | 16.1 |
| -10 | MINS | 6.0 | 5.8 | 5.7 | 5.4 | 5.0 | 4.7 | 4.3 | 4.0 |
| | NM | 23 | 22 | 22 | 20 | 19 | 18 | 16 | 15 |
| | LB | 306 | 298 | 293 | 275 | 257 | 240 | 223 | 206 |
| | FPM | 2,879 | 2,961 | 3,019 | 3,228 | 3,463 | 3,730 | 4,030 | 4,363 |
| | GRAD % | 10.3 | 10.6 | 10.8 | 11.5 | 12.4 | 13.4 | 14.5 | 15.7 |
| 0 | MINS | 6.8 | 6.6 | 6.5 | 6.1 | 5.7 | 5.3 | 4.9 | 4.6 |
| | NM | 27 | 26 | 26 | 24 | 22 | 21 | 19 | 18 |
| | LB | 323 | 314 | 308 | 289 | 270 | 252 | 234 | 216 |
| | FPM | 2,756 | 2,836 | 2,892 | 3,094 | 3,321 | 3,579 | 3,870 | 4,190 |
| | GRAD % | 9.6 | 9.9 | 10.1 | 10.8 | 11.6 | 12.5 | 13.6 | 14.7 |
| 10 | MINS | 8.6 | 8.4 | 8.2 | 7.7 | 7.2 | 6.6 | 6.2 | 5.7 |
| | NM | 35 | 34 | 33 | 31 | 29 | 27 | 25 | 23 |
| | LB | 359 | 349 | 342 | 320 | 299 | 278 | 257 | 238 |
| | FPM | 2,099 | 2,163 | 2,208 | 2,370 | 2,552 | 2,759 | 2,992 | 3,245 |
| | GRAD % | 7.2 | 7.4 | 7.6 | 8.1 | 8.7 | 9.4 | 10.3 | 11.1 |
| 20 | MINS | 11.3 | 11.0 | 10.8 | 10.0 | 9.3 | 8.6 | 8.0 | 7.4 |
| | NM | 47 | 46 | 45 | 42 | 39 | 36 | 33 | 30 |
| | LB | 417 | 405 | 397 | 370 | 344 | 319 | 295 | 272 |
| | FPM | 1,466 | 1,514 | 1,548 | 1,672 | 1,811 | 1,969 | 2,147 | 2,335 |
| | GRAD % | 4.9 | 5.1 | 5.2 | 5.6 | 6.1 | 6.6 | 7.2 | 7.8 |
| 30 | MINS | 16.1 | 15.5 | 15.2 | 14.1 | 13.0 | 12.0 | 11.0 | 10.1 |
| | NM | 69 | 67 | 65 | 60 | 56 | 51 | 47 | 43 |
| | LB | 519 | 502 | 492 | 456 | 422 | 389 | 357 | 329 |
| | FPM | 930 | 966 | 991 | 1,082 | 1,185 | 1,301 | 1,431 | 1,565 |
| | GRAD % | 3.1 | 3.2 | 3.3 | 3.6 | 3.9 | 4.3 | 4.7 | 5.1 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Cruise Climb, AEO, NAI ON

| Pressure Altitude: 23,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -25°C | | | | MAX: ISA +30°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| 40 | MINS | 26.5 | 25.4 | 24.7 | 22.6 | 20.6 | 18.7 | 17.0 | 15.6 |
| | NM | 118 | 113 | 110 | 100 | 91 | 83 | 75 | 68 |
| | LB | 746 | 717 | 698 | 639 | 584 | 532 | 484 | 443 |
| | FPM | 435 | 459 | 475 | 536 | 605 | 683 | 767 | 849 |
| | GRAD % | 1.4 | 1.5 | 1.5 | 1.7 | 2 | 2.2 | 2.5 | 2.7 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

PC24-A-15-60-0547-00A-030A-A



8 Pressure Altitude: 25,000 Feet

| Associated Conditions | | | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | | | |
| Notes | | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | |

| Pressure Altitude: 25,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -23°C | | | | MAX: ISA +29°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| -30 | MINS | 6.7 | 6.5 | 6.4 | 6.0 | 5.6 | 5.2 | 4.8 | 4.5 |
| | NM | 25 | 24 | 24 | 22 | 21 | 19 | 18 | 16 |
| | LB | 326 | 317 | 312 | 293 | 274 | 255 | 237 | 219 |
| | FPM | 2,530 | 2,604 | 2,656 | 2,843 | 3,054 | 3,292 | 3,562 | 3,857 |
| | GRAD % | 9.1 | 9.4 | 9.6 | 10.3 | 11.1 | 11.9 | 12.9 | 14 |
| -20 | MINS | 6.6 | 6.4 | 6.3 | 5.9 | 5.5 | 5.2 | 4.8 | 4.4 |
| | NM | 25 | 25 | 24 | 23 | 21 | 19 | 18 | 17 |
| | LB | 329 | 320 | 314 | 295 | 276 | 257 | 239 | 221 |
| | FPM | 2,590 | 2,666 | 2,719 | 2,911 | 3,126 | 3,370 | 3,646 | 3,949 |
| | GRAD % | 9.2 | 9.4 | 9.6 | 10.3 | 11.1 | 11.9 | 12.9 | 14 |
| -10 | MINS | 6.7 | 6.5 | 6.4 | 6.0 | 5.6 | 5.2 | 4.8 | 4.5 |
| | NM | 26 | 26 | 25 | 23 | 22 | 20 | 19 | 17 |
| | LB | 334 | 325 | 319 | 299 | 280 | 261 | 242 | 224 |
| | FPM | 2,632 | 2,709 | 2,763 | 2,958 | 3,177 | 3,426 | 3,706 | 4,014 |
| | GRAD % | 9.1 | 9.4 | 9.5 | 10.2 | 11 | 11.9 | 12.9 | 13.9 |
| 0 | MINS | 7.6 | 7.4 | 7.2 | 6.8 | 6.3 | 5.9 | 5.5 | 5.0 |
| | NM | 30 | 30 | 29 | 27 | 25 | 23 | 22 | 20 |
| | LB | 351 | 342 | 335 | 314 | 294 | 273 | 254 | 235 |
| | FPM | 2,529 | 2,604 | 2,656 | 2,845 | 3,058 | 3,299 | 3,571 | 3,869 |
| | GRAD % | 8.5 | 8.8 | 9 | 9.6 | 10.4 | 11.2 | 12.1 | 13.1 |
| 10 | MINS | 9.6 | 9.3 | 9.1 | 8.5 | 8.0 | 7.4 | 6.8 | 6.3 |
| | NM | 40 | 39 | 38 | 35 | 33 | 30 | 28 | 26 |
| | LB | 391 | 380 | 373 | 349 | 325 | 302 | 280 | 258 |
| | FPM | 1,975 | 2,037 | 2,080 | 2,235 | 2,410 | 2,609 | 2,833 | 3,074 |
| | GRAD % | 6.5 | 6.7 | 6.9 | 7.4 | 8 | 8.6 | 9.4 | 10.2 |
| 20 | MINS | 12.8 | 12.4 | 12.1 | 11.3 | 10.5 | 9.7 | 9.0 | 8.3 |
| | NM | 54 | 53 | 52 | 48 | 45 | 41 | 38 | 35 |
| | LB | 458 | 444 | 435 | 406 | 377 | 349 | 322 | 297 |
| | FPM | 1,333 | 1,379 | 1,411 | 1,528 | 1,659 | 1,808 | 1,975 | 2,150 |
| | GRAD % | 4.3 | 4.5 | 4.6 | 4.9 | 5.4 | 5.9 | 6.4 | 7 |
| 30 | MINS | 18.4 | 17.7 | 17.3 | 16.0 | 14.8 | 13.6 | 12.5 | 11.5 |
| | NM | 81 | 78 | 76 | 70 | 65 | 59 | 54 | 50 |
| | LB | 577 | 558 | 546 | 506 | 467 | 430 | 395 | 363 |
| | FPM | 813 | 847 | 871 | 956 | 1,051 | 1,160 | 1,281 | 1,403 |
| | GRAD % | 2.6 | 2.7 | 2.8 | 3 | 3.3 | 3.7 | 4.1 | 4.5 |



9 Pressure Altitude: 27,000 Feet

| Associated Conditions | | | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | | | |
| Notes | | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | |

| Pressure Altitude: 27,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -21°C | | | | MAX: ISA +29°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -30 | MINS | 7.5 | 7.3 | 7.2 | 6.7 | 6.3 | 5.9 | 5.4 | 5.0 |
| | NM | 29 | 28 | 28 | 26 | 24 | 22 | 21 | 19 |
| | LB | 354 | 344 | 338 | 317 | 297 | 276 | 257 | 237 |
| | FPM | 2,242 | 2,309 | 2,356 | 2,527 | 2,719 | 2,936 | 3,182 | 3,448 |
| | GRAD % | 7.8 | 8.1 | 8.2 | 8.8 | 9.5 | 10.3 | 11.2 | 12.1 |
| -20 | MINS | 7.4 | 7.2 | 7.1 | 6.6 | 6.2 | 5.8 | 5.4 | 5.0 |
| | NM | 29 | 28 | 28 | 26 | 24 | 22 | 21 | 19 |
| | LB | 357 | 348 | 341 | 320 | 299 | 279 | 259 | 240 |
| | FPM | 2,295 | 2,364 | 2,413 | 2,587 | 2,784 | 3,006 | 3,258 | 3,531 |
| | GRAD % | 7.8 | 8.1 | 8.2 | 8.8 | 9.5 | 10.3 | 11.2 | 12.1 |
| -10 | MINS | 7.5 | 7.3 | 7.2 | 6.7 | 6.3 | 5.8 | 5.4 | 5.0 |
| | NM | 30 | 29 | 29 | 27 | 25 | 23 | 21 | 20 |
| | LB | 362 | 352 | 346 | 325 | 303 | 283 | 262 | 243 |
| | FPM | 2,350 | 2,421 | 2,470 | 2,649 | 2,850 | 3,078 | 3,335 | 3,614 |
| | GRAD % | 7.8 | 8.1 | 8.3 | 8.9 | 9.5 | 10.3 | 11.2 | 12.1 |
| 0 | MINS | 8.4 | 8.2 | 8.0 | 7.5 | 7.0 | 6.5 | 6.0 | 5.6 |
| | NM | 35 | 34 | 33 | 31 | 29 | 27 | 25 | 23 |
| | LB | 380 | 370 | 363 | 340 | 318 | 296 | 274 | 254 |
| | FPM | 2,279 | 2,348 | 2,396 | 2,571 | 2,768 | 2,991 | 3,243 | 3,515 |
| | GRAD % | 7.4 | 7.7 | 7.8 | 8.4 | 9.1 | 9.8 | 10.6 | 11.5 |
| 10 | MINS | 10.6 | 10.3 | 10.1 | 9.5 | 8.8 | 8.2 | 7.6 | 7.0 |
| | NM | 45 | 44 | 43 | 40 | 37 | 34 | 32 | 29 |
| | LB | 424 | 412 | 404 | 378 | 352 | 327 | 303 | 280 |
| | FPM | 1,834 | 1,893 | 1,934 | 2,082 | 2,248 | 2,437 | 2,650 | 2,877 |
| | GRAD % | 5.9 | 6.1 | 6.2 | 6.7 | 7.2 | 7.8 | 8.5 | 9.2 |
| 20 | MINS | 14.3 | 13.9 | 13.6 | 12.7 | 11.8 | 10.9 | 10.0 | 9.2 |
| | NM | 63 | 61 | 59 | 55 | 51 | 47 | 43 | 40 |
| | LB | 501 | 486 | 476 | 443 | 411 | 381 | 351 | 324 |
| | FPM | 1,213 | 1,257 | 1,287 | 1,398 | 1,522 | 1,663 | 1,821 | 1,985 |
| | GRAD % | 3.8 | 3.9 | 4 | 4.4 | 4.8 | 5.2 | 5.7 | 6.2 |
| 30 | MINS | 21.0 | 20.3 | 19.8 | 18.3 | 16.8 | 15.4 | 14.1 | 13.0 |
| | NM | 95 | 92 | 89 | 82 | 76 | 69 | 63 | 58 |
| | LB | 641 | 619 | 605 | 560 | 516 | 474 | 435 | 399 |
| | FPM | 694 | 725 | 747 | 826 | 915 | 1,015 | 1,126 | 1,237 |
| | GRAD % | 2.1 | 2.2 | 2.3 | 2.5 | 2.8 | 3.1 | 3.5 | 3.8 |



10 Pressure Altitude: 29,000 Feet

| Associated Conditions | | | | | | | | | | | | | | |
|---|--|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|
| Thrust: MCT | | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | |
| Notes | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | |

| Pressure Altitude: 29,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -18°C | | | | MAX: ISA +28°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| -20 | MINS | 8.4 | 8.1 | 8.0 | 7.5 | 7.0 | 6.5 | 6.0 | 5.6 |
| | NM | 34 | 33 | 32 | 30 | 28 | 26 | 24 | 22 |
| | LB | 386 | 376 | 369 | 346 | 324 | 301 | 279 | 259 |
| | FPM | 2,000 | 2,062 | 2,106 | 2,264 | 2,441 | 2,643 | 2,869 | 3,113 |
| | GRAD % | 6.6 | 6.8 | 7 | 7.5 | 8.1 | 8.7 | 9.5 | 10.3 |
| -10 | MINS | 8.4 | 8.2 | 8.0 | 7.5 | 7.0 | 6.5 | 6.1 | 5.6 |
| | NM | 35 | 34 | 33 | 31 | 29 | 27 | 25 | 23 |
| | LB | 392 | 381 | 374 | 351 | 328 | 305 | 283 | 262 |
| | FPM | 2,051 | 2,114 | 2,159 | 2,321 | 2,503 | 2,709 | 2,940 | 3,190 |
| | GRAD % | 6.6 | 6.8 | 7 | 7.5 | 8.1 | 8.8 | 9.5 | 10.3 |
| 0 | MINS | 9.3 | 9.1 | 8.9 | 8.3 | 7.8 | 7.2 | 6.7 | 6.2 |
| | NM | 39 | 38 | 38 | 35 | 33 | 30 | 28 | 26 |
| | LB | 411 | 400 | 392 | 367 | 343 | 319 | 296 | 273 |
| | FPM | 2,022 | 2,086 | 2,130 | 2,291 | 2,471 | 2,676 | 2,906 | 3,153 |
| | GRAD % | 6.4 | 6.6 | 6.7 | 7.2 | 7.8 | 8.5 | 9.2 | 10 |
| 10 | MINS | 11.8 | 11.4 | 11.2 | 10.5 | 9.7 | 9.0 | 8.3 | 7.7 |
| | NM | 51 | 50 | 49 | 45 | 42 | 39 | 36 | 33 |
| | LB | 458 | 445 | 437 | 408 | 380 | 353 | 326 | 301 |
| | FPM | 1,689 | 1,744 | 1,783 | 1,924 | 2,082 | 2,261 | 2,462 | 2,676 |
| | GRAD % | 5.2 | 5.4 | 5.5 | 5.9 | 6.4 | 7 | 7.6 | 8.3 |
| 20 | MINS | 16.1 | 15.6 | 15.2 | 14.2 | 13.1 | 12.1 | 11.2 | 10.3 |
| | NM | 72 | 70 | 68 | 63 | 59 | 54 | 50 | 46 |
| | LB | 546 | 529 | 518 | 482 | 447 | 414 | 381 | 351 |
| | FPM | 1,104 | 1,145 | 1,174 | 1,280 | 1,398 | 1,532 | 1,681 | 1,835 |
| | GRAD % | 3.3 | 3.5 | 3.6 | 3.9 | 4.2 | 4.6 | 5.1 | 5.6 |
| 30 | MINS | 24.2 | 23.3 | 22.8 | 21.0 | 19.2 | 17.6 | 16.1 | 14.7 |
| | NM | 112 | 108 | 106 | 97 | 89 | 81 | 74 | 68 |
| | LB | 715 | 690 | 673 | 621 | 571 | 524 | 479 | 440 |
| | FPM | 562 | 591 | 610 | 683 | 764 | 856 | 956 | 1,054 |
| | GRAD % | 1.7 | 1.8 | 1.8 | 2 | 2.3 | 2.5 | 2.8 | 3.1 |



11 Pressure Altitude: 31,000 Feet

| Associated Conditions | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | |
| Notes | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | |

| Pressure Altitude: 31,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -16°C | | | | MAX: ISA +27°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| -20 | MINS | 9.4 | 9.2 | 9.0 | 8.4 | 7.8 | 7.3 | 6.8 | 6.2 |
| | NM | 39 | 38 | 37 | 35 | 33 | 30 | 28 | 26 |
| | LB | 418 | 406 | 399 | 374 | 349 | 325 | 301 | 279 |
| | FPM | 1,719 | 1,774 | 1,814 | 1,955 | 2,115 | 2,296 | 2,498 | 2,714 |
| | GRAD % | 5.5 | 5.7 | 5.8 | 6.3 | 6.8 | 7.3 | 8 | 8.7 |
| -10 | MINS | 9.5 | 9.2 | 9.0 | 8.4 | 7.9 | 7.3 | 6.8 | 6.3 |
| | NM | 40 | 39 | 38 | 36 | 33 | 31 | 28 | 26 |
| | LB | 424 | 412 | 404 | 379 | 354 | 329 | 305 | 282 |
| | FPM | 1,760 | 1,817 | 1,857 | 2,002 | 2,165 | 2,350 | 2,557 | 2,778 |
| | GRAD % | 5.5 | 5.7 | 5.8 | 6.3 | 6.8 | 7.3 | 8 | 8.7 |
| 0 | MINS | 10.4 | 10.1 | 9.9 | 9.3 | 8.6 | 8.0 | 7.4 | 6.9 |
| | NM | 45 | 44 | 43 | 40 | 37 | 35 | 32 | 29 |
| | LB | 443 | 431 | 423 | 396 | 369 | 343 | 318 | 294 |
| | FPM | 1,770 | 1,828 | 1,868 | 2,014 | 2,179 | 2,366 | 2,575 | 2,797 |
| | GRAD % | 5.4 | 5.6 | 5.7 | 6.1 | 6.7 | 7.2 | 7.9 | 8.6 |
| 10 | MINS | 13.0 | 12.6 | 12.4 | 11.5 | 10.7 | 9.9 | 9.2 | 8.5 |
| | NM | 58 | 56 | 55 | 51 | 47 | 44 | 40 | 37 |
| | LB | 494 | 480 | 470 | 439 | 409 | 379 | 351 | 324 |
| | FPM | 1,564 | 1,617 | 1,654 | 1,788 | 1,939 | 2,111 | 2,301 | 2,503 |
| | GRAD % | 4.7 | 4.8 | 4.9 | 5.3 | 5.8 | 6.3 | 6.9 | 7.5 |
| 20 | MINS | 18.0 | 17.4 | 17.0 | 15.8 | 14.6 | 13.5 | 12.4 | 11.4 |
| | NM | 83 | 80 | 78 | 73 | 67 | 62 | 56 | 52 |
| | LB | 594 | 576 | 564 | 524 | 485 | 448 | 412 | 380 |
| | FPM | 984 | 1,023 | 1,050 | 1,149 | 1,261 | 1,387 | 1,526 | 1,669 |
| | GRAD % | 2.9 | 3 | 3.1 | 3.4 | 3.7 | 4.1 | 4.5 | 4.9 |
| 30 | MINS | 28.2 | 27.2 | 26.5 | 24.2 | 22.1 | 20.2 | 18.4 | 16.8 |
| | NM | 136 | 130 | 127 | 116 | 105 | 96 | 87 | 80 |
| | LB | 803 | 773 | 754 | 693 | 635 | 580 | 529 | 485 |
| | FPM | 432 | 458 | 476 | 542 | 616 | 699 | 787 | 873 |
| | GRAD % | 1.2 | 1.3 | 1.4 | 1.6 | 1.8 | 2 | 2.3 | 2.5 |



12 Pressure Altitude: 33,000 Feet

| Associated Conditions | | | | | | | | | | | | | | |
|---|--|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|
| Thrust: MCT | | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | |
| Notes | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | |

| Pressure Altitude: 33,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -13°C | | | | MAX: ISA +26°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -20 | MINS | 10.7 | 10.4 | 10.2 | 9.5 | 8.9 | 8.2 | 7.6 | 7.0 |
| | NM | 46 | 45 | 44 | 41 | 38 | 35 | 32 | 30 |
| | LB | 452 | 439 | 431 | 404 | 377 | 350 | 324 | 300 |
| | FPM | 1,445 | 1,494 | 1,529 | 1,655 | 1,798 | 1,959 | 2,138 | 2,327 |
| | GRAD % | 4.5 | 4.6 | 4.7 | 5.1 | 5.6 | 6.1 | 6.6 | 7.2 |
| -10 | MINS | 10.7 | 10.4 | 10.2 | 9.5 | 8.9 | 8.2 | 7.6 | 7.0 |
| | NM | 47 | 46 | 45 | 42 | 39 | 36 | 33 | 30 |
| | LB | 458 | 445 | 437 | 409 | 382 | 355 | 329 | 304 |
| | FPM | 1,479 | 1,530 | 1,566 | 1,695 | 1,840 | 2,005 | 2,188 | 2,382 |
| | GRAD % | 4.5 | 4.6 | 4.7 | 5.1 | 5.6 | 6.1 | 6.6 | 7.2 |
| 0 | MINS | 11.6 | 11.3 | 11.1 | 10.3 | 9.6 | 8.9 | 8.3 | 7.6 |
| | NM | 52 | 50 | 49 | 46 | 43 | 40 | 36 | 34 |
| | LB | 478 | 465 | 456 | 426 | 397 | 369 | 342 | 316 |
| | FPM | 1,512 | 1,563 | 1,600 | 1,732 | 1,880 | 2,049 | 2,235 | 2,433 |
| | GRAD % | 4.5 | 4.6 | 4.7 | 5.1 | 5.5 | 6 | 6.6 | 7.2 |
| 10 | MINS | 14.4 | 13.9 | 13.6 | 12.7 | 11.8 | 10.9 | 10.1 | 9.3 |
| | NM | 65 | 63 | 62 | 58 | 54 | 50 | 46 | 42 |
| | LB | 532 | 516 | 506 | 472 | 439 | 407 | 376 | 347 |
| | FPM | 1,380 | 1,429 | 1,463 | 1,588 | 1,728 | 1,887 | 2,062 | 2,246 |
| | GRAD % | 4 | 4.1 | 4.2 | 4.6 | 5 | 5.4 | 6 | 6.5 |
| 20 | MINS | 20.2 | 19.5 | 19.1 | 17.7 | 16.3 | 15.0 | 13.8 | 12.7 |
| | NM | 95 | 92 | 90 | 83 | 77 | 71 | 65 | 59 |
| | LB | 648 | 627 | 613 | 569 | 527 | 485 | 446 | 411 |
| | FPM | 824 | 859 | 884 | 975 | 1,077 | 1,193 | 1,319 | 1,446 |
| | GRAD % | 2.3 | 2.4 | 2.5 | 2.8 | 3 | 3.4 | 3.7 | 4.1 |
| 30 | MINS | 33.7 | 32.3 | 31.4 | 28.5 | 25.9 | 23.4 | 21.2 | 19.4 |
| | NM | 168 | 161 | 156 | 141 | 127 | 115 | 104 | 95 |
| | LB | 918 | 881 | 857 | 782 | 712 | 648 | 589 | 539 |
| | FPM | 297 | 320 | 336 | 394 | 460 | 535 | 610 | 684 |
| | GRAD % | 0.8 | 0.9 | 0.9 | 1.1 | 1.3 | 1.5 | 1.7 | 1.9 |



13 Pressure Altitude: 35,000 Feet

| Associated Conditions | | | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|--|--|--|--|--|--|--|--|--|--|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | | | Gear and Flaps: UP | | | | | | | | | | |
| Notes | | | | | | | | | | | | | | | |
| Grayed values for interpolation only. | | | | | | | | | | | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | | | | | | | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | | | | | | | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | | | | | | | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | | | | | | | | | | | |

| Pressure Altitude: 35,000 Feet | | | | | | | | | |
|--------------------------------|--------|----------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -10°C | | | | MAX: ISA +26°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -20 | MINS | 12.2 | 11.9 | 11.6 | 10.8 | 10.1 | 9.4 | 8.6 | 8.0 |
| | NM | 54 | 53 | 52 | 48 | 45 | 41 | 38 | 35 |
| | LB | 490 | 476 | 467 | 436 | 407 | 378 | 350 | 323 |
| | FPM | 1,189 | 1,233 | 1,264 | 1,375 | 1,501 | 1,644 | 1,804 | 1,968 |
| | GRAD % | 3.6 | 3.7 | 3.8 | 4.1 | 4.5 | 4.9 | 5.4 | 5.9 |
| -10 | MINS | 12.2 | 11.8 | 11.6 | 10.8 | 10.1 | 9.3 | 8.6 | 8.0 |
| | NM | 55 | 54 | 53 | 49 | 45 | 42 | 39 | 36 |
| | LB | 496 | 482 | 473 | 442 | 412 | 383 | 354 | 327 |
| | FPM | 1,220 | 1,265 | 1,297 | 1,411 | 1,540 | 1,686 | 1,850 | 2,018 |
| | GRAD % | 3.6 | 3.7 | 3.8 | 4.1 | 4.5 | 4.9 | 5.4 | 5.9 |
| 0 | MINS | 13.1 | 12.7 | 12.4 | 11.6 | 10.8 | 10.0 | 9.2 | 8.5 |
| | NM | 60 | 58 | 57 | 53 | 49 | 46 | 42 | 39 |
| | LB | 517 | 502 | 492 | 460 | 428 | 397 | 368 | 339 |
| | FPM | 1,245 | 1,291 | 1,323 | 1,439 | 1,571 | 1,720 | 1,887 | 2,058 |
| | GRAD % | 3.6 | 3.7 | 3.8 | 4.1 | 4.5 | 4.9 | 5.4 | 5.9 |
| 10 | MINS | 15.9 | 15.4 | 15.1 | 14.1 | 13.1 | 12.1 | 11.1 | 10.3 |
| | NM | 75 | 72 | 71 | 66 | 61 | 56 | 52 | 48 |
| | LB | 573 | 556 | 545 | 508 | 472 | 437 | 403 | 372 |
| | FPM | 1,170 | 1,215 | 1,246 | 1,359 | 1,486 | 1,630 | 1,791 | 1,955 |
| | GRAD % | 3.3 | 3.4 | 3.5 | 3.8 | 4.2 | 4.6 | 5 | 5.5 |
| 20 | MINS | 23.0 | 22.2 | 21.7 | 20.0 | 18.4 | 16.9 | 15.5 | 14.2 |
| | NM | 112 | 108 | 106 | 97 | 89 | 82 | 75 | 68 |
| | LB | 711 | 687 | 672 | 622 | 574 | 528 | 484 | 446 |
| | FPM | 639 | 671 | 693 | 774 | 865 | 968 | 1,081 | 1,190 |
| | GRAD % | 1.8 | 1.8 | 1.9 | 2.1 | 2.4 | 2.7 | 3 | 3.3 |
| 30 | MINS | 43.0 | 40.8 | 39.4 | 35.0 | 31.3 | 28.0 | 25.2 | 22.9 |
| | NM | 225 | 212 | 204 | 181 | 161 | 143 | 128 | 116 |
| | LB | 1,101 | 1,048 | 1,015 | 911 | 820 | 738 | 667 | 608 |
| | FPM | 155 | 175 | 188 | 238 | 296 | 360 | 426 | 485 |
| | GRAD % | 0.4 | 0.5 | 0.5 | 0.6 | 0.8 | 1 | 1.1 | 1.3 |



14 Pressure Altitude: 37,000 Feet

| Associated Conditions | | | |
|---|---|--------------------|--|
| Thrust: MCT | Indicated Airspeed: 200 KIAS / 0.60 MACH | Gear and Flaps: UP | |
| Notes | | | |
| Grayed values for interpolation only. | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | |

| Pressure Altitude: 37,000 Feet | | | | | | | | | |
|--------------------------------|--------|---------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -8°C | | | | MAX: ISA +23°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -10 | MINS | 13.9 | 13.5 | 13.2 | 12.3 | 11.4 | 10.6 | 9.7 | 9.0 |
| | NM | 65 | 63 | 62 | 57 | 53 | 49 | 45 | 41 |
| | LB | 537 | 521 | 511 | 477 | 444 | 411 | 380 | 351 |
| | FPM | 1,181 | 1,239 | 1,279 | 1,418 | 1,554 | 1,708 | 1,885 | 2,090 |
| | GRAD % | 3.5 | 3.6 | 3.8 | 4.2 | 4.6 | 5 | 5.6 | 6.2 |
| 0 | MINS | 14.8 | 14.3 | 14.0 | 13.0 | 12.1 | 11.2 | 10.3 | 9.5 |
| | NM | 70 | 68 | 66 | 62 | 57 | 52 | 48 | 44 |
| | LB | 558 | 541 | 530 | 495 | 460 | 427 | 394 | 364 |
| | FPM | 1,210 | 1,268 | 1,310 | 1,451 | 1,590 | 1,748 | 1,929 | 2,139 |
| | GRAD % | 3.5 | 3.6 | 3.8 | 4.2 | 4.6 | 5 | 5.5 | 6.2 |
| 10 | MINS | 17.7 | 17.1 | 16.8 | 15.6 | 14.4 | 13.3 | 12.3 | 11.3 |
| | NM | 85 | 82 | 80 | 75 | 69 | 64 | 58 | 54 |
| | LB | 616 | 597 | 585 | 544 | 505 | 467 | 431 | 397 |
| | FPM | 1,176 | 1,234 | 1,275 | 1,414 | 1,552 | 1,709 | 1,888 | 2,095 |
| | GRAD % | 3.3 | 3.5 | 3.6 | 4 | 4.4 | 4.8 | 5.3 | 5.9 |
| 20 | MINS | 26.2 | 25.2 | 24.6 | 22.6 | 20.8 | 19.0 | 17.3 | 15.9 |
| | NM | 131 | 126 | 123 | 113 | 103 | 94 | 86 | 78 |
| | LB | 780 | 752 | 734 | 677 | 623 | 572 | 524 | 481 |
| | FPM | 593 | 637 | 669 | 770 | 868 | 980 | 1,107 | 1,256 |
| | GRAD % | 1.6 | 1.8 | 1.8 | 2.1 | 2.4 | 2.7 | 3 | 3.5 |
| 30 | MINS | 56.8 | 52.7 | 50.2 | 43.6 | 38.1 | 33.6 | 29.8 | 26.8 |
| | NM | 309 | 285 | 271 | 233 | 202 | 177 | 156 | 140 |
| | LB | 1,355 | 1,269 | 1,216 | 1,069 | 947 | 841 | 753 | 682 |
| | FPM | 96 | 124 | 146 | 201 | 261 | 331 | 412 | 503 |
| | GRAD % | 0.3 | 0.3 | 0.4 | 0.5 | 0.7 | 0.9 | 1.1 | 1.4 |



15 Pressure Altitude: 39,000 Feet

| Associated Conditions | | | |
|---|--|---|--------------------|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | Gear and Flaps: UP |
| Notes | | | |
| Grayed values for interpolation only. | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | |

| Pressure Altitude: 39,000 Feet | | | | | | | | | |
|--------------------------------|--------|---------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -8°C | | | | MAX: ISA +23°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| -10 | MINS | 15.8 | 15.3 | 15.0 | 13.8 | 12.8 | 11.8 | 10.9 | 10.0 |
| | NM | 76 | 73 | 71 | 66 | 61 | 56 | 51 | 47 |
| | LB | 577 | 559 | 548 | 510 | 473 | 438 | 404 | 373 |
| | FPM | 943 | 999 | 1,038 | 1,171 | 1,319 | 1,466 | 1,625 | 1,810 |
| | GRAD % | 2.8 | 2.9 | 3.1 | 3.4 | 3.9 | 4.3 | 4.8 | 5.3 |
| 0 | MINS | 16.6 | 16.1 | 15.7 | 14.6 | 13.5 | 12.4 | 11.4 | 10.5 |
| | NM | 80 | 78 | 76 | 70 | 65 | 60 | 55 | 50 |
| | LB | 598 | 580 | 568 | 528 | 490 | 454 | 419 | 386 |
| | FPM | 968 | 1,024 | 1,064 | 1,200 | 1,352 | 1,502 | 1,665 | 1,854 |
| | GRAD % | 2.8 | 2.9 | 3.1 | 3.5 | 3.9 | 4.3 | 4.8 | 5.3 |
| 10 | MINS | 19.6 | 19.0 | 18.5 | 17.2 | 15.8 | 14.6 | 13.4 | 12.3 |
| | NM | 96 | 93 | 91 | 84 | 77 | 71 | 65 | 60 |
| | LB | 659 | 638 | 624 | 579 | 537 | 496 | 456 | 420 |
| | FPM | 884 | 939 | 978 | 1,110 | 1,258 | 1,401 | 1,558 | 1,740 |
| | GRAD % | 2.5 | 2.6 | 2.8 | 3.1 | 3.5 | 3.9 | 4.4 | 4.9 |
| 20 | MINS | 30.7 | 29.3 | 28.4 | 25.8 | 23.5 | 21.4 | 19.4 | 17.7 |
| | NM | 158 | 151 | 146 | 132 | 120 | 109 | 98 | 89 |
| | LB | 865 | 830 | 807 | 738 | 676 | 618 | 564 | 516 |
| | FPM | 320 | 361 | 390 | 487 | 596 | 693 | 800 | 924 |
| | GRAD % | 0.9 | 1 | 1.1 | 1.3 | 1.6 | 1.9 | 2.2 | 2.5 |
| 30 | MINS | - | - | - | - | 52.6 | 43.4 | 37.0 | 32.4 |
| | NM | - | - | - | - | 291 | 237 | 201 | 174 |
| | LB | - | - | - | - | 1,186 | 1,005 | 873 | 773 |
| | FPM | - | - | - | - | 49 | 101 | 163 | 237 |
| | GRAD % | - | - | - | - | 0.1 | 0.3 | 0.4 | 0.6 |



16 Pressure Altitude: 41,000 Feet

| Associated Conditions | | | |
|---|--|---|--------------------|
| Thrust: MCT | | Indicated Airspeed: 200 KIAS / 0.60 MACH | Gear and Flaps: UP |
| Notes | | | |
| Grayed values for interpolation only. | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | |

| Pressure Altitude: 41,000 Feet | | | | | | | | | |
|--------------------------------|--------|---------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -8°C | | | | MAX: ISA +23°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| -10 | MINS | 18.2 | 17.6 | 17.1 | 15.8 | 14.5 | 13.3 | 12.2 | 11.2 |
| | NM | 89 | 86 | 84 | 77 | 70 | 64 | 59 | 54 |
| | LB | 624 | 604 | 590 | 547 | 506 | 467 | 430 | 396 |
| | FPM | 710 | 768 | 809 | 937 | 1,078 | 1,230 | 1,394 | 1,560 |
| | GRAD % | 2.1 | 2.3 | 2.4 | 2.8 | 3.2 | 3.6 | 4.1 | 4.6 |
| 0 | MINS | 19.0 | 18.3 | 17.8 | 16.4 | 15.1 | 13.9 | 12.7 | 11.7 |
| | NM | 94 | 90 | 88 | 81 | 74 | 68 | 62 | 57 |
| | LB | 646 | 625 | 611 | 566 | 523 | 483 | 445 | 409 |
| | FPM | 730 | 789 | 831 | 962 | 1,106 | 1,262 | 1,430 | 1,599 |
| | GRAD % | 2.1 | 2.3 | 2.4 | 2.8 | 3.2 | 3.6 | 4.1 | 4.6 |
| 10 | MINS | 22.4 | 21.6 | 21.0 | 19.3 | 17.7 | 16.2 | 14.9 | 13.6 |
| | NM | 113 | 108 | 105 | 96 | 88 | 81 | 74 | 67 |
| | LB | 714 | 689 | 673 | 621 | 573 | 528 | 485 | 446 |
| | FPM | 562 | 619 | 657 | 779 | 913 | 1,058 | 1,211 | 1,366 |
| | GRAD % | 1.6 | 1.7 | 1.8 | 2.2 | 2.6 | 3 | 3.4 | 3.8 |
| 20 | MINS | 42.9 | 39.0 | 37.0 | 31.8 | 28.1 | 25.1 | 22.5 | 20.4 |
| | NM | 232 | 209 | 197 | 168 | 147 | 131 | 117 | 105 |
| | LB | 1,071 | 993 | 951 | 840 | 754 | 680 | 617 | 561 |
| | FPM | 55 | 95 | 118 | 205 | 301 | 404 | 509 | 609 |
| | GRAD % | 0.2 | 0.3 | 0.3 | 0.6 | 0.8 | 1.1 | 1.4 | 1.7 |



17 Pressure Altitude: 43,000 Feet

| Associated Conditions | | | | | |
|---|---|--------------------|--|--|--|
| Thrust: MCT | Indicated Airspeed: 200 KIAS / 0.60 MACH | Gear and Flaps: UP | | | |
| Notes | | | | | |
| Grayed values for interpolation only. | | | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | | | |

| Pressure Altitude: 43,000 Feet | | | | | | | | | |
|--------------------------------|--------|---------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -8°C | | | | MAX: ISA +23°C | | | |
| | | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 |
| -10 | MINS | 21.6 | 20.7 | 20.0 | 18.2 | 16.6 | 15.1 | 13.8 | 12.6 |
| | NM | 108 | 103 | 100 | 90 | 82 | 74 | 67 | 61 |
| | LB | 685 | 659 | 642 | 590 | 543 | 499 | 459 | 421 |
| | FPM | 485 | 537 | 574 | 707 | 850 | 997 | 1,157 | 1,338 |
| | GRAD % | 1.4 | 1.6 | 1.7 | 2.1 | 2.5 | 2.9 | 3.4 | 3.9 |
| 0 | MINS | 22.3 | 21.3 | 20.7 | 18.8 | 17.1 | 15.6 | 14.3 | 13.0 |
| | NM | 113 | 108 | 104 | 94 | 86 | 78 | 71 | 64 |
| | LB | 707 | 681 | 663 | 610 | 561 | 516 | 473 | 434 |
| | FPM | 497 | 550 | 588 | 724 | 870 | 1,020 | 1,183 | 1,368 |
| | GRAD % | 1.4 | 1.6 | 1.7 | 2.1 | 2.5 | 2.9 | 3.4 | 3.9 |
| 10 | MINS | 27.8 | 26.3 | 25.4 | 22.7 | 20.5 | 18.6 | 16.9 | 15.4 |
| | NM | 144 | 136 | 131 | 116 | 104 | 94 | 85 | 77 |
| | LB | 808 | 771 | 748 | 681 | 622 | 569 | 520 | 476 |
| | FPM | 219 | 266 | 299 | 420 | 548 | 679 | 818 | 977 |
| | GRAD % | 0.6 | 0.8 | 0.8 | 1.2 | 1.5 | 1.9 | 2.3 | 2.7 |
| 20 | MINS | - | - | - | - | 43.4 | 33.6 | 28.4 | 24.8 |
| | NM | - | - | - | - | 239 | 182 | 152 | 132 |
| | LB | - | - | - | - | 979 | 807 | 703 | 627 |
| | FPM | - | - | - | - | 26 | 112 | 205 | 312 |
| | GRAD % | - | - | - | - | 0.1 | 0.3 | 0.6 | 0.9 |



18 Pressure Altitude: 45,000 Feet

| Associated Conditions | | | |
|---|---|--------------------|--|
| Thrust: MCT | Indicated Airspeed: 200 KIAS / 0.60 MACH | Gear and Flaps: UP | |
| Notes | | | |
| Grayed values for interpolation only. | | | |
| Interpolation using data fields containing a '-' is prohibited. | | | |
| Data printed in red text indicates that the rate of climb is less than 100 feet per minute. | | | |
| MSN 101 - 500: Valid data not highlighted (white background). | | | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | | | |

| Pressure Altitude: 45,000 Feet | | | | | | | | | |
|--------------------------------|--------|---------------|--------|--------|--------|----------------|--------|--------|--------|
| ISA DEV | TEMP | MIN: ISA -8°C | | | | MAX: ISA +23°C | | | |
| | TOW LB | 18,740 | 18,300 | 18,000 | 17,000 | 16,000 | 15,000 | 14,000 | 13,000 |
| -10 | MINS | 27.1 | 25.4 | 24.4 | 21.6 | 19.3 | 17.4 | 15.7 | 14.2 |
| | NM | 139 | 130 | 124 | 109 | 97 | 87 | 78 | 71 |
| | LB | 774 | 737 | 714 | 647 | 588 | 537 | 490 | 448 |
| | FPM | 257 | 313 | 352 | 475 | 610 | 764 | 918 | 1,088 |
| | GRAD % | 0.8 | 0.9 | 1 | 1.4 | 1.8 | 2.2 | 2.7 | 3.2 |
| 0 | MINS | 27.6 | 26.0 | 25.0 | 22.2 | 19.8 | 17.9 | 16.2 | 14.7 |
| | NM | 144 | 135 | 129 | 114 | 101 | 91 | 82 | 74 |
| | LB | 798 | 760 | 736 | 667 | 607 | 554 | 505 | 462 |
| | FPM | 259 | 316 | 356 | 481 | 618 | 775 | 933 | 1,106 |
| | GRAD % | 0.7 | 0.9 | 1 | 1.4 | 1.8 | 2.2 | 2.7 | 3.2 |
| 10 | MINS | - | - | - | 31.6 | 26.2 | 22.7 | 20.1 | 18.0 |
| | NM | - | - | - | 168 | 138 | 118 | 104 | 93 |
| | LB | - | - | - | 816 | 708 | 631 | 569 | 515 |
| | FPM | - | - | - | 92 | 201 | 331 | 457 | 595 |
| | GRAD % | - | - | - | 0.3 | 0.6 | 0.9 | 1.3 | 1.7 |
| 20 | MINS | - | - | - | - | - | - | - | 40.1 |
| | NM | - | - | - | - | - | - | - | 224 |
| | LB | - | - | - | - | - | - | - | 827 |
| | FPM | - | - | - | - | - | - | - | 23 |
| | GRAD % | - | - | - | - | - | - | - | 0.1 |



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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Holding, IPS OFF / ON
1 Holding Performance, IPS OFF

| Associated Conditions | | | | | | | | | | | | |
|------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|
| NAI Correction | | | | | | | | | | | | |
| Increase N1 up to 0.2% | | | | | | | | | | | | |
| Increase total FF flow by 20 lb/hr | | | | | | | | | | | | |

| Pressure Altitude: Sea Level to 35,000 Feet | | | | | | | | | | | | | |
|---|-----|--------|-------------|--------|-------------|--------|-------------|--------|-------------|--------|-------------|--------|-------------|
| Weight (lb) | | 17,000 | | 16,000 | | 15,000 | | 14,000 | | 13,000 | | 12,000 | |
| V _{HOLD} (KIAS) | | 155 | | 150 | | 146 | | 141 | | 135 | | 130 | |
| ALT FT | ISA | N1 % | FF lb/hr |
| 0 | -20 | 52.7 | 903 | 51.8 | 864 | 50.9 | 825 | 49.9 | 786 | 47.7 | 742 | 45.5 | 698 |
| | -10 | 53.1 | 928 | 52.1 | 888 | 51.2 | 849 | 50.2 | 809 | 49.3 | 770 | 47.1 | 725 |
| | 0 | 53.9 | 953 | 52.9 | 913 | 51.9 | 872 | 50.9 | 831 | 49.9 | 791 | 48.5 | 749 |
| | 10 | 54.4 | 985 | 53.3 | 943 | 52.2 | 901 | 51.1 | 860 | 50.0 | 819 | 48.9 | 777 |
| | 20 | 55.4 | 1,011 | 54.2 | 968 | 53.0 | 925 | 51.9 | 883 | 50.7 | 840 | 49.5 | 798 |
| 1,500 | -20 | 53.5 | 889 | 52.6 | 850 | 51.7 | 811 | 50.8 | 773 | 48.8 | 730 | 46.5 | 686 |
| | -10 | 54.2 | 911 | 53.2 | 872 | 52.3 | 832 | 51.3 | 792 | 50.3 | 752 | 48.0 | 708 |
| | 0 | 55.0 | 936 | 54.0 | 895 | 52.9 | 854 | 51.9 | 814 | 50.9 | 774 | 49.5 | 731 |
| | 10 | 55.5 | 967 | 54.3 | 925 | 53.2 | 884 | 52.1 | 843 | 51.0 | 802 | 49.9 | 760 |
| | 20 | 56.4 | 994 | 55.2 | 952 | 54.0 | 909 | 52.8 | 866 | 51.6 | 824 | 50.4 | 782 |
| 5,000 | -20 | 55.8 | 856 | 54.9 | 817 | 54.0 | 779 | 53.0 | 740 | 51.0 | 698 | 48.6 | 656 |
| | -10 | 56.6 | 877 | 55.7 | 837 | 54.7 | 798 | 53.8 | 758 | 52.5 | 718 | 50.1 | 675 |
| | 0 | 57.2 | 904 | 56.1 | 863 | 55.1 | 823 | 54.1 | 783 | 53.1 | 742 | 51.1 | 699 |
| | 10 | 58.2 | 929 | 57.1 | 887 | 56.0 | 846 | 54.8 | 805 | 53.7 | 763 | 52.6 | 722 |
| | 20 | 59.3 | 956 | 58.1 | 913 | 56.8 | 870 | 55.6 | 828 | 54.4 | 785 | 53.1 | 742 |
| 10,000 | -20 | 60.3 | 803 | 59.1 | 763 | 56.8 | 725 | 54.6 | 687 | 52.4 | 649 | 50.2 | 612 |
| | -10 | 61.3 | 823 | 60.3 | 782 | 58.7 | 742 | 56.3 | 704 | 54.0 | 665 | 51.7 | 627 |
| | 0 | 62.0 | 852 | 61.0 | 811 | 60.0 | 770 | 58.2 | 729 | 55.8 | 688 | 53.3 | 648 |
| | 10 | 62.9 | 882 | 61.8 | 840 | 60.7 | 798 | 59.5 | 756 | 57.6 | 714 | 55.0 | 672 |
| | 20 | 63.8 | 912 | 62.6 | 869 | 61.3 | 826 | 60.1 | 782 | 58.9 | 739 | 56.6 | 695 |
| 15,000 | -20 | 63.5 | 794 | 61.9 | 753 | 59.8 | 713 | 57.7 | 673 | 55.5 | 633 | 53.4 | 593 |
| | -10 | 64.6 | 813 | 63.6 | 773 | 61.7 | 733 | 59.5 | 691 | 57.2 | 650 | 55.0 | 609 |
| | 0 | 65.8 | 834 | 64.8 | 793 | 63.7 | 752 | 61.3 | 710 | 58.9 | 667 | 56.5 | 625 |
| | 10 | 67.1 | 856 | 65.9 | 813 | 64.8 | 771 | 63.1 | 729 | 60.6 | 685 | 58.1 | 642 |
| | 20 | 68.4 | 878 | 67.1 | 834 | 65.9 | 790 | 64.6 | 747 | 62.3 | 703 | 59.6 | 658 |
| 20,000 | -20 | 67.4 | 767 | 65.3 | 726 | 63.2 | 685 | 61.1 | 644 | 58.9 | 603 | 56.8 | 563 |
| | -10 | 68.6 | 792 | 67.5 | 752 | 65.3 | 709 | 63.0 | 666 | 60.7 | 624 | 58.5 | 582 |
| | 0 | 69.7 | 816 | 68.6 | 775 | 67.4 | 734 | 64.9 | 689 | 62.5 | 644 | 60.2 | 601 |
| | 10 | 71.1 | 841 | 69.8 | 799 | 68.5 | 757 | 66.9 | 713 | 64.4 | 667 | 61.9 | 621 |
| | 20 | 72.5 | 865 | 71.0 | 822 | 69.6 | 779 | 68.2 | 735 | 66.2 | 690 | 63.6 | 642 |
| 25,000 | -20 | 71.1 | 744 | 69.0 | 703 | 66.9 | 662 | 64.7 | 621 | 62.6 | 580 | 60.4 | 539 |
| | -10 | 72.9 | 771 | 71.5 | 730 | 69.2 | 686 | 66.9 | 643 | 64.6 | 600 | 62.3 | 558 |
| | 0 | 74.0 | 796 | 72.9 | 755 | 71.4 | 712 | 69.0 | 667 | 66.6 | 622 | 64.1 | 577 |
| | 10 | 75.4 | 821 | 74.1 | 778 | 72.8 | 735 | 71.1 | 691 | 68.6 | 643 | 66.0 | 595 |
| | 20 | 77.1 | 844 | 75.6 | 800 | 74.1 | 757 | 72.6 | 713 | 70.4 | 666 | 67.7 | 617 |
| 30,000 | -10 | 76.8 | 748 | 75.6 | 708 | 73.4 | 666 | 71.1 | 623 | 68.8 | 580 | 66.5 | 537 |
| | 0 | 78.5 | 773 | 77.4 | 731 | 75.2 | 687 | 72.8 | 642 | 70.5 | 598 | 68.1 | 553 |
| | 10 | 80.0 | 798 | 78.8 | 756 | 77.5 | 713 | 75.0 | 665 | 72.4 | 617 | 69.9 | 569 |
| | 20 | 81.8 | 822 | 80.4 | 779 | 79.0 | 735 | 77.3 | 690 | 74.6 | 640 | 71.9 | 590 |



Section 5 - Performance, Cockpit Handbook (Authority approved) Holding, IPS OFF / ON

| Pressure Altitude: Sea Level to 35,000 Feet | | | | | | | | | | | | | | | | | |
|---|-----|---------|-------------|---------|-------------|---------|-------------|---------|-------------|---------|-------------|---------|-------------|---------|-------------|--------|--|
| Weight (lb) | | 17,000 | | | 16,000 | | | 15,000 | | | 14,000 | | | 13,000 | | 12,000 | |
| V _{HOLD} (KIAS) | | 155 | | | 150 | | | 146 | | | 141 | | | 135 | | 130 | |
| ALT FT | ISA | N1 % | FF lb/hr | | |
| 35,000 | -10 | 80.3 | 729 | 79.1 | 689 | 77.9 | 649 | 75.8 | 608 | 73.4 | 565 | 71.1 | 523 | | | | |
| | 0 | 82.3 | 754 | 81.0 | 713 | 79.8 | 671 | 77.6 | 627 | 75.1 | 582 | 72.6 | 538 | | | | |
| | 10 | 84.2 | 779 | 82.9 | 736 | 81.6 | 693 | 79.4 | 647 | 76.9 | 601 | 74.4 | 555 | | | | |
| | 20 | 86.0 | 802 | 84.6 | 759 | 83.2 | 715 | 81.7 | 671 | 79.1 | 624 | 76.4 | 576 | | | | |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



2 Holding Performance, IPS ON

| Pressure Altitude: Sea Level to 35,000 Feet | | | | | | | | | |
|---|-----|---------|-------------|---------|-------------|---------|-------------|---------|-------------|
| Weight (lb) | | 17,000 | | 16,000 | | 15,000 | | 14,000 | |
| V _{HOLD} (KIAS) | | 169 | | 164 | | 159 | | 154 | |
| ALT FT | ISA | N1 % | FF lb/hr | N1 % | FF lb/hr | N1 % | FF lb/hr | N1 % | FF lb/hr |
| 0 | -20 | 53.5 | 1,023 | 52.0 | 980 | 50.4 | 936 | 48.9 | 893 |
| | -10 | 55.3 | 1,049 | 53.6 | 1,006 | 51.9 | 962 | 50.2 | 919 |
| | 0 | 57.7 | 1,104 | 55.7 | 1,058 | 53.7 | 1,012 | 51.8 | 966 |
| | 10 | 58.4 | 1,147 | 57.4 | 1,100 | 56.0 | 1,053 | 53.8 | 1,004 |
| | 20 | 58.9 | 1,182 | 57.8 | 1,134 | 56.6 | 1,086 | 55.4 | 1,039 |
| 1,500 | -20 | 54.5 | 1,012 | 52.9 | 969 | 51.4 | 925 | 49.8 | 881 |
| | -10 | 56.4 | 1,035 | 54.6 | 991 | 52.9 | 947 | 51.1 | 903 |
| | 0 | 58.8 | 1,083 | 56.8 | 1,037 | 54.8 | 991 | 52.8 | 946 |
| | 10 | 59.3 | 1,129 | 58.2 | 1,083 | 57.2 | 1,036 | 54.9 | 988 |
| | 20 | 59.8 | 1,164 | 58.7 | 1,116 | 57.5 | 1,069 | 56.3 | 1,022 |
| 5,000 | -20 | 57.0 | 989 | 55.3 | 945 | 53.6 | 900 | 52.0 | 856 |
| | -10 | 59.1 | 1,013 | 57.2 | 968 | 55.4 | 923 | 53.5 | 879 |
| | 0 | 61.5 | 1,036 | 59.5 | 991 | 57.4 | 946 | 55.3 | 901 |
| | 10 | 61.8 | 1,086 | 60.7 | 1,040 | 59.5 | 994 | 57.7 | 947 |
| | 20 | 62.2 | 1,125 | 60.9 | 1,077 | 59.7 | 1,031 | 58.4 | 984 |
| 10,000 | -20 | 60.6 | 956 | 58.8 | 910 | 57.1 | 866 | 55.3 | 821 |
| | -10 | 63.2 | 988 | 61.1 | 941 | 59.2 | 896 | 57.2 | 851 |
| | 0 | 64.7 | 1,010 | 63.6 | 963 | 61.5 | 917 | 59.2 | 872 |
| | 10 | 65.6 | 1,032 | 64.4 | 984 | 63.2 | 938 | 61.7 | 893 |
| | 20 | 66.1 | 1,078 | 64.7 | 1,030 | 63.3 | 984 | 61.9 | 938 |
| 15,000 | -20 | 64.6 | 924 | 62.7 | 878 | 60.8 | 833 | 58.8 | 787 |
| | -10 | 67.0 | 962 | 65.4 | 916 | 63.2 | 869 | 61.0 | 823 |
| | 0 | 67.8 | 988 | 66.6 | 943 | 65.4 | 898 | 63.8 | 852 |
| | 10 | 69.1 | 1,013 | 67.7 | 966 | 66.4 | 919 | 65.1 | 873 |
| | 20 | 70.7 | 1,044 | 69.3 | 995 | 67.8 | 946 | 66.4 | 898 |
| 20,000 | -20 | 68.8 | 899 | 66.8 | 853 | 64.7 | 808 | 62.7 | 763 |
| | -10 | 70.5 | 934 | 69.4 | 890 | 67.7 | 845 | 65.4 | 799 |
| | 0 | 71.6 | 964 | 70.3 | 919 | 69.0 | 874 | 67.7 | 830 |
| | 10 | 73.2 | 994 | 71.7 | 949 | 70.3 | 903 | 68.8 | 857 |
| | 20 | 74.9 | 1,027 | 73.3 | 979 | 71.8 | 932 | 70.1 | 885 |
| 25,000 | -20 | 73.0 | 875 | 71.0 | 831 | 69.0 | 786 | 66.9 | 741 |
| | -10 | 74.3 | 910 | 73.2 | 868 | 72.1 | 824 | 69.8 | 778 |
| | 0 | 75.7 | 941 | 74.5 | 898 | 73.2 | 853 | 71.9 | 808 |
| | 10 | 77.6 | 971 | 76.2 | 927 | 74.7 | 881 | 73.2 | 834 |
| | 20 | 79.6 | 1,002 | 78.0 | 955 | 76.3 | 908 | 74.6 | 860 |
| 30,000 | -10 | 78.2 | 884 | 77.1 | 841 | 75.9 | 799 | 73.8 | 754 |
| | 0 | 80.0 | 916 | 78.8 | 871 | 77.6 | 827 | 75.7 | 781 |
| | 10 | 81.8 | 947 | 80.4 | 902 | 79.1 | 856 | 77.7 | 811 |
| | 20 | 84.0 | 976 | 82.4 | 930 | 80.8 | 884 | 79.2 | 838 |
| 35,000 | -10 | 81.7 | 837 | 80.4 | 792 | 79.2 | 750 | 77.9 | 707 |
| | 0 | 83.7 | 868 | 82.4 | 821 | 81.1 | 777 | 79.8 | 732 |
| | 10 | 85.7 | 897 | 84.3 | 849 | 82.9 | 803 | 81.5 | 758 |
| | 20 | 88.1 | 926 | 86.5 | 876 | 84.9 | 830 | 83.2 | 784 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



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Approach Climb

1 OEI Go-Around Thrust (ATR)

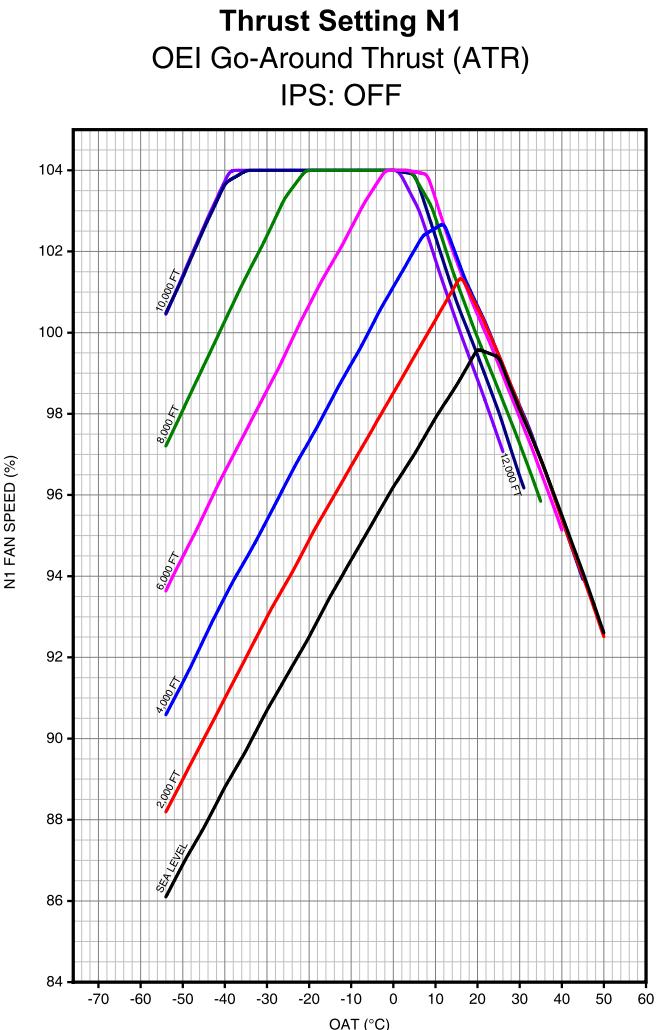


Figure 5-ACL-1-1: OEI Go-Around Thrust (ATR) - N1% - IPS OFF

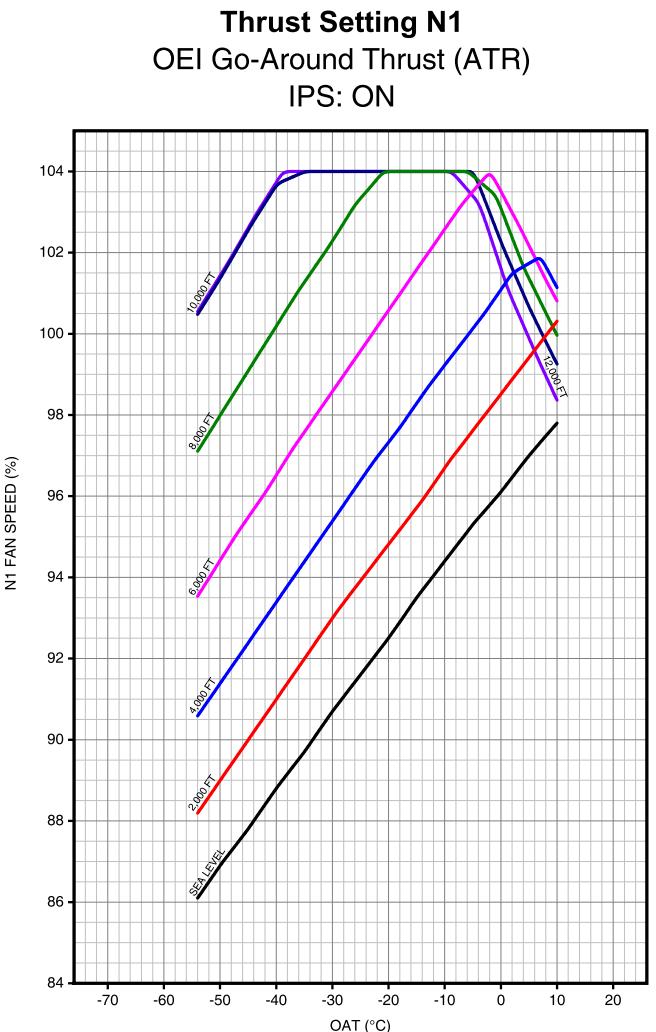


Figure 5-ACL-1-2: OEI Go-Around Thrust (ATR) - N1% - IPS ON



Discontinued Approach Climb Performance

DISCONTINUED APPROACH CLIMB GRADIENT

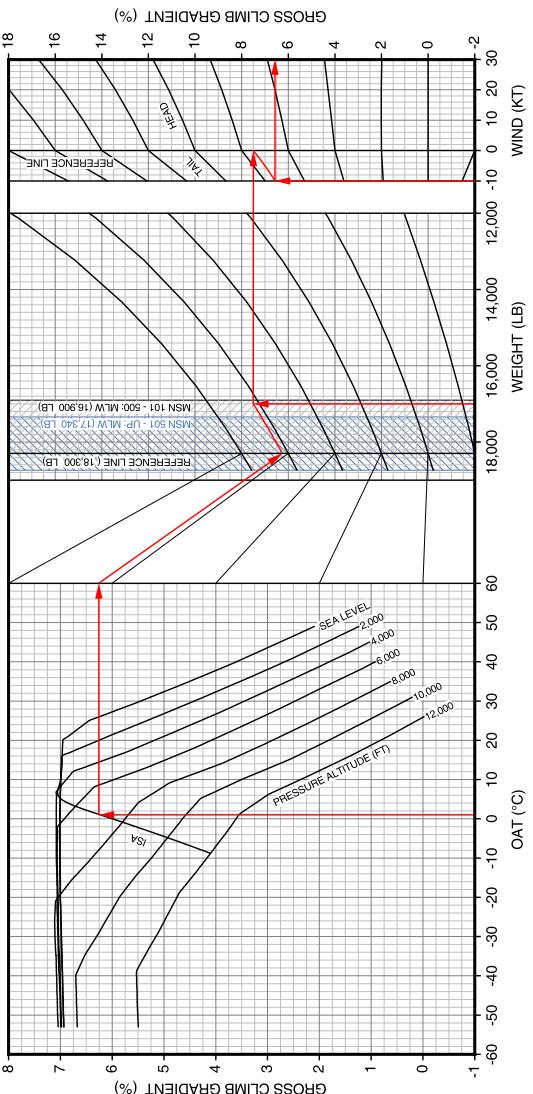
FLAPS 15°, IPS OFF

ASSOCIATED CONDITIONS:
 ALTITUDE: 10,000 FT
 INOP. ENGINE: UP
 INOP. GEAR: UP
 LANDING SPEED: 160 KIAS
 OPERATING MODE: TAKEOFF-DETENT (ATR ACTIVATED)

REDUCE GROSS CLIMB GRADIENT BY:
 NAI ON ATR INOP : 0.4%
 : 1.6%
 : 16°

OPERATING MODE : V_{EFF} (F15, ICE MODE) - REFER TO LANDING DATA FOR ACTUAL V_{EFF}

EXAMPLE:
 QAT : 6.6%
 ALTITUDE : 10,000 FT
 HEADWIND : 0 KT
 GROSS CLIMB GRADIENT : 6.6%





DISCONTINUED APPROACH CLIMB GRADIENT

FLAPS 15°, IPS ON

ASSOCIATED CONDITIONS:

ATR INOP
LANDING GEAR DOWN
NO. ENGINE INOP

REDUCE GROSS CLIMB GRADIENT BY:
1.5%
ATR INOP

OAT : 50°F
ALTITUDE : 7,000 FT
HEADWIND : 0-10 KTS
WEIGHT : 17,000 LB
GROSS CLIMB GRADIENT : 5.8%

WIND (KTS) : 0-30

GROSS CLIMB GRADIENT (%) : 0-2

REFERENCE LINE : 1.5% (1.5%)

REFERENCE LINE : 1.5% (1.5%)

REFERENCE LINE : 1.5% (1.5%)

OAT (°C) : -40-0

GROSS CLIMB GRADIENT (%) : 0-2

REFERENCE LINE : 1.5% (1.5%)

PRESSURE ALTITUDE (FT) : 0-12,000

GROSS CLIMB GRADIENT (%) : 0-2

REFERENCE LINE : 1.5% (1.5%)

GROSS CLIMB GRADIENT (%) : 0-2

GROSS CLIMB GRADIENT (%) : 0-2

REFERENCE LINE : 1.5% (1.5%)

GROSS CLIMB GRADIENT (%) : 0-2

GROSS CLIMB GRADIENT (%) : 0-2

REFERENCE LINE : 1.5% (1.5%)

GROSS CLIMB GRADIENT (%) : 0-2

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GROSS CLIMB GRADIENT (%) : 0-2

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GROSS CLIMB GRADIENT (%) : 0-2

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REFERENCE LINE : 1.5% (1.5%)

GROSS CLIMB GRADIENT (%) : 0-2

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REFERENCE LINE : 1.5% (1.5%)

GROSS CLIMB GRADIENT (%) : 0-2

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GROSS CLIMB GRADIENT (%) : 0-2

REFERENCE LINE : 1.5% (1.5%)

GROSS CLIMB GRADIENT (%) : 0-2

GROSS CLIMB GRADIENT (%) : 0-2

REFERENCE LINE : 1.5% (1.5%)

Figure 5-ACL-1-4: Discontinued Approach Climb Gradient - % - IPS ON



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

3 AEO Go-Around Thrust

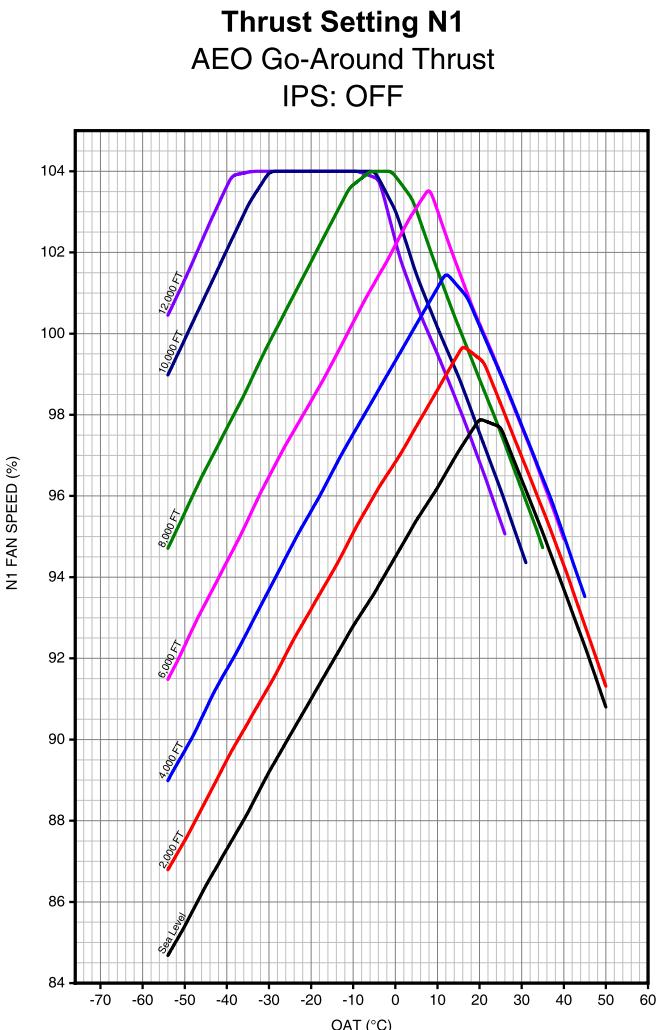


Figure 5-ACL-1-5: AEO Go-Around Thrust - N1% - IPS OFF

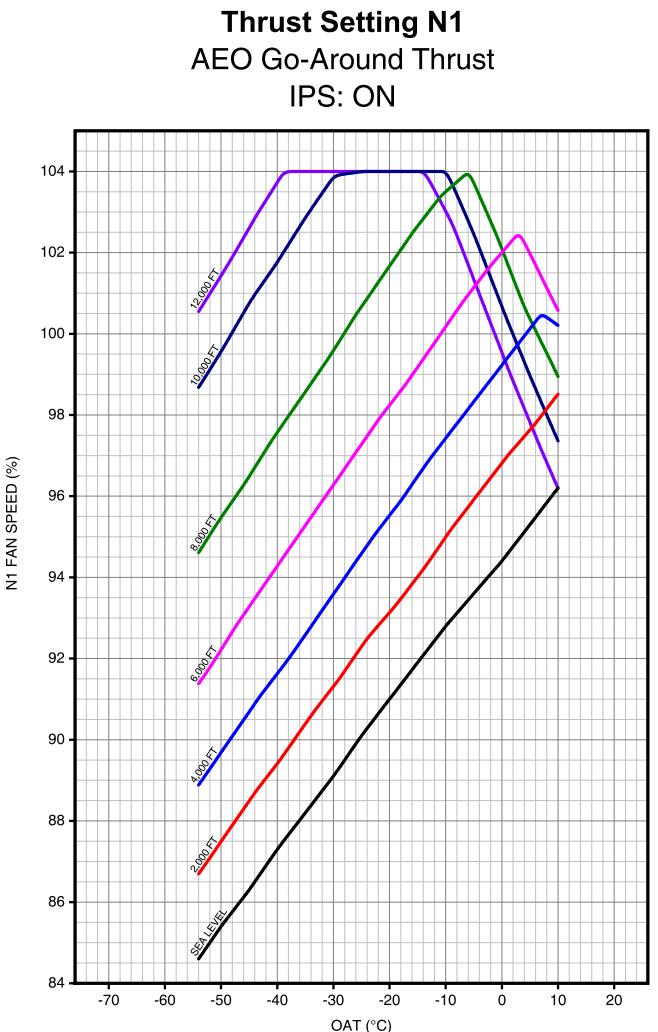


Figure 5-ACL-1-6: AEO Go-Around Thrust - N1% - IPS ON



Balked Landing Climb Performance

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

BALKED LANDING CLIMB GRADIENT

FLAPS 33°, IPS OFF

ASSOCIATED CONDITIONS:
 ANTI-ICE : OFF
 LANDNG GEAR : DOWN
 TAKEOFF-DETENT
 ENGINES SPEED : V_{REF} (F33, ICE MODE 0) - REFER TO LANDING DATA FOR ACTUAL V_{REF}

REDUCE GROSS CLIMB GRADIENT BY:
 1.0 %
 N/A ON

EXAMPLE:
 OAT : 25°C
 ALTITUDE : 8,000 FT
 HEADWIND : 5 KTS
 GROSS CLIMB GRADIENT : 9.3 %

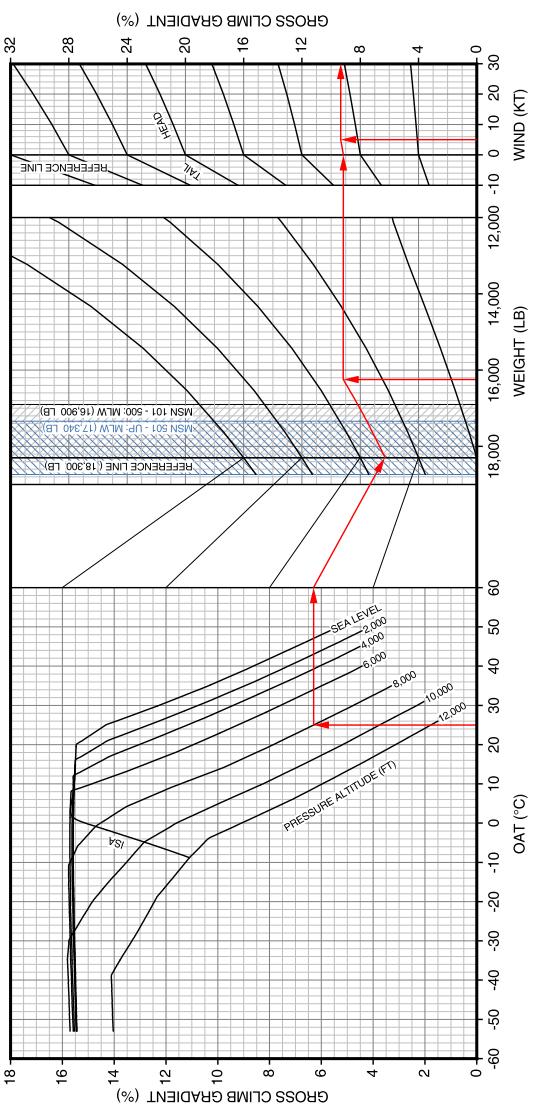


Figure 5-ACL-1-7: Balked Landing Climb Gradient - Flaps 33 - IPS OFF



BALKED LANDING CLIMB GRADIENT

FLAPS 33°, IPS ON

ASSOCIATED CONDITIONS:
 ANTI-ICE : ON
 LANDING GEAR : DOWN
 ENGINES : TAKEOFF DETENT
 V_{REF} (E38 ICE MODE) - REFER TO LANDING DATA FOR ACTUAL V_{REF}

EXAMPLE:
 OAT : 100.0 °C
 ALTITUDE : 1000 FT
 WEIGHT : 16000 LB
 HEADWIND : 10 KT
 CROSS CLIMB GRADIENT : 15.7 %

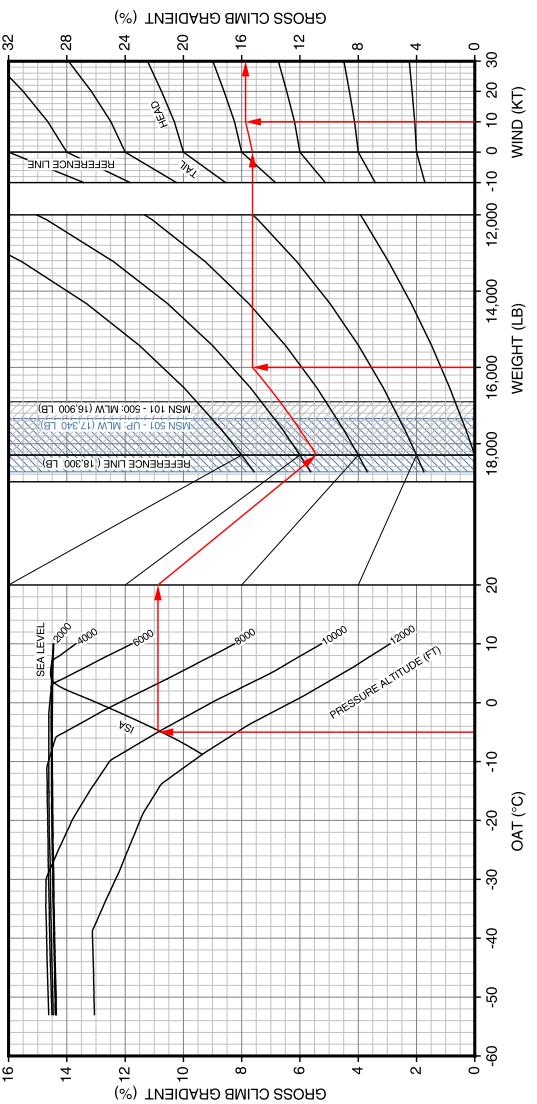


Figure 5-ACL-1-8: Balked Landing Climb Gradient - Flaps 33 - IPS ON



BALKED LANDING CLIMB GRADIENT

FLAPS 15°, IPS OFF

ASSOCIATED CONDITIONS:
 : OFF
 : DOWN
 : TAKEOFF-DETENT
 : V_{REF} (F1-F5-ICE MODE 6) - REFER TO LANDING DATA FOR ACTUAL V_{REF}
 : LANDNG GEAR
 : ENGINES
 : SPEED

EXAMPLE:

REDUCE GROSS CLIMB GRADIENT BY:
 : 10%
 NAION
 OAT
 ALTITUDE
 WEIGHT
 HEADWIND
 GROSS CLIMB GRADIENT
 : 12.3%

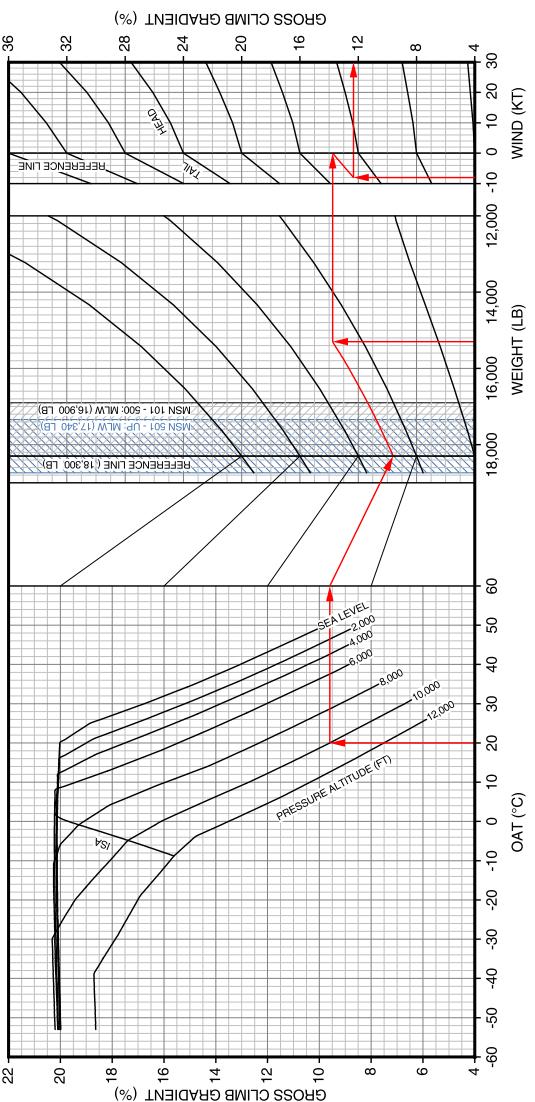


Figure 5-ACL-1-9: Balked Landing Climb Gradient - Flaps 15 - IPS OFF



BALKED LANDING CLIMB GRADIENT

FLAPS 15°, IPS ON

ASSOCIATED CONDITIONS:
 : ON
 : DOWN
 : TAKEOFF-DETENT
 : VREF (F15-ICE MODE) - REFER TO LANDING DATA FOR ACTUAL V_{REF}
 : ENGINE GEAR
 : LANDINGS
 : ANTI-ICING
 : SPEED

EXAMPLE:

OAT:
 : 50°F
 : 10000 FT
 : 1632 LB

GROSS CLIMB GRADIENT:
 : 15.8%
 : REFERENCE LINE
 : HEAD
 : TAIL

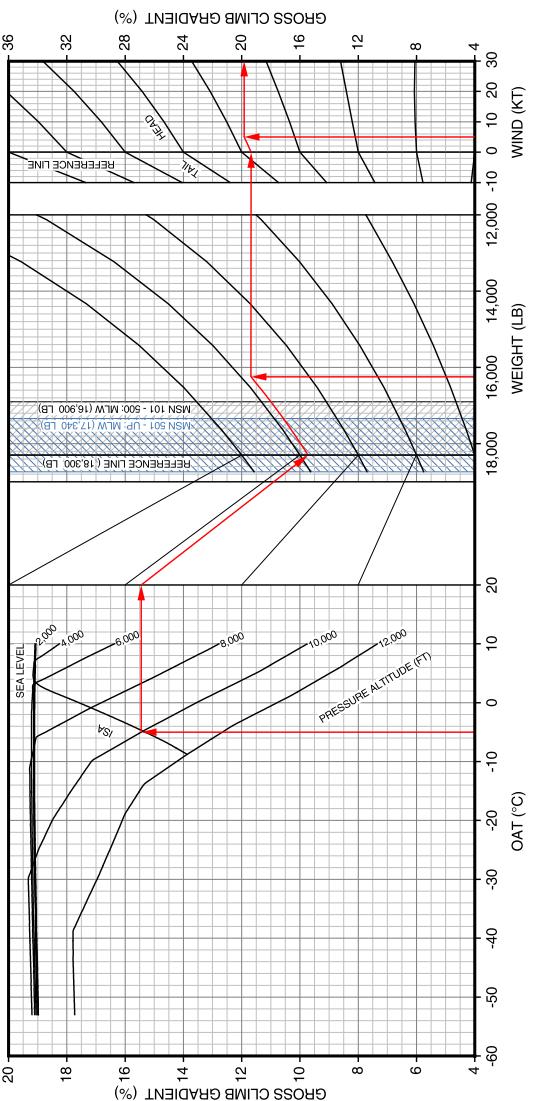


Figure 5-ACL-1-10: Balked Landing Climb Gradient - Flaps 15 - IPS ON



Landing Information

1 General

All landing data contained in this section is based on a hard, paved runway surface.

1.1 Terminology

The (Actual) **Landing Distance** is the horizontal distance necessary to land the aircraft from a point 50 ft above the landing surface to the point where the aircraft comes to a complete stop.

The (Landing) **Field Length Required** is the dispatched (scheduled) landing distance, containing the safety factors prescribed by EASA Air Operations Part-CAT Subpart G, for public transport operations of performance class A airplanes. Operators licenced to such operations are required by their airworthiness authority to include safety factors to account for variations which may occur in service. The required, operational safety factors are:

- 1.67 for dry runways
- 1.92 for wet runways.

Unfactored, actual landing data must not be used for public transport operations (unless specifically permitted by the local airworthiness authority). Actual landing distances correspond to best performance that can be achieved in ideal weather conditions and may not be achieved consistently in everyday operations. It is recommended that the field length required is computed for flight planning.

The **minimum required runway length** for a landing is the result of a landing performance assessment. Depending on the type of operation it is either the actual landing distance or the field length required.

1.2 Parametric Landing Analysis

The field length required for landings in normal landing configuration (Flaps 33°) is based on the parametric landing analysis. Following this mathematical method, the airborne part of the landing distance is calculated assuming a FPA of 3.5° and a touchdown sink rate of 8 fps. Actual landing distance, however, is derived from certification experience following a FPA of 3° and a touchdown sink rate of 6 fps. The parametric method must not be applied to actual (unfactored) landing distance.

2 Normal Landing Procedure

This paragraph contains the landing procedure that must be followed to obtain the performance contained in this section.

The minimum required runway lengths contained in this subsection assume that both Anti-skid and Lift Dump are operative.



The landing procedure is as follows:

- 1 Maintain V_{APP} on the glide slope slowing the aircraft down to V_{REF} at 50 ft AGL
- 2 Reduce thrust to flight idle and maintain glide slope to approximately 15 ft
- 3 Between 10 to 15 ft AGL increase pitch attitude 1 to 1.5 degrees to reduce the descent rate to approximately 200 feet per minute

Note

Whilst the reduction in descent rate may be classified as a flare, the aircraft embraces ground effect in such a way as to cushion the landing, resulting in a significant reduction in the need for a conventional flare.

- 4 After main wheel touch down, de-rotate the nose without delay
- 5 Apply maximum braking effort until the aircraft is brought to a stop

Note

Expect anti-skid operation during the ground roll.

3 Determination Of Landing Distance

3.1 Normal Landings

Determine the minimum required runway length for a landing using the following steps:

- 1 Select the table appropriate to the conditions for landing as follows:
 - Dry or wet runway
 - Landing flap setting
 - Field length required or actual landing distance
 - Ice mode expected for landing.
- 2 Read down the left side of the table to find the pressure altitude of the destination airport
- 3 Read to the right to locate the temperature at the destination airport
- 4 Read across the adjacent row to the planned landing weight column and read the minimum required runway length
- 5 Read up to the top of the column to find the reference speed (V_{REF}) for the planned landing weight
- 6 Adjust the runway length requirement determined in Step 4 for applicable headwind, tailwind, and runway slope using the correction instructions at the top of the applicable table.



3.2 Abnormal Landings

Table 5-LND-1-1 gives corrective factors to be applied in abnormal landing cases. The minimum runway length required for a landing in an abnormal landing configuration is determined as follows:

- 1 Determine the actual (unfactored) landing distance in accordance with the procedure laid out in section 2, based on the reference table given in the second column of Table 5-LND-1-1.
- 2 Multiply the actual landing distance with the applicable factor given in Table 5-LND-1-1.

Table 5-LND-1-1: Abnormal Landing Correction Factors

| Abnormal Landing Case | Ref. Table | Factor |
|--------------------------------------|------------------------|--------|
| Lift Dump Failure | | 1.20 |
| Anti-skid Failure | As required | 1.20 |
| Anti-skid + Lift Dump Failure | (Flaps 33 or Flaps 15) | 1.50 |
| Emergency Brake | Flaps 15) | 1.20 |
| Emergency Brake + Lift Dump Failure | | 1.50 |
| Flaps 8 | | 1.50 |
| Flapless Landing | Flaps 33 | 1.65 |
| Flapless Landing + Lift Dump Failure | | 2.05 |
| WAI Failure (Flaps 15, ICE Mode 2) | | 2.05 |

Note

Only one abnormal landing factor may be selected for any given landing case.



4 Landing Distance Factoring Chart

Use the Landing Distance Factoring chart to derive any desired landing distance factor between 1.0 and 2.2.

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

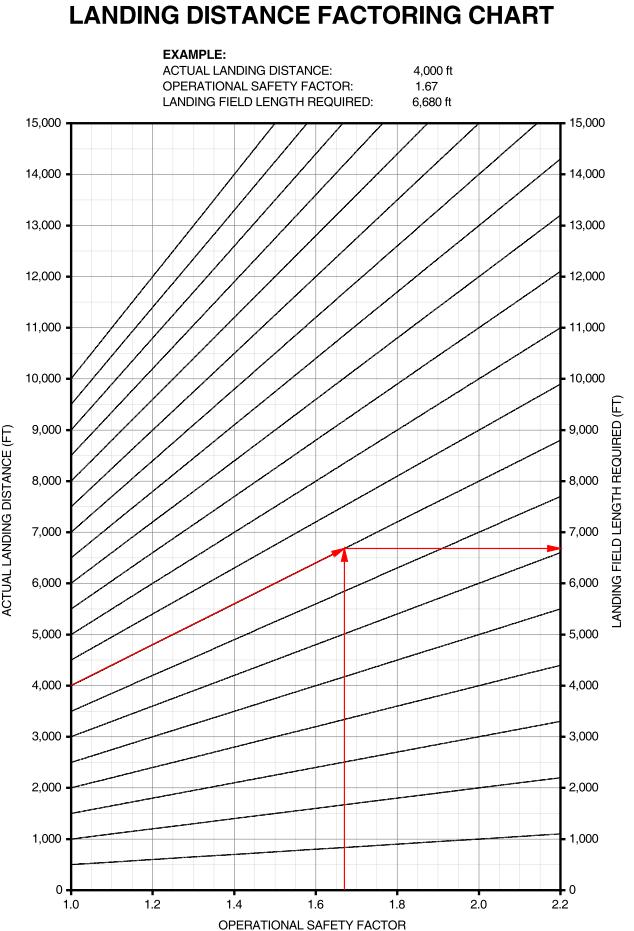


Figure 5-LND-1-1: Landing Distance Factoring Chart



5 Landing Reference Speed

Use [Table 5-LND-1-2](#) to derive the applicable V_{REF} for normal and abnormal landings.

■ MSN 101 - 500: Valid data not highlighted (white background).

■ MSN 501 - up: All data shown valid, specific data highlighted (light blue background).

Table 5-LND-1-2: Landing Reference Speeds For Normal and Abnormal Landings

| ICE Mode | Flaps | V_{REF} - KIAS (AT 50 FT) | | | | | | | | |
|----------|-------|-----------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | | OWL | | | MLW | | WEIGHT - LB | | | |
| | | V_{REF} KIAS | V_{REF} KIAS | V_{REF} KIAS | V_{REF} KIAS | V_{REF} KIAS | V_{REF} KIAS | V_{REF} KIAS | V_{REF} KIAS | V_{REF} KIAS |
| 0 | 33° | 108 | 106 | 105 | 103 | 102 | 99 | 96 | 93 | 90 |
| | 15° | 115 | 114 | 113 | 111 | 109 | 107 | 103 | 100 | 96 |
| | 8° | 121 | 119 | 118 | 116 | 115 | 112 | 108 | 104 | 101 |
| | 0° | 135 | 133 | 132 | 130 | 128 | 125 | 121 | 117 | 112 |
| | 33° | 112 | 110 | 109 | 107 | 106 | 103 | 100 | 96 | 93 |
| 1 | 15° | 119 | 118 | 117 | 116 | 113 | 110 | 106 | 103 | 99 |
| | 8° | 124 | 123 | 122 | 120 | 118 | 115 | 112 | 108 | 104 |
| | 0° | 136 | 134 | 133 | 131 | 129 | 126 | 122 | 117 | 113 |
| | 15° | 155 | 153 | 151 | 149 | 147 | 143 | 138 | 133 | 129 |
| 2 | | | | | | | | | | |



Note

The landing reference speed (V_{REF}) is independent of runway conditions (dry / wet) and landing distance type (landing field length required or actual landing distance).



Landing, Dry Runway, Flaps 33, Landing Field Length Required, Ice Mode 0

1 Ice Mode 0

| Associated Conditions | |
|---|--------------------------|
| Gear: | DOWN |
| Thrust: | Required for 3° Approach |
| Power: | Cut to Idle at 50 ft AGL |
| Airspeed: | V_{REF} at 50 ft AGL |
| Flare: | Initiate at 15 ft AGL |
| Lift Dump and Anti-Skid: | Operative |
| Wind Correction | |
| For tailwinds up to 10 knots, increase distance by 110 ft for each knot. | |
| For headwinds up to 30 knots, reduce distance by 25 ft for each knot. | |
| Slope Correction | |
| For downhill slopes up to 2%, increase distance by 35 ft for each 0.5%. | |
| For uphill slopes up to 2%, reduce distance by 10 ft for each 0.5%. | |
| Notes | |
| All landing distances are given in feet (ft) | |
| For abnormal landing cases and multipliers, refer to Abnormal Landings. | |
| MSN 101 - 500: Valid data not highlighted (white background). | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | |

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|---|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 118 V_{REF} 108 KIAS | 18,300 V_{APP} 116 V_{REF} 106 KIAS | 17,340 V_{APP} 113 V_{REF} 103 KIAS | 16,900 V_{APP} 112 V_{REF} 102 KIAS | 15,000 V_{APP} 106 V_{REF} 96 KIAS | 13,000 V_{APP} 100 V_{REF} 90 KIAS |
| Sea level | -54 | 3,240 | 3,200 | 3,120 | 3,080 | 2,910 | 2,730 |
| | -50 | 3,270 | 3,230 | 3,140 | 3,100 | 2,930 | 2,750 |
| | -40 | 3,340 | 3,300 | 3,210 | 3,170 | 2,990 | 2,810 |
| | -30 | 3,420 | 3,370 | 3,280 | 3,240 | 3,050 | 2,860 |
| | -20 | 3,520 | 3,460 | 3,350 | 3,300 | 3,110 | 2,910 |
| | -10 | 3,620 | 3,560 | 3,430 | 3,370 | 3,170 | 2,960 |
| | 0 | 3,720 | 3,660 | 3,520 | 3,460 | 3,230 | 3,020 |
| | 10 | 3,820 | 3,760 | 3,610 | 3,550 | 3,290 | 3,070 |
| | 20 | 3,920 | 3,850 | 3,700 | 3,640 | 3,350 | 3,120 |
| | 30 | 4,010 | 3,950 | 3,800 | 3,730 | 3,420 | 3,180 |
| | 40 | 4,110 | 4,040 | 3,890 | 3,810 | 3,500 | 3,230 |
| | 50 | 4,210 | 4,130 | 3,980 | 3,900 | 3,580 | 3,280 |

Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Dry Runway, Flaps 33, Landing Field Length Required, Ice Mode 0



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|---|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 118 V_{REF} 108 KIAS | 18,300 V_{APP} 116 V_{REF} 106 KIAS | 17,340 V_{APP} 113 V_{REF} 103 KIAS | 16,900 V_{APP} 112 V_{REF} 102 KIAS | 15,000 V_{APP} 106 V_{REF} 96 KIAS | 13,000 V_{APP} 100 V_{REF} 90 KIAS |
| 1,000 | -54 | 3,310 | 3,270 | 3,180 | 3,140 | 2,960 | 2,780 |
| | -50 | 3,330 | 3,290 | 3,200 | 3,160 | 2,980 | 2,800 |
| | -40 | 3,410 | 3,360 | 3,270 | 3,230 | 3,040 | 2,850 |
| | -30 | 3,510 | 3,450 | 3,340 | 3,300 | 3,110 | 2,910 |
| | -20 | 3,620 | 3,560 | 3,420 | 3,370 | 3,170 | 2,960 |
| | -10 | 3,720 | 3,660 | 3,520 | 3,450 | 3,230 | 3,020 |
| | 0 | 3,820 | 3,760 | 3,610 | 3,550 | 3,290 | 3,070 |
| | 10 | 3,920 | 3,850 | 3,710 | 3,640 | 3,360 | 3,120 |
| | 20 | 4,020 | 3,950 | 3,800 | 3,730 | 3,430 | 3,180 |
| | 30 | 4,120 | 4,050 | 3,900 | 3,820 | 3,510 | 3,230 |
| | 40 | 4,220 | 4,150 | 3,990 | 3,910 | 3,590 | 3,290 |
| | 50 | 4,310 | 4,230 | 4,070 | 3,990 | 3,670 | 3,330 |
| 2,000 | -54 | 3,360 | 3,320 | 3,230 | 3,190 | 3,010 | 2,820 |
| | -50 | 3,390 | 3,350 | 3,260 | 3,220 | 3,030 | 2,840 |
| | -40 | 3,500 | 3,440 | 3,330 | 3,290 | 3,100 | 2,900 |
| | -30 | 3,610 | 3,550 | 3,410 | 3,360 | 3,160 | 2,960 |
| | -20 | 3,710 | 3,650 | 3,510 | 3,450 | 3,230 | 3,010 |
| | -10 | 3,820 | 3,750 | 3,610 | 3,540 | 3,290 | 3,070 |
| | 0 | 3,920 | 3,860 | 3,710 | 3,640 | 3,360 | 3,130 |
| | 10 | 4,030 | 3,960 | 3,810 | 3,740 | 3,430 | 3,180 |
| | 20 | 4,130 | 4,060 | 3,900 | 3,830 | 3,520 | 3,240 |
| | 30 | 4,230 | 4,160 | 4,000 | 3,930 | 3,600 | 3,290 |
| | 40 | 4,330 | 4,260 | 4,100 | 4,020 | 3,690 | 3,350 |
| | 50 | 4,430 | 4,350 | 4,180 | 4,100 | 3,770 | 3,400 |
| 3,000 | -54 | 3,450 | 3,390 | 3,300 | 3,250 | 3,070 | 2,870 |
| | -50 | 3,480 | 3,420 | 3,320 | 3,280 | 3,090 | 2,890 |
| | -40 | 3,590 | 3,530 | 3,400 | 3,350 | 3,150 | 2,950 |
| | -30 | 3,700 | 3,640 | 3,500 | 3,440 | 3,220 | 3,010 |
| | -20 | 3,810 | 3,750 | 3,610 | 3,540 | 3,290 | 3,070 |
| | -10 | 3,920 | 3,850 | 3,710 | 3,640 | 3,360 | 3,120 |
| | 0 | 4,030 | 3,960 | 3,810 | 3,740 | 3,430 | 3,180 |
| | 10 | 4,130 | 4,060 | 3,910 | 3,840 | 3,520 | 3,240 |
| | 20 | 4,240 | 4,170 | 4,010 | 3,930 | 3,610 | 3,300 |
| | 30 | 4,350 | 4,270 | 4,110 | 4,030 | 3,700 | 3,360 |
| | 40 | 4,450 | 4,370 | 4,210 | 4,130 | 3,790 | 3,420 |
| | 47 | 4,520 | 4,440 | 4,270 | 4,190 | 3,840 | 3,470 |
| 4,000 | -54 | 3,540 | 3,480 | 3,360 | 3,310 | 3,120 | 2,920 |
| | -50 | 3,570 | 3,510 | 3,390 | 3,340 | 3,140 | 2,940 |
| | -40 | 3,690 | 3,630 | 3,490 | 3,430 | 3,210 | 3,000 |
| | -30 | 3,800 | 3,740 | 3,600 | 3,530 | 3,280 | 3,060 |
| | -20 | 3,910 | 3,850 | 3,700 | 3,630 | 3,350 | 3,120 |
| | -10 | 4,030 | 3,960 | 3,810 | 3,740 | 3,430 | 3,180 |
| | 0 | 4,140 | 4,070 | 3,910 | 3,840 | 3,520 | 3,240 |
| | 10 | 4,250 | 4,170 | 4,010 | 3,940 | 3,620 | 3,300 |
| | 20 | 4,360 | 4,280 | 4,120 | 4,040 | 3,710 | 3,360 |
| | 30 | 4,460 | 4,390 | 4,220 | 4,140 | 3,800 | 3,430 |
| | 40 | 4,570 | 4,490 | 4,320 | 4,240 | 3,890 | 3,510 |
| | 45 | 4,620 | 4,540 | 4,360 | 4,280 | 3,930 | 3,550 |

Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Dry Runway, Flaps 33, Landing Field Length Required, Ice Mode 0



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|---|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 118 V_{REF} 108 KIAS | 18,300 V_{APP} 116 V_{REF} 106 KIAS | 17,340 V_{APP} 113 V_{REF} 103 KIAS | 16,900 V_{APP} 112 V_{REF} 102 KIAS | 15,000 V_{APP} 106 V_{REF} 96 KIAS | 13,000 V_{APP} 100 V_{REF} 90 KIAS |
| 5,000 | -54 | 3,630 | 3,570 | 3,440 | 3,380 | 3,180 | 2,970 |
| | -50 | 3,670 | 3,610 | 3,470 | 3,410 | 3,200 | 2,990 |
| | -40 | 3,790 | 3,720 | 3,580 | 3,520 | 3,270 | 3,050 |
| | -30 | 3,910 | 3,840 | 3,690 | 3,630 | 3,350 | 3,120 |
| | -20 | 4,020 | 3,950 | 3,800 | 3,730 | 3,430 | 3,180 |
| | -10 | 4,140 | 4,070 | 3,910 | 3,840 | 3,520 | 3,240 |
| | 0 | 4,250 | 4,180 | 4,020 | 3,940 | 3,620 | 3,300 |
| | 10 | 4,360 | 4,290 | 4,120 | 4,050 | 3,720 | 3,370 |
| | 20 | 4,480 | 4,400 | 4,230 | 4,150 | 3,810 | 3,440 |
| | 30 | 4,590 | 4,510 | 4,330 | 4,250 | 3,900 | 3,530 |
| | 40 | 4,700 | 4,620 | 4,440 | 4,360 | 4,000 | 3,610 |
| | 42 | 4,710 | 4,630 | 4,450 | 4,370 | 4,010 | 3,620 |
| | -54 | 3,740 | 3,670 | 3,540 | 3,470 | 3,240 | 3,030 |
| 6,000 | -50 | 3,770 | 3,710 | 3,570 | 3,500 | 3,260 | 3,040 |
| | -40 | 3,890 | 3,830 | 3,680 | 3,610 | 3,340 | 3,110 |
| | -30 | 4,010 | 3,940 | 3,790 | 3,720 | 3,420 | 3,170 |
| | -20 | 4,130 | 4,060 | 3,910 | 3,830 | 3,520 | 3,240 |
| | -10 | 4,250 | 4,180 | 4,020 | 3,940 | 3,620 | 3,300 |
| | 0 | 4,370 | 4,290 | 4,130 | 4,050 | 3,720 | 3,370 |
| | 10 | 4,480 | 4,410 | 4,240 | 4,160 | 3,820 | 3,450 |
| | 20 | 4,600 | 4,520 | 4,350 | 4,270 | 3,910 | 3,530 |
| | 30 | 4,720 | 4,630 | 4,450 | 4,370 | 4,010 | 3,620 |
| | 40 | 4,820 | 4,740 | 4,550 | 4,470 | 4,100 | 3,700 |
| | -54 | 3,830 | 3,760 | 3,620 | 3,550 | 3,300 | 3,070 |
| | -50 | 3,870 | 3,810 | 3,660 | 3,600 | 3,330 | 3,100 |
| | -40 | 4,000 | 3,930 | 3,780 | 3,710 | 3,410 | 3,170 |
| 7,000 | -30 | 4,120 | 4,050 | 3,900 | 3,830 | 3,510 | 3,240 |
| | -20 | 4,250 | 4,170 | 4,010 | 3,940 | 3,620 | 3,300 |
| | -10 | 4,370 | 4,290 | 4,130 | 4,050 | 3,720 | 3,370 |
| | 0 | 4,490 | 4,410 | 4,240 | 4,160 | 3,820 | 3,450 |
| | 10 | 4,610 | 4,530 | 4,360 | 4,270 | 3,920 | 3,540 |
| | 20 | 4,730 | 4,650 | 4,470 | 4,380 | 4,020 | 3,630 |
| | 30 | 4,850 | 4,760 | 4,580 | 4,490 | 4,120 | 3,720 |
| | 38 | 4,930 | 4,840 | 4,660 | 4,570 | 4,190 | 3,780 |
| | -54 | 3,960 | 3,890 | 3,740 | 3,670 | 3,380 | 3,150 |
| | -50 | 3,990 | 3,920 | 3,780 | 3,710 | 3,410 | 3,170 |
| | -40 | 4,120 | 4,050 | 3,900 | 3,830 | 3,510 | 3,240 |
| | -30 | 4,250 | 4,180 | 4,020 | 3,940 | 3,620 | 3,310 |
| | -20 | 4,380 | 4,300 | 4,140 | 4,060 | 3,730 | 3,380 |
| | -10 | 4,500 | 4,430 | 4,260 | 4,180 | 3,830 | 3,460 |
| | 0 | 4,630 | 4,550 | 4,370 | 4,290 | 3,940 | 3,560 |
| | 10 | 4,750 | 4,670 | 4,490 | 4,410 | 4,040 | 3,650 |
| | 20 | 4,880 | 4,790 | 4,610 | 4,520 | 4,150 | 3,740 |
| | 30 | 5,000 | 4,910 | 4,720 | 4,630 | 4,250 | 3,830 |
| | 35 | 5,050 | 4,960 | 4,770 | 4,680 | 4,290 | 3,870 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Dry Runway, Flaps 33, Landing Field Length Required, Ice Mode 0

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|---|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 118 V_{REF} 108 KIAS | 18,300 V_{APP} 116 V_{REF} 106 KIAS | 17,340 V_{APP} 113 V_{REF} 103 KIAS | 16,900 V_{APP} 112 V_{REF} 102 KIAS | 15,000 V_{APP} 106 V_{REF} 96 KIAS | 13,000 V_{APP} 100 V_{REF} 90 KIAS |
| 9,000 | -54 | 4,140 | 4,070 | 3,920 | 3,850 | 3,530 | 3,270 |
| | -50 | 4,190 | 4,110 | 3,960 | 3,890 | 3,570 | 3,290 |
| | -40 | 4,320 | 4,250 | 4,090 | 4,010 | 3,680 | 3,370 |
| | -30 | 4,460 | 4,380 | 4,210 | 4,130 | 3,800 | 3,440 |
| | -20 | 4,590 | 4,510 | 4,340 | 4,260 | 3,910 | 3,530 |
| | -10 | 4,720 | 4,640 | 4,460 | 4,380 | 4,020 | 3,630 |
| | 0 | 4,860 | 4,770 | 4,590 | 4,500 | 4,130 | 3,730 |
| | 10 | 4,990 | 4,900 | 4,710 | 4,620 | 4,240 | 3,830 |
| | 20 | 5,120 | 5,030 | 4,830 | 4,740 | 4,350 | 3,920 |
| | 30 | 5,240 | 5,150 | 4,950 | 4,860 | 4,460 | 4,020 |
| | 33 | 5,280 | 5,180 | 4,980 | 4,890 | 4,480 | 4,040 |
| 10,000 | -54 | 4,340 | 4,270 | 4,110 | 4,030 | 3,700 | 3,400 |
| | -50 | 4,390 | 4,310 | 4,150 | 4,070 | 3,740 | 3,420 |
| | -40 | 4,530 | 4,450 | 4,280 | 4,200 | 3,860 | 3,500 |
| | -30 | 4,670 | 4,590 | 4,420 | 4,330 | 3,980 | 3,590 |
| | -20 | 4,810 | 4,730 | 4,550 | 4,460 | 4,100 | 3,700 |
| | -10 | 4,950 | 4,870 | 4,680 | 4,590 | 4,210 | 3,800 |
| | 0 | 5,090 | 5,000 | 4,810 | 4,720 | 4,330 | 3,910 |
| | 10 | 5,230 | 5,140 | 4,940 | 4,850 | 4,440 | 4,010 |
| | 20 | 5,370 | 5,270 | 5,070 | 4,970 | 4,560 | 4,110 |
| | 30 | 5,500 | 5,400 | 5,190 | 5,100 | 4,670 | 4,210 |
| | 31 | 5,510 | 5,410 | 5,200 | 5,100 | 4,680 | 4,220 |



Landing, Dry Runway, Flaps 33, Landing Field Length Required, Ice Mode 1

1 Ice Mode 1

| Associated Conditions | |
|---|--------------------------|
| Gear: | DOWN |
| Thrust: | Required for 3° Approach |
| Power: | Cut to Idle at 50 ft AGL |
| Airspeed: | V_{REF} at 50 ft AGL |
| Flare: | Initiate at 15 ft AGL |
| Lift Dump and Anti-Skid: | Operative |
| Wind Correction | |
| For tailwinds up to 10 knots, increase distance by 110 ft for each knot. | |
| For headwinds up to 30 knots, reduce distance by 25 ft for each knot. | |
| Slope Correction | |
| For downhill slopes up to 2%, increase distance by 35 ft for each 0.5%. | |
| For uphill slopes up to 2%, reduce distance by 10 ft for each 0.5%. | |
| Notes | |
| All landing distances are given in feet (ft) | |
| For abnormal landing cases and multipliers, refer to Abnormal Landings. | |
| MSN 101 - 500: Valid data not highlighted (white background). | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | |

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 122 V_{REF} 112 KIAS | 18,300 V_{APP} 120 V_{REF} 110 KIAS | 17,340 V_{APP} 117 V_{REF} 107 KIAS | 16,900 V_{APP} 116 V_{REF} 106 KIAS | 15,000 V_{APP} 110 V_{REF} 100 KIAS | 13,000 V_{APP} 103 V_{REF} 93 KIAS |
| Sea level | -54 | 3,360 | 3,320 | 3,230 | 3,190 | 3,010 | 2,820 |
| | -50 | 3,390 | 3,340 | 3,250 | 3,210 | 3,030 | 2,840 |
| | -40 | 3,490 | 3,430 | 3,330 | 3,280 | 3,090 | 2,890 |
| | -30 | 3,600 | 3,540 | 3,400 | 3,350 | 3,160 | 2,950 |
| | -20 | 3,710 | 3,640 | 3,500 | 3,440 | 3,220 | 3,010 |
| | -10 | 3,810 | 3,750 | 3,600 | 3,540 | 3,290 | 3,060 |
| | 0 | 3,910 | 3,850 | 3,700 | 3,630 | 3,350 | 3,120 |
| | 10 | 4,020 | 3,950 | 3,800 | 3,730 | 3,420 | 3,180 |
| | 20 | 4,120 | 4,050 | 3,900 | 3,820 | 3,510 | 3,230 |
| | 30 | 4,220 | 4,150 | 3,990 | 3,920 | 3,600 | 3,290 |
| | 40 | 4,320 | 4,250 | 4,090 | 4,010 | 3,680 | 3,340 |
| | 50 | 4,420 | 4,350 | 4,180 | 4,100 | 3,770 | 3,400 |

Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Dry Runway, Flaps 33, Landing Field Length Required, Ice Mode 1

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 122 V_{REF} 112 KIAS | 18,300 V_{APP} 120 V_{REF} 110 KIAS | 17,340 V_{APP} 117 V_{REF} 107 KIAS | 16,900 V_{APP} 116 V_{REF} 106 KIAS | 15,000 V_{APP} 110 V_{REF} 100 KIAS | 13,000 V_{APP} 103 V_{REF} 93 KIAS |
| 1,000 | -54 | 3,440 | 3,390 | 3,290 | 3,250 | 3,060 | 2,870 |
| | -50 | 3,470 | 3,410 | 3,310 | 3,270 | 3,080 | 2,880 |
| | -40 | 3,580 | 3,520 | 3,390 | 3,340 | 3,150 | 2,940 |
| | -30 | 3,690 | 3,630 | 3,490 | 3,430 | 3,220 | 3,000 |
| | -20 | 3,800 | 3,740 | 3,600 | 3,530 | 3,280 | 3,060 |
| | -10 | 3,910 | 3,840 | 3,700 | 3,630 | 3,350 | 3,120 |
| | 0 | 4,020 | 3,950 | 3,800 | 3,730 | 3,420 | 3,180 |
| | 10 | 4,120 | 4,050 | 3,900 | 3,830 | 3,510 | 3,240 |
| | 20 | 4,230 | 4,160 | 4,000 | 3,920 | 3,600 | 3,290 |
| | 30 | 4,340 | 4,260 | 4,100 | 4,020 | 3,690 | 3,350 |
| | 40 | 4,440 | 4,360 | 4,200 | 4,120 | 3,780 | 3,410 |
| | 50 | 4,530 | 4,450 | 4,280 | 4,200 | 3,850 | 3,480 |
| | -54 | 3,520 | 3,460 | 3,350 | 3,300 | 3,110 | 2,910 |
| 2,000 | -50 | 3,560 | 3,500 | 3,380 | 3,330 | 3,140 | 2,930 |
| | -40 | 3,680 | 3,620 | 3,480 | 3,420 | 3,210 | 2,990 |
| | -30 | 3,790 | 3,730 | 3,590 | 3,520 | 3,280 | 3,050 |
| | -20 | 3,900 | 3,840 | 3,690 | 3,620 | 3,350 | 3,120 |
| | -10 | 4,020 | 3,950 | 3,800 | 3,730 | 3,420 | 3,180 |
| | 0 | 4,130 | 4,050 | 3,900 | 3,830 | 3,520 | 3,240 |
| | 10 | 4,240 | 4,160 | 4,000 | 3,930 | 3,610 | 3,300 |
| | 20 | 4,340 | 4,270 | 4,110 | 4,030 | 3,700 | 3,360 |
| | 30 | 4,450 | 4,370 | 4,210 | 4,130 | 3,790 | 3,420 |
| | 40 | 4,560 | 4,480 | 4,310 | 4,230 | 3,880 | 3,500 |
| | 50 | 4,660 | 4,580 | 4,400 | 4,320 | 3,960 | 3,580 |
| | -54 | 3,630 | 3,570 | 3,430 | 3,370 | 3,180 | 2,970 |
| | -50 | 3,660 | 3,600 | 3,460 | 3,400 | 3,200 | 2,980 |
| 3,000 | -40 | 3,780 | 3,710 | 3,570 | 3,510 | 3,270 | 3,050 |
| | -30 | 3,890 | 3,830 | 3,680 | 3,610 | 3,340 | 3,110 |
| | -20 | 4,010 | 3,940 | 3,790 | 3,720 | 3,420 | 3,170 |
| | -10 | 4,120 | 4,050 | 3,900 | 3,830 | 3,510 | 3,230 |
| | 0 | 4,240 | 4,160 | 4,000 | 3,930 | 3,610 | 3,300 |
| | 10 | 4,350 | 4,270 | 4,110 | 4,030 | 3,700 | 3,360 |
| | 20 | 4,460 | 4,380 | 4,220 | 4,140 | 3,800 | 3,430 |
| | 30 | 4,570 | 4,490 | 4,320 | 4,240 | 3,890 | 3,510 |
| | 40 | 4,680 | 4,600 | 4,420 | 4,340 | 3,980 | 3,600 |
| | 47 | 4,750 | 4,670 | 4,490 | 4,410 | 4,040 | 3,650 |
| | -54 | 3,720 | 3,660 | 3,520 | 3,450 | 3,230 | 3,020 |
| | -50 | 3,760 | 3,690 | 3,550 | 3,490 | 3,260 | 3,040 |
| | -40 | 3,880 | 3,810 | 3,670 | 3,600 | 3,330 | 3,100 |
| 4,000 | -30 | 4,000 | 3,930 | 3,780 | 3,710 | 3,410 | 3,170 |
| | -20 | 4,120 | 4,050 | 3,890 | 3,820 | 3,510 | 3,230 |
| | -10 | 4,240 | 4,160 | 4,000 | 3,930 | 3,610 | 3,300 |
| | 0 | 4,350 | 4,280 | 4,110 | 4,040 | 3,710 | 3,360 |
| | 10 | 4,470 | 4,390 | 4,220 | 4,140 | 3,800 | 3,440 |
| | 20 | 4,580 | 4,500 | 4,330 | 4,250 | 3,900 | 3,520 |
| | 30 | 4,700 | 4,620 | 4,440 | 4,360 | 4,000 | 3,610 |
| | 40 | 4,810 | 4,730 | 4,550 | 4,460 | 4,090 | 3,690 |
| | 45 | 4,860 | 4,770 | 4,590 | 4,500 | 4,130 | 3,730 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Landing, Dry Runway, Flaps 33, Landing Field Length Required, Ice Mode 1

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 122 V_{REF} 112 KIAS | 18,300 V_{APP} 120 V_{REF} 110 KIAS | 17,340 V_{APP} 117 V_{REF} 107 KIAS | 16,900 V_{APP} 116 V_{REF} 106 KIAS | 15,000 V_{APP} 110 V_{REF} 100 KIAS | 13,000 V_{APP} 103 V_{REF} 93 KIAS |
| 5,000 | -54 | 3,820 | 3,750 | 3,610 | 3,550 | 3,290 | 3,070 |
| | -50 | 3,860 | 3,790 | 3,650 | 3,580 | 3,320 | 3,090 |
| | -40 | 3,980 | 3,920 | 3,770 | 3,700 | 3,400 | 3,160 |
| | -30 | 4,110 | 4,040 | 3,880 | 3,810 | 3,500 | 3,230 |
| | -20 | 4,230 | 4,160 | 4,000 | 3,920 | 3,600 | 3,290 |
| | -10 | 4,350 | 4,280 | 4,110 | 4,040 | 3,700 | 3,360 |
| | 0 | 4,470 | 4,390 | 4,230 | 4,150 | 3,810 | 3,440 |
| | 10 | 4,590 | 4,510 | 4,340 | 4,260 | 3,910 | 3,530 |
| | 20 | 4,710 | 4,630 | 4,450 | 4,370 | 4,010 | 3,620 |
| | 30 | 4,830 | 4,740 | 4,560 | 4,480 | 4,100 | 3,710 |
| | 40 | 4,950 | 4,860 | 4,670 | 4,580 | 4,200 | 3,790 |
| | 42 | 4,960 | 4,870 | 4,680 | 4,600 | 4,220 | 3,800 |
| | -54 | 3,930 | 3,860 | 3,720 | 3,650 | 3,360 | 3,130 |
| | -50 | 3,960 | 3,900 | 3,750 | 3,680 | 3,390 | 3,150 |
| 6,000 | -40 | 4,090 | 4,020 | 3,870 | 3,800 | 3,490 | 3,220 |
| | -30 | 4,220 | 4,150 | 3,990 | 3,920 | 3,590 | 3,290 |
| | -20 | 4,350 | 4,270 | 4,110 | 4,030 | 3,700 | 3,360 |
| | -10 | 4,470 | 4,390 | 4,230 | 4,150 | 3,810 | 3,440 |
| | 0 | 4,600 | 4,520 | 4,340 | 4,260 | 3,910 | 3,530 |
| | 10 | 4,720 | 4,640 | 4,460 | 4,370 | 4,010 | 3,620 |
| | 20 | 4,840 | 4,760 | 4,570 | 4,490 | 4,120 | 3,720 |
| | 30 | 4,960 | 4,880 | 4,690 | 4,600 | 4,220 | 3,810 |
| | 40 | 5,070 | 4,980 | 4,790 | 4,700 | 4,310 | 3,890 |
| | -54 | 4,020 | 3,950 | 3,800 | 3,730 | 3,430 | 3,180 |
| | -50 | 4,070 | 4,000 | 3,850 | 3,780 | 3,470 | 3,210 |
| 7,000 | -40 | 4,210 | 4,130 | 3,980 | 3,900 | 3,580 | 3,280 |
| | -30 | 4,340 | 4,260 | 4,100 | 4,020 | 3,690 | 3,350 |
| | -20 | 4,470 | 4,390 | 4,220 | 4,140 | 3,800 | 3,440 |
| | -10 | 4,600 | 4,520 | 4,340 | 4,260 | 3,910 | 3,530 |
| | 0 | 4,720 | 4,640 | 4,460 | 4,380 | 4,020 | 3,630 |
| | 10 | 4,850 | 4,770 | 4,580 | 4,500 | 4,120 | 3,720 |
| | 20 | 4,980 | 4,890 | 4,700 | 4,610 | 4,230 | 3,820 |
| | 30 | 5,100 | 5,010 | 4,820 | 4,730 | 4,340 | 3,910 |
| | 38 | 5,190 | 5,100 | 4,900 | 4,810 | 4,410 | 3,980 |
| | -54 | 4,160 | 4,090 | 3,930 | 3,860 | 3,550 | 3,260 |
| | -50 | 4,200 | 4,130 | 3,970 | 3,900 | 3,580 | 3,280 |
| | -40 | 4,340 | 4,260 | 4,100 | 4,020 | 3,690 | 3,350 |
| | -30 | 4,470 | 4,390 | 4,230 | 4,150 | 3,810 | 3,440 |
| 8,000 | -20 | 4,610 | 4,530 | 4,350 | 4,270 | 3,920 | 3,540 |
| | -10 | 4,740 | 4,660 | 4,480 | 4,390 | 4,030 | 3,640 |
| | 0 | 4,870 | 4,790 | 4,600 | 4,520 | 4,140 | 3,740 |
| | 10 | 5,000 | 4,920 | 4,730 | 4,640 | 4,250 | 3,840 |
| | 20 | 5,130 | 5,040 | 4,850 | 4,760 | 4,360 | 3,930 |
| | 30 | 5,260 | 5,170 | 4,970 | 4,880 | 4,470 | 4,030 |
| | 35 | 5,320 | 5,230 | 5,020 | 4,930 | 4,520 | 4,080 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Dry Runway, Flaps 33, Landing Field Length Required, Ice Mode 1

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 122 V_{REF} 112 KIAS | 18,300 V_{APP} 120 V_{REF} 110 KIAS | 17,340 V_{APP} 117 V_{REF} 107 KIAS | 16,900 V_{APP} 116 V_{REF} 106 KIAS | 15,000 V_{APP} 110 V_{REF} 100 KIAS | 13,000 V_{APP} 103 V_{REF} 93 KIAS |
| 9,000 | -54 | 4,360 | 4,280 | 4,120 | 4,040 | 3,710 | 3,390 |
| | -50 | 4,400 | 4,330 | 4,160 | 4,090 | 3,750 | 3,410 |
| | -40 | 4,550 | 4,470 | 4,300 | 4,220 | 3,870 | 3,500 |
| | -30 | 4,690 | 4,610 | 4,430 | 4,350 | 3,990 | 3,600 |
| | -20 | 4,830 | 4,750 | 4,560 | 4,480 | 4,110 | 3,710 |
| | -10 | 4,970 | 4,880 | 4,700 | 4,610 | 4,230 | 3,820 |
| | 0 | 5,110 | 5,020 | 4,830 | 4,740 | 4,340 | 3,920 |
| | 10 | 5,250 | 5,160 | 4,960 | 4,860 | 4,460 | 4,020 |
| | 20 | 5,390 | 5,290 | 5,090 | 4,990 | 4,570 | 4,130 |
| | 30 | 5,520 | 5,420 | 5,210 | 5,110 | 4,690 | 4,230 |
| | 33 | 5,550 | 5,460 | 5,240 | 5,140 | 4,720 | 4,250 |
| 10,000 | -54 | 4,570 | 4,490 | 4,320 | 4,240 | 3,890 | 3,520 |
| | -50 | 4,620 | 4,540 | 4,360 | 4,280 | 3,930 | 3,550 |
| | -40 | 4,770 | 4,690 | 4,510 | 4,420 | 4,060 | 3,670 |
| | -30 | 4,920 | 4,830 | 4,650 | 4,560 | 4,180 | 3,780 |
| | -20 | 5,070 | 4,980 | 4,790 | 4,700 | 4,310 | 3,890 |
| | -10 | 5,210 | 5,120 | 4,920 | 4,830 | 4,430 | 4,000 |
| | 0 | 5,360 | 5,270 | 5,060 | 4,970 | 4,550 | 4,110 |
| | 10 | 5,510 | 5,410 | 5,200 | 5,100 | 4,680 | 4,220 |
| | 20 | 5,650 | 5,550 | 5,330 | 5,230 | 4,800 | 4,330 |
| | 30 | 5,790 | 5,690 | 5,470 | 5,370 | 4,920 | 4,430 |
| | 31 | 5,800 | 5,700 | 5,470 | 5,370 | 4,920 | 4,440 |



Landing, Dry Runway, Flaps 33, Landing Distance, Ice Mode 0

1 Ice Mode 0

| Associated Conditions | |
|---|--------------------------|
| Gear: | DOWN |
| Thrust: | Required for 3° Approach |
| Power: | Cut to Idle at 50 ft AGL |
| Airspeed: | V_{REF} at 50 ft AGL |
| Flare: | Initiate at 15 ft AGL |
| Lift Dump and Anti-Skid: | Operative |
| Wind Correction | |
| For tailwinds up to 10 knots, increase distance by 65 ft for each knot. | |
| For headwinds up to 30 knots, reduce distance by 15 ft for each knot. | |
| Slope Correction | |
| For downhill slopes up to 2%, increase distance by 20 ft for each 0.5%. | |
| For uphill slopes up to 2%, reduce distance by 5 ft for each 0.5%. | |
| Notes | |
| All landing distances are given in feet (ft) | |
| For abnormal landing cases and multipliers, refer to Abnormal Landings. | |
| MSN 101 - 500: Valid data not highlighted (white background). | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | |

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|---|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 118 V_{REF} 108 KIAS | 18,300 V_{APP} 116 V_{REF} 106 KIAS | 17,340 V_{APP} 113 V_{REF} 103 KIAS | 16,900 V_{APP} 112 V_{REF} 102 KIAS | 15,000 V_{APP} 106 V_{REF} 96 KIAS | 13,000 V_{APP} 100 V_{REF} 90 KIAS |
| Sea level | -54 | 2,200 | 2,180 | 2,120 | 2,100 | 2,000 | 1,880 |
| | -50 | 2,210 | 2,190 | 2,130 | 2,110 | 2,000 | 1,890 |
| | -40 | 2,260 | 2,240 | 2,170 | 2,150 | 2,030 | 1,920 |
| | -30 | 2,310 | 2,270 | 2,210 | 2,180 | 2,060 | 1,940 |
| | -20 | 2,360 | 2,320 | 2,260 | 2,220 | 2,100 | 1,970 |
| | -10 | 2,390 | 2,360 | 2,300 | 2,270 | 2,130 | 2,000 |
| | 0 | 2,440 | 2,410 | 2,350 | 2,310 | 2,170 | 2,020 |
| | 10 | 2,500 | 2,460 | 2,380 | 2,350 | 2,220 | 2,060 |
| | 20 | 2,540 | 2,510 | 2,440 | 2,400 | 2,260 | 2,100 |
| | 30 | 2,600 | 2,560 | 2,470 | 2,450 | 2,300 | 2,130 |
| | 40 | 2,650 | 2,600 | 2,530 | 2,500 | 2,340 | 2,170 |
| | 50 | 2,700 | 2,650 | 2,580 | 2,530 | 2,380 | 2,210 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Dry Runway, Flaps 33, Landing Distance, Ice Mode 0

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|---|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 118 V_{REF} 108 KIAS | 18,300 V_{APP} 116 V_{REF} 106 KIAS | 17,340 V_{APP} 113 V_{REF} 103 KIAS | 16,900 V_{APP} 112 V_{REF} 102 KIAS | 15,000 V_{APP} 106 V_{REF} 96 KIAS | 13,000 V_{APP} 100 V_{REF} 90 KIAS |
| 1,000 | -54 | 2,240 | 2,220 | 2,160 | 2,130 | 2,020 | 1,910 |
| | -50 | 2,250 | 2,230 | 2,170 | 2,140 | 2,030 | 1,910 |
| | -40 | 2,300 | 2,270 | 2,220 | 2,180 | 2,060 | 1,930 |
| | -30 | 2,350 | 2,310 | 2,260 | 2,230 | 2,100 | 1,960 |
| | -20 | 2,400 | 2,360 | 2,300 | 2,270 | 2,140 | 2,000 |
| | -10 | 2,450 | 2,420 | 2,340 | 2,310 | 2,170 | 2,020 |
| | 0 | 2,490 | 2,460 | 2,390 | 2,350 | 2,210 | 2,060 |
| | 10 | 2,550 | 2,510 | 2,440 | 2,410 | 2,250 | 2,100 |
| | 20 | 2,600 | 2,560 | 2,490 | 2,450 | 2,300 | 2,140 |
| | 30 | 2,650 | 2,620 | 2,530 | 2,500 | 2,340 | 2,170 |
| | 40 | 2,710 | 2,670 | 2,590 | 2,540 | 2,380 | 2,210 |
| | 50 | 2,760 | 2,720 | 2,630 | 2,590 | 2,420 | 2,240 |
| | -54 | 2,290 | 2,250 | 2,200 | 2,170 | 2,050 | 1,930 |
| 2,000 | -50 | 2,300 | 2,270 | 2,210 | 2,190 | 2,070 | 1,940 |
| | -40 | 2,350 | 2,310 | 2,250 | 2,220 | 2,090 | 1,970 |
| | -30 | 2,390 | 2,360 | 2,300 | 2,260 | 2,140 | 2,000 |
| | -20 | 2,440 | 2,410 | 2,350 | 2,310 | 2,180 | 2,030 |
| | -10 | 2,500 | 2,460 | 2,380 | 2,360 | 2,210 | 2,060 |
| | 0 | 2,540 | 2,510 | 2,430 | 2,400 | 2,260 | 2,100 |
| | 10 | 2,610 | 2,560 | 2,490 | 2,450 | 2,290 | 2,140 |
| | 20 | 2,650 | 2,620 | 2,530 | 2,500 | 2,350 | 2,180 |
| | 30 | 2,710 | 2,670 | 2,590 | 2,550 | 2,380 | 2,220 |
| | 40 | 2,770 | 2,720 | 2,640 | 2,600 | 2,430 | 2,260 |
| | 50 | 2,820 | 2,780 | 2,690 | 2,640 | 2,470 | 2,290 |
| | -54 | 2,330 | 2,300 | 2,230 | 2,220 | 2,090 | 1,970 |
| 3,000 | -50 | 2,340 | 2,310 | 2,250 | 2,220 | 2,100 | 1,970 |
| | -40 | 2,390 | 2,360 | 2,290 | 2,260 | 2,130 | 2,000 |
| | -30 | 2,440 | 2,410 | 2,340 | 2,310 | 2,170 | 2,030 |
| | -20 | 2,500 | 2,460 | 2,390 | 2,350 | 2,210 | 2,060 |
| | -10 | 2,550 | 2,510 | 2,440 | 2,400 | 2,260 | 2,100 |
| | 0 | 2,610 | 2,570 | 2,480 | 2,450 | 2,300 | 2,140 |
| | 10 | 2,660 | 2,620 | 2,550 | 2,500 | 2,350 | 2,180 |
| | 20 | 2,720 | 2,670 | 2,600 | 2,550 | 2,400 | 2,220 |
| | 30 | 2,770 | 2,740 | 2,650 | 2,600 | 2,440 | 2,260 |
| | 40 | 2,830 | 2,780 | 2,700 | 2,650 | 2,490 | 2,300 |
| | 47 | 2,870 | 2,820 | 2,740 | 2,690 | 2,510 | 2,320 |
| | -54 | 2,360 | 2,340 | 2,280 | 2,250 | 2,130 | 1,990 |
| 4,000 | -50 | 2,390 | 2,350 | 2,290 | 2,260 | 2,130 | 2,000 |
| | -40 | 2,440 | 2,400 | 2,340 | 2,310 | 2,170 | 2,030 |
| | -30 | 2,500 | 2,460 | 2,380 | 2,360 | 2,210 | 2,070 |
| | -20 | 2,540 | 2,510 | 2,430 | 2,400 | 2,260 | 2,110 |
| | -10 | 2,600 | 2,570 | 2,500 | 2,450 | 2,300 | 2,140 |
| | 0 | 2,660 | 2,630 | 2,540 | 2,510 | 2,350 | 2,180 |
| | 10 | 2,720 | 2,680 | 2,600 | 2,560 | 2,400 | 2,220 |
| | 20 | 2,770 | 2,740 | 2,650 | 2,620 | 2,440 | 2,270 |
| | 30 | 2,840 | 2,790 | 2,710 | 2,660 | 2,500 | 2,300 |
| | 40 | 2,890 | 2,850 | 2,760 | 2,720 | 2,540 | 2,350 |
| | 45 | 2,930 | 2,870 | 2,780 | 2,740 | 2,560 | 2,370 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Landing, Dry Runway, Flaps 33, Landing Distance, Ice Mode 0

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|---|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 118 V_{REF} 108 KIAS | 18,300 V_{APP} 116 V_{REF} 106 KIAS | 17,340 V_{APP} 113 V_{REF} 103 KIAS | 16,900 V_{APP} 112 V_{REF} 102 KIAS | 15,000 V_{APP} 106 V_{REF} 96 KIAS | 13,000 V_{APP} 100 V_{REF} 90 KIAS |
| 5,000 | -54 | 2,410 | 2,390 | 2,320 | 2,290 | 2,160 | 2,020 |
| | -50 | 2,430 | 2,400 | 2,330 | 2,310 | 2,170 | 2,040 |
| | -40 | 2,490 | 2,450 | 2,390 | 2,350 | 2,210 | 2,060 |
| | -30 | 2,550 | 2,510 | 2,440 | 2,400 | 2,260 | 2,100 |
| | -20 | 2,610 | 2,560 | 2,490 | 2,450 | 2,300 | 2,140 |
| | -10 | 2,650 | 2,620 | 2,550 | 2,510 | 2,350 | 2,190 |
| | 0 | 2,730 | 2,680 | 2,610 | 2,560 | 2,390 | 2,230 |
| | 10 | 2,770 | 2,740 | 2,660 | 2,610 | 2,440 | 2,270 |
| | 20 | 2,840 | 2,790 | 2,720 | 2,670 | 2,500 | 2,300 |
| | 30 | 2,900 | 2,850 | 2,770 | 2,720 | 2,550 | 2,360 |
| | 40 | 2,960 | 2,910 | 2,820 | 2,770 | 2,600 | 2,400 |
| | 42 | 2,970 | 2,920 | 2,840 | 2,790 | 2,610 | 2,410 |
| | -54 | 2,460 | 2,440 | 2,360 | 2,340 | 2,200 | 2,060 |
| | -50 | 2,480 | 2,450 | 2,380 | 2,350 | 2,210 | 2,070 |
| 6,000 | -40 | 2,540 | 2,510 | 2,430 | 2,390 | 2,250 | 2,100 |
| | -30 | 2,600 | 2,560 | 2,490 | 2,450 | 2,300 | 2,140 |
| | -20 | 2,660 | 2,630 | 2,540 | 2,510 | 2,350 | 2,180 |
| | -10 | 2,720 | 2,680 | 2,600 | 2,560 | 2,400 | 2,230 |
| | 0 | 2,790 | 2,740 | 2,660 | 2,620 | 2,450 | 2,270 |
| | 10 | 2,840 | 2,800 | 2,710 | 2,670 | 2,490 | 2,320 |
| | 20 | 2,900 | 2,870 | 2,770 | 2,730 | 2,550 | 2,360 |
| | 30 | 2,970 | 2,930 | 2,830 | 2,780 | 2,600 | 2,410 |
| | 40 | 3,030 | 2,980 | 2,890 | 2,840 | 2,650 | 2,450 |
| | -54 | 2,520 | 2,480 | 2,400 | 2,380 | 2,240 | 2,090 |
| | -50 | 2,540 | 2,510 | 2,430 | 2,390 | 2,250 | 2,100 |
| | -40 | 2,600 | 2,560 | 2,470 | 2,440 | 2,300 | 2,140 |
| | -30 | 2,650 | 2,620 | 2,540 | 2,500 | 2,350 | 2,180 |
| 7,000 | -20 | 2,730 | 2,680 | 2,600 | 2,560 | 2,390 | 2,220 |
| | -10 | 2,780 | 2,740 | 2,650 | 2,620 | 2,450 | 2,270 |
| | 0 | 2,850 | 2,800 | 2,720 | 2,680 | 2,500 | 2,320 |
| | 10 | 2,900 | 2,870 | 2,770 | 2,740 | 2,550 | 2,360 |
| | 20 | 2,980 | 2,940 | 2,840 | 2,790 | 2,620 | 2,410 |
| | 30 | 3,040 | 3,000 | 2,900 | 2,850 | 2,660 | 2,450 |
| | 38 | 3,100 | 3,040 | 2,950 | 2,900 | 2,700 | 2,490 |
| | -54 | 2,580 | 2,550 | 2,470 | 2,440 | 2,290 | 2,140 |
| | -50 | 2,600 | 2,570 | 2,490 | 2,460 | 2,300 | 2,140 |
| | -40 | 2,660 | 2,630 | 2,540 | 2,510 | 2,350 | 2,180 |
| | -30 | 2,730 | 2,680 | 2,610 | 2,560 | 2,400 | 2,230 |
| | -20 | 2,800 | 2,750 | 2,670 | 2,620 | 2,460 | 2,280 |
| | -10 | 2,860 | 2,830 | 2,730 | 2,690 | 2,520 | 2,320 |
| | 0 | 2,930 | 2,880 | 2,790 | 2,750 | 2,560 | 2,370 |
| | 10 | 2,990 | 2,960 | 2,860 | 2,820 | 2,630 | 2,420 |
| | 20 | 3,060 | 3,020 | 2,920 | 2,870 | 2,670 | 2,470 |
| | 30 | 3,130 | 3,090 | 2,980 | 2,930 | 2,730 | 2,530 |
| | 35 | 3,160 | 3,120 | 3,020 | 2,960 | 2,750 | 2,540 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Dry Runway, Flaps 33, Landing Distance, Ice Mode 0

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|---|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 118 V_{REF} 108 KIAS | 18,300 V_{APP} 116 V_{REF} 106 KIAS | 17,340 V_{APP} 113 V_{REF} 103 KIAS | 16,900 V_{APP} 112 V_{REF} 102 KIAS | 15,000 V_{APP} 106 V_{REF} 96 KIAS | 13,000 V_{APP} 100 V_{REF} 90 KIAS |
| 9,000 | -54 | 2,680 | 2,650 | 2,570 | 2,540 | 2,380 | 2,220 |
| | -50 | 2,710 | 2,670 | 2,590 | 2,550 | 2,400 | 2,230 |
| | -40 | 2,780 | 2,730 | 2,650 | 2,610 | 2,440 | 2,270 |
| | -30 | 2,840 | 2,810 | 2,710 | 2,680 | 2,500 | 2,320 |
| | -20 | 2,910 | 2,870 | 2,780 | 2,740 | 2,560 | 2,370 |
| | -10 | 2,990 | 2,940 | 2,850 | 2,800 | 2,620 | 2,430 |
| | 0 | 3,060 | 3,010 | 2,910 | 2,870 | 2,680 | 2,470 |
| | 10 | 3,120 | 3,080 | 2,980 | 2,940 | 2,740 | 2,530 |
| | 20 | 3,200 | 3,160 | 3,050 | 3,000 | 2,790 | 2,580 |
| | 30 | 3,270 | 3,230 | 3,110 | 3,060 | 2,850 | 2,630 |
| | 33 | 3,290 | 3,250 | 3,140 | 3,080 | 2,860 | 2,640 |
| 10,000 | -54 | 2,790 | 2,760 | 2,670 | 2,640 | 2,470 | 2,300 |
| | -50 | 2,820 | 2,770 | 2,700 | 2,650 | 2,490 | 2,310 |
| | -40 | 2,900 | 2,850 | 2,770 | 2,720 | 2,560 | 2,370 |
| | -30 | 2,980 | 2,920 | 2,840 | 2,790 | 2,620 | 2,420 |
| | -20 | 3,040 | 3,000 | 2,900 | 2,860 | 2,670 | 2,470 |
| | -10 | 3,130 | 3,090 | 2,980 | 2,930 | 2,730 | 2,530 |
| | 0 | 3,200 | 3,140 | 3,040 | 3,000 | 2,790 | 2,580 |
| | 10 | 3,270 | 3,230 | 3,120 | 3,080 | 2,850 | 2,630 |
| | 20 | 3,350 | 3,300 | 3,190 | 3,130 | 2,910 | 2,690 |
| | 30 | 3,440 | 3,380 | 3,260 | 3,210 | 2,990 | 2,740 |
| | 31 | 3,440 | 3,380 | 3,260 | 3,210 | 2,990 | 2,740 |



Landing, Dry Runway, Flaps 33, Landing Distance, Ice Mode 1

1 Ice Mode 1

| Associated Conditions | |
|---|--------------------------|
| Gear: | DOWN |
| Thrust: | Required for 3° Approach |
| Power: | Cut to Idle at 50 ft AGL |
| Airspeed: | V_{REF} at 50 ft AGL |
| Flare: | Initiate at 15 ft AGL |
| Lift Dump and Anti-Skid: | Operative |
| Wind Correction | |
| For tailwinds up to 10 knots, increase distance by 65 ft for each knot. | |
| For headwinds up to 30 knots, reduce distance by 15 ft for each knot. | |
| Slope Correction | |
| For downhill slopes up to 2%, increase distance by 20 ft for each 0.5%. | |
| For uphill slopes up to 2%, reduce distance by 5 ft for each 0.5%. | |
| Notes | |
| All landing distances are given in feet (ft) | |
| For abnormal landing cases and multipliers, refer to Abnormal Landings. | |
| MSN 101 - 500: Valid data not highlighted (white background). | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | |

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 122 V_{REF} 112 KIAS | 18,300 V_{APP} 120 V_{REF} 110 KIAS | 17,340 V_{APP} 117 V_{REF} 107 KIAS | 16,900 V_{APP} 116 V_{REF} 106 KIAS | 15,000 V_{APP} 110 V_{REF} 100 KIAS | 13,000 V_{APP} 103 V_{REF} 93 KIAS |
| Sea level | -54 | 2,290 | 2,240 | 2,200 | 2,180 | 2,070 | 1,940 |
| | -50 | 2,300 | 2,260 | 2,220 | 2,190 | 2,070 | 1,940 |
| | -40 | 2,350 | 2,310 | 2,250 | 2,230 | 2,110 | 1,970 |
| | -30 | 2,400 | 2,350 | 2,300 | 2,270 | 2,130 | 2,010 |
| | -20 | 2,450 | 2,400 | 2,350 | 2,310 | 2,180 | 2,040 |
| | -10 | 2,500 | 2,440 | 2,390 | 2,350 | 2,220 | 2,060 |
| | 0 | 2,550 | 2,490 | 2,440 | 2,400 | 2,260 | 2,100 |
| | 10 | 2,600 | 2,540 | 2,480 | 2,450 | 2,300 | 2,140 |
| | 20 | 2,660 | 2,590 | 2,540 | 2,490 | 2,340 | 2,180 |
| | 30 | 2,710 | 2,640 | 2,590 | 2,540 | 2,390 | 2,210 |
| | 40 | 2,760 | 2,710 | 2,630 | 2,600 | 2,430 | 2,250 |
| | 50 | 2,810 | 2,760 | 2,680 | 2,650 | 2,470 | 2,290 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Landing, Dry Runway, Flaps 33, Landing Distance, Ice Mode 1

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 122 V_{REF} 112 KIAS | 18,300 V_{APP} 120 V_{REF} 110 KIAS | 17,340 V_{APP} 117 V_{REF} 107 KIAS | 16,900 V_{APP} 116 V_{REF} 106 KIAS | 15,000 V_{APP} 110 V_{REF} 100 KIAS | 13,000 V_{APP} 103 V_{REF} 93 KIAS |
| 1,000 | -54 | 2,320 | 2,290 | 2,240 | 2,210 | 2,090 | 1,970 |
| | -50 | 2,340 | 2,300 | 2,250 | 2,220 | 2,100 | 1,980 |
| | -40 | 2,390 | 2,350 | 2,290 | 2,260 | 2,140 | 2,000 |
| | -30 | 2,440 | 2,390 | 2,340 | 2,310 | 2,170 | 2,030 |
| | -20 | 2,490 | 2,440 | 2,390 | 2,360 | 2,220 | 2,070 |
| | -10 | 2,540 | 2,500 | 2,430 | 2,400 | 2,260 | 2,100 |
| | 0 | 2,600 | 2,540 | 2,490 | 2,450 | 2,290 | 2,140 |
| | 10 | 2,650 | 2,610 | 2,530 | 2,500 | 2,340 | 2,170 |
| | 20 | 2,710 | 2,650 | 2,590 | 2,550 | 2,390 | 2,220 |
| | 30 | 2,760 | 2,710 | 2,640 | 2,600 | 2,430 | 2,260 |
| | 40 | 2,820 | 2,760 | 2,690 | 2,650 | 2,470 | 2,300 |
| | 50 | 2,870 | 2,810 | 2,740 | 2,700 | 2,520 | 2,330 |
| 2,000 | -54 | 2,370 | 2,320 | 2,280 | 2,240 | 2,120 | 2,000 |
| | -50 | 2,390 | 2,350 | 2,290 | 2,260 | 2,130 | 2,010 |
| | -40 | 2,440 | 2,390 | 2,340 | 2,300 | 2,170 | 2,040 |
| | -30 | 2,480 | 2,440 | 2,390 | 2,350 | 2,210 | 2,060 |
| | -20 | 2,540 | 2,490 | 2,440 | 2,400 | 2,260 | 2,100 |
| | -10 | 2,600 | 2,550 | 2,490 | 2,450 | 2,300 | 2,140 |
| | 0 | 2,650 | 2,600 | 2,540 | 2,500 | 2,350 | 2,180 |
| | 10 | 2,720 | 2,650 | 2,590 | 2,550 | 2,380 | 2,220 |
| | 20 | 2,770 | 2,710 | 2,650 | 2,600 | 2,440 | 2,260 |
| | 30 | 2,830 | 2,760 | 2,700 | 2,650 | 2,490 | 2,300 |
| | 40 | 2,880 | 2,830 | 2,750 | 2,710 | 2,530 | 2,340 |
| | 50 | 2,930 | 2,870 | 2,800 | 2,760 | 2,570 | 2,380 |
| 3,000 | -54 | 2,410 | 2,370 | 2,320 | 2,290 | 2,170 | 2,030 |
| | -50 | 2,430 | 2,390 | 2,330 | 2,300 | 2,180 | 2,040 |
| | -40 | 2,490 | 2,440 | 2,380 | 2,350 | 2,220 | 2,070 |
| | -30 | 2,540 | 2,500 | 2,430 | 2,390 | 2,250 | 2,110 |
| | -20 | 2,600 | 2,540 | 2,490 | 2,450 | 2,300 | 2,140 |
| | -10 | 2,650 | 2,610 | 2,540 | 2,510 | 2,340 | 2,180 |
| | 0 | 2,710 | 2,650 | 2,590 | 2,550 | 2,390 | 2,220 |
| | 10 | 2,770 | 2,720 | 2,650 | 2,600 | 2,440 | 2,260 |
| | 20 | 2,830 | 2,760 | 2,700 | 2,660 | 2,490 | 2,310 |
| | 30 | 2,890 | 2,830 | 2,760 | 2,720 | 2,540 | 2,350 |
| | 40 | 2,960 | 2,890 | 2,810 | 2,770 | 2,590 | 2,390 |
| | 47 | 3,000 | 2,920 | 2,850 | 2,800 | 2,610 | 2,410 |
| 4,000 | -54 | 2,460 | 2,420 | 2,370 | 2,330 | 2,200 | 2,060 |
| | -50 | 2,480 | 2,430 | 2,380 | 2,350 | 2,210 | 2,060 |
| | -40 | 2,540 | 2,490 | 2,430 | 2,400 | 2,250 | 2,100 |
| | -30 | 2,600 | 2,540 | 2,480 | 2,450 | 2,300 | 2,140 |
| | -20 | 2,650 | 2,600 | 2,540 | 2,500 | 2,350 | 2,180 |
| | -10 | 2,720 | 2,660 | 2,600 | 2,560 | 2,390 | 2,220 |
| | 0 | 2,770 | 2,720 | 2,640 | 2,610 | 2,440 | 2,270 |
| | 10 | 2,840 | 2,780 | 2,710 | 2,670 | 2,500 | 2,300 |
| | 20 | 2,900 | 2,830 | 2,760 | 2,720 | 2,540 | 2,350 |
| | 30 | 2,960 | 2,890 | 2,830 | 2,780 | 2,590 | 2,390 |
| | 40 | 3,020 | 2,960 | 2,870 | 2,830 | 2,640 | 2,440 |
| | 45 | 3,050 | 2,990 | 2,900 | 2,860 | 2,660 | 2,460 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Landing, Dry Runway, Flaps 33, Landing Distance, Ice Mode 1

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 122 V_{REF} 112 KIAS | 18,300 V_{APP} 120 V_{REF} 110 KIAS | 17,340 V_{APP} 117 V_{REF} 107 KIAS | 16,900 V_{APP} 116 V_{REF} 106 KIAS | 15,000 V_{APP} 110 V_{REF} 100 KIAS | 13,000 V_{APP} 103 V_{REF} 93 KIAS |
| 5,000 | -54 | 2,500 | 2,470 | 2,410 | 2,380 | 2,240 | 2,090 |
| | -50 | 2,530 | 2,490 | 2,420 | 2,400 | 2,250 | 2,110 |
| | -40 | 2,590 | 2,530 | 2,480 | 2,450 | 2,290 | 2,130 |
| | -30 | 2,650 | 2,610 | 2,540 | 2,500 | 2,340 | 2,180 |
| | -20 | 2,710 | 2,650 | 2,590 | 2,550 | 2,390 | 2,220 |
| | -10 | 2,780 | 2,710 | 2,650 | 2,610 | 2,450 | 2,270 |
| | 0 | 2,840 | 2,770 | 2,710 | 2,660 | 2,500 | 2,320 |
| | 10 | 2,900 | 2,830 | 2,770 | 2,720 | 2,550 | 2,360 |
| | 20 | 2,960 | 2,890 | 2,830 | 2,780 | 2,600 | 2,390 |
| | 30 | 3,020 | 2,970 | 2,880 | 2,840 | 2,650 | 2,450 |
| | 40 | 3,100 | 3,020 | 2,960 | 2,900 | 2,700 | 2,500 |
| | 42 | 3,110 | 3,030 | 2,970 | 2,910 | 2,710 | 2,500 |
| | -54 | 2,560 | 2,520 | 2,450 | 2,430 | 2,290 | 2,130 |
| | -50 | 2,580 | 2,530 | 2,470 | 2,440 | 2,300 | 2,140 |
| 6,000 | -40 | 2,640 | 2,590 | 2,530 | 2,490 | 2,340 | 2,170 |
| | -30 | 2,710 | 2,660 | 2,590 | 2,550 | 2,380 | 2,220 |
| | -20 | 2,770 | 2,720 | 2,640 | 2,610 | 2,440 | 2,260 |
| | -10 | 2,840 | 2,770 | 2,710 | 2,660 | 2,490 | 2,310 |
| | 0 | 2,900 | 2,840 | 2,770 | 2,730 | 2,550 | 2,360 |
| | 10 | 2,970 | 2,910 | 2,830 | 2,780 | 2,600 | 2,410 |
| | 20 | 3,030 | 2,970 | 2,890 | 2,850 | 2,650 | 2,450 |
| | 30 | 3,110 | 3,040 | 2,960 | 2,910 | 2,710 | 2,500 |
| | 40 | 3,170 | 3,090 | 3,020 | 2,960 | 2,760 | 2,550 |
| | -54 | 2,620 | 2,560 | 2,510 | 2,470 | 2,330 | 2,170 |
| | -50 | 2,640 | 2,590 | 2,530 | 2,490 | 2,340 | 2,180 |
| | -40 | 2,700 | 2,640 | 2,580 | 2,540 | 2,390 | 2,210 |
| | -30 | 2,770 | 2,710 | 2,650 | 2,600 | 2,440 | 2,260 |
| 7,000 | -20 | 2,840 | 2,770 | 2,710 | 2,670 | 2,500 | 2,300 |
| | -10 | 2,910 | 2,840 | 2,770 | 2,730 | 2,540 | 2,350 |
| | 0 | 2,980 | 2,920 | 2,840 | 2,790 | 2,610 | 2,400 |
| | 10 | 3,040 | 2,980 | 2,900 | 2,850 | 2,650 | 2,450 |
| | 20 | 3,110 | 3,050 | 2,960 | 2,920 | 2,720 | 2,510 |
| | 30 | 3,180 | 3,110 | 3,030 | 2,980 | 2,770 | 2,550 |
| | 38 | 3,240 | 3,150 | 3,090 | 3,020 | 2,810 | 2,590 |
| | -54 | 2,680 | 2,630 | 2,570 | 2,540 | 2,380 | 2,220 |
| | -50 | 2,700 | 2,650 | 2,590 | 2,550 | 2,390 | 2,220 |
| | -40 | 2,770 | 2,720 | 2,640 | 2,610 | 2,440 | 2,270 |
| | -30 | 2,840 | 2,770 | 2,710 | 2,670 | 2,500 | 2,320 |
| 8,000 | -20 | 2,910 | 2,860 | 2,780 | 2,730 | 2,560 | 2,370 |
| | -10 | 2,980 | 2,910 | 2,840 | 2,800 | 2,620 | 2,410 |
| | 0 | 3,050 | 2,990 | 2,910 | 2,860 | 2,670 | 2,460 |
| | 10 | 3,120 | 3,060 | 2,980 | 2,920 | 2,730 | 2,520 |
| | 20 | 3,190 | 3,130 | 3,040 | 3,000 | 2,790 | 2,560 |
| | 30 | 3,280 | 3,190 | 3,120 | 3,060 | 2,850 | 2,620 |
| | 35 | 3,300 | 3,230 | 3,150 | 3,100 | 2,880 | 2,640 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Dry Runway, Flaps 33, Landing Distance, Ice Mode 1

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 122 V_{REF} 112 KIAS | 18,300 V_{APP} 120 V_{REF} 110 KIAS | 17,340 V_{APP} 117 V_{REF} 107 KIAS | 16,900 V_{APP} 116 V_{REF} 106 KIAS | 15,000 V_{APP} 110 V_{REF} 100 KIAS | 13,000 V_{APP} 103 V_{REF} 93 KIAS |
| 9,000 | -54 | 2,800 | 2,740 | 2,680 | 2,640 | 2,470 | 2,300 |
| | -50 | 2,830 | 2,770 | 2,700 | 2,650 | 2,490 | 2,310 |
| | -40 | 2,900 | 2,830 | 2,760 | 2,720 | 2,540 | 2,350 |
| | -30 | 2,970 | 2,900 | 2,830 | 2,790 | 2,600 | 2,410 |
| | -20 | 3,040 | 2,980 | 2,900 | 2,850 | 2,660 | 2,460 |
| | -10 | 3,120 | 3,050 | 2,960 | 2,930 | 2,720 | 2,520 |
| | 0 | 3,200 | 3,130 | 3,040 | 2,990 | 2,780 | 2,570 |
| | 10 | 3,270 | 3,200 | 3,110 | 3,060 | 2,850 | 2,630 |
| | 20 | 3,350 | 3,270 | 3,190 | 3,140 | 2,920 | 2,680 |
| | 30 | 3,420 | 3,350 | 3,260 | 3,200 | 2,980 | 2,730 |
| | 33 | 3,440 | 3,360 | 3,270 | 3,220 | 2,990 | 2,740 |
| 10,000 | -54 | 2,920 | 2,860 | 2,790 | 2,750 | 2,570 | 2,400 |
| | -50 | 2,940 | 2,880 | 2,810 | 2,770 | 2,590 | 2,400 |
| | -40 | 3,020 | 2,960 | 2,880 | 2,840 | 2,660 | 2,460 |
| | -30 | 3,100 | 3,020 | 2,960 | 2,910 | 2,720 | 2,510 |
| | -20 | 3,180 | 3,120 | 3,030 | 2,980 | 2,770 | 2,570 |
| | -10 | 3,260 | 3,190 | 3,110 | 3,060 | 2,850 | 2,620 |
| | 0 | 3,340 | 3,270 | 3,180 | 3,120 | 2,900 | 2,680 |
| | 10 | 3,430 | 3,340 | 3,250 | 3,210 | 2,980 | 2,740 |
| | 20 | 3,510 | 3,420 | 3,330 | 3,280 | 3,050 | 2,790 |
| | 30 | 3,590 | 3,490 | 3,420 | 3,350 | 3,110 | 2,870 |
| | 31 | 3,600 | 3,500 | 3,420 | 3,350 | 3,110 | 2,870 |



Landing, Dry Runway, Flaps 15, Landing Field Length Required, Ice Mode 0

1 Ice Mode 0

| Associated Conditions | |
|---|--------------------------|
| Gear: | DOWN |
| Thrust: | Required for 3° Approach |
| Power: | Cut to Idle at 50 ft AGL |
| Airspeed: | V_{REF} at 50 ft AGL |
| Flare: | Initiate at 15 ft AGL |
| Lift Dump and Anti-Skid: | Operative |
| Wind Correction | |
| For tailwinds up to 10 knots, increase distance by 130 ft for each knot. | |
| For headwinds up to 30 knots, reduce distance by 30 ft for each knot. | |
| Slope Correction | |
| For downhill slopes up to 2%, increase distance by 55 ft for each 0.5%. | |
| For uphill slopes up to 2%, reduce distance by 20 ft for each 0.5%. | |
| Notes | |
| All landing distances are given in feet (ft) | |
| For abnormal landing cases and multipliers, refer to Abnormal Landings. | |
| MSN 101 - 500: Valid data not highlighted (white background). | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | |

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|-------------|--------|--------|--------|--------|--------|
| | | OWL | | MLW | | | |
| | | 18,740 | 18,300 | 17,340 | 16,900 | 15,000 | 13,000 |
| Sea level | -54 | 4,450 | 4,430 | 4,300 | 4,260 | 4,040 | 3,820 |
| | -50 | 4,480 | 4,460 | 4,320 | 4,280 | 4,050 | 3,830 |
| | -40 | 4,560 | 4,540 | 4,400 | 4,340 | 4,100 | 3,850 |
| | -30 | 4,660 | 4,630 | 4,490 | 4,420 | 4,170 | 3,910 |
| | -20 | 4,760 | 4,720 | 4,550 | 4,500 | 4,240 | 3,990 |
| | -10 | 4,840 | 4,810 | 4,640 | 4,590 | 4,310 | 4,040 |
| | 0 | 4,940 | 4,910 | 4,740 | 4,670 | 4,390 | 4,090 |
| | 10 | 5,050 | 5,010 | 4,820 | 4,760 | 4,470 | 4,160 |
| | 20 | 5,170 | 5,120 | 4,920 | 4,860 | 4,550 | 4,250 |
| | 30 | 5,270 | 5,220 | 5,020 | 4,960 | 4,630 | 4,320 |
| | 40 | 5,360 | 5,320 | 5,120 | 5,050 | 4,730 | 4,390 |
| | 50 | 5,470 | 5,390 | 5,210 | 5,130 | 4,790 | 4,440 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Landing, Dry Runway, Flaps 15, Landing Field Length Required, Ice Mode 0

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 125 V_{REF} 115 KIAS | 18,300 V_{APP} 124 V_{REF} 114 KIAS | 17,340 V_{APP} 121 V_{REF} 111 KIAS | 16,900 V_{APP} 119 V_{REF} 109 KIAS | 15,000 V_{APP} 113 V_{REF} 103 KIAS | 13,000 V_{APP} 106 V_{REF} 96 KIAS |
| 1,000 | -54 | 4,530 | 4,520 | 4,380 | 4,320 | 4,100 | 3,870 |
| | -50 | 4,570 | 4,540 | 4,400 | 4,340 | 4,120 | 3,880 |
| | -40 | 4,660 | 4,610 | 4,470 | 4,410 | 4,190 | 3,920 |
| | -30 | 4,760 | 4,720 | 4,550 | 4,500 | 4,240 | 3,980 |
| | -20 | 4,860 | 4,810 | 4,650 | 4,580 | 4,300 | 4,040 |
| | -10 | 4,940 | 4,900 | 4,730 | 4,680 | 4,400 | 4,100 |
| | 0 | 5,040 | 5,010 | 4,830 | 4,770 | 4,480 | 4,170 |
| | 10 | 5,150 | 5,120 | 4,940 | 4,860 | 4,560 | 4,240 |
| | 20 | 5,260 | 5,220 | 5,030 | 4,960 | 4,650 | 4,310 |
| | 30 | 5,370 | 5,330 | 5,140 | 5,060 | 4,740 | 4,400 |
| | 40 | 5,480 | 5,440 | 5,230 | 5,160 | 4,830 | 4,470 |
| | 50 | 5,600 | 5,530 | 5,340 | 5,230 | 4,890 | 4,540 |
| 2,000 | -54 | 4,620 | 4,600 | 4,440 | 4,410 | 4,170 | 3,930 |
| | -50 | 4,640 | 4,620 | 4,470 | 4,420 | 4,170 | 3,940 |
| | -40 | 4,740 | 4,710 | 4,560 | 4,490 | 4,240 | 3,980 |
| | -30 | 4,850 | 4,800 | 4,640 | 4,570 | 4,320 | 4,030 |
| | -20 | 4,950 | 4,900 | 4,740 | 4,680 | 4,400 | 4,120 |
| | -10 | 5,040 | 5,000 | 4,830 | 4,760 | 4,470 | 4,170 |
| | 0 | 5,150 | 5,110 | 4,940 | 4,860 | 4,550 | 4,230 |
| | 10 | 5,260 | 5,250 | 5,020 | 4,960 | 4,650 | 4,330 |
| | 20 | 5,380 | 5,340 | 5,150 | 5,060 | 4,740 | 4,410 |
| | 30 | 5,510 | 5,440 | 5,230 | 5,170 | 4,830 | 4,480 |
| | 40 | 5,620 | 5,550 | 5,360 | 5,270 | 4,930 | 4,570 |
| | 50 | 5,740 | 5,650 | 5,460 | 5,370 | 5,000 | 4,630 |
| 3,000 | -54 | 4,710 | 4,680 | 4,530 | 4,470 | 4,240 | 3,980 |
| | -50 | 4,750 | 4,700 | 4,550 | 4,490 | 4,250 | 3,980 |
| | -40 | 4,830 | 4,800 | 4,630 | 4,590 | 4,330 | 4,040 |
| | -30 | 4,940 | 4,910 | 4,750 | 4,670 | 4,390 | 4,110 |
| | -20 | 5,050 | 4,990 | 4,830 | 4,770 | 4,460 | 4,170 |
| | -10 | 5,160 | 5,100 | 4,930 | 4,870 | 4,570 | 4,220 |
| | 0 | 5,260 | 5,220 | 5,040 | 4,960 | 4,650 | 4,330 |
| | 10 | 5,400 | 5,340 | 5,150 | 5,070 | 4,740 | 4,410 |
| | 20 | 5,520 | 5,470 | 5,240 | 5,170 | 4,840 | 4,480 |
| | 30 | 5,630 | 5,570 | 5,370 | 5,280 | 4,940 | 4,580 |
| | 40 | 5,750 | 5,680 | 5,480 | 5,380 | 5,050 | 4,650 |
| | 47 | 5,830 | 5,770 | 5,550 | 5,460 | 5,090 | 4,710 |
| 4,000 | -54 | 4,800 | 4,760 | 4,600 | 4,550 | 4,310 | 4,050 |
| | -50 | 4,840 | 4,790 | 4,640 | 4,580 | 4,320 | 4,060 |
| | -40 | 4,920 | 4,890 | 4,730 | 4,660 | 4,380 | 4,100 |
| | -30 | 5,040 | 5,000 | 4,820 | 4,760 | 4,470 | 4,160 |
| | -20 | 5,160 | 5,100 | 4,930 | 4,860 | 4,560 | 4,240 |
| | -10 | 5,280 | 5,220 | 5,040 | 4,970 | 4,640 | 4,320 |
| | 0 | 5,400 | 5,340 | 5,160 | 5,070 | 4,740 | 4,410 |
| | 10 | 5,520 | 5,460 | 5,270 | 5,190 | 4,840 | 4,490 |
| | 20 | 5,640 | 5,590 | 5,380 | 5,290 | 4,940 | 4,580 |
| | 30 | 5,770 | 5,700 | 5,490 | 5,420 | 5,040 | 4,660 |
| | 40 | 5,890 | 5,830 | 5,600 | 5,520 | 5,130 | 4,760 |
| | 45 | 5,950 | 5,880 | 5,660 | 5,570 | 5,170 | 4,800 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Dry Runway, Flaps 15, Landing Field Length Required, Ice Mode 0

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 125 V_{REF} 115 KIAS | 18,300 V_{APP} 124 V_{REF} 114 KIAS | 17,340 V_{APP} 121 V_{REF} 111 KIAS | 16,900 V_{APP} 119 V_{REF} 109 KIAS | 15,000 V_{APP} 113 V_{REF} 103 KIAS | 13,000 V_{APP} 106 V_{REF} 96 KIAS |
| 5,000 | -54 | 4,890 | 4,850 | 4,690 | 4,630 | 4,380 | 4,090 |
| | -50 | 4,940 | 4,890 | 4,730 | 4,670 | 4,410 | 4,110 |
| | -40 | 5,040 | 4,990 | 4,830 | 4,760 | 4,480 | 4,170 |
| | -30 | 5,160 | 5,110 | 4,930 | 4,860 | 4,550 | 4,250 |
| | -20 | 5,280 | 5,220 | 5,030 | 4,970 | 4,650 | 4,330 |
| | -10 | 5,400 | 5,340 | 5,160 | 5,080 | 4,750 | 4,410 |
| | 0 | 5,520 | 5,480 | 5,280 | 5,190 | 4,840 | 4,500 |
| | 10 | 5,650 | 5,610 | 5,390 | 5,300 | 4,950 | 4,580 |
| | 20 | 5,770 | 5,730 | 5,500 | 5,420 | 5,050 | 4,670 |
| | 30 | 5,900 | 5,850 | 5,620 | 5,540 | 5,150 | 4,780 |
| | 40 | 6,040 | 5,960 | 5,750 | 5,640 | 5,240 | 4,860 |
| | 42 | 6,070 | 5,980 | 5,780 | 5,660 | 5,260 | 4,870 |
| 6,000 | -54 | 4,990 | 4,960 | 4,780 | 4,750 | 4,460 | 4,180 |
| | -50 | 5,040 | 4,990 | 4,820 | 4,770 | 4,470 | 4,200 |
| | -40 | 5,140 | 5,100 | 4,930 | 4,850 | 4,550 | 4,240 |
| | -30 | 5,260 | 5,220 | 5,030 | 4,960 | 4,650 | 4,310 |
| | -20 | 5,400 | 5,340 | 5,140 | 5,070 | 4,750 | 4,400 |
| | -10 | 5,530 | 5,480 | 5,260 | 5,190 | 4,850 | 4,500 |
| | 0 | 5,650 | 5,600 | 5,400 | 5,310 | 4,950 | 4,580 |
| | 10 | 5,780 | 5,730 | 5,520 | 5,430 | 5,050 | 4,680 |
| | 20 | 5,910 | 5,860 | 5,630 | 5,550 | 5,160 | 4,780 |
| | 30 | 6,060 | 5,990 | 5,770 | 5,670 | 5,270 | 4,860 |
| | 40 | 6,200 | 6,110 | 5,900 | 5,780 | 5,370 | 4,950 |
| 7,000 | -54 | 5,090 | 5,070 | 4,890 | 4,830 | 4,550 | 4,240 |
| | -50 | 5,140 | 5,090 | 4,920 | 4,860 | 4,570 | 4,250 |
| | -40 | 5,240 | 5,200 | 5,030 | 4,940 | 4,640 | 4,320 |
| | -30 | 5,370 | 5,330 | 5,150 | 5,060 | 4,740 | 4,410 |
| | -20 | 5,510 | 5,470 | 5,260 | 5,200 | 4,850 | 4,500 |
| | -10 | 5,650 | 5,600 | 5,380 | 5,310 | 4,970 | 4,600 |
| | 0 | 5,810 | 5,740 | 5,510 | 5,440 | 5,060 | 4,690 |
| | 10 | 5,920 | 5,870 | 5,630 | 5,560 | 5,170 | 4,790 |
| | 20 | 6,080 | 6,000 | 5,780 | 5,680 | 5,280 | 4,890 |
| | 30 | 6,220 | 6,140 | 5,910 | 5,810 | 5,410 | 4,990 |
| | 38 | 6,330 | 6,230 | 6,020 | 5,880 | 5,480 | 5,040 |
| 8,000 | -54 | 5,230 | 5,200 | 4,990 | 4,950 | 4,630 | 4,340 |
| | -50 | 5,290 | 5,220 | 5,030 | 4,970 | 4,640 | 4,350 |
| | -40 | 5,390 | 5,330 | 5,150 | 5,060 | 4,740 | 4,420 |
| | -30 | 5,540 | 5,470 | 5,260 | 5,190 | 4,860 | 4,500 |
| | -20 | 5,680 | 5,610 | 5,420 | 5,320 | 4,980 | 4,600 |
| | -10 | 5,820 | 5,750 | 5,550 | 5,450 | 5,070 | 4,700 |
| | 0 | 5,940 | 5,890 | 5,680 | 5,580 | 5,210 | 4,810 |
| | 10 | 6,110 | 6,030 | 5,820 | 5,710 | 5,300 | 4,910 |
| | 20 | 6,250 | 6,170 | 5,950 | 5,840 | 5,440 | 5,010 |
| | 30 | 6,390 | 6,310 | 6,080 | 5,960 | 5,560 | 5,090 |
| | 35 | 6,460 | 6,360 | 6,150 | 6,010 | 5,590 | 5,130 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Dry Runway, Flaps 15, Landing Field Length Required, Ice Mode 0

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 125 V_{REF} 115 KIAS | 18,300 V_{APP} 124 V_{REF} 114 KIAS | 17,340 V_{APP} 121 V_{REF} 111 KIAS | 16,900 V_{APP} 119 V_{REF} 109 KIAS | 15,000 V_{APP} 113 V_{REF} 103 KIAS | 13,000 V_{APP} 106 V_{REF} 96 KIAS |
| 9,000 | -54 | 5,440 | 5,410 | 5,200 | 5,160 | 4,820 | 4,480 |
| | -50 | 5,490 | 5,450 | 5,240 | 5,190 | 4,850 | 4,500 |
| | -40 | 5,630 | 5,580 | 5,370 | 5,290 | 4,940 | 4,590 |
| | -30 | 5,780 | 5,730 | 5,510 | 5,410 | 5,060 | 4,700 |
| | -20 | 5,940 | 5,860 | 5,660 | 5,550 | 5,190 | 4,800 |
| | -10 | 6,090 | 6,010 | 5,800 | 5,690 | 5,310 | 4,900 |
| | 0 | 6,240 | 6,160 | 5,940 | 5,820 | 5,440 | 5,010 |
| | 10 | 6,390 | 6,320 | 6,080 | 5,960 | 5,560 | 5,120 |
| | 20 | 6,540 | 6,460 | 6,220 | 6,110 | 5,680 | 5,210 |
| | 30 | 6,690 | 6,610 | 6,360 | 6,240 | 5,790 | 5,320 |
| | 33 | 6,730 | 6,630 | 6,400 | 6,270 | 5,810 | 5,340 |
| 10,000 | -54 | 5,670 | 5,630 | 5,430 | 5,350 | 5,020 | 4,680 |
| | -50 | 5,720 | 5,690 | 5,480 | 5,400 | 5,050 | 4,700 |
| | -40 | 5,880 | 5,830 | 5,610 | 5,530 | 5,150 | 4,780 |
| | -30 | 6,040 | 5,990 | 5,760 | 5,680 | 5,290 | 4,890 |
| | -20 | 6,200 | 6,140 | 5,910 | 5,810 | 5,420 | 5,000 |
| | -10 | 6,360 | 6,290 | 6,060 | 5,960 | 5,550 | 5,120 |
| | 0 | 6,530 | 6,450 | 6,210 | 6,100 | 5,680 | 5,240 |
| | 10 | 6,690 | 6,610 | 6,360 | 6,250 | 5,810 | 5,350 |
| | 20 | 6,840 | 6,780 | 6,510 | 6,400 | 5,940 | 5,470 |
| | 30 | 7,020 | 6,900 | 6,670 | 6,520 | 6,050 | 5,550 |
| | 31 | 7,040 | 6,910 | 6,680 | 6,530 | 6,060 | 5,560 |



Landing, Dry Runway, Flaps 15, Landing Field Length Required, Ice Mode 1

1 Ice Mode 1

| Associated Conditions | |
|---|--------------------------|
| Gear: | DOWN |
| Thrust: | Required for 3° Approach |
| Power: | Cut to Idle at 50 ft AGL |
| Airspeed: | V_{REF} at 50 ft AGL |
| Flare: | Initiate at 15 ft AGL |
| Lift Dump and Anti-Skid: | Operative |
| Wind Correction | |
| For tailwinds up to 10 knots, increase distance by 130 ft for each knot. | |
| For headwinds up to 30 knots, reduce distance by 30 ft for each knot. | |
| Slope Correction | |
| For downhill slopes up to 2%, increase distance by 55 ft for each 0.5%. | |
| For uphill slopes up to 2%, reduce distance by 20 ft for each 0.5%. | |
| Notes | |
| All landing distances are given in feet (ft) | |
| For abnormal landing cases and multipliers, refer to Abnormal Landings. | |
| MSN 101 - 500: Valid data not highlighted (white background). | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | |

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|-------------|--------|--------|--------|--------|--------|
| | | OWL | | MLW | | | |
| | | 18,740 | 18,300 | 17,340 | 16,900 | 15,000 | 13,000 |
| Sea level | -54 | 4,640 | 4,610 | 4,460 | 4,410 | 4,190 | 3,940 |
| | -50 | 4,670 | 4,640 | 4,480 | 4,440 | 4,200 | 3,960 |
| | -40 | 4,760 | 4,720 | 4,570 | 4,510 | 4,260 | 4,010 |
| | -30 | 4,860 | 4,820 | 4,670 | 4,590 | 4,330 | 4,060 |
| | -20 | 4,960 | 4,910 | 4,750 | 4,690 | 4,410 | 4,120 |
| | -10 | 5,050 | 5,020 | 4,850 | 4,780 | 4,490 | 4,180 |
| | 0 | 5,160 | 5,130 | 4,950 | 4,870 | 4,560 | 4,250 |
| | 10 | 5,270 | 5,230 | 5,040 | 4,980 | 4,650 | 4,320 |
| | 20 | 5,380 | 5,340 | 5,130 | 5,080 | 4,750 | 4,410 |
| | 30 | 5,490 | 5,450 | 5,240 | 5,180 | 4,840 | 4,490 |
| | 40 | 5,610 | 5,560 | 5,350 | 5,280 | 4,930 | 4,560 |
| | 50 | 5,730 | 5,640 | 5,470 | 5,350 | 4,990 | 4,610 |

Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Dry Runway, Flaps 15, Landing Field Length Required, Ice Mode 1



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 129 V_{REF} 119 KIAS | 18,300 V_{APP} 128 V_{REF} 118 KIAS | 17,340 V_{APP} 126 V_{REF} 116 KIAS | 16,900 V_{APP} 123 V_{REF} 113 KIAS | 15,000 V_{APP} 116 V_{REF} 106 KIAS | 13,000 V_{APP} 109 V_{REF} 99 KIAS |
| 1,000 | -54 | 4,720 | 4,700 | 4,540 | 4,510 | 4,250 | 4,020 |
| | -50 | 4,750 | 4,720 | 4,570 | 4,520 | 4,260 | 4,020 |
| | -40 | 4,840 | 4,810 | 4,650 | 4,590 | 4,330 | 4,050 |
| | -30 | 4,960 | 4,900 | 4,740 | 4,680 | 4,410 | 4,130 |
| | -20 | 5,050 | 5,000 | 4,840 | 4,770 | 4,480 | 4,210 |
| | -10 | 5,150 | 5,110 | 4,950 | 4,860 | 4,580 | 4,250 |
| | 0 | 5,270 | 5,240 | 5,050 | 4,960 | 4,660 | 4,330 |
| | 10 | 5,380 | 5,350 | 5,160 | 5,070 | 4,750 | 4,420 |
| | 20 | 5,500 | 5,450 | 5,250 | 5,180 | 4,840 | 4,490 |
| | 30 | 5,630 | 5,560 | 5,370 | 5,280 | 4,940 | 4,580 |
| | 40 | 5,750 | 5,680 | 5,480 | 5,380 | 5,030 | 4,660 |
| | 50 | 5,870 | 5,780 | 5,590 | 5,470 | 5,100 | 4,720 |
| 2,000 | -54 | 4,810 | 4,790 | 4,620 | 4,580 | 4,320 | 4,070 |
| | -50 | 4,840 | 4,800 | 4,650 | 4,600 | 4,330 | 4,090 |
| | -40 | 4,940 | 4,900 | 4,750 | 4,670 | 4,400 | 4,130 |
| | -30 | 5,050 | 5,010 | 4,830 | 4,780 | 4,470 | 4,180 |
| | -20 | 5,170 | 5,110 | 4,940 | 4,870 | 4,580 | 4,260 |
| | -10 | 5,260 | 5,210 | 5,040 | 4,970 | 4,650 | 4,330 |
| | 0 | 5,400 | 5,330 | 5,150 | 5,070 | 4,740 | 4,410 |
| | 10 | 5,520 | 5,450 | 5,240 | 5,180 | 4,840 | 4,480 |
| | 20 | 5,640 | 5,570 | 5,380 | 5,290 | 4,940 | 4,590 |
| | 30 | 5,760 | 5,690 | 5,490 | 5,390 | 5,060 | 4,660 |
| | 40 | 5,880 | 5,820 | 5,600 | 5,520 | 5,140 | 4,740 |
| | 50 | 6,000 | 5,930 | 5,710 | 5,620 | 5,220 | 4,820 |
| 3,000 | -54 | 4,910 | 4,880 | 4,710 | 4,660 | 4,390 | 4,120 |
| | -50 | 4,940 | 4,890 | 4,740 | 4,670 | 4,400 | 4,130 |
| | -40 | 5,030 | 5,000 | 4,840 | 4,760 | 4,500 | 4,170 |
| | -30 | 5,160 | 5,110 | 4,930 | 4,870 | 4,570 | 4,270 |
| | -20 | 5,270 | 5,230 | 5,040 | 4,970 | 4,650 | 4,350 |
| | -10 | 5,390 | 5,320 | 5,150 | 5,060 | 4,760 | 4,410 |
| | 0 | 5,520 | 5,450 | 5,260 | 5,190 | 4,840 | 4,480 |
| | 10 | 5,650 | 5,600 | 5,380 | 5,290 | 4,940 | 4,590 |
| | 20 | 5,770 | 5,700 | 5,500 | 5,420 | 5,050 | 4,660 |
| | 30 | 5,890 | 5,840 | 5,610 | 5,530 | 5,150 | 4,750 |
| | 40 | 6,020 | 5,960 | 5,730 | 5,640 | 5,240 | 4,840 |
| | 47 | 6,100 | 6,030 | 5,830 | 5,710 | 5,310 | 4,890 |
| 4,000 | -54 | 5,000 | 4,950 | 4,790 | 4,740 | 4,470 | 4,180 |
| | -50 | 5,040 | 4,980 | 4,830 | 4,770 | 4,490 | 4,190 |
| | -40 | 5,140 | 5,100 | 4,930 | 4,850 | 4,550 | 4,260 |
| | -30 | 5,260 | 5,220 | 5,040 | 4,960 | 4,640 | 4,330 |
| | -20 | 5,390 | 5,320 | 5,140 | 5,070 | 4,750 | 4,410 |
| | -10 | 5,510 | 5,470 | 5,260 | 5,180 | 4,840 | 4,500 |
| | 0 | 5,650 | 5,600 | 5,380 | 5,290 | 4,940 | 4,590 |
| | 10 | 5,780 | 5,730 | 5,500 | 5,420 | 5,050 | 4,670 |
| | 20 | 5,900 | 5,850 | 5,620 | 5,540 | 5,160 | 4,780 |
| | 30 | 6,040 | 5,980 | 5,750 | 5,660 | 5,260 | 4,870 |
| | 40 | 6,180 | 6,100 | 5,880 | 5,770 | 5,370 | 4,940 |
| | 45 | 6,230 | 6,150 | 5,920 | 5,820 | 5,420 | 4,990 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Landing, Dry Runway, Flaps 15, Landing Field Length Required, Ice Mode 1

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 129 V_{REF} 119 KIAS | 18,300 V_{APP} 128 V_{REF} 118 KIAS | 17,340 V_{APP} 126 V_{REF} 116 KIAS | 16,900 V_{APP} 123 V_{REF} 113 KIAS | 15,000 V_{APP} 116 V_{REF} 106 KIAS | 13,000 V_{APP} 109 V_{REF} 99 KIAS |
| 5,000 | -54 | 5,100 | 5,080 | 4,880 | 4,840 | 4,540 | 4,250 |
| | -50 | 5,150 | 5,100 | 4,920 | 4,860 | 4,570 | 4,270 |
| | -40 | 5,260 | 5,210 | 5,030 | 4,950 | 4,660 | 4,330 |
| | -30 | 5,370 | 5,340 | 5,150 | 5,070 | 4,750 | 4,410 |
| | -20 | 5,500 | 5,460 | 5,260 | 5,180 | 4,850 | 4,500 |
| | -10 | 5,640 | 5,590 | 5,380 | 5,300 | 4,950 | 4,580 |
| | 0 | 5,770 | 5,720 | 5,500 | 5,430 | 5,050 | 4,680 |
| | 10 | 5,910 | 5,860 | 5,630 | 5,550 | 5,160 | 4,790 |
| | 20 | 6,060 | 5,990 | 5,760 | 5,670 | 5,270 | 4,870 |
| | 30 | 6,190 | 6,120 | 5,890 | 5,790 | 5,380 | 4,960 |
| | 40 | 6,320 | 6,230 | 6,010 | 5,900 | 5,490 | 5,060 |
| | 42 | 6,350 | 6,250 | 6,040 | 5,920 | 5,510 | 5,080 |
| | -54 | 5,210 | 5,180 | 4,980 | 4,940 | 4,640 | 4,330 |
| 6,000 | -50 | 5,250 | 5,220 | 5,020 | 4,970 | 4,660 | 4,340 |
| | -40 | 5,380 | 5,320 | 5,140 | 5,060 | 4,740 | 4,410 |
| | -30 | 5,520 | 5,440 | 5,240 | 5,170 | 4,840 | 4,490 |
| | -20 | 5,640 | 5,580 | 5,380 | 5,290 | 4,950 | 4,580 |
| | -10 | 5,790 | 5,720 | 5,520 | 5,420 | 5,050 | 4,680 |
| | 0 | 5,920 | 5,860 | 5,630 | 5,550 | 5,180 | 4,790 |
| | 10 | 6,070 | 5,990 | 5,770 | 5,680 | 5,280 | 4,880 |
| | 20 | 6,210 | 6,130 | 5,910 | 5,800 | 5,400 | 4,980 |
| | 30 | 6,350 | 6,270 | 6,040 | 5,930 | 5,530 | 5,070 |
| | 40 | 6,490 | 6,390 | 6,170 | 6,050 | 5,620 | 5,160 |
| | -54 | 5,310 | 5,300 | 5,090 | 5,050 | 4,730 | 4,410 |
| | -50 | 5,360 | 5,330 | 5,130 | 5,070 | 4,750 | 4,420 |
| | -40 | 5,500 | 5,430 | 5,240 | 5,170 | 4,830 | 4,480 |
| 7,000 | -30 | 5,640 | 5,570 | 5,370 | 5,290 | 4,940 | 4,590 |
| | -20 | 5,790 | 5,710 | 5,510 | 5,420 | 5,060 | 4,680 |
| | -10 | 5,930 | 5,850 | 5,650 | 5,550 | 5,180 | 4,790 |
| | 0 | 6,080 | 6,000 | 5,790 | 5,680 | 5,280 | 4,890 |
| | 10 | 6,220 | 6,140 | 5,920 | 5,810 | 5,420 | 4,990 |
| | 20 | 6,370 | 6,280 | 6,060 | 5,940 | 5,540 | 5,070 |
| | 30 | 6,510 | 6,450 | 6,190 | 6,090 | 5,660 | 5,200 |
| | 38 | 6,630 | 6,530 | 6,300 | 6,180 | 5,720 | 5,260 |
| | -54 | 5,450 | 5,430 | 5,200 | 5,160 | 4,840 | 4,500 |
| | -50 | 5,500 | 5,450 | 5,250 | 5,180 | 4,860 | 4,530 |
| | -40 | 5,640 | 5,590 | 5,380 | 5,280 | 4,940 | 4,590 |
| | -30 | 5,790 | 5,710 | 5,520 | 5,440 | 5,060 | 4,680 |
| 8,000 | -20 | 5,940 | 5,880 | 5,660 | 5,580 | 5,190 | 4,790 |
| | -10 | 6,100 | 6,010 | 5,800 | 5,700 | 5,310 | 4,900 |
| | 0 | 6,250 | 6,180 | 5,940 | 5,850 | 5,440 | 5,010 |
| | 10 | 6,400 | 6,310 | 6,090 | 5,970 | 5,560 | 5,120 |
| | 20 | 6,550 | 6,480 | 6,220 | 6,130 | 5,680 | 5,230 |
| | 30 | 6,710 | 6,630 | 6,370 | 6,260 | 5,810 | 5,330 |
| | 35 | 6,790 | 6,670 | 6,450 | 6,310 | 5,860 | 5,370 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Dry Runway, Flaps 15, Landing Field Length Required, Ice Mode 1

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 129 V_{REF} 119 KIAS | 18,300 V_{APP} 128 V_{REF} 118 KIAS | 17,340 V_{APP} 126 V_{REF} 116 KIAS | 16,900 V_{APP} 123 V_{REF} 113 KIAS | 15,000 V_{APP} 116 V_{REF} 106 KIAS | 13,000 V_{APP} 109 V_{REF} 99 KIAS |
| 9,000 | -54 | 5,710 | 5,640 | 5,420 | 5,360 | 5,020 | 4,660 |
| | -50 | 5,750 | 5,680 | 5,470 | 5,400 | 5,050 | 4,680 |
| | -40 | 5,880 | 5,830 | 5,610 | 5,520 | 5,160 | 4,760 |
| | -30 | 6,050 | 5,990 | 5,760 | 5,670 | 5,290 | 4,890 |
| | -20 | 6,210 | 6,150 | 5,910 | 5,820 | 5,430 | 4,990 |
| | -10 | 6,370 | 6,310 | 6,060 | 5,960 | 5,540 | 5,110 |
| | 0 | 6,530 | 6,470 | 6,210 | 6,100 | 5,680 | 5,220 |
| | 10 | 6,690 | 6,620 | 6,360 | 6,260 | 5,810 | 5,340 |
| | 20 | 6,860 | 6,780 | 6,520 | 6,410 | 5,940 | 5,460 |
| | 30 | 7,030 | 6,930 | 6,680 | 6,540 | 6,050 | 5,560 |
| | 33 | 7,060 | 6,970 | 6,710 | 6,580 | 6,070 | 5,570 |
| 10,000 | -54 | 5,950 | 5,880 | 5,670 | 5,590 | 5,230 | 4,840 |
| | -50 | 6,010 | 5,940 | 5,730 | 5,640 | 5,260 | 4,880 |
| | -40 | 6,160 | 6,090 | 5,870 | 5,780 | 5,370 | 4,990 |
| | -30 | 6,320 | 6,260 | 6,020 | 5,930 | 5,520 | 5,100 |
| | -20 | 6,490 | 6,430 | 6,180 | 6,090 | 5,660 | 5,210 |
| | -10 | 6,660 | 6,600 | 6,340 | 6,240 | 5,790 | 5,340 |
| | 0 | 6,830 | 6,770 | 6,500 | 6,400 | 5,930 | 5,460 |
| | 10 | 7,020 | 6,940 | 6,670 | 6,550 | 6,070 | 5,580 |
| | 20 | 7,180 | 7,100 | 6,830 | 6,710 | 6,210 | 5,700 |
| | 30 | 7,270 | 7,240 | 6,980 | 6,830 | 6,330 | 5,810 |
| | 31 | 7,280 | 7,260 | 7,000 | 6,840 | 6,340 | 5,820 |



Landing, Dry Runway, Flaps 15, Landing Distance, Ice Mode 0

1 Ice Mode 0

| Associated Conditions | |
|---|--------------------------|
| Gear: | DOWN |
| Thrust: | Required for 3° Approach |
| Power: | Cut to Idle at 50 ft AGL |
| Airspeed: | V_{REF} at 50 ft AGL |
| Flare: | Initiate at 15 ft AGL |
| Lift Dump and Anti-Skid: | Operative |
| Wind Correction | |
| For tailwinds up to 10 knots, increase distance by 75 ft for each knot. | |
| For headwinds up to 30 knots, reduce distance by 20 ft for each knot. | |
| Slope Correction | |
| For downhill slopes up to 2%, increase distance by 35 ft for each 0.5%. | |
| For uphill slopes up to 2%, reduce distance by 10 ft for each 0.5%. | |
| Notes | |
| All landing distances are given in feet (ft) | |
| For abnormal landing cases and multipliers, refer to Abnormal Landings. | |
| MSN 101 - 500: Valid data not highlighted (white background). | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | |

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 125 V_{REF} 115 KIAS | 18,300 V_{APP} 124 V_{REF} 114 KIAS | 17,340 V_{APP} 121 V_{REF} 111 KIAS | 16,900 V_{APP} 119 V_{REF} 109 KIAS | 15,000 V_{APP} 113 V_{REF} 103 KIAS | 13,000 V_{APP} 106 V_{REF} 96 KIAS |
| Sea level | -54 | 2,670 | 2,660 | 2,580 | 2,560 | 2,430 | 2,300 |
| | -50 | 2,690 | 2,680 | 2,600 | 2,570 | 2,430 | 2,300 |
| | -40 | 2,740 | 2,730 | 2,640 | 2,610 | 2,460 | 2,310 |
| | -30 | 2,800 | 2,780 | 2,690 | 2,650 | 2,510 | 2,350 |
| | -20 | 2,860 | 2,830 | 2,730 | 2,700 | 2,550 | 2,390 |
| | -10 | 2,910 | 2,890 | 2,790 | 2,750 | 2,590 | 2,430 |
| | 0 | 2,970 | 2,950 | 2,840 | 2,800 | 2,630 | 2,450 |
| | 10 | 3,030 | 3,010 | 2,900 | 2,860 | 2,690 | 2,500 |
| | 20 | 3,100 | 3,070 | 2,950 | 2,920 | 2,730 | 2,550 |
| | 30 | 3,170 | 3,130 | 3,010 | 2,980 | 2,780 | 2,590 |
| | 40 | 3,220 | 3,190 | 3,070 | 3,030 | 2,840 | 2,640 |
| | 50 | 3,280 | 3,240 | 3,130 | 3,080 | 2,880 | 2,670 |

Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Dry Runway, Flaps 15, Landing Distance, Ice Mode 0



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 125 V_{REF} 115 KIAS | 18,300 V_{APP} 124 V_{REF} 114 KIAS | 17,340 V_{APP} 121 V_{REF} 111 KIAS | 16,900 V_{APP} 119 V_{REF} 109 KIAS | 15,000 V_{APP} 113 V_{REF} 103 KIAS | 13,000 V_{APP} 106 V_{REF} 96 KIAS |
| 1,000 | -54 | 2,720 | 2,710 | 2,630 | 2,600 | 2,460 | 2,320 |
| | -50 | 2,740 | 2,730 | 2,640 | 2,610 | 2,470 | 2,330 |
| | -40 | 2,800 | 2,770 | 2,680 | 2,650 | 2,510 | 2,360 |
| | -30 | 2,860 | 2,830 | 2,730 | 2,700 | 2,540 | 2,390 |
| | -20 | 2,920 | 2,890 | 2,790 | 2,750 | 2,580 | 2,420 |
| | -10 | 2,970 | 2,940 | 2,840 | 2,810 | 2,640 | 2,460 |
| | 0 | 3,030 | 3,010 | 2,900 | 2,860 | 2,690 | 2,500 |
| | 10 | 3,090 | 3,070 | 2,970 | 2,920 | 2,740 | 2,540 |
| | 20 | 3,160 | 3,140 | 3,020 | 2,980 | 2,790 | 2,590 |
| | 30 | 3,220 | 3,200 | 3,090 | 3,040 | 2,840 | 2,640 |
| | 40 | 3,290 | 3,260 | 3,140 | 3,100 | 2,900 | 2,690 |
| | 50 | 3,360 | 3,320 | 3,210 | 3,140 | 2,940 | 2,720 |
| 2,000 | -54 | 2,770 | 2,760 | 2,670 | 2,650 | 2,500 | 2,360 |
| | -50 | 2,790 | 2,770 | 2,680 | 2,660 | 2,500 | 2,370 |
| | -40 | 2,850 | 2,830 | 2,740 | 2,700 | 2,540 | 2,390 |
| | -30 | 2,910 | 2,880 | 2,790 | 2,740 | 2,590 | 2,420 |
| | -20 | 2,970 | 2,940 | 2,850 | 2,810 | 2,640 | 2,470 |
| | -10 | 3,030 | 3,000 | 2,900 | 2,860 | 2,680 | 2,500 |
| | 0 | 3,090 | 3,070 | 2,970 | 2,920 | 2,730 | 2,540 |
| | 10 | 3,160 | 3,150 | 3,020 | 2,980 | 2,790 | 2,600 |
| | 20 | 3,230 | 3,210 | 3,090 | 3,040 | 2,850 | 2,650 |
| | 30 | 3,310 | 3,270 | 3,140 | 3,100 | 2,900 | 2,690 |
| | 40 | 3,380 | 3,330 | 3,220 | 3,170 | 2,960 | 2,740 |
| | 50 | 3,440 | 3,390 | 3,280 | 3,230 | 3,000 | 2,780 |
| 3,000 | -54 | 2,830 | 2,810 | 2,720 | 2,690 | 2,550 | 2,390 |
| | -50 | 2,850 | 2,820 | 2,730 | 2,690 | 2,550 | 2,390 |
| | -40 | 2,900 | 2,880 | 2,780 | 2,750 | 2,600 | 2,420 |
| | -30 | 2,970 | 2,950 | 2,850 | 2,800 | 2,640 | 2,470 |
| | -20 | 3,030 | 3,000 | 2,900 | 2,870 | 2,680 | 2,500 |
| | -10 | 3,100 | 3,060 | 2,960 | 2,920 | 2,740 | 2,530 |
| | 0 | 3,160 | 3,130 | 3,030 | 2,980 | 2,790 | 2,600 |
| | 10 | 3,240 | 3,210 | 3,090 | 3,040 | 2,850 | 2,650 |
| | 20 | 3,310 | 3,290 | 3,150 | 3,110 | 2,910 | 2,690 |
| | 30 | 3,380 | 3,340 | 3,220 | 3,170 | 2,960 | 2,750 |
| | 40 | 3,450 | 3,410 | 3,290 | 3,230 | 3,030 | 2,790 |
| | 47 | 3,500 | 3,460 | 3,330 | 3,280 | 3,060 | 2,830 |
| 4,000 | -54 | 2,880 | 2,860 | 2,760 | 2,730 | 2,590 | 2,430 |
| | -50 | 2,900 | 2,870 | 2,780 | 2,750 | 2,590 | 2,440 |
| | -40 | 2,960 | 2,940 | 2,840 | 2,800 | 2,630 | 2,460 |
| | -30 | 3,030 | 3,000 | 2,890 | 2,860 | 2,690 | 2,500 |
| | -20 | 3,100 | 3,060 | 2,960 | 2,920 | 2,740 | 2,550 |
| | -10 | 3,170 | 3,130 | 3,030 | 2,980 | 2,790 | 2,600 |
| | 0 | 3,240 | 3,200 | 3,100 | 3,040 | 2,850 | 2,650 |
| | 10 | 3,320 | 3,280 | 3,160 | 3,120 | 2,910 | 2,690 |
| | 20 | 3,390 | 3,360 | 3,230 | 3,180 | 2,970 | 2,750 |
| | 30 | 3,460 | 3,420 | 3,300 | 3,250 | 3,030 | 2,800 |
| | 40 | 3,530 | 3,500 | 3,360 | 3,310 | 3,080 | 2,860 |
| | 45 | 3,570 | 3,530 | 3,400 | 3,340 | 3,110 | 2,880 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Dry Runway, Flaps 15, Landing Distance, Ice Mode 0

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 125 V_{REF} 115 KIAS | 18,300 V_{APP} 124 V_{REF} 114 KIAS | 17,340 V_{APP} 121 V_{REF} 111 KIAS | 16,900 V_{APP} 119 V_{REF} 109 KIAS | 15,000 V_{APP} 113 V_{REF} 103 KIAS | 13,000 V_{APP} 106 V_{REF} 96 KIAS |
| 5,000 | -54 | 2,940 | 2,910 | 2,820 | 2,780 | 2,630 | 2,460 |
| | -50 | 2,960 | 2,930 | 2,840 | 2,800 | 2,650 | 2,470 |
| | -40 | 3,020 | 3,000 | 2,900 | 2,860 | 2,690 | 2,510 |
| | -30 | 3,100 | 3,070 | 2,960 | 2,920 | 2,730 | 2,550 |
| | -20 | 3,170 | 3,130 | 3,020 | 2,980 | 2,790 | 2,600 |
| | -10 | 3,240 | 3,210 | 3,100 | 3,050 | 2,850 | 2,650 |
| | 0 | 3,320 | 3,290 | 3,170 | 3,110 | 2,910 | 2,700 |
| | 10 | 3,390 | 3,370 | 3,230 | 3,180 | 2,970 | 2,750 |
| | 20 | 3,470 | 3,440 | 3,300 | 3,260 | 3,030 | 2,810 |
| | 30 | 3,540 | 3,510 | 3,370 | 3,330 | 3,090 | 2,870 |
| | 40 | 3,630 | 3,580 | 3,450 | 3,390 | 3,150 | 2,920 |
| | 42 | 3,640 | 3,590 | 3,470 | 3,400 | 3,160 | 2,920 |
| | -54 | 3,000 | 2,980 | 2,870 | 2,850 | 2,680 | 2,510 |
| | -50 | 3,020 | 3,000 | 2,890 | 2,870 | 2,690 | 2,520 |
| 6,000 | -40 | 3,080 | 3,060 | 2,960 | 2,910 | 2,730 | 2,550 |
| | -30 | 3,160 | 3,130 | 3,020 | 2,980 | 2,790 | 2,590 |
| | -20 | 3,240 | 3,210 | 3,080 | 3,040 | 2,850 | 2,640 |
| | -10 | 3,320 | 3,290 | 3,160 | 3,120 | 2,910 | 2,700 |
| | 0 | 3,390 | 3,360 | 3,240 | 3,190 | 2,970 | 2,750 |
| | 10 | 3,470 | 3,440 | 3,310 | 3,260 | 3,030 | 2,810 |
| | 20 | 3,550 | 3,520 | 3,380 | 3,330 | 3,100 | 2,870 |
| | 30 | 3,640 | 3,600 | 3,460 | 3,410 | 3,160 | 2,920 |
| | 40 | 3,720 | 3,670 | 3,540 | 3,470 | 3,220 | 2,970 |
| | -54 | 3,060 | 3,040 | 2,930 | 2,900 | 2,730 | 2,550 |
| | -50 | 3,090 | 3,050 | 2,950 | 2,920 | 2,740 | 2,550 |
| 7,000 | -40 | 3,150 | 3,120 | 3,020 | 2,970 | 2,790 | 2,600 |
| | -30 | 3,220 | 3,200 | 3,090 | 3,040 | 2,850 | 2,650 |
| | -20 | 3,310 | 3,280 | 3,160 | 3,120 | 2,920 | 2,700 |
| | -10 | 3,390 | 3,360 | 3,230 | 3,190 | 2,980 | 2,760 |
| | 0 | 3,490 | 3,440 | 3,310 | 3,260 | 3,040 | 2,820 |
| | 10 | 3,550 | 3,520 | 3,380 | 3,340 | 3,100 | 2,880 |
| | 20 | 3,650 | 3,600 | 3,470 | 3,410 | 3,170 | 2,940 |
| | 30 | 3,730 | 3,680 | 3,550 | 3,490 | 3,250 | 2,990 |
| | 38 | 3,800 | 3,740 | 3,610 | 3,530 | 3,290 | 3,030 |
| | -54 | 3,140 | 3,120 | 3,000 | 2,970 | 2,780 | 2,610 |
| | -50 | 3,170 | 3,140 | 3,020 | 2,980 | 2,790 | 2,610 |
| | -40 | 3,240 | 3,200 | 3,090 | 3,040 | 2,850 | 2,650 |
| | -30 | 3,330 | 3,280 | 3,160 | 3,120 | 2,920 | 2,700 |
| 8,000 | -20 | 3,410 | 3,370 | 3,250 | 3,190 | 2,990 | 2,760 |
| | -10 | 3,500 | 3,450 | 3,330 | 3,270 | 3,040 | 2,820 |
| | 0 | 3,570 | 3,540 | 3,410 | 3,350 | 3,130 | 2,890 |
| | 10 | 3,670 | 3,620 | 3,490 | 3,430 | 3,180 | 2,950 |
| | 20 | 3,750 | 3,700 | 3,570 | 3,500 | 3,270 | 3,010 |
| | 30 | 3,840 | 3,790 | 3,650 | 3,580 | 3,340 | 3,050 |
| | 35 | 3,880 | 3,820 | 3,690 | 3,610 | 3,360 | 3,080 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Dry Runway, Flaps 15, Landing Distance, Ice Mode 0

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 125 V_{REF} 115 KIAS | 18,300 V_{APP} 124 V_{REF} 114 KIAS | 17,340 V_{APP} 121 V_{REF} 111 KIAS | 16,900 V_{APP} 119 V_{REF} 109 KIAS | 15,000 V_{APP} 113 V_{REF} 103 KIAS | 13,000 V_{APP} 106 V_{REF} 96 KIAS |
| 9,000 | -54 | 3,270 | 3,250 | 3,120 | 3,100 | 2,900 | 2,690 |
| | -50 | 3,300 | 3,270 | 3,150 | 3,110 | 2,910 | 2,700 |
| | -40 | 3,380 | 3,350 | 3,220 | 3,170 | 2,960 | 2,760 |
| | -30 | 3,470 | 3,440 | 3,310 | 3,250 | 3,040 | 2,820 |
| | -20 | 3,560 | 3,520 | 3,400 | 3,330 | 3,110 | 2,880 |
| | -10 | 3,650 | 3,610 | 3,480 | 3,420 | 3,190 | 2,940 |
| | 0 | 3,740 | 3,700 | 3,560 | 3,500 | 3,260 | 3,010 |
| | 10 | 3,830 | 3,800 | 3,650 | 3,580 | 3,340 | 3,070 |
| | 20 | 3,930 | 3,880 | 3,730 | 3,670 | 3,410 | 3,130 |
| | 30 | 4,020 | 3,970 | 3,820 | 3,750 | 3,480 | 3,200 |
| | 33 | 4,040 | 3,980 | 3,840 | 3,760 | 3,490 | 3,210 |
| 10,000 | -54 | 3,400 | 3,380 | 3,260 | 3,210 | 3,010 | 2,810 |
| | -50 | 3,440 | 3,410 | 3,290 | 3,240 | 3,030 | 2,820 |
| | -40 | 3,530 | 3,500 | 3,370 | 3,320 | 3,090 | 2,870 |
| | -30 | 3,630 | 3,600 | 3,460 | 3,410 | 3,170 | 2,930 |
| | -20 | 3,720 | 3,680 | 3,550 | 3,490 | 3,250 | 3,000 |
| | -10 | 3,820 | 3,780 | 3,640 | 3,580 | 3,330 | 3,070 |
| | 0 | 3,920 | 3,870 | 3,730 | 3,660 | 3,410 | 3,140 |
| | 10 | 4,010 | 3,970 | 3,820 | 3,750 | 3,490 | 3,210 |
| | 20 | 4,110 | 4,070 | 3,910 | 3,840 | 3,570 | 3,280 |
| | 30 | 4,210 | 4,140 | 4,000 | 3,910 | 3,630 | 3,330 |
| | 31 | 4,220 | 4,150 | 4,010 | 3,920 | 3,640 | 3,340 |



Landing, Dry Runway, Flaps 15, Landing Distance, Ice Mode 1

1 Ice Mode 1

| Associated Conditions | |
|---|--------------------------|
| Gear: | DOWN |
| Thrust: | Required for 3° Approach |
| Power: | Cut to Idle at 50 ft AGL |
| Airspeed: | V_{REF} at 50 ft AGL |
| Flare: | Initiate at 15 ft AGL |
| Lift Dump and Anti-Skid: | Operative |
| Wind Correction | |
| For tailwinds up to 10 knots, increase distance by 75 ft for each knot. | |
| For headwinds up to 30 knots, reduce distance by 20 ft for each knot. | |
| Slope Correction | |
| For downhill slopes up to 2%, increase distance by 35 ft for each 0.5%. | |
| For uphill slopes up to 2%, reduce distance by 10 ft for each 0.5%. | |
| Notes | |
| All landing distances are given in feet (ft) | |
| For abnormal landing cases and multipliers, refer to Abnormal Landings. | |
| MSN 101 - 500: Valid data not highlighted (white background). | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | |

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 129 V_{REF} 119 KIAS | 18,300 V_{APP} 128 V_{REF} 118 KIAS | 17,340 V_{APP} 126 V_{REF} 116 KIAS | 16,900 V_{APP} 123 V_{REF} 113 KIAS | 15,000 V_{APP} 116 V_{REF} 106 KIAS | 13,000 V_{APP} 109 V_{REF} 99 KIAS |
| Sea level | -54 | 2,790 | 2,770 | 2,680 | 2,650 | 2,520 | 2,370 |
| | -50 | 2,800 | 2,780 | 2,690 | 2,670 | 2,520 | 2,380 |
| | -40 | 2,860 | 2,840 | 2,740 | 2,710 | 2,560 | 2,410 |
| | -30 | 2,920 | 2,890 | 2,800 | 2,760 | 2,600 | 2,440 |
| | -20 | 2,980 | 2,950 | 2,850 | 2,810 | 2,650 | 2,470 |
| | -10 | 3,030 | 3,020 | 2,910 | 2,870 | 2,700 | 2,510 |
| | 0 | 3,100 | 3,080 | 2,970 | 2,920 | 2,740 | 2,550 |
| | 10 | 3,160 | 3,140 | 3,030 | 2,990 | 2,790 | 2,590 |
| | 20 | 3,230 | 3,200 | 3,080 | 3,050 | 2,850 | 2,650 |
| | 30 | 3,300 | 3,270 | 3,150 | 3,110 | 2,910 | 2,700 |
| | 40 | 3,370 | 3,340 | 3,210 | 3,170 | 2,960 | 2,740 |
| | 50 | 3,440 | 3,390 | 3,280 | 3,210 | 3,000 | 2,770 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Landing, Dry Runway, Flaps 15, Landing Distance, Ice Mode 1

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 129 V_{REF} 119 KIAS | 18,300 V_{APP} 128 V_{REF} 118 KIAS | 17,340 V_{APP} 126 V_{REF} 116 KIAS | 16,900 V_{APP} 123 V_{REF} 113 KIAS | 15,000 V_{APP} 116 V_{REF} 106 KIAS | 13,000 V_{APP} 109 V_{REF} 99 KIAS |
| 1,000 | -54 | 2,840 | 2,820 | 2,730 | 2,710 | 2,550 | 2,410 |
| | -50 | 2,850 | 2,830 | 2,740 | 2,710 | 2,560 | 2,410 |
| | -40 | 2,910 | 2,890 | 2,790 | 2,760 | 2,600 | 2,430 |
| | -30 | 2,980 | 2,940 | 2,850 | 2,810 | 2,650 | 2,480 |
| | -20 | 3,030 | 3,000 | 2,910 | 2,860 | 2,690 | 2,530 |
| | -10 | 3,090 | 3,070 | 2,970 | 2,920 | 2,750 | 2,550 |
| | 0 | 3,160 | 3,150 | 3,030 | 2,980 | 2,800 | 2,600 |
| | 10 | 3,230 | 3,210 | 3,100 | 3,040 | 2,850 | 2,650 |
| | 20 | 3,300 | 3,270 | 3,150 | 3,110 | 2,910 | 2,700 |
| | 30 | 3,380 | 3,340 | 3,220 | 3,170 | 2,970 | 2,750 |
| | 40 | 3,450 | 3,410 | 3,290 | 3,230 | 3,020 | 2,800 |
| | 50 | 3,520 | 3,470 | 3,350 | 3,290 | 3,060 | 2,840 |
| | -54 | 2,890 | 2,880 | 2,770 | 2,750 | 2,590 | 2,450 |
| | -50 | 2,900 | 2,880 | 2,790 | 2,760 | 2,600 | 2,450 |
| 2,000 | -40 | 2,970 | 2,940 | 2,850 | 2,800 | 2,640 | 2,480 |
| | -30 | 3,030 | 3,010 | 2,900 | 2,870 | 2,680 | 2,510 |
| | -20 | 3,100 | 3,070 | 2,970 | 2,930 | 2,750 | 2,560 |
| | -10 | 3,160 | 3,130 | 3,030 | 2,990 | 2,790 | 2,600 |
| | 0 | 3,240 | 3,200 | 3,090 | 3,040 | 2,850 | 2,650 |
| | 10 | 3,320 | 3,270 | 3,150 | 3,110 | 2,910 | 2,690 |
| | 20 | 3,390 | 3,350 | 3,230 | 3,180 | 2,970 | 2,750 |
| | 30 | 3,460 | 3,410 | 3,300 | 3,240 | 3,040 | 2,800 |
| | 40 | 3,530 | 3,500 | 3,360 | 3,320 | 3,090 | 2,840 |
| | 50 | 3,600 | 3,560 | 3,430 | 3,380 | 3,130 | 2,890 |
| | -54 | 2,950 | 2,930 | 2,830 | 2,800 | 2,630 | 2,470 |
| | -50 | 2,970 | 2,940 | 2,850 | 2,800 | 2,640 | 2,480 |
| 3,000 | -40 | 3,020 | 3,000 | 2,910 | 2,860 | 2,700 | 2,510 |
| | -30 | 3,100 | 3,070 | 2,960 | 2,920 | 2,740 | 2,560 |
| | -20 | 3,170 | 3,140 | 3,020 | 2,990 | 2,790 | 2,610 |
| | -10 | 3,240 | 3,200 | 3,090 | 3,040 | 2,860 | 2,650 |
| | 0 | 3,310 | 3,270 | 3,160 | 3,120 | 2,910 | 2,690 |
| | 10 | 3,390 | 3,360 | 3,230 | 3,180 | 2,970 | 2,760 |
| | 20 | 3,470 | 3,420 | 3,300 | 3,250 | 3,030 | 2,800 |
| | 30 | 3,540 | 3,510 | 3,370 | 3,320 | 3,090 | 2,850 |
| | 40 | 3,610 | 3,580 | 3,440 | 3,390 | 3,150 | 2,900 |
| | 47 | 3,660 | 3,620 | 3,500 | 3,430 | 3,190 | 2,930 |
| | -54 | 3,000 | 2,970 | 2,880 | 2,850 | 2,690 | 2,510 |
| | -50 | 3,030 | 2,990 | 2,900 | 2,860 | 2,700 | 2,520 |
| 4,000 | -40 | 3,080 | 3,060 | 2,960 | 2,910 | 2,730 | 2,560 |
| | -30 | 3,160 | 3,130 | 3,030 | 2,980 | 2,790 | 2,600 |
| | -20 | 3,240 | 3,200 | 3,090 | 3,050 | 2,850 | 2,650 |
| | -10 | 3,310 | 3,280 | 3,160 | 3,110 | 2,900 | 2,700 |
| | 0 | 3,390 | 3,360 | 3,230 | 3,180 | 2,970 | 2,750 |
| | 10 | 3,470 | 3,440 | 3,300 | 3,260 | 3,030 | 2,810 |
| | 20 | 3,540 | 3,510 | 3,370 | 3,330 | 3,100 | 2,870 |
| | 30 | 3,630 | 3,590 | 3,450 | 3,400 | 3,160 | 2,920 |
| | 40 | 3,710 | 3,660 | 3,530 | 3,470 | 3,220 | 2,970 |
| | 45 | 3,740 | 3,690 | 3,560 | 3,490 | 3,250 | 3,000 |



Section 5 - Performance, Cockpit Handbook (Authority approved)

Landing, Dry Runway, Flaps 15, Landing Distance, Ice Mode 1

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 129 V_{REF} 119 KIAS | 18,300 V_{APP} 128 V_{REF} 118 KIAS | 17,340 V_{APP} 126 V_{REF} 116 KIAS | 16,900 V_{APP} 123 V_{REF} 113 KIAS | 15,000 V_{APP} 116 V_{REF} 106 KIAS | 13,000 V_{APP} 109 V_{REF} 99 KIAS |
| 5,000 | -54 | 3,060 | 3,050 | 2,930 | 2,900 | 2,720 | 2,550 |
| | -50 | 3,090 | 3,060 | 2,960 | 2,920 | 2,740 | 2,560 |
| | -40 | 3,160 | 3,130 | 3,020 | 2,970 | 2,800 | 2,600 |
| | -30 | 3,230 | 3,210 | 3,090 | 3,040 | 2,850 | 2,650 |
| | -20 | 3,300 | 3,280 | 3,160 | 3,110 | 2,910 | 2,700 |
| | -10 | 3,390 | 3,360 | 3,230 | 3,180 | 2,970 | 2,750 |
| | 0 | 3,470 | 3,440 | 3,300 | 3,260 | 3,030 | 2,810 |
| | 10 | 3,550 | 3,520 | 3,380 | 3,330 | 3,100 | 2,870 |
| | 20 | 3,640 | 3,590 | 3,460 | 3,410 | 3,160 | 2,920 |
| | 30 | 3,720 | 3,670 | 3,530 | 3,480 | 3,230 | 2,980 |
| | 40 | 3,800 | 3,740 | 3,610 | 3,540 | 3,290 | 3,040 |
| | 42 | 3,810 | 3,750 | 3,630 | 3,550 | 3,310 | 3,050 |
| | -54 | 3,130 | 3,110 | 2,990 | 2,970 | 2,790 | 2,600 |
| | -50 | 3,150 | 3,130 | 3,010 | 2,980 | 2,800 | 2,610 |
| 6,000 | -40 | 3,230 | 3,200 | 3,080 | 3,040 | 2,840 | 2,650 |
| | -30 | 3,310 | 3,270 | 3,150 | 3,100 | 2,910 | 2,700 |
| | -20 | 3,380 | 3,350 | 3,230 | 3,180 | 2,970 | 2,750 |
| | -10 | 3,470 | 3,430 | 3,320 | 3,260 | 3,030 | 2,810 |
| | 0 | 3,550 | 3,520 | 3,380 | 3,330 | 3,110 | 2,870 |
| | 10 | 3,640 | 3,600 | 3,470 | 3,410 | 3,170 | 2,930 |
| | 20 | 3,730 | 3,680 | 3,550 | 3,480 | 3,240 | 2,990 |
| | 30 | 3,810 | 3,760 | 3,630 | 3,560 | 3,320 | 3,040 |
| | 40 | 3,900 | 3,840 | 3,700 | 3,630 | 3,370 | 3,100 |
| | -54 | 3,190 | 3,180 | 3,060 | 3,030 | 2,840 | 2,650 |
| | -50 | 3,220 | 3,200 | 3,080 | 3,040 | 2,850 | 2,650 |
| | -40 | 3,300 | 3,260 | 3,150 | 3,110 | 2,900 | 2,690 |
| | -30 | 3,380 | 3,340 | 3,230 | 3,180 | 2,970 | 2,760 |
| 7,000 | -20 | 3,470 | 3,430 | 3,310 | 3,250 | 3,040 | 2,810 |
| | -10 | 3,560 | 3,510 | 3,390 | 3,330 | 3,110 | 2,870 |
| | 0 | 3,650 | 3,600 | 3,470 | 3,410 | 3,170 | 2,930 |
| | 10 | 3,730 | 3,680 | 3,550 | 3,490 | 3,250 | 3,000 |
| | 20 | 3,820 | 3,770 | 3,640 | 3,570 | 3,330 | 3,050 |
| | 30 | 3,910 | 3,870 | 3,720 | 3,660 | 3,400 | 3,120 |
| | 38 | 3,980 | 3,920 | 3,780 | 3,710 | 3,440 | 3,160 |
| | -54 | 3,270 | 3,260 | 3,120 | 3,100 | 2,910 | 2,700 |
| | -50 | 3,300 | 3,270 | 3,150 | 3,110 | 2,920 | 2,720 |
| | -40 | 3,380 | 3,350 | 3,230 | 3,170 | 2,970 | 2,760 |
| | -30 | 3,480 | 3,430 | 3,310 | 3,260 | 3,040 | 2,810 |
| | -20 | 3,570 | 3,530 | 3,400 | 3,350 | 3,120 | 2,880 |
| | -10 | 3,660 | 3,610 | 3,480 | 3,420 | 3,190 | 2,940 |
| | 0 | 3,750 | 3,710 | 3,570 | 3,510 | 3,260 | 3,010 |
| | 10 | 3,840 | 3,790 | 3,650 | 3,580 | 3,340 | 3,070 |
| | 20 | 3,930 | 3,890 | 3,740 | 3,680 | 3,410 | 3,140 |
| | 30 | 4,030 | 3,980 | 3,820 | 3,760 | 3,490 | 3,200 |
| | 35 | 4,080 | 4,010 | 3,870 | 3,790 | 3,520 | 3,220 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Dry Runway, Flaps 15, Landing Distance, Ice Mode 1

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 129 V_{REF} 119 KIAS | 18,300 V_{APP} 128 V_{REF} 118 KIAS | 17,340 V_{APP} 126 V_{REF} 116 KIAS | 16,900 V_{APP} 123 V_{REF} 113 KIAS | 15,000 V_{APP} 116 V_{REF} 106 KIAS | 13,000 V_{APP} 109 V_{REF} 99 KIAS |
| 9,000 | -54 | 3,430 | 3,390 | 3,250 | 3,220 | 3,020 | 2,800 |
| | -50 | 3,450 | 3,410 | 3,280 | 3,240 | 3,030 | 2,810 |
| | -40 | 3,530 | 3,500 | 3,370 | 3,320 | 3,100 | 2,860 |
| | -30 | 3,630 | 3,600 | 3,460 | 3,410 | 3,180 | 2,940 |
| | -20 | 3,730 | 3,690 | 3,550 | 3,500 | 3,260 | 3,000 |
| | -10 | 3,820 | 3,790 | 3,640 | 3,580 | 3,330 | 3,070 |
| | 0 | 3,920 | 3,880 | 3,730 | 3,660 | 3,410 | 3,140 |
| | 10 | 4,020 | 3,980 | 3,820 | 3,760 | 3,490 | 3,210 |
| | 20 | 4,120 | 4,070 | 3,910 | 3,850 | 3,570 | 3,280 |
| | 30 | 4,220 | 4,160 | 4,010 | 3,930 | 3,630 | 3,340 |
| | 33 | 4,240 | 4,180 | 4,030 | 3,950 | 3,650 | 3,350 |
| 10,000 | -54 | 3,570 | 3,530 | 3,410 | 3,350 | 3,140 | 2,910 |
| | -50 | 3,610 | 3,560 | 3,440 | 3,380 | 3,160 | 2,930 |
| | -40 | 3,700 | 3,660 | 3,520 | 3,470 | 3,230 | 2,990 |
| | -30 | 3,790 | 3,760 | 3,610 | 3,560 | 3,310 | 3,060 |
| | -20 | 3,900 | 3,860 | 3,710 | 3,650 | 3,400 | 3,130 |
| | -10 | 4,000 | 3,960 | 3,800 | 3,750 | 3,480 | 3,200 |
| | 0 | 4,100 | 4,060 | 3,900 | 3,840 | 3,560 | 3,280 |
| | 10 | 4,210 | 4,160 | 4,000 | 3,930 | 3,650 | 3,350 |
| | 20 | 4,310 | 4,260 | 4,100 | 4,030 | 3,730 | 3,420 |
| | 30 | 4,370 | 4,350 | 4,190 | 4,100 | 3,800 | 3,490 |
| | 31 | 4,370 | 4,360 | 4,200 | 4,100 | 3,810 | 3,490 |



Landing, Wet Runway, Flaps 33, Landing Field Length Required, Ice Mode 0

1 Ice Mode 0

| Associated Conditions | |
|---|--------------------------|
| Gear: | DOWN |
| Thrust: | Required for 3° Approach |
| Power: | Cut to Idle at 50 ft AGL |
| Airspeed: | V_{REF} at 50 ft AGL |
| Flare: | Initiate at 15 ft AGL |
| Lift Dump and Anti-Skid: | Operative |
| Wind Correction | |
| For tailwinds up to 10 knots, increase distance by 130 ft for each knot. | |
| For headwinds up to 30 knots, reduce distance by 30 ft for each knot. | |
| Slope Correction | |
| For downhill slopes up to 2%, increase distance by 40 ft for each 0.5%. | |
| For uphill slopes up to 2%, reduce distance by 15 ft for each 0.5%. | |
| Notes | |
| All landing distances are given in feet (ft) | |
| For abnormal landing cases and multipliers, refer to Abnormal Landings. | |
| MSN 101 - 500: Valid data not highlighted (white background). | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | |

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|---|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 118 V_{REF} 108 KIAS | 18,300 V_{APP} 116 V_{REF} 106 KIAS | 17,340 V_{APP} 113 V_{REF} 103 KIAS | 16,900 V_{APP} 112 V_{REF} 102 KIAS | 15,000 V_{APP} 106 V_{REF} 96 KIAS | 13,000 V_{APP} 100 V_{REF} 90 KIAS |
| Sea level | -54 | 3,730 | 3,680 | 3,590 | 3,540 | 3,350 | 3,140 |
| | -50 | 3,750 | 3,710 | 3,610 | 3,570 | 3,370 | 3,160 |
| | -40 | 3,840 | 3,790 | 3,690 | 3,640 | 3,440 | 3,230 |
| | -30 | 3,940 | 3,880 | 3,770 | 3,720 | 3,510 | 3,290 |
| | -20 | 4,050 | 3,980 | 3,850 | 3,800 | 3,580 | 3,350 |
| | -10 | 4,170 | 4,100 | 3,940 | 3,880 | 3,650 | 3,410 |
| | 0 | 4,280 | 4,210 | 4,050 | 3,970 | 3,720 | 3,470 |
| | 10 | 4,390 | 4,320 | 4,150 | 4,080 | 3,790 | 3,530 |
| | 20 | 4,510 | 4,430 | 4,260 | 4,180 | 3,860 | 3,590 |
| | 30 | 4,620 | 4,540 | 4,360 | 4,280 | 3,930 | 3,650 |
| | 40 | 4,730 | 4,650 | 4,470 | 4,390 | 4,030 | 3,710 |
| | 50 | 4,840 | 4,750 | 4,570 | 4,490 | 4,120 | 3,770 |

Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Wet Runway, Flaps 33, Landing Field Length Required, Ice Mode 0



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

PC24-AA15-60-0532-00A-030-A

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|---|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 118 V_{REF} 108 KIAS | 18,300 V_{APP} 116 V_{REF} 106 KIAS | 17,340 V_{APP} 113 V_{REF} 103 KIAS | 16,900 V_{APP} 112 V_{REF} 102 KIAS | 15,000 V_{APP} 106 V_{REF} 96 KIAS | 13,000 V_{APP} 100 V_{REF} 90 KIAS |
| 1,000 | -54 | 3,800 | 3,750 | 3,650 | 3,610 | 3,410 | 3,200 |
| | -50 | 3,830 | 3,780 | 3,680 | 3,630 | 3,430 | 3,210 |
| | -40 | 3,920 | 3,870 | 3,760 | 3,710 | 3,500 | 3,280 |
| | -30 | 4,040 | 3,970 | 3,840 | 3,790 | 3,570 | 3,340 |
| | -20 | 4,160 | 4,090 | 3,930 | 3,870 | 3,640 | 3,400 |
| | -10 | 4,280 | 4,200 | 4,050 | 3,970 | 3,720 | 3,470 |
| | 0 | 4,390 | 4,320 | 4,150 | 4,080 | 3,790 | 3,530 |
| | 10 | 4,510 | 4,430 | 4,260 | 4,190 | 3,860 | 3,590 |
| | 20 | 4,620 | 4,550 | 4,370 | 4,290 | 3,940 | 3,660 |
| | 30 | 4,740 | 4,660 | 4,480 | 4,400 | 4,040 | 3,720 |
| | 40 | 4,850 | 4,770 | 4,590 | 4,500 | 4,130 | 3,780 |
| | 50 | 4,950 | 4,870 | 4,680 | 4,590 | 4,220 | 3,830 |
| | -54 | 3,860 | 3,820 | 3,710 | 3,660 | 3,460 | 3,240 |
| 2,000 | -50 | 3,900 | 3,850 | 3,750 | 3,700 | 3,490 | 3,270 |
| | -40 | 4,020 | 3,960 | 3,830 | 3,780 | 3,560 | 3,330 |
| | -30 | 4,150 | 4,080 | 3,920 | 3,860 | 3,640 | 3,400 |
| | -20 | 4,270 | 4,200 | 4,040 | 3,960 | 3,710 | 3,460 |
| | -10 | 4,390 | 4,320 | 4,150 | 4,080 | 3,790 | 3,530 |
| | 0 | 4,510 | 4,430 | 4,260 | 4,190 | 3,860 | 3,590 |
| | 10 | 4,630 | 4,550 | 4,380 | 4,300 | 3,950 | 3,660 |
| | 20 | 4,750 | 4,670 | 4,490 | 4,410 | 4,050 | 3,720 |
| | 30 | 4,870 | 4,780 | 4,600 | 4,510 | 4,140 | 3,790 |
| | 40 | 4,980 | 4,900 | 4,710 | 4,620 | 4,240 | 3,850 |
| | 50 | 5,090 | 5,000 | 4,810 | 4,720 | 4,330 | 3,910 |
| | -54 | 3,970 | 3,900 | 3,790 | 3,740 | 3,530 | 3,300 |
| | -50 | 4,000 | 3,930 | 3,820 | 3,770 | 3,550 | 3,320 |
| 3,000 | -40 | 4,130 | 4,060 | 3,910 | 3,850 | 3,630 | 3,390 |
| | -30 | 4,260 | 4,180 | 4,030 | 3,950 | 3,700 | 3,460 |
| | -20 | 4,380 | 4,310 | 4,150 | 4,070 | 3,780 | 3,520 |
| | -10 | 4,510 | 4,430 | 4,260 | 4,180 | 3,860 | 3,590 |
| | 0 | 4,630 | 4,550 | 4,380 | 4,300 | 3,950 | 3,660 |
| | 10 | 4,750 | 4,670 | 4,490 | 4,410 | 4,050 | 3,730 |
| | 20 | 4,880 | 4,790 | 4,610 | 4,520 | 4,150 | 3,790 |
| | 30 | 5,000 | 4,910 | 4,720 | 4,640 | 4,250 | 3,860 |
| | 40 | 5,120 | 5,030 | 4,840 | 4,750 | 4,360 | 3,930 |
| | 47 | 5,190 | 5,100 | 4,910 | 4,820 | 4,420 | 3,990 |
| | -54 | 4,070 | 4,000 | 3,860 | 3,810 | 3,590 | 3,360 |
| | -50 | 4,110 | 4,040 | 3,890 | 3,840 | 3,610 | 3,380 |
| | -40 | 4,240 | 4,170 | 4,010 | 3,940 | 3,690 | 3,450 |
| 4,000 | -30 | 4,370 | 4,300 | 4,130 | 4,060 | 3,770 | 3,520 |
| | -20 | 4,500 | 4,420 | 4,260 | 4,180 | 3,850 | 3,590 |
| | -10 | 4,630 | 4,550 | 4,380 | 4,300 | 3,950 | 3,660 |
| | 0 | 4,760 | 4,680 | 4,500 | 4,410 | 4,050 | 3,730 |
| | 10 | 4,880 | 4,800 | 4,620 | 4,530 | 4,160 | 3,800 |
| | 20 | 5,010 | 4,920 | 4,730 | 4,650 | 4,260 | 3,870 |
| | 30 | 5,130 | 5,040 | 4,850 | 4,760 | 4,370 | 3,950 |
| | 40 | 5,260 | 5,170 | 4,970 | 4,870 | 4,470 | 4,040 |
| | 45 | 5,310 | 5,220 | 5,010 | 4,920 | 4,510 | 4,080 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Wet Runway, Flaps 33, Landing Field Length Required, Ice Mode 0

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|---|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 118 V_{REF} 108 KIAS | 18,300 V_{APP} 116 V_{REF} 106 KIAS | 17,340 V_{APP} 113 V_{REF} 103 KIAS | 16,900 V_{APP} 112 V_{REF} 102 KIAS | 15,000 V_{APP} 106 V_{REF} 96 KIAS | 13,000 V_{APP} 100 V_{REF} 90 KIAS |
| 5,000 | -54 | 4,180 | 4,110 | 3,950 | 3,890 | 3,660 | 3,410 |
| | -50 | 4,220 | 4,150 | 3,990 | 3,920 | 3,680 | 3,440 |
| | -40 | 4,360 | 4,280 | 4,120 | 4,040 | 3,770 | 3,510 |
| | -30 | 4,490 | 4,410 | 4,250 | 4,170 | 3,850 | 3,580 |
| | -20 | 4,620 | 4,540 | 4,370 | 4,290 | 3,940 | 3,660 |
| | -10 | 4,760 | 4,670 | 4,500 | 4,410 | 4,050 | 3,730 |
| | 0 | 4,890 | 4,800 | 4,620 | 4,530 | 4,160 | 3,800 |
| | 10 | 5,020 | 4,930 | 4,740 | 4,650 | 4,270 | 3,870 |
| | 20 | 5,150 | 5,060 | 4,860 | 4,770 | 4,380 | 3,960 |
| | 30 | 5,280 | 5,180 | 4,980 | 4,890 | 4,490 | 4,050 |
| | 40 | 5,400 | 5,310 | 5,100 | 5,010 | 4,590 | 4,150 |
| | 42 | 5,420 | 5,320 | 5,120 | 5,020 | 4,610 | 4,160 |
| 6,000 | -54 | 4,300 | 4,220 | 4,060 | 3,990 | 3,730 | 3,480 |
| | -50 | 4,340 | 4,260 | 4,100 | 4,030 | 3,750 | 3,500 |
| | -40 | 4,480 | 4,400 | 4,230 | 4,150 | 3,840 | 3,580 |
| | -30 | 4,610 | 4,530 | 4,360 | 4,280 | 3,930 | 3,650 |
| | -20 | 4,750 | 4,670 | 4,490 | 4,410 | 4,050 | 3,720 |
| | -10 | 4,890 | 4,800 | 4,620 | 4,530 | 4,160 | 3,800 |
| | 0 | 5,020 | 4,940 | 4,750 | 4,660 | 4,280 | 3,870 |
| | 10 | 5,160 | 5,070 | 4,870 | 4,780 | 4,390 | 3,960 |
| | 20 | 5,290 | 5,200 | 5,000 | 4,900 | 4,500 | 4,060 |
| | 30 | 5,420 | 5,330 | 5,120 | 5,030 | 4,610 | 4,160 |
| | 40 | 5,540 | 5,440 | 5,230 | 5,140 | 4,710 | 4,250 |
| 7,000 | -54 | 4,400 | 4,320 | 4,160 | 4,080 | 3,790 | 3,530 |
| | -50 | 4,450 | 4,380 | 4,210 | 4,140 | 3,830 | 3,560 |
| | -40 | 4,600 | 4,520 | 4,350 | 4,270 | 3,920 | 3,640 |
| | -30 | 4,740 | 4,660 | 4,480 | 4,400 | 4,040 | 3,720 |
| | -20 | 4,880 | 4,800 | 4,620 | 4,530 | 4,160 | 3,800 |
| | -10 | 5,020 | 4,940 | 4,750 | 4,660 | 4,280 | 3,870 |
| | 0 | 5,160 | 5,070 | 4,880 | 4,790 | 4,390 | 3,970 |
| | 10 | 5,300 | 5,210 | 5,010 | 4,910 | 4,510 | 4,070 |
| | 20 | 5,440 | 5,340 | 5,140 | 5,040 | 4,620 | 4,180 |
| | 30 | 5,570 | 5,480 | 5,270 | 5,170 | 4,740 | 4,280 |
| | 38 | 5,670 | 5,570 | 5,350 | 5,250 | 4,820 | 4,350 |
| 8,000 | -54 | 4,550 | 4,470 | 4,300 | 4,220 | 3,890 | 3,620 |
| | -50 | 4,590 | 4,510 | 4,340 | 4,260 | 3,920 | 3,640 |
| | -40 | 4,740 | 4,660 | 4,480 | 4,400 | 4,040 | 3,720 |
| | -30 | 4,890 | 4,800 | 4,620 | 4,530 | 4,160 | 3,800 |
| | -20 | 5,030 | 4,950 | 4,760 | 4,670 | 4,290 | 3,880 |
| | -10 | 5,180 | 5,090 | 4,890 | 4,800 | 4,410 | 3,980 |
| | 0 | 5,320 | 5,230 | 5,030 | 4,940 | 4,530 | 4,090 |
| | 10 | 5,470 | 5,370 | 5,160 | 5,070 | 4,650 | 4,200 |
| | 20 | 5,610 | 5,510 | 5,300 | 5,200 | 4,770 | 4,300 |
| | 30 | 5,750 | 5,650 | 5,430 | 5,330 | 4,880 | 4,410 |
| | 35 | 5,810 | 5,710 | 5,490 | 5,380 | 4,940 | 4,460 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Wet Runway, Flaps 33, Landing Field Length Required, Ice Mode 0

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|---|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 118 V_{REF} 108 KIAS | 18,300 V_{APP} 116 V_{REF} 106 KIAS | 17,340 V_{APP} 113 V_{REF} 103 KIAS | 16,900 V_{APP} 112 V_{REF} 102 KIAS | 15,000 V_{APP} 106 V_{REF} 96 KIAS | 13,000 V_{APP} 100 V_{REF} 90 KIAS |
| 9,000 | -54 | 4,770 | 4,680 | 4,510 | 4,420 | 4,060 | 3,760 |
| | -50 | 4,810 | 4,730 | 4,550 | 4,470 | 4,100 | 3,790 |
| | -40 | 4,970 | 4,880 | 4,700 | 4,610 | 4,230 | 3,870 |
| | -30 | 5,130 | 5,040 | 4,840 | 4,750 | 4,360 | 3,960 |
| | -20 | 5,280 | 5,190 | 4,990 | 4,900 | 4,490 | 4,060 |
| | -10 | 5,430 | 5,340 | 5,130 | 5,040 | 4,620 | 4,170 |
| | 0 | 5,580 | 5,490 | 5,270 | 5,180 | 4,750 | 4,290 |
| | 10 | 5,730 | 5,630 | 5,420 | 5,310 | 4,870 | 4,400 |
| | 20 | 5,880 | 5,780 | 5,560 | 5,450 | 5,000 | 4,510 |
| | 30 | 6,030 | 5,920 | 5,700 | 5,590 | 5,120 | 4,620 |
| | 33 | 6,070 | 5,960 | 5,730 | 5,620 | 5,150 | 4,650 |
| 10,000 | -54 | 4,990 | 4,910 | 4,720 | 4,630 | 4,250 | 3,910 |
| | -50 | 5,050 | 4,960 | 4,770 | 4,680 | 4,300 | 3,940 |
| | -40 | 5,210 | 5,120 | 4,930 | 4,830 | 4,440 | 4,030 |
| | -30 | 5,370 | 5,280 | 5,080 | 4,980 | 4,570 | 4,130 |
| | -20 | 5,540 | 5,440 | 5,230 | 5,130 | 4,710 | 4,250 |
| | -10 | 5,700 | 5,600 | 5,380 | 5,280 | 4,840 | 4,370 |
| | 0 | 5,860 | 5,750 | 5,530 | 5,430 | 4,980 | 4,490 |
| | 10 | 6,010 | 5,910 | 5,680 | 5,570 | 5,110 | 4,610 |
| | 20 | 6,170 | 6,060 | 5,830 | 5,720 | 5,240 | 4,730 |
| | 30 | 6,330 | 6,210 | 5,970 | 5,860 | 5,370 | 4,850 |
| | 31 | 6,330 | 6,220 | 5,980 | 5,870 | 5,380 | 4,850 |



Landing, Wet Runway, Flaps 33, Landing Field Length Required, Ice Mode 1

1 Ice Mode 1

| Associated Conditions | |
|---|--------------------------|
| Gear: | DOWN |
| Thrust: | Required for 3° Approach |
| Power: | Cut to Idle at 50 ft AGL |
| Airspeed: | V_{REF} at 50 ft AGL |
| Flare: | Initiate at 15 ft AGL |
| Lift Dump and Anti-Skid: | Operative |
| Wind Correction | |
| For tailwinds up to 10 knots, increase distance by 130 ft for each knot. | |
| For headwinds up to 30 knots, reduce distance by 30 ft for each knot. | |
| Slope Correction | |
| For downhill slopes up to 2%, increase distance by 40 ft for each 0.5%. | |
| For uphill slopes up to 2%, reduce distance by 15 ft for each 0.5%. | |
| Notes | |
| All landing distances are given in feet (ft) | |
| For abnormal landing cases and multipliers, refer to Abnormal Landings. | |
| MSN 101 - 500: Valid data not highlighted (white background). | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | |

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 122 V_{REF} 112 KIAS | 18,300 V_{APP} 120 V_{REF} 110 KIAS | 17,340 V_{APP} 117 V_{REF} 107 KIAS | 16,900 V_{APP} 116 V_{REF} 106 KIAS | 15,000 V_{APP} 110 V_{REF} 100 KIAS | 13,000 V_{APP} 103 V_{REF} 93 KIAS |
| Sea level | -54 | 3,860 | 3,820 | 3,710 | 3,670 | 3,460 | 3,240 |
| | -50 | 3,890 | 3,840 | 3,740 | 3,690 | 3,480 | 3,260 |
| | -40 | 4,020 | 3,950 | 3,830 | 3,770 | 3,560 | 3,330 |
| | -30 | 4,140 | 4,070 | 3,910 | 3,860 | 3,630 | 3,390 |
| | -20 | 4,260 | 4,190 | 4,030 | 3,960 | 3,710 | 3,460 |
| | -10 | 4,380 | 4,310 | 4,140 | 4,070 | 3,780 | 3,520 |
| | 0 | 4,500 | 4,420 | 4,260 | 4,180 | 3,850 | 3,590 |
| | 10 | 4,620 | 4,540 | 4,370 | 4,290 | 3,940 | 3,650 |
| | 20 | 4,740 | 4,660 | 4,480 | 4,400 | 4,040 | 3,720 |
| | 30 | 4,860 | 4,770 | 4,590 | 4,500 | 4,140 | 3,780 |
| | 40 | 4,970 | 4,890 | 4,700 | 4,610 | 4,230 | 3,850 |
| | 50 | 5,090 | 5,000 | 4,810 | 4,720 | 4,330 | 3,910 |

Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Wet Runway, Flaps 33, Landing Field Length Required, Ice Mode 1



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 122 V_{REF} 112 KIAS | 18,300 V_{APP} 120 V_{REF} 110 KIAS | 17,340 V_{APP} 117 V_{REF} 107 KIAS | 16,900 V_{APP} 116 V_{REF} 106 KIAS | 15,000 V_{APP} 110 V_{REF} 100 KIAS | 13,000 V_{APP} 103 V_{REF} 93 KIAS |
| 1,000 | -54 | 3,960 | 3,890 | 3,790 | 3,740 | 3,520 | 3,300 |
| | -50 | 3,990 | 3,930 | 3,810 | 3,760 | 3,540 | 3,320 |
| | -40 | 4,120 | 4,050 | 3,900 | 3,850 | 3,620 | 3,380 |
| | -30 | 4,250 | 4,170 | 4,020 | 3,940 | 3,700 | 3,450 |
| | -20 | 4,370 | 4,300 | 4,140 | 4,060 | 3,770 | 3,520 |
| | -10 | 4,500 | 4,420 | 4,250 | 4,170 | 3,850 | 3,590 |
| | 0 | 4,620 | 4,540 | 4,370 | 4,290 | 3,940 | 3,650 |
| | 10 | 4,740 | 4,660 | 4,480 | 4,400 | 4,040 | 3,720 |
| | 20 | 4,860 | 4,780 | 4,600 | 4,510 | 4,140 | 3,790 |
| | 30 | 4,990 | 4,900 | 4,710 | 4,620 | 4,240 | 3,850 |
| | 40 | 5,100 | 5,020 | 4,820 | 4,730 | 4,340 | 3,920 |
| | 50 | 5,210 | 5,120 | 4,920 | 4,830 | 4,430 | 4,000 |
| 2,000 | -54 | 4,050 | 3,980 | 3,850 | 3,800 | 3,580 | 3,340 |
| | -50 | 4,100 | 4,030 | 3,880 | 3,830 | 3,610 | 3,370 |
| | -40 | 4,230 | 4,160 | 4,000 | 3,930 | 3,690 | 3,440 |
| | -30 | 4,360 | 4,290 | 4,120 | 4,050 | 3,770 | 3,510 |
| | -20 | 4,490 | 4,410 | 4,240 | 4,170 | 3,850 | 3,580 |
| | -10 | 4,620 | 4,540 | 4,370 | 4,280 | 3,940 | 3,650 |
| | 0 | 4,740 | 4,660 | 4,480 | 4,400 | 4,040 | 3,720 |
| | 10 | 4,870 | 4,790 | 4,600 | 4,520 | 4,150 | 3,790 |
| | 20 | 4,990 | 4,910 | 4,720 | 4,630 | 4,250 | 3,860 |
| | 30 | 5,120 | 5,030 | 4,840 | 4,750 | 4,360 | 3,940 |
| | 40 | 5,240 | 5,150 | 4,950 | 4,860 | 4,460 | 4,030 |
| | 50 | 5,360 | 5,260 | 5,060 | 4,970 | 4,550 | 4,110 |
| 3,000 | -54 | 4,170 | 4,100 | 3,950 | 3,880 | 3,650 | 3,410 |
| | -50 | 4,210 | 4,140 | 3,980 | 3,910 | 3,670 | 3,430 |
| | -40 | 4,340 | 4,270 | 4,110 | 4,030 | 3,760 | 3,500 |
| | -30 | 4,480 | 4,400 | 4,230 | 4,160 | 3,840 | 3,580 |
| | -20 | 4,610 | 4,530 | 4,360 | 4,280 | 3,930 | 3,650 |
| | -10 | 4,740 | 4,660 | 4,480 | 4,400 | 4,040 | 3,720 |
| | 0 | 4,870 | 4,790 | 4,600 | 4,520 | 4,150 | 3,790 |
| | 10 | 5,000 | 4,910 | 4,730 | 4,640 | 4,260 | 3,860 |
| | 20 | 5,130 | 5,040 | 4,850 | 4,760 | 4,370 | 3,940 |
| | 30 | 5,260 | 5,170 | 4,970 | 4,880 | 4,470 | 4,040 |
| | 40 | 5,390 | 5,290 | 5,090 | 4,990 | 4,580 | 4,140 |
| | 47 | 5,460 | 5,370 | 5,160 | 5,070 | 4,650 | 4,190 |
| 4,000 | -54 | 4,280 | 4,200 | 4,040 | 3,970 | 3,720 | 3,470 |
| | -50 | 4,320 | 4,250 | 4,090 | 4,010 | 3,740 | 3,490 |
| | -40 | 4,460 | 4,380 | 4,220 | 4,140 | 3,830 | 3,570 |
| | -30 | 4,600 | 4,520 | 4,350 | 4,270 | 3,920 | 3,640 |
| | -20 | 4,730 | 4,650 | 4,480 | 4,390 | 4,030 | 3,720 |
| | -10 | 4,870 | 4,790 | 4,600 | 4,520 | 4,150 | 3,790 |
| | 0 | 5,000 | 4,920 | 4,730 | 4,640 | 4,260 | 3,860 |
| | 10 | 5,140 | 5,050 | 4,860 | 4,760 | 4,370 | 3,950 |
| | 20 | 5,270 | 5,180 | 4,980 | 4,890 | 4,480 | 4,050 |
| | 30 | 5,400 | 5,310 | 5,100 | 5,010 | 4,590 | 4,150 |
| | 40 | 5,530 | 5,440 | 5,230 | 5,130 | 4,700 | 4,250 |
| | 45 | 5,590 | 5,490 | 5,280 | 5,180 | 4,750 | 4,290 |

Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Wet Runway, Flaps 33, Landing Field Length Required, Ice Mode 1



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 122 V_{REF} 112 KIAS | 18,300 V_{APP} 120 V_{REF} 110 KIAS | 17,340 V_{APP} 117 V_{REF} 107 KIAS | 16,900 V_{APP} 116 V_{REF} 106 KIAS | 15,000 V_{APP} 110 V_{REF} 100 KIAS | 13,000 V_{APP} 103 V_{REF} 93 KIAS |
| 5,000 | -54 | 4,390 | 4,320 | 4,150 | 4,080 | 3,790 | 3,530 |
| | -50 | 4,440 | 4,360 | 4,200 | 4,120 | 3,820 | 3,550 |
| | -40 | 4,580 | 4,500 | 4,330 | 4,250 | 3,910 | 3,630 |
| | -30 | 4,720 | 4,640 | 4,460 | 4,380 | 4,020 | 3,710 |
| | -20 | 4,860 | 4,780 | 4,600 | 4,510 | 4,140 | 3,790 |
| | -10 | 5,000 | 4,920 | 4,730 | 4,640 | 4,260 | 3,860 |
| | 0 | 5,140 | 5,050 | 4,860 | 4,770 | 4,380 | 3,950 |
| | 10 | 5,280 | 5,190 | 4,990 | 4,900 | 4,490 | 4,060 |
| | 20 | 5,420 | 5,320 | 5,120 | 5,020 | 4,610 | 4,160 |
| | 30 | 5,550 | 5,450 | 5,240 | 5,150 | 4,720 | 4,260 |
| | 40 | 5,690 | 5,590 | 5,370 | 5,270 | 4,830 | 4,360 |
| | 42 | 5,700 | 5,600 | 5,390 | 5,290 | 4,850 | 4,370 |
| 6,000 | -54 | 4,520 | 4,440 | 4,270 | 4,190 | 3,860 | 3,600 |
| | -50 | 4,560 | 4,480 | 4,310 | 4,230 | 3,890 | 3,620 |
| | -40 | 4,710 | 4,630 | 4,450 | 4,370 | 4,010 | 3,700 |
| | -30 | 4,850 | 4,770 | 4,590 | 4,500 | 4,130 | 3,780 |
| | -20 | 5,000 | 4,910 | 4,720 | 4,640 | 4,260 | 3,860 |
| | -10 | 5,140 | 5,050 | 4,860 | 4,770 | 4,380 | 3,950 |
| | 0 | 5,280 | 5,190 | 4,990 | 4,900 | 4,500 | 4,060 |
| | 10 | 5,430 | 5,330 | 5,130 | 5,030 | 4,610 | 4,170 |
| | 20 | 5,570 | 5,470 | 5,260 | 5,160 | 4,730 | 4,270 |
| | 30 | 5,710 | 5,610 | 5,390 | 5,290 | 4,850 | 4,380 |
| | 40 | 5,830 | 5,730 | 5,510 | 5,410 | 4,960 | 4,470 |
| 7,000 | -54 | 4,630 | 4,550 | 4,370 | 4,290 | 3,940 | 3,660 |
| | -50 | 4,680 | 4,600 | 4,430 | 4,350 | 3,990 | 3,690 |
| | -40 | 4,840 | 4,750 | 4,570 | 4,490 | 4,120 | 3,770 |
| | -30 | 4,990 | 4,900 | 4,710 | 4,630 | 4,250 | 3,850 |
| | -20 | 5,140 | 5,050 | 4,850 | 4,760 | 4,370 | 3,950 |
| | -10 | 5,290 | 5,190 | 4,990 | 4,900 | 4,500 | 4,060 |
| | 0 | 5,430 | 5,340 | 5,130 | 5,040 | 4,620 | 4,170 |
| | 10 | 5,580 | 5,480 | 5,270 | 5,170 | 4,740 | 4,280 |
| | 20 | 5,720 | 5,620 | 5,410 | 5,300 | 4,860 | 4,390 |
| | 30 | 5,870 | 5,760 | 5,540 | 5,440 | 4,980 | 4,500 |
| | 38 | 5,970 | 5,860 | 5,640 | 5,530 | 5,070 | 4,570 |
| 8,000 | -54 | 4,790 | 4,700 | 4,520 | 4,440 | 4,080 | 3,750 |
| | -50 | 4,830 | 4,750 | 4,560 | 4,480 | 4,110 | 3,770 |
| | -40 | 4,990 | 4,900 | 4,710 | 4,630 | 4,250 | 3,860 |
| | -30 | 5,140 | 5,050 | 4,860 | 4,770 | 4,380 | 3,950 |
| | -20 | 5,300 | 5,200 | 5,000 | 4,910 | 4,510 | 4,070 |
| | -10 | 5,450 | 5,350 | 5,150 | 5,050 | 4,630 | 4,180 |
| | 0 | 5,600 | 5,500 | 5,290 | 5,190 | 4,760 | 4,300 |
| | 10 | 5,750 | 5,650 | 5,430 | 5,330 | 4,890 | 4,410 |
| | 20 | 5,900 | 5,800 | 5,570 | 5,470 | 5,010 | 4,520 |
| | 30 | 6,050 | 5,950 | 5,710 | 5,610 | 5,140 | 4,640 |
| | 35 | 6,120 | 6,010 | 5,780 | 5,670 | 5,190 | 4,690 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Wet Runway, Flaps 33, Landing Field Length Required, Ice Mode 1

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 122 V_{REF} 112 KIAS | 18,300 V_{APP} 120 V_{REF} 110 KIAS | 17,340 V_{APP} 117 V_{REF} 107 KIAS | 16,900 V_{APP} 116 V_{REF} 106 KIAS | 15,000 V_{APP} 110 V_{REF} 100 KIAS | 13,000 V_{APP} 103 V_{REF} 93 KIAS |
| 9,000 | -54 | 5,010 | 4,930 | 4,740 | 4,650 | 4,270 | 3,890 |
| | -50 | 5,060 | 4,980 | 4,790 | 4,700 | 4,310 | 3,920 |
| | -40 | 5,230 | 5,140 | 4,940 | 4,850 | 4,450 | 4,020 |
| | -30 | 5,390 | 5,300 | 5,100 | 5,000 | 4,590 | 4,140 |
| | -20 | 5,550 | 5,460 | 5,250 | 5,150 | 4,720 | 4,270 |
| | -10 | 5,720 | 5,620 | 5,400 | 5,300 | 4,860 | 4,390 |
| | 0 | 5,880 | 5,770 | 5,550 | 5,450 | 4,990 | 4,510 |
| | 10 | 6,030 | 5,930 | 5,700 | 5,590 | 5,130 | 4,630 |
| | 20 | 6,190 | 6,080 | 5,850 | 5,740 | 5,260 | 4,740 |
| | 30 | 6,350 | 6,240 | 5,990 | 5,880 | 5,390 | 4,860 |
| | 33 | 6,390 | 6,270 | 6,030 | 5,920 | 5,420 | 4,890 |
| 10,000 | -54 | 5,250 | 5,160 | 4,960 | 4,870 | 4,470 | 4,050 |
| | -50 | 5,310 | 5,220 | 5,020 | 4,930 | 4,520 | 4,080 |
| | -40 | 5,480 | 5,390 | 5,180 | 5,080 | 4,670 | 4,210 |
| | -30 | 5,650 | 5,560 | 5,340 | 5,240 | 4,810 | 4,340 |
| | -20 | 5,830 | 5,720 | 5,500 | 5,400 | 4,950 | 4,470 |
| | -10 | 6,000 | 5,890 | 5,660 | 5,560 | 5,100 | 4,600 |
| | 0 | 6,160 | 6,060 | 5,820 | 5,710 | 5,240 | 4,720 |
| | 10 | 6,330 | 6,220 | 5,980 | 5,860 | 5,380 | 4,850 |
| | 20 | 6,500 | 6,380 | 6,130 | 6,020 | 5,520 | 4,970 |
| | 30 | 6,660 | 6,540 | 6,290 | 6,170 | 5,650 | 5,100 |
| | 31 | 6,670 | 6,550 | 6,290 | 6,170 | 5,660 | 5,100 |



Landing, Wet Runway, Flaps 33, Landing Distance, Ice Mode 0

1 Ice Mode 0

| Associated Conditions | |
|---|--------------------------|
| Gear: | DOWN |
| Thrust: | Required for 3° Approach |
| Power: | Cut to Idle at 50 ft AGL |
| Airspeed: | V_{REF} at 50 ft AGL |
| Flare: | Initiate at 15 ft AGL |
| Lift Dump and Anti-Skid: | Operative |
| Wind Correction | |
| For tailwinds up to 10 knots, increase distance by 75 ft for each knot. | |
| For headwinds up to 30 knots, reduce distance by 20 ft for each knot. | |
| Slope Correction | |
| For downhill slopes up to 2%, increase distance by 25 ft for each 0.5%. | |
| For uphill slopes up to 2%, reduce distance by 10 ft for each 0.5%. | |
| Notes | |
| All landing distances are given in feet (ft) | |
| For abnormal landing cases and multipliers, refer to Abnormal Landings. | |
| MSN 101 - 500: Valid data not highlighted (white background). | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | |

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|---|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 118 V_{REF} 108 KIAS | 18,300 V_{APP} 116 V_{REF} 106 KIAS | 17,340 V_{APP} 113 V_{REF} 103 KIAS | 16,900 V_{APP} 112 V_{REF} 102 KIAS | 15,000 V_{APP} 106 V_{REF} 96 KIAS | 13,000 V_{APP} 100 V_{REF} 90 KIAS |
| Sea level | -54 | 2,530 | 2,500 | 2,440 | 2,420 | 2,290 | 2,160 |
| | -50 | 2,540 | 2,520 | 2,450 | 2,420 | 2,300 | 2,170 |
| | -40 | 2,600 | 2,570 | 2,490 | 2,470 | 2,340 | 2,200 |
| | -30 | 2,650 | 2,610 | 2,550 | 2,510 | 2,370 | 2,230 |
| | -20 | 2,710 | 2,670 | 2,600 | 2,560 | 2,410 | 2,270 |
| | -10 | 2,750 | 2,720 | 2,650 | 2,600 | 2,450 | 2,300 |
| | 0 | 2,800 | 2,770 | 2,700 | 2,650 | 2,500 | 2,320 |
| | 10 | 2,880 | 2,830 | 2,740 | 2,710 | 2,550 | 2,370 |
| | 20 | 2,920 | 2,880 | 2,810 | 2,760 | 2,600 | 2,410 |
| | 30 | 2,990 | 2,940 | 2,840 | 2,810 | 2,640 | 2,450 |
| | 40 | 3,050 | 2,990 | 2,910 | 2,880 | 2,690 | 2,500 |
| | 50 | 3,100 | 3,050 | 2,960 | 2,910 | 2,730 | 2,540 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Wet Runway, Flaps 33, Landing Distance, Ice Mode 0

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|---|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 118 V_{REF} 108 KIAS | 18,300 V_{APP} 116 V_{REF} 106 KIAS | 17,340 V_{APP} 113 V_{REF} 103 KIAS | 16,900 V_{APP} 112 V_{REF} 102 KIAS | 15,000 V_{APP} 106 V_{REF} 96 KIAS | 13,000 V_{APP} 100 V_{REF} 90 KIAS |
| 1,000 | -54 | 2,570 | 2,550 | 2,480 | 2,450 | 2,330 | 2,190 |
| | -50 | 2,590 | 2,560 | 2,500 | 2,460 | 2,330 | 2,200 |
| | -40 | 2,640 | 2,610 | 2,550 | 2,510 | 2,370 | 2,220 |
| | -30 | 2,700 | 2,660 | 2,590 | 2,560 | 2,420 | 2,260 |
| | -20 | 2,760 | 2,720 | 2,640 | 2,610 | 2,460 | 2,300 |
| | -10 | 2,810 | 2,780 | 2,690 | 2,650 | 2,490 | 2,330 |
| | 0 | 2,860 | 2,830 | 2,750 | 2,710 | 2,540 | 2,370 |
| | 10 | 2,930 | 2,890 | 2,800 | 2,770 | 2,590 | 2,410 |
| | 20 | 2,990 | 2,950 | 2,870 | 2,820 | 2,640 | 2,460 |
| | 30 | 3,050 | 3,010 | 2,910 | 2,880 | 2,690 | 2,500 |
| | 40 | 3,110 | 3,070 | 2,970 | 2,920 | 2,740 | 2,540 |
| | 50 | 3,170 | 3,120 | 3,030 | 2,980 | 2,780 | 2,580 |
| | -54 | 2,630 | 2,590 | 2,530 | 2,500 | 2,360 | 2,220 |
| 2,000 | -50 | 2,640 | 2,610 | 2,540 | 2,510 | 2,380 | 2,230 |
| | -40 | 2,700 | 2,660 | 2,590 | 2,550 | 2,410 | 2,260 |
| | -30 | 2,750 | 2,710 | 2,640 | 2,600 | 2,460 | 2,300 |
| | -20 | 2,800 | 2,770 | 2,700 | 2,660 | 2,500 | 2,330 |
| | -10 | 2,880 | 2,830 | 2,740 | 2,710 | 2,550 | 2,370 |
| | 0 | 2,920 | 2,890 | 2,800 | 2,760 | 2,600 | 2,420 |
| | 10 | 3,000 | 2,950 | 2,870 | 2,820 | 2,640 | 2,460 |
| | 20 | 3,050 | 3,010 | 2,910 | 2,880 | 2,700 | 2,510 |
| | 30 | 3,120 | 3,070 | 2,980 | 2,930 | 2,740 | 2,550 |
| | 40 | 3,180 | 3,130 | 3,040 | 2,990 | 2,800 | 2,590 |
| | 50 | 3,240 | 3,190 | 3,090 | 3,040 | 2,840 | 2,630 |
| | -54 | 2,670 | 2,640 | 2,570 | 2,550 | 2,400 | 2,260 |
| 3,000 | -50 | 2,690 | 2,660 | 2,580 | 2,550 | 2,410 | 2,260 |
| | -40 | 2,750 | 2,720 | 2,630 | 2,600 | 2,450 | 2,300 |
| | -30 | 2,810 | 2,770 | 2,690 | 2,650 | 2,490 | 2,330 |
| | -20 | 2,870 | 2,830 | 2,750 | 2,710 | 2,540 | 2,370 |
| | -10 | 2,930 | 2,890 | 2,810 | 2,760 | 2,590 | 2,410 |
| | 0 | 3,000 | 2,950 | 2,850 | 2,820 | 2,650 | 2,460 |
| | 10 | 3,060 | 3,010 | 2,930 | 2,880 | 2,700 | 2,510 |
| | 20 | 3,120 | 3,070 | 2,980 | 2,940 | 2,750 | 2,550 |
| | 30 | 3,190 | 3,150 | 3,040 | 2,990 | 2,810 | 2,600 |
| | 40 | 3,250 | 3,190 | 3,100 | 3,050 | 2,860 | 2,650 |
| | 47 | 3,300 | 3,240 | 3,150 | 3,090 | 2,890 | 2,670 |
| | -54 | 2,720 | 2,690 | 2,620 | 2,580 | 2,440 | 2,290 |
| 4,000 | -50 | 2,740 | 2,710 | 2,640 | 2,600 | 2,450 | 2,300 |
| | -40 | 2,810 | 2,760 | 2,690 | 2,650 | 2,500 | 2,340 |
| | -30 | 2,870 | 2,830 | 2,740 | 2,710 | 2,550 | 2,380 |
| | -20 | 2,920 | 2,890 | 2,800 | 2,760 | 2,600 | 2,420 |
| | -10 | 2,990 | 2,950 | 2,870 | 2,820 | 2,640 | 2,460 |
| | 0 | 3,060 | 3,020 | 2,920 | 2,890 | 2,700 | 2,500 |
| | 10 | 3,120 | 3,080 | 2,990 | 2,940 | 2,760 | 2,550 |
| | 20 | 3,190 | 3,150 | 3,040 | 3,010 | 2,810 | 2,610 |
| | 30 | 3,260 | 3,210 | 3,110 | 3,060 | 2,870 | 2,650 |
| | 40 | 3,330 | 3,270 | 3,170 | 3,120 | 2,920 | 2,700 |
| | 45 | 3,370 | 3,300 | 3,200 | 3,150 | 2,940 | 2,720 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Wet Runway, Flaps 33, Landing Distance, Ice Mode 0

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|---|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 118 V_{REF} 108 KIAS | 18,300 V_{APP} 116 V_{REF} 106 KIAS | 17,340 V_{APP} 113 V_{REF} 103 KIAS | 16,900 V_{APP} 112 V_{REF} 102 KIAS | 15,000 V_{APP} 106 V_{REF} 96 KIAS | 13,000 V_{APP} 100 V_{REF} 90 KIAS |
| 5,000 | -54 | 2,770 | 2,740 | 2,670 | 2,630 | 2,480 | 2,330 |
| | -50 | 2,800 | 2,750 | 2,680 | 2,660 | 2,490 | 2,340 |
| | -40 | 2,860 | 2,810 | 2,740 | 2,700 | 2,540 | 2,370 |
| | -30 | 2,930 | 2,880 | 2,800 | 2,760 | 2,590 | 2,410 |
| | -20 | 3,000 | 2,950 | 2,860 | 2,820 | 2,650 | 2,460 |
| | -10 | 3,050 | 3,010 | 2,930 | 2,880 | 2,710 | 2,510 |
| | 0 | 3,140 | 3,080 | 3,000 | 2,940 | 2,750 | 2,570 |
| | 10 | 3,190 | 3,150 | 3,060 | 3,010 | 2,800 | 2,610 |
| | 20 | 3,270 | 3,210 | 3,120 | 3,070 | 2,880 | 2,650 |
| | 30 | 3,340 | 3,280 | 3,190 | 3,130 | 2,930 | 2,710 |
| | 40 | 3,400 | 3,340 | 3,250 | 3,190 | 2,990 | 2,760 |
| | 42 | 3,420 | 3,360 | 3,260 | 3,200 | 3,000 | 2,770 |
| | -54 | 2,830 | 2,800 | 2,710 | 2,690 | 2,530 | 2,370 |
| 6,000 | -50 | 2,860 | 2,820 | 2,740 | 2,700 | 2,540 | 2,380 |
| | -40 | 2,920 | 2,880 | 2,790 | 2,750 | 2,590 | 2,420 |
| | -30 | 2,990 | 2,940 | 2,860 | 2,810 | 2,640 | 2,460 |
| | -20 | 3,060 | 3,020 | 2,920 | 2,890 | 2,700 | 2,510 |
| | -10 | 3,130 | 3,080 | 2,990 | 2,940 | 2,760 | 2,560 |
| | 0 | 3,210 | 3,150 | 3,060 | 3,010 | 2,820 | 2,610 |
| | 10 | 3,270 | 3,220 | 3,120 | 3,070 | 2,870 | 2,660 |
| | 20 | 3,340 | 3,300 | 3,190 | 3,140 | 2,930 | 2,710 |
| | 30 | 3,410 | 3,370 | 3,260 | 3,200 | 2,990 | 2,770 |
| | 40 | 3,480 | 3,430 | 3,320 | 3,270 | 3,050 | 2,820 |
| | -54 | 2,900 | 2,850 | 2,760 | 2,730 | 2,580 | 2,410 |
| | -50 | 2,920 | 2,880 | 2,790 | 2,750 | 2,590 | 2,410 |
| | -40 | 2,980 | 2,940 | 2,840 | 2,810 | 2,640 | 2,460 |
| 7,000 | -30 | 3,040 | 3,010 | 2,920 | 2,870 | 2,700 | 2,510 |
| | -20 | 3,130 | 3,080 | 2,990 | 2,940 | 2,750 | 2,550 |
| | -10 | 3,190 | 3,160 | 3,050 | 3,010 | 2,810 | 2,610 |
| | 0 | 3,280 | 3,220 | 3,130 | 3,080 | 2,870 | 2,660 |
| | 10 | 3,340 | 3,300 | 3,190 | 3,150 | 2,930 | 2,720 |
| | 20 | 3,430 | 3,380 | 3,270 | 3,210 | 3,010 | 2,770 |
| | 30 | 3,500 | 3,450 | 3,340 | 3,280 | 3,050 | 2,820 |
| | 38 | 3,560 | 3,500 | 3,400 | 3,330 | 3,100 | 2,870 |
| | -54 | 2,970 | 2,930 | 2,840 | 2,810 | 2,640 | 2,460 |
| | -50 | 2,990 | 2,950 | 2,860 | 2,830 | 2,640 | 2,460 |
| | -40 | 3,060 | 3,020 | 2,920 | 2,890 | 2,700 | 2,510 |
| | -30 | 3,130 | 3,080 | 3,000 | 2,950 | 2,760 | 2,570 |
| | -20 | 3,210 | 3,160 | 3,070 | 3,020 | 2,830 | 2,620 |
| 8,000 | -10 | 3,290 | 3,250 | 3,140 | 3,090 | 2,890 | 2,670 |
| | 0 | 3,370 | 3,310 | 3,210 | 3,160 | 2,940 | 2,720 |
| | 10 | 3,440 | 3,400 | 3,280 | 3,240 | 3,020 | 2,780 |
| | 20 | 3,520 | 3,470 | 3,360 | 3,300 | 3,070 | 2,840 |
| | 30 | 3,590 | 3,550 | 3,430 | 3,360 | 3,140 | 2,900 |
| | 35 | 3,640 | 3,590 | 3,470 | 3,400 | 3,160 | 2,920 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Wet Runway, Flaps 33, Landing Distance, Ice Mode 0

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|---|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 118 V_{REF} 108 KIAS | 18,300 V_{APP} 116 V_{REF} 106 KIAS | 17,340 V_{APP} 113 V_{REF} 103 KIAS | 16,900 V_{APP} 112 V_{REF} 102 KIAS | 15,000 V_{APP} 106 V_{REF} 96 KIAS | 13,000 V_{APP} 100 V_{REF} 90 KIAS |
| 9,000 | -54 | 3,080 | 3,050 | 2,950 | 2,920 | 2,730 | 2,560 |
| | -50 | 3,110 | 3,070 | 2,980 | 2,930 | 2,750 | 2,570 |
| | -40 | 3,190 | 3,140 | 3,050 | 3,000 | 2,810 | 2,610 |
| | -30 | 3,270 | 3,230 | 3,120 | 3,080 | 2,880 | 2,670 |
| | -20 | 3,350 | 3,300 | 3,200 | 3,150 | 2,940 | 2,730 |
| | -10 | 3,440 | 3,390 | 3,270 | 3,220 | 3,010 | 2,790 |
| | 0 | 3,520 | 3,460 | 3,350 | 3,290 | 3,080 | 2,840 |
| | 10 | 3,590 | 3,540 | 3,420 | 3,380 | 3,150 | 2,910 |
| | 20 | 3,680 | 3,630 | 3,510 | 3,440 | 3,210 | 2,970 |
| | 30 | 3,760 | 3,710 | 3,580 | 3,520 | 3,280 | 3,020 |
| | 33 | 3,790 | 3,730 | 3,610 | 3,540 | 3,290 | 3,030 |
| 10,000 | -54 | 3,210 | 3,170 | 3,070 | 3,040 | 2,840 | 2,640 |
| | -50 | 3,250 | 3,190 | 3,100 | 3,050 | 2,870 | 2,660 |
| | -40 | 3,330 | 3,280 | 3,190 | 3,130 | 2,940 | 2,730 |
| | -30 | 3,420 | 3,360 | 3,270 | 3,210 | 3,010 | 2,780 |
| | -20 | 3,490 | 3,450 | 3,330 | 3,290 | 3,070 | 2,840 |
| | -10 | 3,590 | 3,550 | 3,430 | 3,370 | 3,140 | 2,900 |
| | 0 | 3,680 | 3,610 | 3,490 | 3,450 | 3,210 | 2,970 |
| | 10 | 3,760 | 3,720 | 3,590 | 3,540 | 3,280 | 3,030 |
| | 20 | 3,850 | 3,800 | 3,670 | 3,600 | 3,350 | 3,090 |
| | 30 | 3,950 | 3,880 | 3,740 | 3,690 | 3,430 | 3,150 |
| | 31 | 3,960 | 3,880 | 3,750 | 3,690 | 3,440 | 3,150 |



Landing, Wet Runway, Flaps 33, Landing Distance, Ice Mode 1

1 Ice Mode 1

| Associated Conditions | |
|---|--------------------------|
| Gear: | DOWN |
| Thrust: | Required for 3° Approach |
| Power: | Cut to Idle at 50 ft AGL |
| Airspeed: | V_{REF} at 50 ft AGL |
| Flare: | Initiate at 15 ft AGL |
| Lift Dump and Anti-Skid: | Operative |
| Wind Correction | |
| For tailwinds up to 10 knots, increase distance by 75 ft for each knot. | |
| For headwinds up to 30 knots, reduce distance by 20 ft for each knot. | |
| Slope Correction | |
| For downhill slopes up to 2%, increase distance by 25 ft for each 0.5%. | |
| For uphill slopes up to 2%, reduce distance by 10 ft for each 0.5%. | |
| Notes | |
| All landing distances are given in feet (ft) | |
| For abnormal landing cases and multipliers, refer to Abnormal Landings. | |
| MSN 101 - 500: Valid data not highlighted (white background). | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | |

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|-------------|--------|--------|--------|--------|--------|
| | | OWL | | MLW | | | |
| | | 18,740 | 18,300 | 17,340 | 16,900 | 15,000 | 13,000 |
| Sea level | -54 | 2,630 | 2,580 | 2,530 | 2,500 | 2,380 | 2,230 |
| | -50 | 2,640 | 2,600 | 2,550 | 2,510 | 2,380 | 2,230 |
| | -40 | 2,700 | 2,660 | 2,590 | 2,560 | 2,420 | 2,260 |
| | -30 | 2,760 | 2,700 | 2,640 | 2,610 | 2,450 | 2,310 |
| | -20 | 2,820 | 2,760 | 2,700 | 2,650 | 2,500 | 2,350 |
| | -10 | 2,870 | 2,810 | 2,750 | 2,700 | 2,550 | 2,370 |
| | 0 | 2,930 | 2,870 | 2,800 | 2,760 | 2,590 | 2,410 |
| | 10 | 2,990 | 2,930 | 2,850 | 2,810 | 2,640 | 2,460 |
| | 20 | 3,050 | 2,980 | 2,920 | 2,870 | 2,690 | 2,500 |
| | 30 | 3,110 | 3,040 | 2,970 | 2,920 | 2,750 | 2,550 |
| | 40 | 3,170 | 3,110 | 3,030 | 2,990 | 2,790 | 2,590 |
| | 50 | 3,230 | 3,170 | 3,080 | 3,040 | 2,840 | 2,630 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Wet Runway, Flaps 33, Landing Distance, Ice Mode 1

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 122 V_{REF} 112 KIAS | 18,300 V_{APP} 120 V_{REF} 110 KIAS | 17,340 V_{APP} 117 V_{REF} 107 KIAS | 16,900 V_{APP} 116 V_{REF} 106 KIAS | 15,000 V_{APP} 110 V_{REF} 100 KIAS | 13,000 V_{APP} 103 V_{REF} 93 KIAS |
| 1,000 | -54 | 2,670 | 2,630 | 2,570 | 2,550 | 2,410 | 2,270 |
| | -50 | 2,690 | 2,640 | 2,590 | 2,560 | 2,410 | 2,270 |
| | -40 | 2,740 | 2,700 | 2,640 | 2,600 | 2,460 | 2,300 |
| | -30 | 2,800 | 2,750 | 2,690 | 2,660 | 2,500 | 2,340 |
| | -20 | 2,870 | 2,810 | 2,740 | 2,710 | 2,550 | 2,380 |
| | -10 | 2,920 | 2,880 | 2,800 | 2,760 | 2,590 | 2,410 |
| | 0 | 2,980 | 2,920 | 2,860 | 2,810 | 2,640 | 2,460 |
| | 10 | 3,050 | 3,000 | 2,910 | 2,880 | 2,690 | 2,500 |
| | 20 | 3,120 | 3,040 | 2,980 | 2,930 | 2,740 | 2,550 |
| | 30 | 3,170 | 3,110 | 3,040 | 2,990 | 2,790 | 2,600 |
| | 40 | 3,240 | 3,170 | 3,090 | 3,050 | 2,840 | 2,640 |
| | 50 | 3,300 | 3,230 | 3,150 | 3,100 | 2,890 | 2,680 |
| 2,000 | -54 | 2,730 | 2,670 | 2,620 | 2,580 | 2,440 | 2,300 |
| | -50 | 2,740 | 2,700 | 2,630 | 2,600 | 2,450 | 2,310 |
| | -40 | 2,800 | 2,740 | 2,690 | 2,650 | 2,500 | 2,340 |
| | -30 | 2,850 | 2,810 | 2,750 | 2,700 | 2,540 | 2,370 |
| | -20 | 2,920 | 2,870 | 2,800 | 2,760 | 2,590 | 2,420 |
| | -10 | 2,990 | 2,930 | 2,860 | 2,810 | 2,640 | 2,460 |
| | 0 | 3,040 | 2,990 | 2,920 | 2,870 | 2,700 | 2,500 |
| | 10 | 3,120 | 3,050 | 2,980 | 2,930 | 2,740 | 2,550 |
| | 20 | 3,190 | 3,110 | 3,040 | 2,990 | 2,810 | 2,600 |
| | 30 | 3,250 | 3,170 | 3,100 | 3,050 | 2,860 | 2,650 |
| | 40 | 3,310 | 3,250 | 3,160 | 3,120 | 2,910 | 2,690 |
| | 50 | 3,370 | 3,300 | 3,220 | 3,170 | 2,960 | 2,730 |
| 3,000 | -54 | 2,780 | 2,730 | 2,660 | 2,630 | 2,490 | 2,340 |
| | -50 | 2,790 | 2,750 | 2,680 | 2,650 | 2,500 | 2,340 |
| | -40 | 2,860 | 2,810 | 2,730 | 2,700 | 2,550 | 2,380 |
| | -30 | 2,920 | 2,870 | 2,800 | 2,750 | 2,590 | 2,430 |
| | -20 | 2,990 | 2,920 | 2,860 | 2,810 | 2,640 | 2,460 |
| | -10 | 3,050 | 3,000 | 2,920 | 2,880 | 2,690 | 2,500 |
| | 0 | 3,120 | 3,050 | 2,980 | 2,930 | 2,750 | 2,550 |
| | 10 | 3,190 | 3,130 | 3,040 | 2,990 | 2,810 | 2,600 |
| | 20 | 3,260 | 3,180 | 3,110 | 3,050 | 2,860 | 2,650 |
| | 30 | 3,320 | 3,260 | 3,170 | 3,130 | 2,920 | 2,700 |
| | 40 | 3,400 | 3,320 | 3,230 | 3,180 | 2,970 | 2,750 |
| | 47 | 3,450 | 3,360 | 3,270 | 3,220 | 3,010 | 2,770 |
| 4,000 | -54 | 2,820 | 2,780 | 2,720 | 2,680 | 2,530 | 2,370 |
| | -50 | 2,850 | 2,790 | 2,740 | 2,700 | 2,540 | 2,370 |
| | -40 | 2,920 | 2,860 | 2,790 | 2,760 | 2,590 | 2,410 |
| | -30 | 2,980 | 2,920 | 2,850 | 2,810 | 2,640 | 2,460 |
| | -20 | 3,040 | 2,990 | 2,920 | 2,870 | 2,700 | 2,500 |
| | -10 | 3,120 | 3,060 | 2,980 | 2,940 | 2,740 | 2,550 |
| | 0 | 3,180 | 3,120 | 3,040 | 3,000 | 2,800 | 2,610 |
| | 10 | 3,260 | 3,190 | 3,110 | 3,070 | 2,870 | 2,650 |
| | 20 | 3,330 | 3,260 | 3,180 | 3,130 | 2,920 | 2,700 |
| | 30 | 3,410 | 3,320 | 3,250 | 3,190 | 2,980 | 2,750 |
| | 40 | 3,470 | 3,400 | 3,300 | 3,260 | 3,040 | 2,810 |
| | 45 | 3,510 | 3,430 | 3,330 | 3,280 | 3,060 | 2,830 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Wet Runway, Flaps 33, Landing Distance, Ice Mode 1

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 122 V_{REF} 112 KIAS | 18,300 V_{APP} 120 V_{REF} 110 KIAS | 17,340 V_{APP} 117 V_{REF} 107 KIAS | 16,900 V_{APP} 116 V_{REF} 106 KIAS | 15,000 V_{APP} 110 V_{REF} 100 KIAS | 13,000 V_{APP} 103 V_{REF} 93 KIAS |
| 5,000 | -54 | 2,880 | 2,840 | 2,770 | 2,730 | 2,580 | 2,410 |
| | -50 | 2,910 | 2,860 | 2,790 | 2,750 | 2,580 | 2,420 |
| | -40 | 2,980 | 2,910 | 2,850 | 2,810 | 2,640 | 2,450 |
| | -30 | 3,050 | 3,000 | 2,910 | 2,880 | 2,690 | 2,500 |
| | -20 | 3,120 | 3,050 | 2,980 | 2,930 | 2,750 | 2,550 |
| | -10 | 3,190 | 3,120 | 3,050 | 3,000 | 2,810 | 2,610 |
| | 0 | 3,260 | 3,190 | 3,120 | 3,060 | 2,870 | 2,660 |
| | 10 | 3,340 | 3,260 | 3,190 | 3,130 | 2,930 | 2,710 |
| | 20 | 3,410 | 3,320 | 3,250 | 3,190 | 2,990 | 2,750 |
| | 30 | 3,480 | 3,410 | 3,320 | 3,270 | 3,050 | 2,820 |
| | 40 | 3,570 | 3,480 | 3,400 | 3,340 | 3,110 | 2,870 |
| | 42 | 3,580 | 3,490 | 3,410 | 3,340 | 3,120 | 2,880 |
| | -54 | 2,940 | 2,900 | 2,820 | 2,790 | 2,630 | 2,450 |
| | -50 | 2,970 | 2,910 | 2,840 | 2,800 | 2,640 | 2,460 |
| 6,000 | -40 | 3,030 | 2,980 | 2,910 | 2,870 | 2,690 | 2,500 |
| | -30 | 3,110 | 3,050 | 2,980 | 2,930 | 2,740 | 2,550 |
| | -20 | 3,180 | 3,120 | 3,040 | 3,000 | 2,800 | 2,600 |
| | -10 | 3,260 | 3,190 | 3,120 | 3,060 | 2,870 | 2,660 |
| | 0 | 3,330 | 3,270 | 3,180 | 3,140 | 2,930 | 2,710 |
| | 10 | 3,410 | 3,350 | 3,260 | 3,200 | 2,990 | 2,770 |
| | 20 | 3,490 | 3,410 | 3,320 | 3,280 | 3,050 | 2,820 |
| | 30 | 3,570 | 3,490 | 3,410 | 3,350 | 3,120 | 2,870 |
| | 40 | 3,650 | 3,550 | 3,470 | 3,410 | 3,170 | 2,930 |
| | -54 | 3,020 | 2,950 | 2,890 | 2,840 | 2,680 | 2,490 |
| | -50 | 3,040 | 2,980 | 2,910 | 2,870 | 2,690 | 2,500 |
| 7,000 | -40 | 3,110 | 3,040 | 2,970 | 2,920 | 2,740 | 2,550 |
| | -30 | 3,180 | 3,110 | 3,040 | 2,990 | 2,800 | 2,600 |
| | -20 | 3,260 | 3,190 | 3,120 | 3,060 | 2,870 | 2,650 |
| | -10 | 3,340 | 3,260 | 3,190 | 3,140 | 2,920 | 2,710 |
| | 0 | 3,420 | 3,350 | 3,260 | 3,210 | 3,000 | 2,760 |
| | 10 | 3,490 | 3,430 | 3,330 | 3,280 | 3,050 | 2,820 |
| | 20 | 3,580 | 3,500 | 3,410 | 3,360 | 3,130 | 2,890 |
| | 30 | 3,650 | 3,580 | 3,480 | 3,430 | 3,190 | 2,930 |
| | 38 | 3,720 | 3,620 | 3,550 | 3,470 | 3,230 | 2,980 |
| | -54 | 3,080 | 3,030 | 2,950 | 2,920 | 2,740 | 2,550 |
| | -50 | 3,110 | 3,050 | 2,970 | 2,940 | 2,740 | 2,550 |
| | -40 | 3,180 | 3,120 | 3,040 | 3,000 | 2,800 | 2,600 |
| | -30 | 3,260 | 3,190 | 3,120 | 3,060 | 2,870 | 2,660 |
| | -20 | 3,350 | 3,280 | 3,190 | 3,140 | 2,940 | 2,720 |
| 8,000 | -10 | 3,430 | 3,350 | 3,270 | 3,210 | 3,010 | 2,770 |
| | 0 | 3,510 | 3,440 | 3,350 | 3,290 | 3,080 | 2,830 |
| | 10 | 3,590 | 3,520 | 3,420 | 3,360 | 3,140 | 2,900 |
| | 20 | 3,670 | 3,600 | 3,500 | 3,450 | 3,210 | 2,950 |
| | 30 | 3,770 | 3,670 | 3,590 | 3,520 | 3,270 | 3,020 |
| | 35 | 3,800 | 3,710 | 3,620 | 3,560 | 3,310 | 3,040 |

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Wet Runway, Flaps 33, Landing Distance, Ice Mode 1

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 122 V_{REF} 112 KIAS | 18,300 V_{APP} 120 V_{REF} 110 KIAS | 17,340 V_{APP} 117 V_{REF} 107 KIAS | 16,900 V_{APP} 116 V_{REF} 106 KIAS | 15,000 V_{APP} 110 V_{REF} 100 KIAS | 13,000 V_{APP} 103 V_{REF} 93 KIAS |
| 9,000 | -54 | 3,220 | 3,150 | 3,080 | 3,040 | 2,840 | 2,640 |
| | -50 | 3,250 | 3,180 | 3,110 | 3,050 | 2,860 | 2,660 |
| | -40 | 3,330 | 3,250 | 3,170 | 3,130 | 2,920 | 2,700 |
| | -30 | 3,410 | 3,340 | 3,260 | 3,200 | 2,990 | 2,770 |
| | -20 | 3,500 | 3,430 | 3,340 | 3,280 | 3,060 | 2,830 |
| | -10 | 3,580 | 3,500 | 3,410 | 3,360 | 3,130 | 2,900 |
| | 0 | 3,680 | 3,600 | 3,500 | 3,440 | 3,200 | 2,950 |
| | 10 | 3,750 | 3,680 | 3,580 | 3,520 | 3,270 | 3,020 |
| | 20 | 3,850 | 3,760 | 3,660 | 3,600 | 3,350 | 3,080 |
| | 30 | 3,930 | 3,850 | 3,740 | 3,680 | 3,420 | 3,140 |
| | 33 | 3,950 | 3,860 | 3,760 | 3,710 | 3,440 | 3,150 |
| 10,000 | -54 | 3,360 | 3,280 | 3,210 | 3,160 | 2,950 | 2,750 |
| | -50 | 3,380 | 3,320 | 3,230 | 3,190 | 2,980 | 2,760 |
| | -40 | 3,470 | 3,400 | 3,320 | 3,270 | 3,050 | 2,830 |
| | -30 | 3,560 | 3,480 | 3,400 | 3,340 | 3,130 | 2,880 |
| | -20 | 3,660 | 3,580 | 3,490 | 3,420 | 3,190 | 2,950 |
| | -10 | 3,750 | 3,670 | 3,570 | 3,520 | 3,280 | 3,020 |
| | 0 | 3,840 | 3,760 | 3,660 | 3,590 | 3,340 | 3,080 |
| | 10 | 3,950 | 3,850 | 3,740 | 3,690 | 3,430 | 3,150 |
| | 20 | 4,040 | 3,930 | 3,820 | 3,770 | 3,500 | 3,210 |
| | 30 | 4,130 | 4,020 | 3,930 | 3,850 | 3,580 | 3,300 |
| | 31 | 4,140 | 4,020 | 3,930 | 3,860 | 3,580 | 3,300 |



Landing, Wet Runway, Flaps 15, Landing Field Length Required, Ice Mode 0

1 Ice Mode 0

| Associated Conditions | |
|---|--------------------------|
| Gear: | DOWN |
| Thrust: | Required for 3° Approach |
| Power: | Cut to Idle at 50 ft AGL |
| Airspeed: | V_{REF} at 50 ft AGL |
| Flare: | Initiate at 15 ft AGL |
| Lift Dump and Anti-Skid: | Operative |
| Wind Correction | |
| For tailwinds up to 10 knots, increase distance by 150 ft for each knot. | |
| For headwinds up to 30 knots, reduce distance by 35 ft for each knot. | |
| Slope Correction | |
| For downhill slopes up to 2%, increase distance by 65 ft for each 0.5%. | |
| For uphill slopes up to 2%, reduce distance by 20 ft for each 0.5%. | |
| Notes | |
| All landing distances are given in feet (ft) | |
| For abnormal landing cases and multipliers, refer to Abnormal Landings. | |
| MSN 101 - 500: Valid data not highlighted (white background). | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | |

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 125 V_{REF} 115 KIAS | 18,300 V_{APP} 124 V_{REF} 114 KIAS | 17,340 V_{APP} 121 V_{REF} 111 KIAS | 16,900 V_{APP} 119 V_{REF} 109 KIAS | 15,000 V_{APP} 113 V_{REF} 103 KIAS | 13,000 V_{APP} 106 V_{REF} 96 KIAS |
| Sea level | -54 | 5,110 | 5,100 | 4,940 | 4,890 | 4,650 | 4,400 |
| | -50 | 5,150 | 5,130 | 4,970 | 4,920 | 4,660 | 4,400 |
| | -40 | 5,240 | 5,220 | 5,060 | 5,000 | 4,710 | 4,430 |
| | -30 | 5,350 | 5,320 | 5,160 | 5,080 | 4,800 | 4,500 |
| | -20 | 5,470 | 5,420 | 5,240 | 5,180 | 4,880 | 4,580 |
| | -10 | 5,570 | 5,530 | 5,340 | 5,280 | 4,950 | 4,640 |
| | 0 | 5,680 | 5,650 | 5,450 | 5,370 | 5,040 | 4,700 |
| | 10 | 5,810 | 5,760 | 5,550 | 5,480 | 5,140 | 4,790 |
| | 20 | 5,940 | 5,880 | 5,660 | 5,590 | 5,230 | 4,890 |
| | 30 | 6,060 | 6,000 | 5,770 | 5,700 | 5,330 | 4,960 |
| | 40 | 6,170 | 6,120 | 5,880 | 5,810 | 5,440 | 5,050 |
| | 50 | 6,290 | 6,200 | 5,990 | 5,900 | 5,510 | 5,110 |

Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Wet Runway, Flaps 15, Landing Field Length Required, Ice Mode 0



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

PC24-AA15-60-0545-00A-030-A

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 125 V_{REF} 115 KIAS | 18,300 V_{APP} 124 V_{REF} 114 KIAS | 17,340 V_{APP} 121 V_{REF} 111 KIAS | 16,900 V_{APP} 119 V_{REF} 109 KIAS | 15,000 V_{APP} 113 V_{REF} 103 KIAS | 13,000 V_{APP} 106 V_{REF} 96 KIAS |
| 1,000 | -54 | 5,210 | 5,200 | 5,040 | 4,970 | 4,710 | 4,450 |
| | -50 | 5,260 | 5,220 | 5,060 | 4,990 | 4,730 | 4,460 |
| | -40 | 5,360 | 5,300 | 5,140 | 5,070 | 4,810 | 4,510 |
| | -30 | 5,470 | 5,430 | 5,240 | 5,170 | 4,870 | 4,580 |
| | -20 | 5,590 | 5,530 | 5,350 | 5,270 | 4,950 | 4,640 |
| | -10 | 5,680 | 5,640 | 5,440 | 5,380 | 5,060 | 4,710 |
| | 0 | 5,800 | 5,760 | 5,560 | 5,480 | 5,150 | 4,790 |
| | 10 | 5,930 | 5,890 | 5,680 | 5,590 | 5,240 | 4,870 |
| | 20 | 6,050 | 6,010 | 5,780 | 5,700 | 5,340 | 4,960 |
| | 30 | 6,180 | 6,130 | 5,910 | 5,820 | 5,450 | 5,060 |
| | 40 | 6,300 | 6,250 | 6,010 | 5,930 | 5,550 | 5,140 |
| | 50 | 6,440 | 6,360 | 6,140 | 6,010 | 5,620 | 5,220 |
| 2,000 | -54 | 5,310 | 5,290 | 5,110 | 5,070 | 4,790 | 4,520 |
| | -50 | 5,340 | 5,310 | 5,140 | 5,080 | 4,790 | 4,530 |
| | -40 | 5,450 | 5,410 | 5,250 | 5,170 | 4,870 | 4,580 |
| | -30 | 5,570 | 5,520 | 5,340 | 5,260 | 4,960 | 4,630 |
| | -20 | 5,700 | 5,630 | 5,450 | 5,380 | 5,060 | 4,730 |
| | -10 | 5,790 | 5,750 | 5,560 | 5,470 | 5,130 | 4,790 |
| | 0 | 5,920 | 5,880 | 5,680 | 5,580 | 5,240 | 4,860 |
| | 10 | 6,050 | 6,030 | 5,780 | 5,700 | 5,340 | 4,970 |
| | 20 | 6,180 | 6,140 | 5,920 | 5,820 | 5,450 | 5,070 |
| | 30 | 6,340 | 6,260 | 6,020 | 5,940 | 5,560 | 5,150 |
| | 40 | 6,470 | 6,380 | 6,160 | 6,060 | 5,660 | 5,260 |
| | 50 | 6,600 | 6,500 | 6,280 | 6,180 | 5,750 | 5,320 |
| 3,000 | -54 | 5,420 | 5,380 | 5,210 | 5,150 | 4,880 | 4,570 |
| | -50 | 5,460 | 5,400 | 5,240 | 5,160 | 4,890 | 4,580 |
| | -40 | 5,550 | 5,520 | 5,320 | 5,270 | 4,970 | 4,640 |
| | -30 | 5,680 | 5,640 | 5,460 | 5,370 | 5,050 | 4,730 |
| | -20 | 5,810 | 5,740 | 5,550 | 5,490 | 5,130 | 4,790 |
| | -10 | 5,940 | 5,870 | 5,670 | 5,590 | 5,250 | 4,850 |
| | 0 | 6,050 | 6,000 | 5,800 | 5,700 | 5,350 | 4,980 |
| | 10 | 6,210 | 6,140 | 5,920 | 5,830 | 5,450 | 5,070 |
| | 20 | 6,350 | 6,300 | 6,030 | 5,950 | 5,560 | 5,150 |
| | 30 | 6,480 | 6,400 | 6,180 | 6,080 | 5,680 | 5,270 |
| | 40 | 6,610 | 6,530 | 6,300 | 6,190 | 5,800 | 5,340 |
| | 47 | 6,710 | 6,630 | 6,380 | 6,280 | 5,850 | 5,410 |
| 4,000 | -54 | 5,520 | 5,470 | 5,290 | 5,240 | 4,950 | 4,650 |
| | -50 | 5,560 | 5,500 | 5,330 | 5,260 | 4,970 | 4,670 |
| | -40 | 5,660 | 5,630 | 5,440 | 5,360 | 5,040 | 4,720 |
| | -30 | 5,800 | 5,750 | 5,540 | 5,470 | 5,140 | 4,790 |
| | -20 | 5,930 | 5,860 | 5,670 | 5,590 | 5,250 | 4,870 |
| | -10 | 6,070 | 6,000 | 5,790 | 5,710 | 5,340 | 4,970 |
| | 0 | 6,210 | 6,140 | 5,930 | 5,830 | 5,450 | 5,070 |
| | 10 | 6,350 | 6,280 | 6,060 | 5,970 | 5,570 | 5,160 |
| | 20 | 6,490 | 6,430 | 6,190 | 6,090 | 5,680 | 5,270 |
| | 30 | 6,630 | 6,550 | 6,310 | 6,230 | 5,800 | 5,360 |
| | 40 | 6,770 | 6,710 | 6,440 | 6,350 | 5,900 | 5,470 |
| | 45 | 6,840 | 6,760 | 6,510 | 6,400 | 5,950 | 5,520 |

Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Wet Runway, Flaps 15, Landing Field Length Required, Ice Mode 0



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 125 V_{REF} 115 KIAS | 18,300 V_{APP} 124 V_{REF} 114 KIAS | 17,340 V_{APP} 121 V_{REF} 111 KIAS | 16,900 V_{APP} 119 V_{REF} 109 KIAS | 15,000 V_{APP} 113 V_{REF} 103 KIAS | 13,000 V_{APP} 106 V_{REF} 96 KIAS |
| 5,000 | -54 | 5,630 | 5,580 | 5,390 | 5,320 | 5,040 | 4,710 |
| | -50 | 5,680 | 5,620 | 5,440 | 5,370 | 5,070 | 4,730 |
| | -40 | 5,790 | 5,740 | 5,550 | 5,470 | 5,150 | 4,800 |
| | -30 | 5,930 | 5,870 | 5,670 | 5,590 | 5,230 | 4,890 |
| | -20 | 6,070 | 6,000 | 5,780 | 5,710 | 5,340 | 4,980 |
| | -10 | 6,200 | 6,140 | 5,930 | 5,840 | 5,460 | 5,070 |
| | 0 | 6,350 | 6,300 | 6,070 | 5,960 | 5,570 | 5,180 |
| | 10 | 6,500 | 6,450 | 6,190 | 6,090 | 5,690 | 5,270 |
| | 20 | 6,640 | 6,590 | 6,320 | 6,240 | 5,810 | 5,370 |
| | 30 | 6,780 | 6,730 | 6,460 | 6,370 | 5,920 | 5,490 |
| | 40 | 6,940 | 6,850 | 6,610 | 6,490 | 6,030 | 5,580 |
| | 42 | 6,980 | 6,870 | 6,640 | 6,510 | 6,040 | 5,600 |
| 6,000 | -54 | 5,740 | 5,710 | 5,490 | 5,460 | 5,130 | 4,800 |
| | -50 | 5,790 | 5,740 | 5,540 | 5,490 | 5,150 | 4,830 |
| | -40 | 5,910 | 5,860 | 5,670 | 5,580 | 5,230 | 4,880 |
| | -30 | 6,040 | 6,000 | 5,780 | 5,700 | 5,340 | 4,960 |
| | -20 | 6,210 | 6,140 | 5,910 | 5,830 | 5,470 | 5,060 |
| | -10 | 6,350 | 6,300 | 6,050 | 5,970 | 5,570 | 5,170 |
| | 0 | 6,500 | 6,440 | 6,210 | 6,110 | 5,690 | 5,270 |
| | 10 | 6,650 | 6,590 | 6,340 | 6,240 | 5,810 | 5,380 |
| | 20 | 6,800 | 6,740 | 6,470 | 6,380 | 5,930 | 5,500 |
| | 30 | 6,970 | 6,890 | 6,630 | 6,520 | 6,060 | 5,590 |
| | 40 | 7,130 | 7,030 | 6,780 | 6,650 | 6,170 | 5,690 |
| 7,000 | -54 | 5,860 | 5,830 | 5,620 | 5,560 | 5,230 | 4,880 |
| | -50 | 5,910 | 5,850 | 5,650 | 5,580 | 5,250 | 4,890 |
| | -40 | 6,030 | 5,980 | 5,780 | 5,690 | 5,340 | 4,970 |
| | -30 | 6,180 | 6,130 | 5,920 | 5,820 | 5,450 | 5,080 |
| | -20 | 6,340 | 6,290 | 6,050 | 5,980 | 5,580 | 5,170 |
| | -10 | 6,490 | 6,440 | 6,190 | 6,110 | 5,710 | 5,280 |
| | 0 | 6,680 | 6,600 | 6,340 | 6,250 | 5,820 | 5,400 |
| | 10 | 6,810 | 6,750 | 6,480 | 6,390 | 5,940 | 5,510 |
| | 20 | 6,990 | 6,900 | 6,650 | 6,540 | 6,070 | 5,620 |
| | 30 | 7,150 | 7,060 | 6,800 | 6,680 | 6,220 | 5,740 |
| | 38 | 7,270 | 7,160 | 6,920 | 6,760 | 6,300 | 5,800 |
| 8,000 | -54 | 6,020 | 5,980 | 5,740 | 5,690 | 5,320 | 4,990 |
| | -50 | 6,080 | 6,010 | 5,790 | 5,710 | 5,340 | 5,010 |
| | -40 | 6,200 | 6,130 | 5,920 | 5,810 | 5,450 | 5,080 |
| | -30 | 6,370 | 6,290 | 6,050 | 5,970 | 5,580 | 5,170 |
| | -20 | 6,530 | 6,450 | 6,230 | 6,120 | 5,720 | 5,290 |
| | -10 | 6,700 | 6,610 | 6,380 | 6,270 | 5,830 | 5,410 |
| | 0 | 6,830 | 6,770 | 6,530 | 6,410 | 5,990 | 5,530 |
| | 10 | 7,020 | 6,930 | 6,690 | 6,560 | 6,100 | 5,640 |
| | 20 | 7,190 | 7,090 | 6,840 | 6,710 | 6,260 | 5,760 |
| | 30 | 7,350 | 7,250 | 6,990 | 6,860 | 6,390 | 5,850 |
| | 35 | 7,430 | 7,320 | 7,070 | 6,910 | 6,430 | 5,900 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Wet Runway, Flaps 15, Landing Field Length Required, Ice Mode 0

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 125 V_{REF} 115 KIAS | 18,300 V_{APP} 124 V_{REF} 114 KIAS | 17,340 V_{APP} 121 V_{REF} 111 KIAS | 16,900 V_{APP} 119 V_{REF} 109 KIAS | 15,000 V_{APP} 113 V_{REF} 103 KIAS | 13,000 V_{APP} 106 V_{REF} 96 KIAS |
| 9,000 | -54 | 6,260 | 6,220 | 5,970 | 5,930 | 5,540 | 5,150 |
| | -50 | 6,310 | 6,260 | 6,030 | 5,960 | 5,570 | 5,180 |
| | -40 | 6,470 | 6,420 | 6,170 | 6,080 | 5,680 | 5,280 |
| | -30 | 6,650 | 6,590 | 6,340 | 6,220 | 5,820 | 5,400 |
| | -20 | 6,830 | 6,730 | 6,500 | 6,380 | 5,970 | 5,520 |
| | -10 | 7,000 | 6,910 | 6,660 | 6,540 | 6,110 | 5,640 |
| | 0 | 7,170 | 7,090 | 6,830 | 6,700 | 6,250 | 5,760 |
| | 10 | 7,340 | 7,270 | 6,990 | 6,860 | 6,390 | 5,880 |
| | 20 | 7,520 | 7,430 | 7,150 | 7,020 | 6,540 | 5,990 |
| | 30 | 7,690 | 7,600 | 7,310 | 7,180 | 6,660 | 6,120 |
| | 33 | 7,740 | 7,630 | 7,360 | 7,210 | 6,680 | 6,140 |
| 10,000 | -54 | 6,510 | 6,480 | 6,250 | 6,160 | 5,770 | 5,380 |
| | -50 | 6,580 | 6,540 | 6,300 | 6,210 | 5,800 | 5,410 |
| | -40 | 6,760 | 6,710 | 6,450 | 6,360 | 5,920 | 5,500 |
| | -30 | 6,950 | 6,890 | 6,620 | 6,530 | 6,080 | 5,620 |
| | -20 | 7,130 | 7,060 | 6,790 | 6,690 | 6,230 | 5,750 |
| | -10 | 7,320 | 7,240 | 6,970 | 6,850 | 6,380 | 5,890 |
| | 0 | 7,500 | 7,420 | 7,140 | 7,020 | 6,530 | 6,020 |
| | 10 | 7,690 | 7,600 | 7,310 | 7,180 | 6,680 | 6,150 |
| | 20 | 7,870 | 7,800 | 7,480 | 7,360 | 6,830 | 6,280 |
| | 30 | 8,070 | 7,940 | 7,670 | 7,490 | 6,960 | 6,390 |
| | 31 | 8,090 | 7,950 | 7,690 | 7,500 | 6,970 | 6,390 |



Landing, Wet Runway, Flaps 15, Landing Field Length Required, Ice Mode 1

1 Ice Mode 1

| Associated Conditions | |
|---|--------------------------|
| Gear: | DOWN |
| Thrust: | Required for 3° Approach |
| Power: | Cut to Idle at 50 ft AGL |
| Airspeed: | V_{REF} at 50 ft AGL |
| Flare: | Initiate at 15 ft AGL |
| Lift Dump and Anti-Skid: | Operative |
| Wind Correction | |
| For tailwinds up to 10 knots, increase distance by 150 ft for each knot. | |
| For headwinds up to 30 knots, reduce distance by 35 ft for each knot. | |
| Slope Correction | |
| For downhill slopes up to 2%, increase distance by 65 ft for each 0.5%. | |
| For uphill slopes up to 2%, reduce distance by 20 ft for each 0.5%. | |
| Notes | |
| All landing distances are given in feet (ft) | |
| For abnormal landing cases and multipliers, refer to Abnormal Landings. | |
| MSN 101 - 500: Valid data not highlighted (white background). | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | |

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 129 V_{REF} 119 KIAS | 18,300 V_{APP} 128 V_{REF} 118 KIAS | 17,340 V_{APP} 126 V_{REF} 116 KIAS | 16,900 V_{APP} 123 V_{REF} 113 KIAS | 15,000 V_{APP} 116 V_{REF} 106 KIAS | 13,000 V_{APP} 109 V_{REF} 99 KIAS |
| Sea level | -54 | 5,340 | 5,300 | 5,130 | 5,070 | 4,820 | 4,530 |
| | -50 | 5,370 | 5,330 | 5,160 | 5,110 | 4,830 | 4,560 |
| | -40 | 5,470 | 5,430 | 5,250 | 5,190 | 4,900 | 4,610 |
| | -30 | 5,590 | 5,540 | 5,370 | 5,280 | 4,980 | 4,670 |
| | -20 | 5,700 | 5,650 | 5,470 | 5,390 | 5,070 | 4,740 |
| | -10 | 5,810 | 5,780 | 5,580 | 5,490 | 5,160 | 4,810 |
| | 0 | 5,930 | 5,900 | 5,690 | 5,590 | 5,250 | 4,880 |
| | 10 | 6,060 | 6,010 | 5,800 | 5,720 | 5,350 | 4,960 |
| | 20 | 6,190 | 6,140 | 5,900 | 5,840 | 5,460 | 5,070 |
| | 30 | 6,320 | 6,260 | 6,020 | 5,960 | 5,570 | 5,160 |
| | 40 | 6,450 | 6,390 | 6,160 | 6,070 | 5,670 | 5,240 |
| | 50 | 6,590 | 6,490 | 6,290 | 6,150 | 5,740 | 5,300 |

Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Wet Runway, Flaps 15, Landing Field Length Required, Ice Mode 1



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

P224-AA15-60-0545-00G-030-A

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 129 V_{REF} 119 KIAS | 18,300 V_{APP} 128 V_{REF} 118 KIAS | 17,340 V_{APP} 126 V_{REF} 116 KIAS | 16,900 V_{APP} 123 V_{REF} 113 KIAS | 15,000 V_{APP} 116 V_{REF} 106 KIAS | 13,000 V_{APP} 109 V_{REF} 99 KIAS |
| 1,000 | -54 | 5,430 | 5,410 | 5,220 | 5,180 | 4,880 | 4,620 |
| | -50 | 5,460 | 5,430 | 5,260 | 5,200 | 4,900 | 4,620 |
| | -40 | 5,570 | 5,530 | 5,350 | 5,280 | 4,970 | 4,650 |
| | -30 | 5,700 | 5,640 | 5,450 | 5,390 | 5,070 | 4,750 |
| | -20 | 5,810 | 5,750 | 5,570 | 5,480 | 5,160 | 4,840 |
| | -10 | 5,920 | 5,880 | 5,690 | 5,590 | 5,260 | 4,880 |
| | 0 | 6,050 | 6,020 | 5,810 | 5,710 | 5,360 | 4,970 |
| | 10 | 6,190 | 6,150 | 5,930 | 5,830 | 5,460 | 5,080 |
| | 20 | 6,320 | 6,270 | 6,040 | 5,950 | 5,570 | 5,160 |
| | 30 | 6,480 | 6,400 | 6,170 | 6,070 | 5,680 | 5,270 |
| | 40 | 6,620 | 6,530 | 6,300 | 6,190 | 5,780 | 5,350 |
| | 50 | 6,750 | 6,650 | 6,420 | 6,300 | 5,860 | 5,430 |
| 2,000 | -54 | 5,530 | 5,510 | 5,310 | 5,270 | 4,970 | 4,680 |
| | -50 | 5,560 | 5,520 | 5,350 | 5,290 | 4,980 | 4,700 |
| | -40 | 5,680 | 5,640 | 5,460 | 5,370 | 5,060 | 4,750 |
| | -30 | 5,810 | 5,770 | 5,560 | 5,490 | 5,140 | 4,810 |
| | -20 | 5,940 | 5,870 | 5,680 | 5,610 | 5,260 | 4,890 |
| | -10 | 6,050 | 6,000 | 5,800 | 5,720 | 5,350 | 4,980 |
| | 0 | 6,210 | 6,130 | 5,920 | 5,830 | 5,450 | 5,080 |
| | 10 | 6,350 | 6,270 | 6,030 | 5,950 | 5,570 | 5,160 |
| | 20 | 6,490 | 6,410 | 6,180 | 6,080 | 5,680 | 5,270 |
| | 30 | 6,630 | 6,540 | 6,310 | 6,200 | 5,820 | 5,360 |
| | 40 | 6,760 | 6,700 | 6,440 | 6,350 | 5,910 | 5,450 |
| | 50 | 6,900 | 6,820 | 6,570 | 6,460 | 6,000 | 5,540 |
| 3,000 | -54 | 5,640 | 5,610 | 5,410 | 5,350 | 5,040 | 4,730 |
| | -50 | 5,690 | 5,620 | 5,450 | 5,370 | 5,060 | 4,750 |
| | -40 | 5,790 | 5,750 | 5,560 | 5,470 | 5,170 | 4,800 |
| | -30 | 5,930 | 5,880 | 5,660 | 5,600 | 5,250 | 4,910 |
| | -20 | 6,060 | 6,010 | 5,790 | 5,720 | 5,340 | 5,000 |
| | -10 | 6,200 | 6,120 | 5,920 | 5,820 | 5,470 | 5,070 |
| | 0 | 6,350 | 6,270 | 6,050 | 5,970 | 5,570 | 5,150 |
| | 10 | 6,490 | 6,440 | 6,190 | 6,080 | 5,690 | 5,280 |
| | 20 | 6,640 | 6,550 | 6,320 | 6,230 | 5,800 | 5,360 |
| | 30 | 6,780 | 6,720 | 6,450 | 6,360 | 5,920 | 5,460 |
| | 40 | 6,920 | 6,850 | 6,590 | 6,490 | 6,030 | 5,560 |
| | 47 | 7,020 | 6,940 | 6,700 | 6,570 | 6,100 | 5,620 |
| 4,000 | -54 | 5,750 | 5,690 | 5,510 | 5,450 | 5,140 | 4,800 |
| | -50 | 5,800 | 5,730 | 5,550 | 5,480 | 5,160 | 4,820 |
| | -40 | 5,910 | 5,860 | 5,670 | 5,580 | 5,240 | 4,890 |
| | -30 | 6,050 | 6,000 | 5,800 | 5,710 | 5,340 | 4,970 |
| | -20 | 6,200 | 6,120 | 5,910 | 5,830 | 5,460 | 5,070 |
| | -10 | 6,340 | 6,290 | 6,050 | 5,960 | 5,560 | 5,170 |
| | 0 | 6,490 | 6,440 | 6,190 | 6,090 | 5,680 | 5,270 |
| | 10 | 6,640 | 6,580 | 6,330 | 6,240 | 5,810 | 5,370 |
| | 20 | 6,790 | 6,730 | 6,460 | 6,370 | 5,930 | 5,500 |
| | 30 | 6,950 | 6,870 | 6,610 | 6,510 | 6,050 | 5,590 |
| | 40 | 7,110 | 7,010 | 6,760 | 6,640 | 6,170 | 5,680 |
| | 45 | 7,160 | 7,070 | 6,810 | 6,690 | 6,230 | 5,740 |

Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Wet Runway, Flaps 15, Landing Field Length Required, Ice Mode 1



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 129 V_{REF} 119 KIAS | 18,300 V_{APP} 128 V_{REF} 118 KIAS | 17,340 V_{APP} 126 V_{REF} 116 KIAS | 16,900 V_{APP} 123 V_{REF} 113 KIAS | 15,000 V_{APP} 116 V_{REF} 106 KIAS | 13,000 V_{APP} 109 V_{REF} 99 KIAS |
| 5,000 | -54 | 5,870 | 5,840 | 5,610 | 5,560 | 5,210 | 4,890 |
| | -50 | 5,920 | 5,870 | 5,660 | 5,590 | 5,260 | 4,910 |
| | -40 | 6,040 | 6,000 | 5,790 | 5,690 | 5,350 | 4,970 |
| | -30 | 6,180 | 6,140 | 5,920 | 5,820 | 5,460 | 5,070 |
| | -20 | 6,330 | 6,280 | 6,050 | 5,960 | 5,580 | 5,180 |
| | -10 | 6,480 | 6,430 | 6,180 | 6,100 | 5,690 | 5,260 |
| | 0 | 6,640 | 6,580 | 6,330 | 6,240 | 5,810 | 5,380 |
| | 10 | 6,790 | 6,730 | 6,470 | 6,380 | 5,930 | 5,500 |
| | 20 | 6,960 | 6,880 | 6,630 | 6,520 | 6,060 | 5,600 |
| | 30 | 7,120 | 7,040 | 6,770 | 6,660 | 6,180 | 5,710 |
| | 40 | 7,270 | 7,170 | 6,910 | 6,790 | 6,310 | 5,820 |
| | 42 | 7,310 | 7,190 | 6,950 | 6,810 | 6,330 | 5,840 |
| 6,000 | -54 | 5,990 | 5,960 | 5,730 | 5,680 | 5,340 | 4,980 |
| | -50 | 6,040 | 6,000 | 5,770 | 5,710 | 5,350 | 5,000 |
| | -40 | 6,190 | 6,120 | 5,910 | 5,810 | 5,450 | 5,080 |
| | -30 | 6,340 | 6,260 | 6,030 | 5,950 | 5,570 | 5,160 |
| | -20 | 6,480 | 6,420 | 6,190 | 6,090 | 5,700 | 5,270 |
| | -10 | 6,650 | 6,580 | 6,350 | 6,230 | 5,810 | 5,380 |
| | 0 | 6,800 | 6,730 | 6,480 | 6,380 | 5,950 | 5,500 |
| | 10 | 6,970 | 6,890 | 6,640 | 6,530 | 6,070 | 5,620 |
| | 20 | 7,140 | 7,050 | 6,800 | 6,670 | 6,210 | 5,730 |
| | 30 | 7,310 | 7,200 | 6,950 | 6,820 | 6,350 | 5,830 |
| | 40 | 7,470 | 7,350 | 7,100 | 6,950 | 6,460 | 5,930 |
| 7,000 | -54 | 6,110 | 6,090 | 5,860 | 5,810 | 5,440 | 5,070 |
| | -50 | 6,170 | 6,130 | 5,900 | 5,830 | 5,470 | 5,080 |
| | -40 | 6,320 | 6,240 | 6,030 | 5,950 | 5,560 | 5,150 |
| | -30 | 6,480 | 6,400 | 6,180 | 6,080 | 5,680 | 5,280 |
| | -20 | 6,660 | 6,570 | 6,340 | 6,230 | 5,820 | 5,380 |
| | -10 | 6,820 | 6,730 | 6,500 | 6,380 | 5,960 | 5,500 |
| | 0 | 6,990 | 6,890 | 6,650 | 6,530 | 6,070 | 5,620 |
| | 10 | 7,150 | 7,060 | 6,810 | 6,680 | 6,230 | 5,740 |
| | 20 | 7,320 | 7,220 | 6,960 | 6,840 | 6,370 | 5,830 |
| | 30 | 7,490 | 7,410 | 7,120 | 7,010 | 6,500 | 5,980 |
| | 38 | 7,620 | 7,510 | 7,240 | 7,100 | 6,580 | 6,050 |
| 8,000 | -54 | 6,260 | 6,240 | 5,980 | 5,930 | 5,560 | 5,180 |
| | -50 | 6,320 | 6,270 | 6,030 | 5,950 | 5,580 | 5,200 |
| | -40 | 6,480 | 6,420 | 6,180 | 6,070 | 5,680 | 5,280 |
| | -30 | 6,660 | 6,570 | 6,340 | 6,250 | 5,820 | 5,380 |
| | -20 | 6,830 | 6,770 | 6,510 | 6,410 | 5,970 | 5,510 |
| | -10 | 7,010 | 6,910 | 6,670 | 6,550 | 6,110 | 5,630 |
| | 0 | 7,180 | 7,110 | 6,830 | 6,730 | 6,250 | 5,760 |
| | 10 | 7,360 | 7,250 | 7,000 | 6,860 | 6,390 | 5,880 |
| | 20 | 7,530 | 7,460 | 7,160 | 7,040 | 6,530 | 6,010 |
| | 30 | 7,710 | 7,620 | 7,320 | 7,200 | 6,680 | 6,130 |
| | 35 | 7,810 | 7,680 | 7,420 | 7,250 | 6,730 | 6,170 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Wet Runway, Flaps 15, Landing Field Length Required, Ice Mode 1

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 129 V_{REF} 119 KIAS | 18,300 V_{APP} 128 V_{REF} 118 KIAS | 17,340 V_{APP} 126 V_{REF} 116 KIAS | 16,900 V_{APP} 123 V_{REF} 113 KIAS | 15,000 V_{APP} 116 V_{REF} 106 KIAS | 13,000 V_{APP} 109 V_{REF} 99 KIAS |
| 9,000 | -54 | 6,560 | 6,490 | 6,230 | 6,160 | 5,780 | 5,360 |
| | -50 | 6,620 | 6,540 | 6,290 | 6,200 | 5,810 | 5,380 |
| | -40 | 6,760 | 6,700 | 6,450 | 6,350 | 5,940 | 5,480 |
| | -30 | 6,950 | 6,890 | 6,620 | 6,530 | 6,080 | 5,630 |
| | -20 | 7,140 | 7,070 | 6,800 | 6,690 | 6,250 | 5,740 |
| | -10 | 7,320 | 7,250 | 6,970 | 6,850 | 6,380 | 5,880 |
| | 0 | 7,510 | 7,440 | 7,140 | 7,010 | 6,530 | 6,010 |
| | 10 | 7,700 | 7,620 | 7,310 | 7,200 | 6,680 | 6,140 |
| | 20 | 7,890 | 7,800 | 7,500 | 7,370 | 6,830 | 6,270 |
| | 30 | 8,080 | 7,970 | 7,680 | 7,520 | 6,960 | 6,390 |
| | 33 | 8,120 | 8,010 | 7,720 | 7,560 | 6,980 | 6,410 |
| 10,000 | -54 | 6,840 | 6,760 | 6,520 | 6,420 | 6,010 | 5,570 |
| | -50 | 6,910 | 6,830 | 6,590 | 6,480 | 6,050 | 5,610 |
| | -40 | 7,080 | 7,000 | 6,750 | 6,640 | 6,180 | 5,730 |
| | -30 | 7,270 | 7,200 | 6,920 | 6,820 | 6,340 | 5,870 |
| | -20 | 7,470 | 7,400 | 7,100 | 7,000 | 6,500 | 5,990 |
| | -10 | 7,660 | 7,590 | 7,290 | 7,180 | 6,660 | 6,140 |
| | 0 | 7,860 | 7,780 | 7,470 | 7,360 | 6,820 | 6,280 |
| | 10 | 8,070 | 7,980 | 7,670 | 7,540 | 6,980 | 6,420 |
| | 20 | 8,260 | 8,170 | 7,850 | 7,710 | 7,140 | 6,560 |
| | 30 | 8,360 | 8,330 | 8,030 | 7,850 | 7,280 | 6,680 |
| | 31 | 8,370 | 8,340 | 8,050 | 7,860 | 7,290 | 6,690 |



Landing, Wet Runway, Flaps 15, Landing Distance, Ice Mode 0

1 Ice Mode 0

| Associated Conditions | |
|---|--------------------------|
| Gear: | DOWN |
| Thrust: | Required for 3° Approach |
| Power: | Cut to Idle at 50 ft AGL |
| Airspeed: | V_{REF} at 50 ft AGL |
| Flare: | Initiate at 15 ft AGL |
| Lift Dump and Anti-Skid: | Operative |
| Wind Correction | |
| For tailwinds up to 10 knots, increase distance by 90 ft for each knot. | |
| For headwinds up to 30 knots, reduce distance by 20 ft for each knot. | |
| Slope Correction | |
| For downhill slopes up to 2%, increase distance by 40 ft for each 0.5%. | |
| For uphill slopes up to 2%, reduce distance by 15 ft for each 0.5%. | |
| Notes | |
| All landing distances are given in feet (ft) | |
| For abnormal landing cases and multipliers, refer to Abnormal Landings. | |
| MSN 101 - 500: Valid data not highlighted (white background). | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | |

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 125 V_{REF} 115 KIAS | 18,300 V_{APP} 124 V_{REF} 114 KIAS | 17,340 V_{APP} 121 V_{REF} 111 KIAS | 16,900 V_{APP} 119 V_{REF} 109 KIAS | 15,000 V_{APP} 113 V_{REF} 103 KIAS | 13,000 V_{APP} 106 V_{REF} 96 KIAS |
| Sea level | -54 | 3,070 | 3,060 | 2,970 | 2,940 | 2,790 | 2,640 |
| | -50 | 3,090 | 3,080 | 2,980 | 2,950 | 2,800 | 2,640 |
| | -40 | 3,150 | 3,130 | 3,040 | 3,000 | 2,830 | 2,660 |
| | -30 | 3,210 | 3,200 | 3,100 | 3,050 | 2,880 | 2,700 |
| | -20 | 3,280 | 3,260 | 3,140 | 3,110 | 2,930 | 2,750 |
| | -10 | 3,340 | 3,320 | 3,210 | 3,170 | 2,970 | 2,790 |
| | 0 | 3,410 | 3,390 | 3,270 | 3,220 | 3,030 | 2,820 |
| | 10 | 3,490 | 3,460 | 3,330 | 3,290 | 3,090 | 2,870 |
| | 20 | 3,570 | 3,530 | 3,400 | 3,350 | 3,140 | 2,930 |
| | 30 | 3,640 | 3,600 | 3,460 | 3,420 | 3,200 | 2,980 |
| | 40 | 3,700 | 3,670 | 3,530 | 3,490 | 3,270 | 3,030 |
| | 50 | 3,770 | 3,720 | 3,600 | 3,540 | 3,310 | 3,070 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Wet Runway, Flaps 15, Landing Distance, Ice Mode 0

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 125 V_{REF} 115 KIAS | 18,300 V_{APP} 124 V_{REF} 114 KIAS | 17,340 V_{APP} 121 V_{REF} 111 KIAS | 16,900 V_{APP} 119 V_{REF} 109 KIAS | 15,000 V_{APP} 113 V_{REF} 103 KIAS | 13,000 V_{APP} 106 V_{REF} 96 KIAS |
| 1,000 | -54 | 3,130 | 3,120 | 3,030 | 2,980 | 2,830 | 2,670 |
| | -50 | 3,160 | 3,140 | 3,040 | 3,000 | 2,840 | 2,680 |
| | -40 | 3,220 | 3,180 | 3,080 | 3,050 | 2,890 | 2,710 |
| | -30 | 3,280 | 3,260 | 3,140 | 3,110 | 2,930 | 2,750 |
| | -20 | 3,350 | 3,320 | 3,210 | 3,160 | 2,970 | 2,790 |
| | -10 | 3,410 | 3,390 | 3,260 | 3,230 | 3,040 | 2,830 |
| | 0 | 3,480 | 3,460 | 3,340 | 3,290 | 3,090 | 2,880 |
| | 10 | 3,560 | 3,530 | 3,410 | 3,360 | 3,150 | 2,920 |
| | 20 | 3,630 | 3,610 | 3,470 | 3,420 | 3,210 | 2,980 |
| | 30 | 3,710 | 3,680 | 3,550 | 3,490 | 3,270 | 3,040 |
| | 40 | 3,780 | 3,750 | 3,610 | 3,560 | 3,330 | 3,090 |
| | 50 | 3,870 | 3,820 | 3,690 | 3,610 | 3,380 | 3,130 |
| | -54 | 3,190 | 3,180 | 3,070 | 3,040 | 2,880 | 2,710 |
| 2,000 | -50 | 3,200 | 3,190 | 3,090 | 3,050 | 2,880 | 2,720 |
| | -40 | 3,270 | 3,250 | 3,150 | 3,100 | 2,920 | 2,750 |
| | -30 | 3,350 | 3,310 | 3,210 | 3,160 | 2,980 | 2,780 |
| | -20 | 3,420 | 3,380 | 3,270 | 3,230 | 3,040 | 2,840 |
| | -10 | 3,480 | 3,450 | 3,340 | 3,280 | 3,080 | 2,880 |
| | 0 | 3,550 | 3,530 | 3,410 | 3,350 | 3,140 | 2,920 |
| | 10 | 3,630 | 3,620 | 3,470 | 3,420 | 3,210 | 2,990 |
| | 20 | 3,710 | 3,690 | 3,550 | 3,500 | 3,270 | 3,050 |
| | 30 | 3,810 | 3,760 | 3,610 | 3,570 | 3,340 | 3,090 |
| | 40 | 3,880 | 3,830 | 3,700 | 3,640 | 3,400 | 3,160 |
| | 50 | 3,960 | 3,900 | 3,770 | 3,710 | 3,450 | 3,190 |
| | -54 | 3,250 | 3,230 | 3,130 | 3,090 | 2,930 | 2,740 |
| | -50 | 3,280 | 3,250 | 3,140 | 3,100 | 2,940 | 2,750 |
| 3,000 | -40 | 3,330 | 3,310 | 3,190 | 3,170 | 2,990 | 2,790 |
| | -30 | 3,410 | 3,390 | 3,280 | 3,220 | 3,030 | 2,840 |
| | -20 | 3,490 | 3,450 | 3,330 | 3,300 | 3,080 | 2,880 |
| | -10 | 3,560 | 3,520 | 3,410 | 3,360 | 3,150 | 2,910 |
| | 0 | 3,630 | 3,600 | 3,480 | 3,420 | 3,210 | 2,990 |
| | 10 | 3,730 | 3,690 | 3,560 | 3,500 | 3,270 | 3,050 |
| | 20 | 3,810 | 3,780 | 3,620 | 3,570 | 3,340 | 3,090 |
| | 30 | 3,890 | 3,840 | 3,710 | 3,650 | 3,410 | 3,160 |
| | 40 | 3,970 | 3,920 | 3,780 | 3,720 | 3,480 | 3,210 |
| | 47 | 4,030 | 3,980 | 3,830 | 3,770 | 3,510 | 3,250 |
| | -54 | 3,310 | 3,290 | 3,180 | 3,140 | 2,970 | 2,790 |
| | -50 | 3,340 | 3,300 | 3,200 | 3,160 | 2,980 | 2,800 |
| 4,000 | -40 | 3,400 | 3,380 | 3,260 | 3,220 | 3,030 | 2,830 |
| | -30 | 3,480 | 3,450 | 3,330 | 3,290 | 3,090 | 2,870 |
| | -20 | 3,560 | 3,520 | 3,400 | 3,360 | 3,150 | 2,930 |
| | -10 | 3,640 | 3,600 | 3,480 | 3,430 | 3,210 | 2,990 |
| | 0 | 3,730 | 3,680 | 3,560 | 3,500 | 3,270 | 3,040 |
| | 10 | 3,810 | 3,770 | 3,640 | 3,580 | 3,340 | 3,100 |
| | 20 | 3,900 | 3,860 | 3,710 | 3,650 | 3,410 | 3,170 |
| | 30 | 3,980 | 3,930 | 3,790 | 3,740 | 3,480 | 3,220 |
| | 40 | 4,060 | 4,030 | 3,870 | 3,810 | 3,540 | 3,290 |
| | 45 | 4,100 | 4,060 | 3,910 | 3,840 | 3,570 | 3,310 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Wet Runway, Flaps 15, Landing Distance, Ice Mode 0

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 125 V_{REF} 115 KIAS | 18,300 V_{APP} 124 V_{REF} 114 KIAS | 17,340 V_{APP} 121 V_{REF} 111 KIAS | 16,900 V_{APP} 119 V_{REF} 109 KIAS | 15,000 V_{APP} 113 V_{REF} 103 KIAS | 13,000 V_{APP} 106 V_{REF} 96 KIAS |
| 5,000 | -54 | 3,380 | 3,350 | 3,240 | 3,200 | 3,020 | 2,830 |
| | -50 | 3,410 | 3,370 | 3,260 | 3,220 | 3,040 | 2,840 |
| | -40 | 3,480 | 3,450 | 3,330 | 3,280 | 3,090 | 2,880 |
| | -30 | 3,560 | 3,530 | 3,400 | 3,350 | 3,140 | 2,940 |
| | -20 | 3,650 | 3,600 | 3,470 | 3,430 | 3,210 | 2,990 |
| | -10 | 3,720 | 3,690 | 3,560 | 3,510 | 3,280 | 3,050 |
| | 0 | 3,810 | 3,780 | 3,650 | 3,580 | 3,340 | 3,110 |
| | 10 | 3,900 | 3,870 | 3,720 | 3,660 | 3,410 | 3,160 |
| | 20 | 3,990 | 3,950 | 3,800 | 3,740 | 3,490 | 3,230 |
| | 30 | 4,070 | 4,040 | 3,880 | 3,820 | 3,560 | 3,300 |
| | 40 | 4,170 | 4,110 | 3,970 | 3,900 | 3,620 | 3,350 |
| | 42 | 4,190 | 4,130 | 3,990 | 3,910 | 3,630 | 3,360 |
| 6,000 | -54 | 3,450 | 3,430 | 3,300 | 3,280 | 3,080 | 2,880 |
| | -50 | 3,480 | 3,440 | 3,330 | 3,290 | 3,090 | 2,900 |
| | -40 | 3,550 | 3,520 | 3,400 | 3,350 | 3,140 | 2,930 |
| | -30 | 3,630 | 3,600 | 3,470 | 3,420 | 3,210 | 2,980 |
| | -20 | 3,730 | 3,690 | 3,550 | 3,500 | 3,280 | 3,040 |
| | -10 | 3,810 | 3,780 | 3,630 | 3,590 | 3,350 | 3,110 |
| | 0 | 3,900 | 3,870 | 3,730 | 3,670 | 3,410 | 3,160 |
| | 10 | 3,990 | 3,960 | 3,810 | 3,750 | 3,490 | 3,230 |
| | 20 | 4,080 | 4,050 | 3,880 | 3,830 | 3,560 | 3,300 |
| | 30 | 4,180 | 4,130 | 3,980 | 3,920 | 3,640 | 3,360 |
| | 40 | 4,280 | 4,220 | 4,070 | 3,990 | 3,710 | 3,420 |
| 7,000 | -54 | 3,520 | 3,500 | 3,370 | 3,340 | 3,140 | 2,930 |
| | -50 | 3,550 | 3,510 | 3,390 | 3,350 | 3,150 | 2,940 |
| | -40 | 3,620 | 3,590 | 3,470 | 3,410 | 3,200 | 2,980 |
| | -30 | 3,710 | 3,680 | 3,550 | 3,490 | 3,270 | 3,050 |
| | -20 | 3,800 | 3,770 | 3,630 | 3,590 | 3,350 | 3,110 |
| | -10 | 3,900 | 3,870 | 3,720 | 3,670 | 3,430 | 3,170 |
| | 0 | 4,010 | 3,960 | 3,800 | 3,750 | 3,490 | 3,240 |
| | 10 | 4,090 | 4,050 | 3,890 | 3,840 | 3,570 | 3,310 |
| | 20 | 4,190 | 4,140 | 3,990 | 3,920 | 3,640 | 3,370 |
| | 30 | 4,290 | 4,240 | 4,080 | 4,010 | 3,740 | 3,440 |
| | 38 | 4,370 | 4,300 | 4,150 | 4,060 | 3,780 | 3,480 |
| 8,000 | -54 | 3,610 | 3,590 | 3,450 | 3,420 | 3,200 | 3,000 |
| | -50 | 3,650 | 3,610 | 3,470 | 3,430 | 3,200 | 3,010 |
| | -40 | 3,720 | 3,680 | 3,550 | 3,490 | 3,270 | 3,050 |
| | -30 | 3,820 | 3,770 | 3,630 | 3,580 | 3,350 | 3,100 |
| | -20 | 3,920 | 3,870 | 3,740 | 3,670 | 3,430 | 3,180 |
| | -10 | 4,020 | 3,970 | 3,830 | 3,760 | 3,500 | 3,250 |
| | 0 | 4,100 | 4,060 | 3,920 | 3,850 | 3,590 | 3,320 |
| | 10 | 4,220 | 4,160 | 4,020 | 3,940 | 3,660 | 3,390 |
| | 20 | 4,320 | 4,260 | 4,110 | 4,030 | 3,760 | 3,460 |
| | 30 | 4,410 | 4,350 | 4,200 | 4,120 | 3,830 | 3,510 |
| | 35 | 4,460 | 4,390 | 4,240 | 4,150 | 3,860 | 3,540 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Wet Runway, Flaps 15, Landing Distance, Ice Mode 0

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 125 V_{REF} 115 KIAS | 18,300 V_{APP} 124 V_{REF} 114 KIAS | 17,340 V_{APP} 121 V_{REF} 111 KIAS | 16,900 V_{APP} 119 V_{REF} 109 KIAS | 15,000 V_{APP} 113 V_{REF} 103 KIAS | 13,000 V_{APP} 106 V_{REF} 96 KIAS |
| 9,000 | -54 | 3,760 | 3,730 | 3,590 | 3,560 | 3,330 | 3,090 |
| | -50 | 3,790 | 3,760 | 3,620 | 3,580 | 3,350 | 3,110 |
| | -40 | 3,880 | 3,850 | 3,710 | 3,650 | 3,410 | 3,170 |
| | -30 | 3,990 | 3,960 | 3,810 | 3,740 | 3,500 | 3,240 |
| | -20 | 4,100 | 4,040 | 3,900 | 3,830 | 3,580 | 3,310 |
| | -10 | 4,200 | 4,150 | 4,000 | 3,930 | 3,670 | 3,390 |
| | 0 | 4,300 | 4,250 | 4,100 | 4,020 | 3,750 | 3,460 |
| | 10 | 4,410 | 4,360 | 4,190 | 4,120 | 3,840 | 3,530 |
| | 20 | 4,510 | 4,460 | 4,290 | 4,210 | 3,920 | 3,600 |
| | 30 | 4,620 | 4,560 | 4,390 | 4,310 | 4,000 | 3,670 |
| | 33 | 4,650 | 4,580 | 4,420 | 4,330 | 4,010 | 3,690 |
| 10,000 | -54 | 3,910 | 3,890 | 3,750 | 3,700 | 3,460 | 3,230 |
| | -50 | 3,950 | 3,930 | 3,780 | 3,730 | 3,480 | 3,250 |
| | -40 | 4,060 | 4,030 | 3,870 | 3,820 | 3,560 | 3,300 |
| | -30 | 4,170 | 4,140 | 3,970 | 3,920 | 3,650 | 3,370 |
| | -20 | 4,280 | 4,240 | 4,080 | 4,010 | 3,740 | 3,450 |
| | -10 | 4,390 | 4,340 | 4,180 | 4,110 | 3,830 | 3,530 |
| | 0 | 4,500 | 4,450 | 4,280 | 4,210 | 3,920 | 3,610 |
| | 10 | 4,610 | 4,560 | 4,390 | 4,310 | 4,010 | 3,690 |
| | 20 | 4,720 | 4,680 | 4,490 | 4,420 | 4,100 | 3,770 |
| | 30 | 4,840 | 4,760 | 4,600 | 4,500 | 4,180 | 3,830 |
| | 31 | 4,860 | 4,770 | 4,610 | 4,500 | 4,190 | 3,840 |



Landing, Wet Runway, Flaps 15, Landing Distance, Ice Mode 1

1 Ice Mode 1

| Associated Conditions | |
|---|--------------------------|
| Gear: | DOWN |
| Thrust: | Required for 3° Approach |
| Power: | Cut to Idle at 50 ft AGL |
| Airspeed: | V_{REF} at 50 ft AGL |
| Flare: | Initiate at 15 ft AGL |
| Lift Dump and Anti-Skid: | Operative |
| Wind Correction | |
| For tailwinds up to 10 knots, increase distance by 90 ft for each knot. | |
| For headwinds up to 30 knots, reduce distance by 20 ft for each knot. | |
| Slope Correction | |
| For downhill slopes up to 2%, increase distance by 40 ft for each 0.5%. | |
| For uphill slopes up to 2%, reduce distance by 15 ft for each 0.5%. | |
| Notes | |
| All landing distances are given in feet (ft) | |
| For abnormal landing cases and multipliers, refer to Abnormal Landings. | |
| MSN 101 - 500: Valid data not highlighted (white background). | |
| MSN 501 - up: All data shown valid, specific data highlighted (light blue background). | |

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|-------------|--------|--------|--------|--------|--------|
| | | OWL | | MLW | | | |
| | | 18,740 | 18,300 | 17,340 | 16,900 | 15,000 | 13,000 |
| Sea level | -54 | 3,210 | 3,180 | 3,080 | 3,050 | 2,890 | 2,720 |
| | -50 | 3,220 | 3,200 | 3,100 | 3,070 | 2,900 | 2,740 |
| | -40 | 3,280 | 3,260 | 3,150 | 3,120 | 2,940 | 2,770 |
| | -30 | 3,360 | 3,320 | 3,220 | 3,170 | 2,990 | 2,800 |
| | -20 | 3,420 | 3,390 | 3,280 | 3,240 | 3,040 | 2,840 |
| | -10 | 3,490 | 3,470 | 3,350 | 3,300 | 3,100 | 2,890 |
| | 0 | 3,560 | 3,540 | 3,420 | 3,360 | 3,150 | 2,930 |
| | 10 | 3,640 | 3,610 | 3,480 | 3,440 | 3,210 | 2,980 |
| | 20 | 3,720 | 3,680 | 3,540 | 3,510 | 3,280 | 3,040 |
| | 30 | 3,790 | 3,760 | 3,620 | 3,580 | 3,340 | 3,100 |
| | 40 | 3,870 | 3,830 | 3,700 | 3,650 | 3,400 | 3,150 |
| | 50 | 3,950 | 3,900 | 3,780 | 3,690 | 3,450 | 3,180 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Wet Runway, Flaps 15, Landing Distance, Ice Mode 1

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 129 V_{REF} 119 KIAS | 18,300 V_{APP} 128 V_{REF} 118 KIAS | 17,340 V_{APP} 126 V_{REF} 116 KIAS | 16,900 V_{APP} 123 V_{REF} 113 KIAS | 15,000 V_{APP} 116 V_{REF} 106 KIAS | 13,000 V_{APP} 109 V_{REF} 99 KIAS |
| 1,000 | -54 | 3,260 | 3,250 | 3,130 | 3,110 | 2,930 | 2,770 |
| | -50 | 3,280 | 3,260 | 3,160 | 3,120 | 2,940 | 2,770 |
| | -40 | 3,340 | 3,320 | 3,210 | 3,170 | 2,990 | 2,790 |
| | -30 | 3,420 | 3,390 | 3,270 | 3,230 | 3,050 | 2,850 |
| | -20 | 3,490 | 3,450 | 3,340 | 3,290 | 3,100 | 2,900 |
| | -10 | 3,560 | 3,530 | 3,410 | 3,360 | 3,160 | 2,930 |
| | 0 | 3,630 | 3,620 | 3,490 | 3,430 | 3,220 | 2,990 |
| | 10 | 3,710 | 3,690 | 3,560 | 3,500 | 3,280 | 3,050 |
| | 20 | 3,800 | 3,760 | 3,620 | 3,570 | 3,340 | 3,100 |
| | 30 | 3,890 | 3,840 | 3,700 | 3,650 | 3,410 | 3,160 |
| | 40 | 3,970 | 3,920 | 3,780 | 3,720 | 3,470 | 3,210 |
| | 50 | 4,050 | 3,990 | 3,860 | 3,780 | 3,520 | 3,260 |
| 2,000 | -54 | 3,320 | 3,310 | 3,190 | 3,160 | 2,980 | 2,810 |
| | -50 | 3,340 | 3,320 | 3,210 | 3,180 | 2,990 | 2,820 |
| | -40 | 3,410 | 3,380 | 3,280 | 3,220 | 3,040 | 2,850 |
| | -30 | 3,490 | 3,460 | 3,340 | 3,300 | 3,090 | 2,890 |
| | -20 | 3,570 | 3,530 | 3,410 | 3,360 | 3,160 | 2,940 |
| | -10 | 3,630 | 3,600 | 3,480 | 3,430 | 3,210 | 2,990 |
| | 0 | 3,730 | 3,680 | 3,560 | 3,500 | 3,270 | 3,050 |
| | 10 | 3,810 | 3,760 | 3,620 | 3,570 | 3,340 | 3,100 |
| | 20 | 3,900 | 3,850 | 3,710 | 3,650 | 3,410 | 3,170 |
| | 30 | 3,980 | 3,920 | 3,790 | 3,720 | 3,490 | 3,220 |
| | 40 | 4,060 | 4,020 | 3,870 | 3,810 | 3,550 | 3,270 |
| | 50 | 4,140 | 4,090 | 3,940 | 3,880 | 3,600 | 3,320 |
| 3,000 | -54 | 3,390 | 3,370 | 3,250 | 3,210 | 3,030 | 2,840 |
| | -50 | 3,410 | 3,370 | 3,270 | 3,220 | 3,040 | 2,850 |
| | -40 | 3,480 | 3,450 | 3,340 | 3,290 | 3,100 | 2,880 |
| | -30 | 3,560 | 3,530 | 3,400 | 3,360 | 3,150 | 2,950 |
| | -20 | 3,640 | 3,610 | 3,480 | 3,430 | 3,210 | 3,000 |
| | -10 | 3,720 | 3,680 | 3,550 | 3,490 | 3,280 | 3,040 |
| | 0 | 3,810 | 3,760 | 3,630 | 3,580 | 3,340 | 3,090 |
| | 10 | 3,900 | 3,860 | 3,710 | 3,650 | 3,410 | 3,170 |
| | 20 | 3,980 | 3,930 | 3,790 | 3,740 | 3,480 | 3,220 |
| | 30 | 4,070 | 4,030 | 3,870 | 3,820 | 3,550 | 3,280 |
| | 40 | 4,150 | 4,110 | 3,950 | 3,890 | 3,620 | 3,340 |
| | 47 | 4,210 | 4,160 | 4,020 | 3,940 | 3,660 | 3,370 |
| 4,000 | -54 | 3,450 | 3,420 | 3,310 | 3,270 | 3,090 | 2,880 |
| | -50 | 3,480 | 3,440 | 3,330 | 3,290 | 3,100 | 2,900 |
| | -40 | 3,550 | 3,520 | 3,410 | 3,350 | 3,140 | 2,940 |
| | -30 | 3,630 | 3,600 | 3,480 | 3,430 | 3,200 | 2,990 |
| | -20 | 3,720 | 3,680 | 3,550 | 3,500 | 3,280 | 3,040 |
| | -10 | 3,810 | 3,770 | 3,630 | 3,580 | 3,340 | 3,100 |
| | 0 | 3,900 | 3,860 | 3,720 | 3,650 | 3,410 | 3,170 |
| | 10 | 3,990 | 3,950 | 3,800 | 3,740 | 3,490 | 3,230 |
| | 20 | 4,080 | 4,040 | 3,880 | 3,830 | 3,560 | 3,300 |
| | 30 | 4,170 | 4,130 | 3,970 | 3,910 | 3,630 | 3,360 |
| | 40 | 4,270 | 4,210 | 4,060 | 3,990 | 3,700 | 3,410 |
| | 45 | 4,300 | 4,240 | 4,090 | 4,020 | 3,740 | 3,450 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Wet Runway, Flaps 15, Landing Distance, Ice Mode 1

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 129 V_{REF} 119 KIAS | 18,300 V_{APP} 128 V_{REF} 118 KIAS | 17,340 V_{APP} 126 V_{REF} 116 KIAS | 16,900 V_{APP} 123 V_{REF} 113 KIAS | 15,000 V_{APP} 116 V_{REF} 106 KIAS | 13,000 V_{APP} 109 V_{REF} 99 KIAS |
| 5,000 | -54 | 3,520 | 3,500 | 3,370 | 3,340 | 3,130 | 2,930 |
| | -50 | 3,550 | 3,520 | 3,400 | 3,360 | 3,160 | 2,950 |
| | -40 | 3,630 | 3,600 | 3,470 | 3,420 | 3,210 | 2,990 |
| | -30 | 3,710 | 3,690 | 3,560 | 3,500 | 3,280 | 3,050 |
| | -20 | 3,800 | 3,770 | 3,630 | 3,580 | 3,350 | 3,110 |
| | -10 | 3,890 | 3,860 | 3,710 | 3,660 | 3,420 | 3,160 |
| | 0 | 3,990 | 3,950 | 3,800 | 3,750 | 3,490 | 3,230 |
| | 10 | 4,080 | 4,040 | 3,880 | 3,830 | 3,560 | 3,300 |
| | 20 | 4,180 | 4,130 | 3,980 | 3,920 | 3,640 | 3,360 |
| | 30 | 4,270 | 4,220 | 4,060 | 4,000 | 3,710 | 3,430 |
| | 40 | 4,360 | 4,300 | 4,150 | 4,070 | 3,790 | 3,490 |
| | 42 | 4,390 | 4,320 | 4,170 | 4,090 | 3,800 | 3,500 |
| | -54 | 3,600 | 3,580 | 3,440 | 3,410 | 3,210 | 2,990 |
| 6,000 | -50 | 3,630 | 3,600 | 3,470 | 3,430 | 3,210 | 3,000 |
| | -40 | 3,710 | 3,670 | 3,550 | 3,490 | 3,270 | 3,050 |
| | -30 | 3,810 | 3,760 | 3,620 | 3,570 | 3,340 | 3,100 |
| | -20 | 3,890 | 3,850 | 3,720 | 3,650 | 3,420 | 3,160 |
| | -10 | 3,990 | 3,950 | 3,810 | 3,740 | 3,490 | 3,230 |
| | 0 | 4,080 | 4,040 | 3,890 | 3,830 | 3,570 | 3,300 |
| | 10 | 4,190 | 4,140 | 3,980 | 3,920 | 3,650 | 3,370 |
| | 20 | 4,290 | 4,230 | 4,080 | 4,010 | 3,730 | 3,440 |
| | 30 | 4,390 | 4,320 | 4,170 | 4,090 | 3,810 | 3,500 |
| | 40 | 4,480 | 4,410 | 4,260 | 4,170 | 3,880 | 3,560 |
| | -54 | 3,670 | 3,660 | 3,520 | 3,490 | 3,270 | 3,040 |
| | -50 | 3,700 | 3,680 | 3,540 | 3,500 | 3,280 | 3,050 |
| | -40 | 3,790 | 3,750 | 3,620 | 3,570 | 3,340 | 3,090 |
| 7,000 | -30 | 3,890 | 3,840 | 3,710 | 3,650 | 3,410 | 3,170 |
| | -20 | 4,000 | 3,940 | 3,810 | 3,740 | 3,490 | 3,230 |
| | -10 | 4,100 | 4,040 | 3,900 | 3,830 | 3,580 | 3,300 |
| | 0 | 4,200 | 4,140 | 3,990 | 3,920 | 3,640 | 3,370 |
| | 10 | 4,290 | 4,240 | 4,090 | 4,010 | 3,740 | 3,450 |
| | 20 | 4,390 | 4,330 | 4,180 | 4,100 | 3,820 | 3,500 |
| | 30 | 4,500 | 4,450 | 4,270 | 4,210 | 3,900 | 3,590 |
| | 38 | 4,580 | 4,510 | 4,350 | 4,260 | 3,950 | 3,630 |
| | -54 | 3,760 | 3,750 | 3,590 | 3,560 | 3,340 | 3,110 |
| | -50 | 3,790 | 3,760 | 3,620 | 3,570 | 3,350 | 3,120 |
| | -40 | 3,890 | 3,860 | 3,710 | 3,640 | 3,410 | 3,170 |
| | -30 | 4,000 | 3,940 | 3,810 | 3,750 | 3,490 | 3,230 |
| | -20 | 4,100 | 4,060 | 3,910 | 3,850 | 3,580 | 3,310 |
| 8,000 | -10 | 4,210 | 4,150 | 4,010 | 3,930 | 3,670 | 3,380 |
| | 0 | 4,310 | 4,270 | 4,100 | 4,040 | 3,750 | 3,460 |
| | 10 | 4,420 | 4,350 | 4,200 | 4,120 | 3,840 | 3,530 |
| | 20 | 4,520 | 4,480 | 4,300 | 4,230 | 3,920 | 3,610 |
| | 30 | 4,630 | 4,570 | 4,400 | 4,320 | 4,010 | 3,680 |
| | 35 | 4,690 | 4,610 | 4,450 | 4,350 | 4,040 | 3,700 |



Section 5 - Performance, Cockpit Handbook (Authority approved)
Landing, Wet Runway, Flaps 15, Landing Distance, Ice Mode 1

| ALTITUDE FT | OAT °C | WEIGHT (LB) | | | | | |
|----------------|-----------|--|--|--|--|--|---|
| | | OWL | | MLW | | | |
| | | 18,740 V_{APP} 129 V_{REF} 119 KIAS | 18,300 V_{APP} 128 V_{REF} 118 KIAS | 17,340 V_{APP} 126 V_{REF} 116 KIAS | 16,900 V_{APP} 123 V_{REF} 113 KIAS | 15,000 V_{APP} 116 V_{REF} 106 KIAS | 13,000 V_{APP} 109 V_{REF} 99 KIAS |
| 9,000 | -54 | 3,940 | 3,890 | 3,740 | 3,700 | 3,470 | 3,220 |
| | -50 | 3,970 | 3,920 | 3,780 | 3,720 | 3,490 | 3,230 |
| | -40 | 4,060 | 4,020 | 3,870 | 3,810 | 3,560 | 3,290 |
| | -30 | 4,170 | 4,140 | 3,980 | 3,920 | 3,650 | 3,380 |
| | -20 | 4,290 | 4,250 | 4,080 | 4,020 | 3,750 | 3,450 |
| | -10 | 4,400 | 4,350 | 4,180 | 4,110 | 3,830 | 3,530 |
| | 0 | 4,510 | 4,460 | 4,290 | 4,210 | 3,920 | 3,610 |
| | 10 | 4,620 | 4,570 | 4,390 | 4,320 | 4,010 | 3,690 |
| | 20 | 4,740 | 4,680 | 4,500 | 4,430 | 4,100 | 3,770 |
| | 30 | 4,850 | 4,780 | 4,610 | 4,520 | 4,180 | 3,840 |
| | 33 | 4,880 | 4,810 | 4,630 | 4,540 | 4,190 | 3,850 |
| 10,000 | -54 | 4,100 | 4,060 | 3,920 | 3,860 | 3,610 | 3,340 |
| | -50 | 4,150 | 4,100 | 3,960 | 3,890 | 3,630 | 3,370 |
| | -40 | 4,250 | 4,200 | 4,050 | 3,990 | 3,710 | 3,440 |
| | -30 | 4,360 | 4,320 | 4,150 | 4,090 | 3,810 | 3,520 |
| | -20 | 4,480 | 4,440 | 4,260 | 4,200 | 3,900 | 3,600 |
| | -10 | 4,600 | 4,550 | 4,370 | 4,310 | 4,000 | 3,680 |
| | 0 | 4,720 | 4,670 | 4,480 | 4,420 | 4,100 | 3,770 |
| | 10 | 4,850 | 4,790 | 4,600 | 4,520 | 4,190 | 3,850 |
| | 20 | 4,960 | 4,900 | 4,710 | 4,630 | 4,290 | 3,940 |
| | 30 | 5,020 | 5,000 | 4,820 | 4,710 | 4,370 | 4,010 |
| | 31 | 5,020 | 5,010 | 4,830 | 4,720 | 4,380 | 4,020 |



SECTION 6

Weight and Balance (Authority approved)

Table of Contents

| Subject | | Page |
|--|---------------------------------------|-------------|
| General | | |
| 1 | Introduction | 6-1-1 |
| 2 | Configurations | 6-1-1 |
| 3 | Aircraft Equipment | 6-1-1 |
| 4 | Aircraft Weight Build-Up | 6-1-3 |
| Loading Information | | |
| 1 | General Loading Recommendations | 6-2-1 |
| 2 | Cargo | 6-2-1 |
| 3 | Hazardous Materials | 6-2-1 |
| Weight and Balance Determination for Flight | | |
| 1 | Aircraft Load / Moment Tables | 6-3-1 |
| 2 | Standard Crew Moment Table | 6-3-1 |
| 3 | Standard Baggage Moment Tables | 6-3-2 |
| 4 | Standard Fuel Moment Table | 6-3-3 |
| 5 | Standard Monument Moment Tables | 6-3-4 |
| 6 | Combi Conversion | 6-3-5 |
| 7 | Loading Form Method | 6-3-8 |
| Weight and Balance Forms | | |
| 1 | General | 6-4-1 |
| EX-6S-1 Interior Configuration | | |
| 1 | Interior Configuration | 6-5-1 |
| 2 | EX-6S-1 Passenger Moment Table | 6-5-2 |
| EX-6S-COM-2S-1 Interior Configuration | | |
| 1 | Interior Configuration | 6-6-1 |
| 2 | EX-6S-COM-2S-1 Passenger Moment Table | 6-6-2 |
| EX-8S-1 Interior Configuration | | |
| 1 | Interior Configuration | 6-7-1 |
| 2 | EX-8S-1 Passenger Moment Table | 6-7-2 |
| EX-8S-2 Interior Configuration | | |
| | | 6-8-1 |



| Subject | | Page |
|---|----------------------------------|---------------|
| 1 | Interior Configuration | 6-8-1 |
| 2 | EX-8S-2 Passenger Moment Table | 6-8-2 |
| No Cabin Interior Configuration | | 6-9-1 |
| 1 | Interior Configuration | 6-9-1 |
| 2 | No Cabin Interior Determination | 6-9-2 |
| COM-10S-1 Interior Configuration | | 6-10-1 |
| 1 | Interior Configuration | 6-10-1 |
| 2 | COM-10S-1 Passenger Moment Table | 6-10-2 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



General

1 Introduction

This section contains the information required to determine the BEW and Moment of the PC-24, adjust the BEW and Moment as equipment is added or removed, and determine aircraft weight and CG for each flight operation.

It is the responsibility of the pilot in command to ensure that the aircraft is loaded in accordance with the approved weight and centre of gravity limits contained in this AFM prior to each flight. Completion of the sample loading forms provided in this section are one means, but not the only means of accomplishing the determination of weight and CG for flight.

The Basic Empty Weight and Moment contained in the most current weighing report for the aircraft are found on the Weight and Balance Record, or its equivalent in this section. A Weight and Balance Record that is marked as no longer being current by the addition of a notation such as, "Superseded," may not be used to determine aircraft weight and CG for flight.

The most current list of installed equipment is located in the Equipment List portion of this section. The pilot uses the basic empty weight and moment data together with the Loading Form to compute the total weight and moment for the loaded aircraft from which CG is determined. Aircraft total weight and CG are then plotted on the CG envelope to determine that the aircraft is loaded within limitations.

2 Configurations

The Weight and Balance Determination, configuration graphics, moment tables and loading information specific to each configuration is defined within this AFM. Each PC-24 configuration is presented within its own sub-section of this AFM.

- EX-6S-1 Interior Configuration
- EX-6S-COM-2S-1 Interior Configuration
- EX-8S-1 Interior Configuration
- EX-8S-2 Interior Configuration
- No Cabin Interior Configuration
- COM-10S-1 Interior Configuration

3 Aircraft Equipment

3.1 PC-24 Airplane Equipment List

Refer to the PC-24 Airplane Equipment List (Document No. 02434) which provides the weight and location of each item of equipment that can easily be removed, relocated, or replaced. The Equipment List is typically found at the end of the PC-24 Airplane Flight Manual (02371) Volume 2.



3.2 Removable Equipment

WARNING

THE PORTABLE FIRE EXTINGUISHER MUST BE INSTALLED IN THE AIRCRAFT BEFORE YOU BEGIN FLIGHT / GROUND OPERATIONS.

WARNING

ALL OPERATIONAL DOCUMENTATION MUST BE ON THE AIRCRAFT BEFORE YOU BEGIN FLIGHT / GROUND OPERATIONS. REFER TO LIMITATIONS, SECTION 2 FOR FURTHER GUIDANCE

The crew is authorized to remove, install or re-configure the cabin interior, as delivered, to another approved interior configuration. For this, the crew shall follow the instructions in section 18 Handling and Service in the FCOM. Approved interior configurations are defined in section 6, Weight and Balance of this AFM.

The table "Removable Equipment" (refer to [Table 6-1-1](#)) details all the equipment that are allowed to be removed from an approved interior configuration and the aircraft approved to fly with these removals.

Any equipment removed from or re-installed on the aircraft shall be documented as part of the aircraft weight and balance. Re-installation of equipment on the aircraft is only authorised in the position of the approved interior configuration.

Table 6-1-1: Removable Equipment

| Equipment Type | Example |
|-------------------------------------|--|
| Cargo and Baggage Restraint Systems | Cargo Restraint System Large / Short / TSA Baggage Restraint System |
| Emergency Equipment | Crash Axe, First Aid Kit, Life Vest / Whistle, Life Raft Smoke Goggles, PBE, Portable Fire Extinguisher |
| Floor Furnishings | Carpets Flooring (factory option) |
| Ground Support Equipment | Aircraft Covers, Oil Can, Cockpit Cover, Sunscreen Covers Tail Stand / Steering Bar Wheel Chocks |
| Seating | Commuter Seat, Executive Seat |
| Galleys | Extended Galleys, Refreshment Center |
| Miscellaneous Equipment | Ice Box, Thermos Bottle, Crew Headsets |
| Miscellaneous Furnishings | Curtains, Divider Walls |
| Operational Documentation | PC-24 Airplane Flight Manual |
| Storage Cabinets | Fwd, Center and Aft Storage Cabinets |



4 Aircraft Weight Build-Up

Fig. 6-1-1 shows the weight build-up of the PC-24 aircraft.

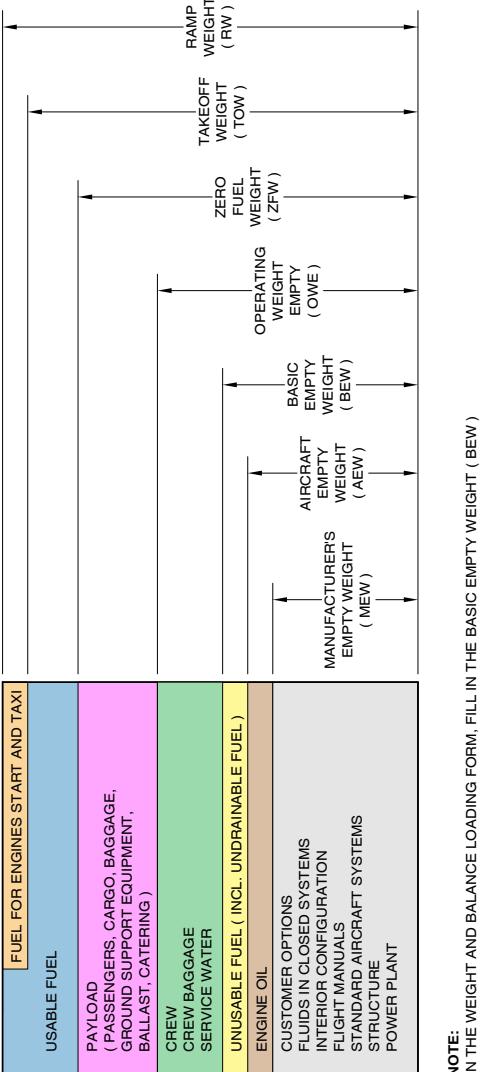


Figure 6-1-1: Aircraft Weight Build-Up



Section 6 - Weight and Balance (Authority approved) Aircraft Weight Build-Up

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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Loading Information

1 General Loading Recommendations

The following general loading recommendation is intended as a guide only. Refer to Section 2 of the AFM for Seating and Cargo Limitations. The pilot in command must refer to the appropriate moment charts, loading form and CG Envelope to determine that the aircraft is properly loaded.

Payload may be limited by the Maximum Zero Fuel Weight of 14,220 lb.

Fuel load may be limited by the Maximum Ramp Weight of 18,400 lb.

Load fuel equally between left and right wing fuel tanks.

2 Cargo

Before loading the aircraft attach the tail support stand to prevent the tail from contacting the ramp surface while ground personnel are in the aft cabin during the loading process.

3 Hazardous Materials

The PC-24 does not incorporate protection against any negative effects of carrying hazardous materials. Carriage of hazardous materials is subject to significant restrictions as specified by the authority having jurisdiction over the registry of the aircraft. The Pilot in Command is responsible for ensuring compliance with all applicable regulations, and for ensuring that all measures required to protect the aircraft are taken when hazardous materials are carried. Limitations regarding hazardous materials are described in section 2, Limitations.



Section 6 - Weight and Balance (Authority approved) Hazardous Materials

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

This Page Intentionally Left Blank



Weight and Balance Determination for Flight

1 Aircraft Load / Moment Tables

WARNING

WHEN OPERATING THE AIRCRAFT WITH ONE PILOT AS THE SOLE OCCUPANT OF THE AIRCRAFT ENSURE THAT THE AIRCRAFT REMAINS WITHIN THE CENTER OF GRAVITY LIMITATIONS PRESCRIBED IN SECTION 2, LIMITATIONS OF THIS AIRPLANE FLIGHT MANUAL AT ALL TIMES DURING THE FLIGHT.

The pilot in command must determine that the aircraft is properly loaded for flight by performing a Weight and balance calculation to determine that the loaded aircraft Weight and CG location are within the limitations listed in Section 2, Limitations of this AFM.

When a single pilot is the sole occupant of the aircraft the CG is normally located towards the aft limit of the envelope. During flight, the CG location moves further aft as fuel is burned. Pilots must ensure that the planned fuel burn for a flight does not result in a CG shift aft of the aft limit specified in Section 2, Limitations of this AFM.

This section contains standard Moment charts, loading forms and CG envelope data that facilitate this determination.

For passenger and monument Moment tables specific to your aircraft interior, refer to the respective sub-section in this AFM:

- EX-6S-1 Interior Configuration
- EX-6S-COM-2S-1 Interior Configuration
- EX-8S-1 Interior Configuration
- EX-8S-2 Interior Configuration
- No Cabin Interior Configuration.
- COM-10S-1 Interior Configuration

2 Standard Crew Moment Table

Table 6-3-1: Standard Crew Moment Table (lb.in)

| Arm. (127 in) | | | | | |
|----------------|-------------------|----------------|-------------------|----------------|-------------------|
| Weight (lb) | Moment (lb.in) | Weight (lb) | Moment (lb.in) | Weight (lb) | Moment (lb.in) |
| 100 | 12,700 | 150 | 19,050 | 200 | 25,400 |
| 110 | 13,970 | 160 | 20,320 | 210 | 26,670 |
| 120 | 15,240 | 170 | 21,590 | 220 | 27,940 |
| 130 | 16,510 | 180 | 22,860 | 230 | 29,210 |
| 140 | 17,780 | 190 | 24,130 | 240 | 30,480 |



Section 6 - Weight and Balance (Authority approved) Standard Baggage Moment Tables

3 Standard Baggage Moment Tables

Table 6-3-2: Standard Baggage Moment Table - Small Baggage Net (lb.in)

| Weight (lb) | Moment (lb.in) | Weight (lb) | Moment (lb.in) |
|----------------|-------------------|----------------|-------------------|
| 10 | 4,138 | 210 | 86,894 |
| 20 | 8,276 | 220 | 91,032 |
| 30 | 12,413 | 230 | 95,169 |
| 40 | 16,551 | 240 | 99,307 |
| 50 | 20,689 | 250 | 103,445 |
| 60 | 24,827 | 260 | 107,583 |
| 70 | 28,965 | 270 | 111,721 |
| 80 | 33,102 | 280 | 115,858 |
| 90 | 37,240 | 290 | 119,996 |
| 100 | 41,378 | 300 | 124,134 |
| 110 | 45,516 | 310 | 128,272 |
| 120 | 49,654 | 320 | 132,410 |
| 130 | 53,791 | 330 | 136,547 |
| 140 | 57,929 | 340 | 140,685 |
| 150 | 62,067 | 350 | 144,823 |
| 160 | 66,205 | 360 | 148,961 |
| 170 | 70,343 | 370 | 153,099 |
| 180 | 74,480 | 380 | 157,236 |
| 190 | 78,618 | 390 | 161,374 |
| 200 | 82,756 | 400 | 165,512 |

Table 6-3-3: Standard Baggage Moment Table - Large Baggage Net (lb.in)

| Weight (lb) | Moment (lb.in) | Weight (lb) | Moment (lb.in) | Weight (lb) | Moment (lb.in) |
|----------------|-------------------|----------------|-------------------|----------------|-------------------|
| 10 | 4,080 | 190 | 77,520 | 370 | 150,960 |
| 20 | 8,160 | 200 | 81,600 | 380 | 155,040 |
| 30 | 12,240 | 210 | 85,680 | 390 | 159,120 |
| 40 | 16,320 | 220 | 89,760 | 400 | 163,200 |
| 50 | 20,400 | 230 | 93,840 | 410 | 167,280 |
| 60 | 24,480 | 240 | 97,920 | 420 | 171,360 |
| 70 | 28,560 | 250 | 102,000 | 430 | 175,440 |
| 80 | 32,640 | 260 | 106,080 | 440 | 179,520 |
| 90 | 36,720 | 270 | 110,160 | 450 | 183,600 |
| 100 | 40,800 | 280 | 114,240 | 460 | 187,680 |
| 110 | 44,880 | 290 | 118,320 | 470 | 191,760 |
| 120 | 48,960 | 300 | 122,400 | 480 | 195,840 |
| 130 | 53,040 | 310 | 126,480 | 490 | 199,920 |
| 140 | 57,120 | 320 | 130,560 | 500 | 204,000 |
| 150 | 61,200 | 330 | 134,640 | 510 | 208,080 |
| 160 | 65,280 | 340 | 138,720 | 520 | 212,160 |



Section 6 - Weight and Balance (Authority approved) Standard Fuel Moment Table

Table 6-3-3: Standard Baggage Moment Table - Large Baggage Net (lb.in) (continued from previous page)

| Weight (lb) | Moment (lb.in) | Weight (lb) | Moment (lb.in) | Weight (lb) | Moment (lb.in) |
|----------------|-------------------|----------------|-------------------|----------------|-------------------|
| 170 | 69,360 | 350 | 142,800 | 530 | 216,240 |
| 180 | 73,440 | 360 | 146,880 | | |

Table 6-3-4: Standard Baggage Moment Table - Large Baggage Net and Tie-down Kit (lb.in)

| Weight (lb) | Moment (lb.in) | Weight (lb) | Moment (lb.in) | Weight (lb) | Moment (lb.in) |
|----------------|-------------------|----------------|-------------------|----------------|-------------------|
| 540 | 220,320 | 700 | 285,600 | 860 | 350,880 |
| 550 | 224,400 | 710 | 289,680 | 870 | 354,960 |
| 560 | 228,480 | 720 | 293,760 | 880 | 359,040 |
| 570 | 232,560 | 730 | 297,840 | 890 | 363,120 |
| 580 | 236,640 | 740 | 301,920 | 900 | 367,200 |
| 590 | 240,720 | 750 | 306,000 | 910 | 371,280 |
| 600 | 244,800 | 760 | 310,080 | 920 | 375,360 |
| 610 | 248,880 | 770 | 314,160 | 930 | 379,440 |
| 620 | 252,960 | 780 | 318,240 | 940 | 383,520 |
| 630 | 257,040 | 790 | 322,320 | 950 | 387,600 |
| 640 | 261,120 | 800 | 326,400 | 960 | 391,680 |
| 650 | 265,200 | 810 | 330,480 | 970 | 395,760 |
| 660 | 269,280 | 820 | 334,560 | 980 | 399,840 |
| 670 | 273,360 | 830 | 338,640 | 990 | 403,920 |
| 680 | 277,440 | 840 | 342,720 | 1,000 | 408,000 |
| 690 | 281,520 | 850 | 346,800 | | |

4 Standard Fuel Moment Table

Table 6-3-5: Standard Fuel Moment Table (lb.in)

| Weight (lb) | Moment (lb.in) | Weight (lb) | Moment (lb.in) | Weight (lb) | Moment (lb.in) |
|----------------|-------------------|----------------|-------------------|----------------|-------------------|
| 200 | 56,400 | 2,200 | 666,600 | 4,200 | 1,293,600 |
| 400 | 113,600 | 2,400 | 729,600 | 4,400 | 1,359,600 |
| 600 | 174,600 | 2,600 | 790,400 | 4,600 | 1,426,000 |
| 800 | 235,200 | 2,800 | 854,000 | 4,800 | 1,488,000 |
| 1,000 | 297,000 | 3,000 | 915,000 | 5,000 | 1,555,000 |
| 1,200 | 358,800 | 3,200 | 979,200 | 5,200 | 1,622,400 |
| 1,400 | 420,000 | 3,400 | 1,040,400 | 5,400 | 1,690,200 |
| 1,600 | 481,600 | 3,600 | 1,105,200 | 5,600 | 1,764,000 |
| 1,800 | 543,600 | 3,800 | 1,166,600 | 5,800 | 1,832,800 |
| 2,000 | 606,000 | 4,000 | 1,232,000 | 5,965 | 1,890,905 |



5 Standard Monument Moment Tables

These monument tables are applicable to the EX-6S-1, EX-6S-COM-2S-1, EX-8S-1 and EX-8S-2 interior configurations.

Table 6-3-6: Monument Load Moments (lb.in)

| Weight (lb) | Wardrobe Arm. 162.2 in | Fwd Galley Arm. 162.2 in | Forward Storage LH / RH Arm. 207.0 in | Aft Storage LH / RH Arm. 391.8 in | Large ⁽¹⁾ Aft Storage LH / RH Arm. 363.8 in | Center Storage LH / RH Arm. 293.5 in | Extended Galley, RH Arm. 388.8 in |
|----------------|------------------------------|-----------------------------------|---|---|---|--|---|
| | Moment (lb.in) | | | | | | |
| 5 | 811.0 | 811.0 | 1,035.0 | 1,959.0 | 1,819.0 | 1,467.5 | 1,944.0 |
| 10 | 1,622.0 | 1,622.0 | 2,070.0 | 3,918.0 | 3,638.0 | 2,935.0 | 3,888.0 |
| 13 | 2,108.6 | 2,108.6 | 2,691.0 | 5,093.4 | 4,729.4 | 3,815.5 | 5,054.4 |
| 15 | 2,433.0 | 2,433.0 | 3,105.0 | 5,877.0 | 5,457.0 | - | 5,832.0 |
| 20 | 3,244.0 | 3,244.0 | 4,140.0 | 7,836.0 | 7,276.0 | - | 7,776.0 |
| 22 | 3,568.4 | 3,568.4 | 4,554.0 | 8,619.6 | 8,003.6 | - | 8,553.6 |
| 25 | 4,055.0 | 4,055.0 | - | - | 9,095.0 | - | 9,720.0 |
| 30 | 4,866.0 | 4,866.0 | - | - | 10,914.0 | - | 11,664.0 |
| 35 | 5,677.0 | 5,677.0 | - | - | 12,733.0 | - | 13,608.0 |
| 40 | 6,488.0 | 6,488.0 | - | - | 14,552.0 | - | 15,552.0 |
| 45 | 7,299.0 | 7,299.0 | - | - | 16,371.0 | - | 17,496.0 |
| 50 | 8,110.0 | 8,110.0 | - | - | 18,190.0 | - | 19,440.0 |
| 55 | 8,921.0 | 8,921.0 | - | - | 20,009.0 | - | 21,384.0 |
| 59 | - | 9,569.8 | - | - | 21,464.2 | - | 22,939.2 |
| 64 | - | 10,380.8 | - | - | - | - | - |
| 68 | - | 11,029.6 | - | - | - | - | - |
| 73 | - | 11,840.6 | - | - | - | - | - |
| 77 | - | 12,489.4 | - | - | - | - | - |
| 82 | - | 13,300.4 | - | - | - | - | - |
| 86 | - | 13,949.2 | - | - | - | - | - |
| 90 | - | 14,598.0 | - | - | - | - | - |

Footnote: (1) The AFT storage Large LH / RH column is applicable to the Refreshment Center on the RH side of the aircraft.



Section 6 - Weight and Balance (Authority approved) Combi Conversion

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

Table 6-3-7: Monument Load Moments (kg.m)

| Weight (kg) | Wardrobe Arm. 4.120 m | Fwd Galley Arm. 4.120 m | Forward Storage LH / RH Arm. 5.258 m | Aft Storage LH / RH Arm. 9.953 m | Large ⁽¹⁾ Aft Storage LH / RH Arm. 9.241 m | Center Storage LH / RH Arm. 7.454 m | Extended Galley, RH Arm. 9.876 m |
|----------------|-----------------------------|----------------------------------|--|--|--|---|--|
| | Moment (kg.m) | | | | | | |
| 2 | 8.2 | 8.2 | 10.5 | 19.9 | 18.5 | 14.9 | 19.8 |
| 4 | 16.5 | 16.5 | 21.0 | 39.8 | 37.0 | 29.8 | 39.5 |
| 6 | 24.7 | 24.7 | 31.5 | 59.7 | 55.4 | 44.7 | 59.3 |
| 8 | 33.0 | 33.0 | 42.1 | 79.6 | 73.9 | - | 79.0 |
| 10 | 41.2 | 41.2 | 52.6 | 99.5 | 92.4 | - | 98.8 |
| 12 | 49.4 | 49.4 | - | - | 110.9 | - | 118.5 |
| 14 | 57.7 | 57.7 | - | - | 129.4 | - | 138.3 |
| 16 | 65.9 | 65.9 | - | - | 147.9 | - | 158.0 |
| 18 | 74.2 | 74.2 | - | - | 166.3 | - | 177.8 |
| 20 | 82.4 | 82.4 | - | - | 184.8 | - | 197.5 |
| 22 | 90.6 | 90.6 | - | - | 203.3 | - | 217.3 |
| 25 | 103.0 | 103.0 | - | - | 231.0 | - | 246.9 |
| 27 | - | 111.2 | - | - | 249.5 | - | 266.7 |
| 29 | - | 119.5 | - | - | - | - | - |
| 31 | - | 127.7 | - | - | - | - | - |
| 33 | - | 136.0 | - | - | - | - | - |
| 35 | - | 144.2 | - | - | - | - | - |
| 37 | - | 152.4 | - | - | - | - | - |
| 39 | - | 160.7 | - | - | - | - | - |
| 41 | - | 168.9 | - | - | - | - | - |

Footnote: (1) The AFT storage Large LH / RH column is applicable to the Refreshment Center on the RH side of the aircraft.

6 Combi Conversion

A combi conversion is a replacement of interior items aft of the over-wing emergency exits with cargo items as shown in Fig. 2-1-2. The combi interior, the interior that stays on the aircraft, consists of 4 seats (rows 1 and 2). To attach the cargo to the aircraft, the aircraft option Cargo Tie-down Kit can be installed.

The aircraft is weighed before delivery to the customer. When a different Interior Code Lay-Out than the combi interior was installed at the time of weighing, the Basic Empty Weight and Moment need to be adjusted for the cargo tie-down kit conversion. For this adjustment, the positions of the cargo and the cargo tie-down kit need to be measured using the rear pressure bulkhead position as a reference, 428.15 in (10,875 mm). Refer to Section 2, Limitations of this AFM for the cargo limitations.



For a combi conversion, do the following steps:

- 1 To expedite re-installation of the seats that have to be removed, mark a temporary mark with masking tape on the seat rail at the forward edge of the seat attachment fittings.
- 2 Remove the seats and furnishings aft of the over-wing emergency exits.
- 3 Determine the weight and moment of the individual interior items that are removed from the aircraft as follows:
 - Look up the weight of the removed interior item in the relevant Interior Code of the Airplane Equipment List (Document No. 02434)
 - Look up the moment of the removed interior item in the relevant Interior Code of the Airplane Equipment List (Document No. 02434)
 - Divide the moment obtained from the Airplane Equipment List by 1000
 - Record the weight and the moment
 - Repeat the previous steps for all individual interior items that are removed from the aircraft.
- 4 Calculate the total weight and moment of all removed interior items together and fill them in in line 2 of the Weight and Balance Loading Form.
- 5 Determine the weight and moment of the individual cargo items that are loaded on the aircraft as follows:
 - Determine the weight of the cargo item and the weight of the cargo straps
 - Position the cargo item onto the cargo tie-down kit
 - Measure the distance from the center of the cargo item to the rear pressure bulkhead
 - Calculate the arm of the cargo item. The arm of the cargo item is 428.15 in (10,875 mm) minus the distance measured from the center of the cargo item to the rear pressure bulkhead
 - Record the cargo item weight plus the weight of the cargo straps, and the cargo item arm
 - Repeat the previous steps for all individual cargo items that are loaded on the aircraft.
- 6 Calculate the total weight and moment of all loaded cargo items and the cargo tie-down kit together and fill them in in line 29 of the Weight and Balance Loading Form.

The following example explains how to fill in the Weight and Balance Loading Form after a combi conversion of the EX-6S-1 interior lay-out. In this example, two cargo items are loaded after that the following interior items have been removed:

- Forward facing executive seats LH and RH in row 3
- Divider walls LH and RH, incl. curtain
- Refreshment center
- Large aft storage LH.



Section 6 - Weight and Balance (Authority approved) Combi Conversion

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

The Weight and Balance Loading Form must be filled in as follows:

- 1 In [Table 6-3-8](#), the total weight and moment of the removed interior items is calculated.

As a result, line 2 of the Weight and Balance Loading Form must be filled in as follows:
Weight: -192.7 lb; Moment: - 66.5 lb.in.

- 2 In [Table 6-3-9](#), the total weight and moment of the loaded cargo items is calculated.

As a result, line 29 of the Weight and Balance Loading Form must be filled in as follows:
Weight: +354.0; Moment: 128.2 lb.in.

Table 6-3-8: Total weight and moment of interior items removed from the aircraft

| ITEM | WEIGHT (lb) | MOMENT (lb.in) / 1000 |
|---|-------------|-----------------------|
| Forward facing executive seat LH in row 3 | - 68.0 | - 22.6 |
| Forward facing executive seat RH in row 3 | - 68.0 | - 22.6 |
| Refreshment center | - 21.7 | - 7.9 |
| Large aft storage LH | - 20.9 | - 7.6 |
| Cabin curtain | - 1.3 | - 0.5 |
| Divider wall LH (short baggage restraint system) | - 9.1 | - 3.6 |
| Divider wall RH (short baggage restraint system) | - 9.0 | - 3.6 |
| Cargo tie-down kit (partial - parts installed from cargo tie- down kit weighed) | + 5.3 | + 1.95 |
| TOTAL | - 192.7 | - 66.5 |

Note

The moment of interior items removed from the aircraft that is obtained from Airplane Equipment List (Document No. 02434) needs to be divided by 1000.

Table 6-3-9: Total weight and moment of two cargo items loaded on the aircraft

| ITEM | WEIGHT (lb) | ARM (in) | MOMENT (lb.in) / 1000 |
|---------------------------------|-------------|----------|--------------------------|
| Cargo item number 1 + straps | 151.0 | 368.15 | 55.6 |
| Cargo item number 2+ straps | 203.0 | 357.50 | 72.6 |
| TOTAL | 354.0 | | 128.2 |



7 Loading Form Method

Determination of aircraft Weight and CG location for flight may be accomplished by completing a loading form that guides the mathematical computation of these values.

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 6 - Weight and Balance (Authority approved) Loading Form Method

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

| WEIGHT AND BALANCE LOADING FORM | | | | |
|--|--|----------------------|---------------------|---------------------|
| AIRCRAFT TYPE - PILATUS PC-24 | | | REGISTRATION | |
| LINE | ITEM | WEIGHT (lb) | ARM (in) | MOMENT /1000 |
| 1 | Basic Empty Weight (BEW) LG UP | = 11,822 | 343.7 | 4,063.2 |
| 2 | Combi Conversion | - | | |
| 3 | Pilot | + 200 | | 25.4 |
| 4 | Co-Pilot | + 200 | | 25.4 |
| 5 | Service Water | + 16 | 188.9 | 3.1 |
| 6 | Operating Weight Empty (OWE) | = 12,238 | 336.4 | 4,117.1 |
| 7 | Ground Support Equipment | + | | |
| 8 | Passenger Row 1 LH | + 120 | | 27.0 |
| 9 | Passenger Row 1 RH | + 160 | | 36.0 |
| 10 | Passenger Row 2 LH | + | | |
| 11 | Passenger Row 2 RH | + 190 | | 52.3 |
| 12 | Passenger Row 3 LH | + 150 | | 49.4 |
| 13 | Passenger Row 3 RH | + | | |
| 14 | Passenger Row 4 LH | + | | |
| 15 | Passenger Row 4 RH | + | | |
| 16 | Passenger Row 5 LH | + | | |
| 17 | Passenger Row 5 RH | + | | |
| 18 | Wardrobe (Max 55 lb) or Fwd Galley (Max 90 lb) | + 40 | | 6.5 |
| 19 | Forward Storage LH (Max 22 lb) | + | | |
| 20 | Forward Storage RH (Max 22 lb) | + | | |
| 21 | Center Storage LH (Max 13 lb) | + | | |
| 22 | Center Storage RH (Max 13 lb) | + | | |
| 23 | Aft Storage LH (Max 22 lb) | + | | |
| 24 | Aft Storage RH (Max 22 lb) | + | | |
| 25 | Large Aft Storage LH (Max 59 lb) | + 50 | | 18.2 |
| 26 | Refreshment Center RH (Max 59 lb) | + 35 | | 12.7 |
| 27 | Extended Galley (Max 59 lb) | + | | |
| 28 | Baggage | + 400 | | 163.2 |
| 29 | Cargo Installed in Cabin (Max 2,500 lb) | + | | |
| 30 | Optional Ballast (if any) installed | + | | |
| 31 | Zero Fuel Weight (ZFW Max 14,220 lb) | = 13,383 | 334.9 | 4,482.3 |
| 32 | Usable Fuel | + 4,000 | | 1,232.0 |
| 33 | Ramp Weight (RW Max 18,400 lb) | = 17,383 | 328.7 | 5,714.4 |
| 34 | Fuel for Start and Taxi | - 100 | | 30.8 |
| 35 | Take - Off Weight (TOW Max 18,300 lb) | = 17,283 | 328.8 | 5,683.6 |
| 36 | Fuel from Line 32 | = 4,000 | | |
| 37 | Mission Fuel to Destination including Start and Taxi | - 2,000 | | |
| 38 | Fuel Remaining at Destination | = 2,000 | | 606.0 |
| 39 | Zero Fuel Weight from Line 31 | + 13,383 | | 4,482.3 |
| 40 | Landing Weight (LW Max 16,900 lb) | = 15,383 | 330.8 | 5,088.3 |

Figure 6-3-1: Example Weight and Balance Loading Form



7.1 Instructions for Completing a Loading Form

- 1 Enter the current Basic Empty Weight, CG and moment of the aircraft from the Weight and Balance Record.
- 2 If applicable, enter the weight and moment of interior items removed (as described under sub-section "Combi Conversion") in line 2.
- 3 Enter the weights of all crew in lines 3 and 4. Determine the moments for the crew from table "Standard Crew Moment Table (lb.in)" and enter the values in lines 3 and 4.
- 4 Enter the weight of the Service water in line 5.
- 5 From the BEW remove the combi conversion weights and moments, if applicable, and then add the crew and water weights and moments, lines 1 through 5, to determine the Operating Weight Empty (OWE) and moment in line 6.
- 6 Divide the OWE moment by the OWE to determine the OWE CG Arm.
- 7 Enter the weight, CG and moment of any Ground Support Equipment (GSE) added to the aircraft in line 7.
- 8 Enter the weights of all passengers in lines 8 through 17. Determine the moments for the passengers and enter the values in lines 8 through to 17. Refer to the respective sub-section for your aircraft interior configuration passenger moment tables.
- 9 Enter the weight of all stores/baggage located in the monuments in lines 18 through 27 respecting the maximum allowable loads as defined on aircraft placards. Determine the moments for the stores/baggage from table "Standard Monument Load Moments (lb.in)", and table "Standard Moment Load Moments (kg.m)", and enter the values in lines 18 through 27.
- 10 Enter the weight of the baggage in the cargo area in line 28. Determine the moment of the baggage from table "Standard Baggage Moment Table - Small Baggage Net (lb.in)", table "Standard Baggage Moment Table - Large Baggage Net (lb.in)" or table "Standard Baggage Moment Table - Large Baggage Net and Tie-down Kit (lb.in)", and enter the value in line 28.
- 11 If applicable, enter the weight and moment of cargo installed (as described under subsection "Combi Conversion") in line 29.
- 12 Add the OWE, GSE, passengers, stores, baggage and cargo weights and moments, lines 6 through 29, to determine the Zero Fuel Weight (ZFW) and moment in line 30. Verify the ZFW does not exceed the limits of Section 2, Limitations of this AFM.
- 13 Add the ZFW and moment in line 38.
- 14 Divide the ZFW moment by the ZFW to determine the ZFW CG Arm.
- 15 Enter the Usable Fuel Weight on line 31. Determine the moment of the Usable Fuel from table "Standard Fuel Moment Table (lb.in)" and enter the value in line 31.
- 16 Add the Usable Fuel Weight in line 35.
- 17 Add the Usable Fuel Weight and moment to the calculated ZFW and moment to determine the Ramp Weight (RW) and moment, line 32. Verify the RW does not exceed the limits of Section 2, Limitations of this AFM.



- 18 Divide the RW moment by the RW to determine the RW CG Arm. Make sure this point is within the Aircraft Center of Gravity Envelope (in) shown in figure "CG As Inches Aft of Datum".
- 19 Enter the Engine Start and Taxi fuel weight and moment on line 33 and then subtract them from the RW weight and moment, line 32, to determine the Takeoff Weight (TOW) and moment, line 34. Verify the TOW does not exceed limits in Section 2, Limitations of this AFM.

Note

Takeoff Weight may also be limited by Takeoff performance (runway length, climb gradient limit). Refer to Section 5, Performance of this AFM to make this determination.

- 20 Divide the TOW moment by the TOW to determine the TOW CG Arm. Make sure this point is within the Aircraft Center of Gravity Envelope (in) shown in figure "CG As Inches Aft of Datum".
- 21 Estimate the Mission Fuel to the Destination Weight, and add this value in line 36. Subtract the Mission Fuel to Destination Weight, line 36, from Usable Fuel, line 35, to determine the Fuel Remaining at Destination weight, line 37. Determine the Fuel Remaining at Destination moment from table "Standard Fuel Moment Table (lb.in)" and enter the value in line 37.
- 22 Add the Fuel Remaining at Destination weight and moment, line 37, to the ZFW and Moment, line 39, to determine the Landing Weight (LW) and Moment, line 38. Verify the LW does not exceed limits of Section 2, Limitations of this AFM.

Note

Landing Weight may also be limited by landing performance (runway length, discontinued approach or balked climb gradient limits) Refer to Section 5, Performance of this AFM to make this determination.

- 23 Divide the LW Moment by the LW to determine the LW CG Arm. Make sure this point is within the Aircraft Center of Gravity Envelope (in) shown in figure "CG As Inches Aft of Datum".

7.2 Conversion from Inches to % MAC

[Fig. 6-3-4](#) should be used if the preferred measurement of CG is expressed in % MAC. The conversion from inches to % MAC is:

$$\% \text{ MAC} = \frac{\text{CG} - \text{LEMAC}}{\text{MAC}} \times 100$$

Where: LEMAC = 302.8 in
MAC = 78.6 in



7.3 Center of Gravity Plotting - Center of Gravity in Inches Aft of Datum

These charts show the PC-24 weight and balance envelope in terms of weight in pounds and CG as inches aft of datum: [Fig. 6-3-2](#) is valid for MSN 101 - 500 and [Fig. 6-3-3](#) is valid for MSN 501 - UP.

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



PC-24 CG ENVELOPE (IN)
MSN 101 - 500

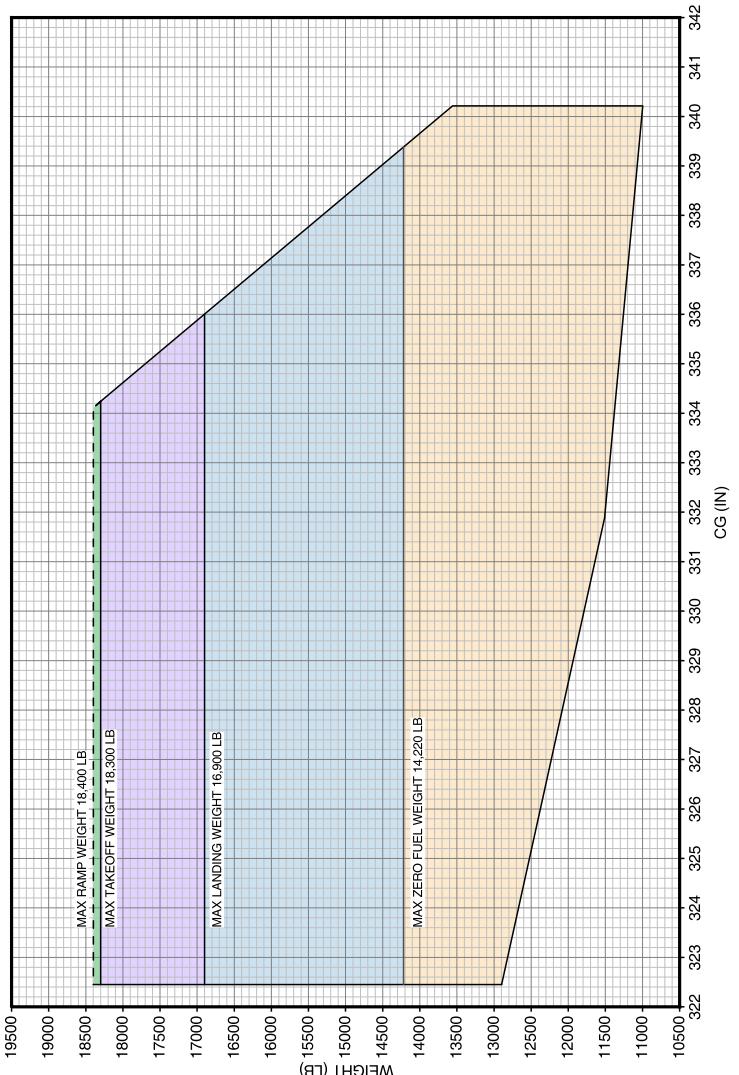


Figure 6-3-2: CG As Inches Aft of Datum (MSN 101 - 500)



PC-24 CG ENVELOPE (IN)
MSN 501 - UP

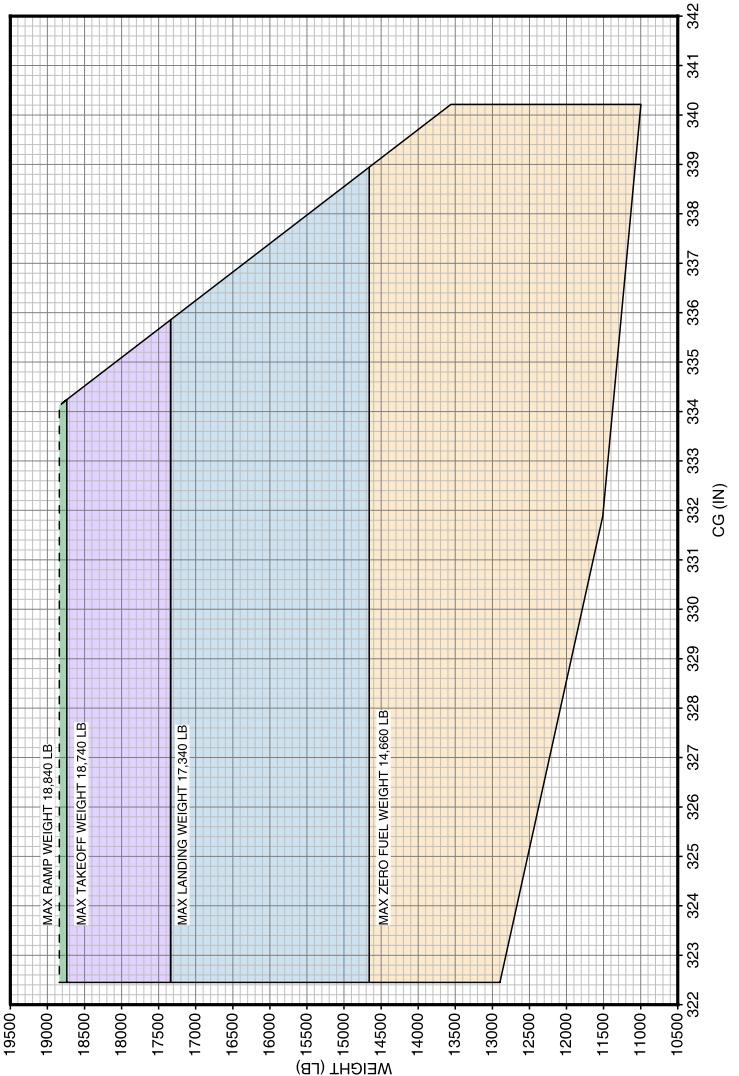


Figure 6-3-3: CG As Inches Aft of Datum (MSN 501 - UP)



7.4 Center of Gravity Plotting - Center of Gravity as Percentage of MAC

[Fig. 6-3-4](#) shows the PC-24 Weight and balance envelope in terms of Weight in pounds and CG as a percentage of MAC (% MAC).

These charts show the PC-24 weight and balance envelope in terms of weight in pounds and CG as a percentage of MAC (% MAC): [Fig. 6-3-4](#) is valid for MSN 101 - 500 and [Fig. 6-3-5](#) is valid for MSN 501 - UP.

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



PC-24 CG ENVELOPE (% MAC)
MSN 101 - 500

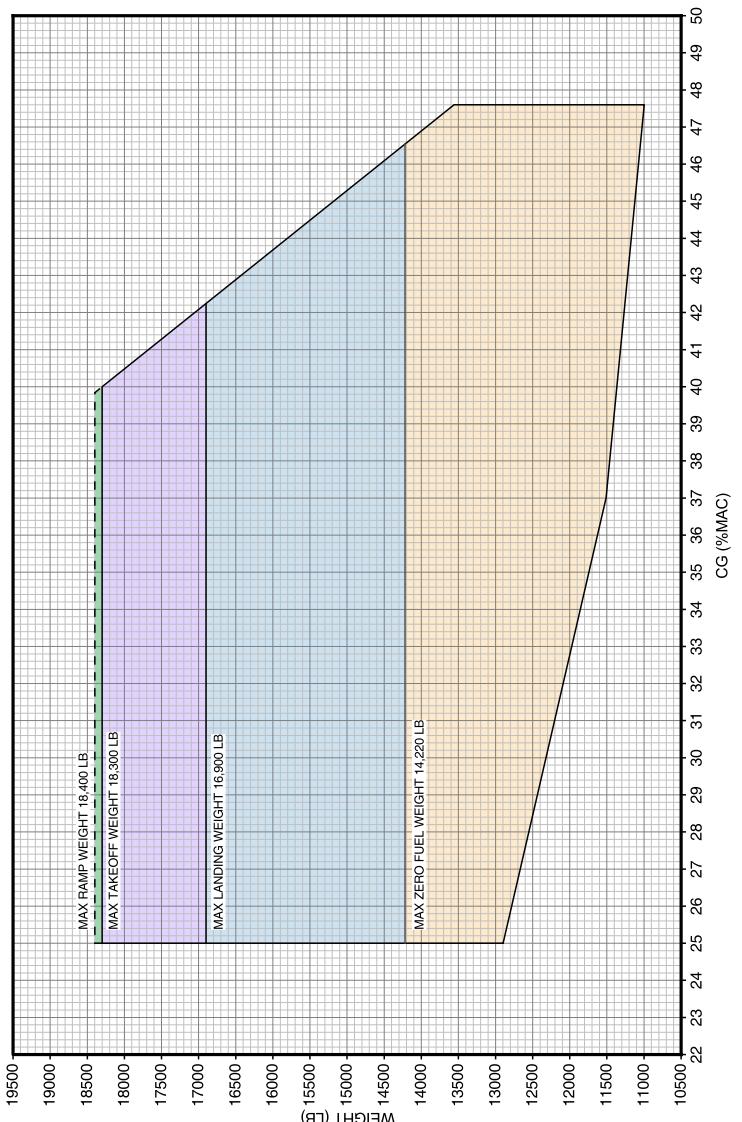


Figure 6-3-4: CG As Percentage of MAC (MSN 101 - 500)



PC-24 CG ENVELOPE (%MAC)
MSN 501 - UP

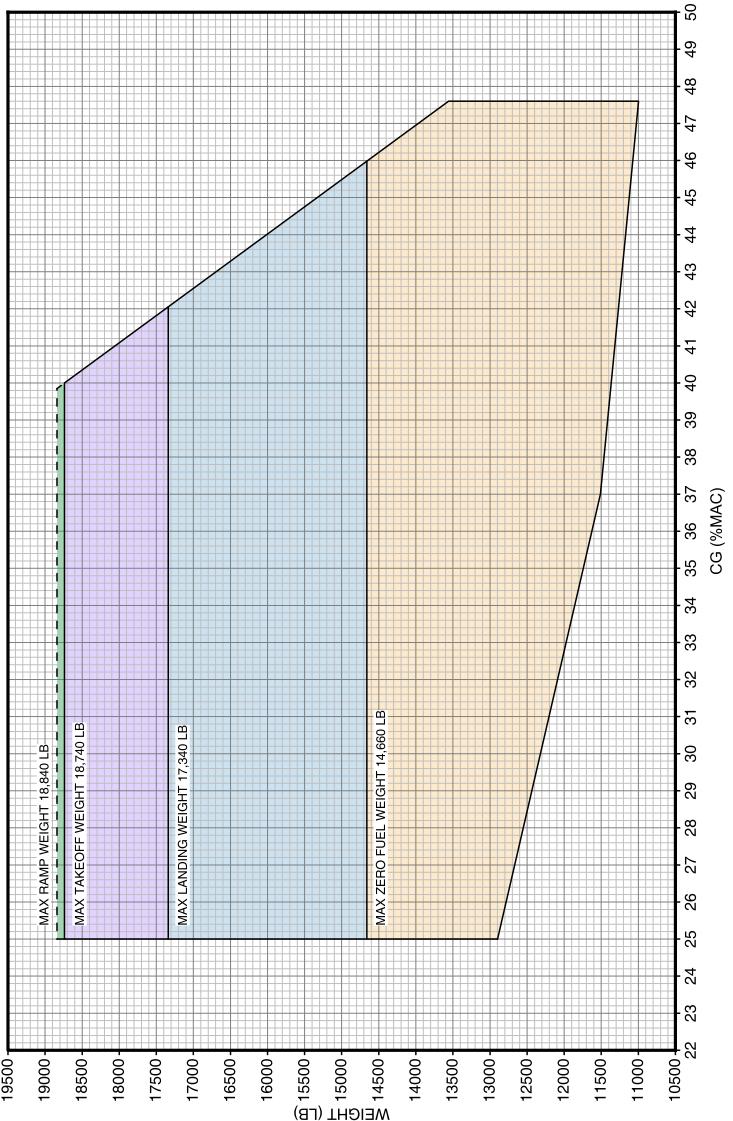


Figure 6-3-5: CG As Percentage of MAC (MSN 501 - UP)



Section 6 - Weight and Balance (Authority approved) Loading Form Method

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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Weight and Balance Forms

1 General

The form contained in this subsection may be printed and used as worksheet for determining weight and CG for flight.

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



| WEIGHT AND BALANCE LOADING FORM | | | | | |
|---------------------------------|--|---|---------------|------------|--------------|
| AIRCRAFT TYPE - PILATUS PC-24 | | | REGISTRATION | | |
| LINE | ITEM | | WEIGHT (lb) | ARM (in) | MOMENT /1000 |
| 1 | Basic Empty Weight (BEW) LG UP | = | | | |
| 2 | Combi Conversion | - | | | |
| 3 | Pilot | + | | | |
| 4 | Co-Pilot | + | | | |
| 5 | Service Water | + | | | |
| 6 | Operating Weight Empty (OWE) | = | | | |
| 7 | Ground Support Equipment | + | | | |
| 8 | Passenger Row 1 LH | + | | | |
| 9 | Passenger Row 1 RH | + | | | |
| 10 | Passenger Row 2 LH | + | | | |
| 11 | Passenger Row 2 RH | + | | | |
| 12 | Passenger Row 3 LH | + | | | |
| 13 | Passenger Row 3 RH | + | | | |
| 14 | Passenger Row 4 LH | + | | | |
| 15 | Passenger Row 4 RH | + | | | |
| 16 | Passenger Row 5 LH | + | | | |
| 17 | Passenger Row 5 RH | + | | | |
| 18 | Wardrobe (Max 55 lb) or Fwd Galley (Max 90 lb) | + | | | |
| 19 | Forward Storage LH (Max 22 lb) | + | | | |
| 20 | Forward Storage RH (Max 22 lb) | + | | | |
| 21 | Center Storage LH (Max 13 lb) | + | | | |
| 22 | Center Storage RH (Max 13 lb) | + | | | |
| 23 | Aft Storage LH (Max 22 lb) | + | | | |
| 24 | Aft Storage RH (Max 22 lb) | + | | | |
| 25 | Large Aft Storage LH (Max 59 lb) | + | | | |
| 26 | Refreshment Center RH (Max 59 lb) | + | | | |
| 27 | Extended Galley (Max 59 lb) | + | | | |
| 28 | Baggage | + | | | |
| 29 | Cargo Installed in Cabin (Max 2500 lb) | + | | | |
| 30 | Zero Fuel Weight (ZFW Max 14,220 lb) | = | | | |
| 31 | Usable Fuel | + | | | |
| 32 | Ramp Weight (RW Max 18,400 lb) | = | | | |
| 33 | Fuel for Start and Taxi | - | | | |
| 34 | Take - Off Weight (TOW Max 18,300 lb) | = | | | |
| 35 | Usable Fuel from Line 31 | = | | | |
| 36 | Mission Fuel to Destination including Start and Taxi | - | | | |
| 37 | Fuel Remaining at Destination | = | | | |
| 38 | Zero Fuel Weight from Line 30 | + | | | |
| 39 | Landing Weight (LW Max 16,900 lb) | = | | | |

Figure 6-4-1: Blank Weight and Balance Loading Form



EX-6S-1 Interior Configuration

1 Interior Configuration

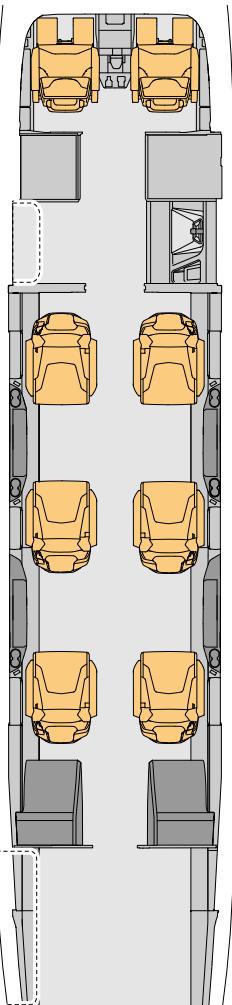


Figure 6-5-1: EX-6S-1

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



2 EX-6S-1 Passenger Moment Table

Table 6-5-1: EX-6S-1 Passenger Seat Occupant Moments (lb.in)

| Weight (lb) | PAX Row 1 LH / RH Arm. 225.0 in | PAX Row 2 LH / RH Arm. 275.0 in | PAX Row 3 LH / RH Arm. 329.0 in |
|----------------|---------------------------------------|---------------------------------------|---------------------------------------|
| | Moment (lb.in) | | |
| 50 | 11,250.0 | 13,750.0 | 16,450.0 |
| 60 | 13,500.0 | 16,500.0 | 19,740.0 |
| 70 | 15,750.0 | 19,250.0 | 23,030.0 |
| 80 | 18,000.0 | 22,000.0 | 26,320.0 |
| 90 | 20,250.0 | 24,750.0 | 29,610.0 |
| 100 | 22,500.0 | 27,500.0 | 32,900.0 |
| 110 | 24,750.0 | 30,250.0 | 36,190.0 |
| 120 | 27,000.0 | 33,000.0 | 39,480.0 |
| 130 | 29,250.0 | 35,750.0 | 42,770.0 |
| 140 | 31,500.0 | 38,500.0 | 46,060.0 |
| 150 | 33,750.0 | 41,250.0 | 49,350.0 |
| 160 | 36,000.0 | 44,000.0 | 52,640.0 |
| 170 | 38,250.0 | 46,750.0 | 55,930.0 |
| 180 | 40,500.0 | 49,500.0 | 59,220.0 |
| 190 | 42,750.0 | 52,250.0 | 62,510.0 |
| 200 | 45,000.0 | 55,000.0 | 65,800.0 |
| 210 | 47,250.0 | 57,750.0 | 69,090.0 |
| 220 | 49,500.0 | 60,500.0 | 72,380.0 |
| 230 | 51,750.0 | 63,250.0 | 75,670.0 |
| 240 | 54,000.0 | 66,000.0 | 78,960.0 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 6 - Weight and Balance (Authority approved) EX-6S-1 Passenger Moment Table

Table 6-5-2: EX-6S-1 Passenger Seat Occupant Moments (kg.m)

| Weight (kg) | PAX Row 1 LH / RH Arm. 5.715 m | PAX Row 2 LH / RH Arm. 6.985 m | PAX Row 3 LH / RH Arm. 8.357 m |
|----------------|--------------------------------------|--------------------------------------|--------------------------------------|
| | Moment (kg.m) | | |
| 25 | 142.9 | 174.6 | 208.9 |
| 30 | 171.5 | 209.6 | 250.7 |
| 35 | 200.0 | 244.5 | 292.5 |
| 40 | 228.6 | 279.4 | 334.3 |
| 45 | 257.2 | 314.3 | 376.1 |
| 50 | 285.8 | 349.3 | 417.9 |
| 55 | 314.3 | 384.2 | 459.6 |
| 60 | 342.9 | 419.1 | 501.4 |
| 65 | 371.5 | 454.0 | 543.2 |
| 70 | 400.1 | 489.0 | 585.0 |
| 75 | 428.6 | 523.9 | 626.8 |
| 80 | 457.2 | 558.8 | 668.6 |
| 85 | 485.8 | 593.7 | 710.3 |
| 90 | 514.4 | 628.7 | 752.1 |
| 95 | 542.9 | 663.6 | 793.9 |
| 100 | 571.5 | 698.5 | 835.7 |
| 105 | 600.1 | 733.4 | 877.5 |
| 110 | 628.7 | 768.4 | 919.3 |
| 115 | 657.2 | 803.3 | 961.1 |
| 120 | 685.8 | 838.2 | 1,002.8 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 6 - Weight and Balance (Authority approved)
EX-6S-1 Passenger Moment Table

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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EX-6S-COM-2S-1 Interior Configuration

1 Interior Configuration

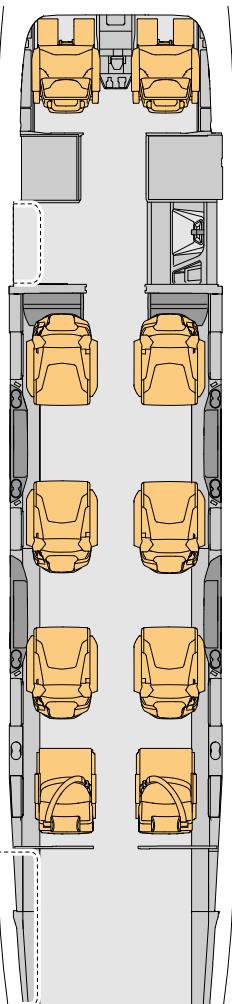


Figure 6-6-1: EX-6S-COM-2S-1

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



2 EX-6S-COM-2S-1 Passenger Moment Table

Table 6-6-1: EX-6S-COM-2S-1 Passenger Seat Occupant Moments (lb.in)

| Weight (lb) | PAX Row 1 LH / RH Arm. 225.0 in | PAX Row 2 LH / RH Arm. 275.0 in | PAX Row 3 LH / RH Arm. 320.9 in | PAX Row 4 LH / RH Arm. 357.2 in |
|----------------|--|--|--|--|
| | Moment (lb.in) | | | |
| 50 | 11,250.0 | 13,750.0 | 16,045.0 | 17,860.0 |
| 60 | 13,500.0 | 16,500.0 | 19,254.0 | 21,432.0 |
| 70 | 15,750.0 | 19,250.0 | 22,463.0 | 25,004.0 |
| 80 | 18,000.0 | 22,000.0 | 25,672.0 | 28,576.0 |
| 90 | 20,250.0 | 24,750.0 | 28,881.0 | 32,148.0 |
| 100 | 22,500.0 | 27,500.0 | 32,090.0 | 35,720.0 |
| 110 | 24,750.0 | 30,250.0 | 35,299.0 | 39,292.0 |
| 120 | 27,000.0 | 33,000.0 | 38,508.0 | 42,864.0 |
| 130 | 29,250.0 | 35,750.0 | 41,717.0 | 46,436.0 |
| 140 | 31,500.0 | 38,500.0 | 44,926.0 | 50,008.0 |
| 150 | 33,750.0 | 41,250.0 | 48,135.0 | 53,580.0 |
| 160 | 36,000.0 | 44,000.0 | 51,344.0 | 57,152.0 |
| 170 | 38,250.0 | 46,750.0 | 54,553.0 | 60,724.0 |
| 180 | 40,500.0 | 49,500.0 | 57,762.0 | 64,296.0 |
| 190 | 42,750.0 | 52,250.0 | 60,971.0 | 67,868.0 |
| 200 | 45,000.0 | 55,000.0 | 64,180.0 | 71,440.0 |
| 210 | 47,250.0 | 57,750.0 | 67,389.0 | 75,012.0 |
| 220 | 49,500.0 | 60,500.0 | 70,598.0 | 78,584.0 |
| 230 | 51,750.0 | 63,250.0 | 73,807.0 | 82,156.0 |
| 240 | 54,000.0 | 66,000.0 | 77,016.0 | 85,728.0 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 6 - Weight and Balance (Authority approved) EX-6S-COM-2S-1 Passenger Moment Table

Table 6-6-2: EX-6S-COM-2S-1 Passenger Seat Occupant Moments (kg.m)

| Weight (kg) | PAX Row 1 LH / RH Arm. 5.715 m | PAX Row 2 LH / RH Arm. 6.985 m | PAX Row 3 LH / RH Arm. 8.150 m | PAX Row 4 LH / RH Arm. 9.073 m |
|----------------|---|---|---|---|
| | Moment (kg.m) | | | |
| 25 | 142.9 | 174.6 | 203.8 | 226.8 |
| 30 | 171.5 | 209.6 | 244.5 | 272.2 |
| 35 | 200.0 | 244.5 | 285.3 | 317.6 |
| 40 | 228.6 | 279.4 | 326.0 | 362.9 |
| 45 | 257.2 | 314.3 | 366.8 | 408.3 |
| 50 | 285.8 | 349.3 | 407.5 | 453.7 |
| 55 | 314.3 | 384.2 | 448.3 | 499.0 |
| 60 | 342.9 | 419.1 | 489.0 | 544.4 |
| 65 | 371.5 | 454.0 | 529.8 | 589.7 |
| 70 | 400.1 | 489.0 | 570.5 | 635.1 |
| 75 | 428.6 | 523.9 | 611.3 | 680.5 |
| 80 | 457.2 | 558.8 | 652.0 | 725.8 |
| 85 | 485.8 | 593.7 | 692.8 | 771.2 |
| 90 | 514.4 | 628.7 | 733.5 | 816.6 |
| 95 | 542.9 | 663.6 | 774.3 | 861.9 |
| 100 | 571.5 | 698.5 | 815.0 | 907.3 |
| 105 | 600.1 | 733.4 | 855.8 | 952.7 |
| 110 | 628.7 | 768.4 | 896.5 | 998.0 |
| 115 | 657.2 | 803.3 | 937.3 | 1,043.4 |
| 120 | 685.8 | 838.2 | 978.0 | 1,088.8 |



Section 6 - Weight and Balance (Authority approved)
EX-6S-COM-2S-1 Passenger Moment Table

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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EX-8S-1 Interior Configuration

1 Interior Configuration

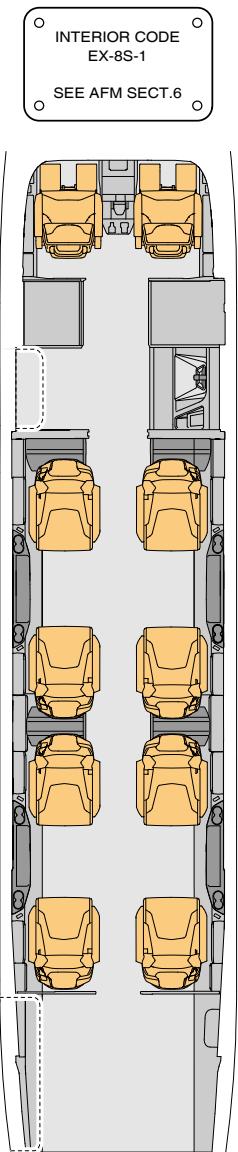


Figure 6-7-1: EX-8S-1

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



2 EX-8S-1 Passenger Moment Table

Table 6-7-1: EX-8S-1 Passenger Seat Occupant Moments (lb.in)

| Weight (lb) | PAX Row 1 LH / RH Arm. 225.0 in | PAX Row 2 LH / RH Arm. 275.0 in | PAX Row 3 LH / RH Arm. 312.0 in | PAX Row 4 LH / RH Arm. 358.0 in |
|----------------|--|--|--|--|
| | Moment (lb.in) | | | |
| 50 | 11,250.0 | 13,750.0 | 15,600.0 | 17,900.0 |
| 60 | 13,500.0 | 16,500.0 | 18,720.0 | 21,480.0 |
| 70 | 15,750.0 | 19,250.0 | 21,840.0 | 25,060.0 |
| 80 | 18,000.0 | 22,000.0 | 24,960.0 | 28,640.0 |
| 90 | 20,250.0 | 24,750.0 | 28,080.0 | 32,220.0 |
| 100 | 22,500.0 | 27,500.0 | 31,200.0 | 35,800.0 |
| 110 | 24,750.0 | 30,250.0 | 34,320.0 | 39,380.0 |
| 120 | 27,000.0 | 33,000.0 | 37,440.0 | 42,960.0 |
| 130 | 29,250.0 | 35,750.0 | 40,560.0 | 46,540.0 |
| 140 | 31,500.0 | 38,500.0 | 43,680.0 | 50,120.0 |
| 150 | 33,750.0 | 41,250.0 | 46,800.0 | 53,700.0 |
| 160 | 36,000.0 | 44,000.0 | 49,920.0 | 57,280.0 |
| 170 | 38,250.0 | 46,750.0 | 53,040.0 | 60,860.0 |
| 180 | 40,500.0 | 49,500.0 | 56,160.0 | 64,440.0 |
| 190 | 42,750.0 | 52,250.0 | 59,280.0 | 68,020.0 |
| 200 | 45,000.0 | 55,000.0 | 62,400.0 | 71,600.0 |
| 210 | 47,250.0 | 57,750.0 | 65,520.0 | 75,180.0 |
| 220 | 49,500.0 | 60,500.0 | 68,640.0 | 78,760.0 |
| 230 | 51,750.0 | 63,250.0 | 71,760.0 | 82,340.0 |
| 240 | 54,000.0 | 66,000.0 | 74,880.0 | 85,920.0 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 6 - Weight and Balance (Authority approved) EX-8S-1 Passenger Moment Table

Table 6-7-2: EX-8S-1 Passenger Seat Occupant Moments (kg.m)

| Weight (kg) | PAX Row 1 LH / RH Arm. 5.715 m | PAX Row 2 LH / RH Arm. 6.985 m | PAX Row 3 LH / RH Arm. 7.925 m | PAX Row 4 LH / RH Arm. 9.093 m |
|----------------|---|---|---|---|
| | Moment (kg.m) | | | |
| 25 | 142.9 | 174.6 | 198.1 | 227.3 |
| 30 | 171.5 | 209.6 | 237.8 | 272.8 |
| 35 | 200.0 | 244.5 | 277.4 | 318.3 |
| 40 | 228.6 | 279.4 | 317.0 | 363.7 |
| 45 | 257.2 | 314.3 | 356.6 | 409.2 |
| 50 | 285.8 | 349.3 | 396.3 | 454.7 |
| 55 | 314.3 | 384.2 | 435.9 | 500.1 |
| 60 | 342.9 | 419.1 | 475.5 | 545.6 |
| 65 | 371.5 | 454.0 | 515.1 | 591.0 |
| 70 | 400.1 | 489.0 | 554.8 | 636.5 |
| 75 | 428.6 | 523.9 | 594.4 | 682.0 |
| 80 | 457.2 | 558.8 | 634.0 | 727.4 |
| 85 | 485.8 | 593.7 | 673.6 | 772.9 |
| 90 | 514.4 | 628.7 | 713.3 | 818.4 |
| 95 | 542.9 | 663.6 | 752.9 | 863.8 |
| 100 | 571.5 | 698.5 | 792.5 | 909.3 |
| 105 | 600.1 | 733.4 | 832.1 | 954.8 |
| 110 | 628.7 | 768.4 | 871.8 | 1,000.2 |
| 115 | 657.2 | 803.3 | 911.4 | 1,045.7 |
| 120 | 685.8 | 838.2 | 951.0 | 1,091.2 |



Section 6 - Weight and Balance (Authority approved)
EX-8S-1 Passenger Moment Table

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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EX-8S-2 Interior Configuration

1 Interior Configuration

○ INTERIOR CODE
EX-8S-2
SEE AFM SECT.6

○ INTERIOR CODE
EX-8S-2
EX-6S-1
SEE AFM SECT.6

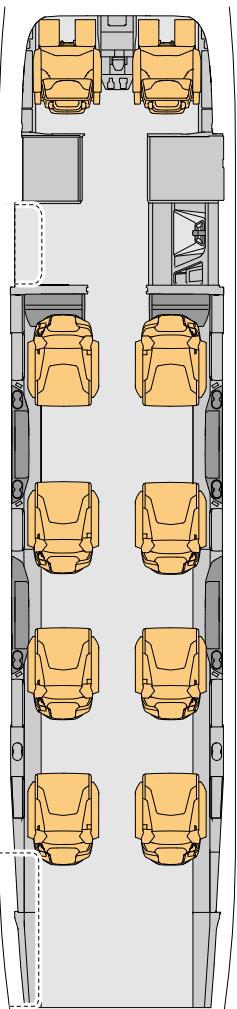


Figure 6-8-1: EX-8S-2

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



2 EX-8S-2 Passenger Moment Table

Table 6-8-1: EX-8S-2 Passenger Seat Occupant Moments (lb.in)

| Weight (lb) | PAX Row 1 LH / RH Arm. 225.0 in | PAX Row 2 LH / RH Arm. 275.0 in | PAX Row 3 LH / RH Arm. 320.9 in | PAX Row 4 LH / RH Arm. 366.9 in |
|----------------|--|--|--|--|
| | Moment (lb.in) | | | |
| 50 | 11,250.0 | 13,750.0 | 16,045.0 | 18,345.0 |
| 60 | 13,500.0 | 16,500.0 | 19,254.0 | 22,014.0 |
| 70 | 15,750.0 | 19,250.0 | 22,463.0 | 25,683.0 |
| 80 | 18,000.0 | 22,000.0 | 25,672.0 | 29,352.0 |
| 90 | 20,250.0 | 24,750.0 | 28,881.0 | 33,021.0 |
| 100 | 22,500.0 | 27,500.0 | 32,090.0 | 36,690.0 |
| 110 | 24,750.0 | 30,250.0 | 35,299.0 | 40,359.0 |
| 120 | 27,000.0 | 33,000.0 | 38,508.0 | 44,028.0 |
| 130 | 29,250.0 | 35,750.0 | 41,717.0 | 47,697.0 |
| 140 | 31,500.0 | 38,500.0 | 44,926.0 | 51,366.0 |
| 150 | 33,750.0 | 41,250.0 | 48,135.0 | 55,035.0 |
| 160 | 36,000.0 | 44,000.0 | 51,344.0 | 58,704.0 |
| 170 | 38,250.0 | 46,750.0 | 54,553.0 | 62,373.0 |
| 180 | 40,500.0 | 49,500.0 | 57,762.0 | 66,042.0 |
| 190 | 42,750.0 | 52,250.0 | 60,971.0 | 69,711.0 |
| 200 | 45,000.0 | 55,000.0 | 64,180.0 | 73,380.0 |
| 210 | 47,250.0 | 57,750.0 | 67,389.0 | 77,049.0 |
| 220 | 49,500.0 | 60,500.0 | 70,598.0 | 80,718.0 |
| 230 | 51,750.0 | 63,250.0 | 73,807.0 | 84,387.0 |
| 240 | 54,000.0 | 66,000.0 | 77,016.0 | 88,056.0 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 6 - Weight and Balance (Authority approved) EX-8S-2 Passenger Moment Table

Table 6-8-2: EX-8S-2 Passenger Seat Occupant Moments (kg.m)

| Weight (kg) | PAX Row 1 LH / RH Arm. 5.715 m | PAX Row 2 LH / RH Arm. 6.985 m | PAX Row 3 LH / RH Arm. 8.15 m | PAX Row 4 LH / RH Arm. 9.32 m |
|----------------|---|---|--|--|
| | Moment (kg.m) | | | |
| 25 | 142.9 | 174.6 | 203.8 | 233.0 |
| 30 | 171.5 | 209.6 | 244.5 | 279.6 |
| 35 | 200.0 | 244.5 | 285.3 | 326.2 |
| 40 | 228.6 | 279.4 | 326.0 | 372.8 |
| 45 | 257.2 | 314.3 | 366.8 | 419.4 |
| 50 | 285.8 | 349.3 | 407.5 | 466.0 |
| 55 | 314.3 | 384.2 | 448.3 | 512.6 |
| 60 | 342.9 | 419.1 | 489.0 | 559.2 |
| 65 | 371.5 | 454.0 | 529.8 | 605.8 |
| 70 | 400.1 | 489.0 | 570.5 | 652.4 |
| 75 | 428.6 | 523.9 | 611.3 | 699.0 |
| 80 | 457.2 | 558.8 | 652.0 | 745.6 |
| 85 | 485.8 | 593.7 | 692.8 | 792.2 |
| 90 | 514.4 | 628.7 | 733.5 | 838.8 |
| 95 | 542.9 | 663.6 | 774.3 | 885.4 |
| 100 | 571.5 | 698.5 | 815.0 | 932.0 |
| 105 | 600.1 | 733.4 | 855.8 | 978.6 |
| 110 | 628.7 | 768.4 | 896.5 | 1,025.2 |
| 115 | 657.2 | 803.3 | 937.3 | 1,071.8 |
| 120 | 685.8 | 838.2 | 978.0 | 1,118.4 |



Section 6 - Weight and Balance (Authority approved)
EX-8S-2 Passenger Moment Table

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

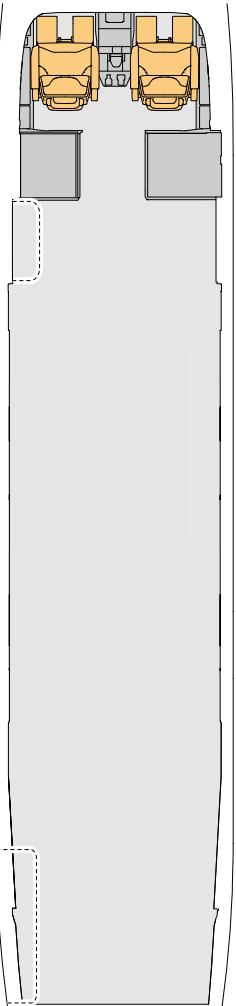
W & B

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No Cabin Interior Configuration

1 Interior Configuration



NOTE:
INTERIOR CONFIGURATION
PLACARD NOT REQUIRED

Figure 6-9-1: No Cabin Interior Configuration

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



2 No Cabin Interior Determination

When the aircraft is configured with no cabin interior, the aircraft requires ballasting in order to be within the operating limits as described in the Aircraft Center of Gravity charts shown in [Weight and Balance Determination for Flight](#).

The amount of ballast and its location within the cabin will depend on the aircraft options that have been installed. [Table 6-9-1](#) shows an example of determining ballast requirements.

Table 6-9-1: Example of determining ballast requirements for No Cabin Interior

| ITEM | | WEIGHT (lb) | CG (in) | CG (% MAC) |
|--------------------------------|---|----------------|------------|---------------|
| Basic Empty Weight (BEW) | = | 10,750 | 349.6 | 59.6 |
| Pilot (light weight) | + | 170 | 127 | |
| Copilot (none) | + | 0 | | |
| Operating Weight Empty (OWE) | = | 10,920 | 346.1 | 55.2 |
| Ballast Rack Fwd RH | + | 31 | 213 | |
| Ballast Rack Fwd LH | + | 31 | 237 | |
| Ballast installed RH | + | 200 | 213 | |
| Ballast installed LH | + | 100 | 237 | |
| Zero Fuel Weight (ZFW) | = | 11,382 | 341.2 | 48.9 |
| Fuel (5% of total fuel volume) | + | 300.0 | 283 | |
| Ramp Weight (RW) | = | 11,682 | 339.7 | 47.0 |



COM-10S-1 Interior Configuration

1 Interior Configuration

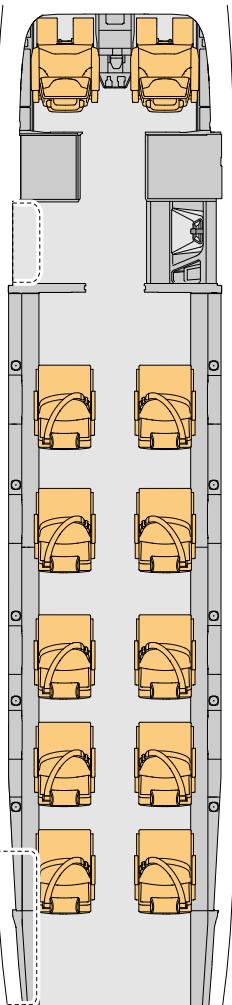


Figure 6-10-1: COM-10S-1

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



2 COM-10S-1 Passenger Moment Table

Table 6-10-1: COM-10S-1 Passenger Seat Occupant Moments (lb.in)

| Weight (lb) | PAX Row 1 LH / RH Arm. 234.17 in | PAX Row 2 LH / RH Arm. 273.17 in | PAX Row 3 LH / RH Arm. 313.17 in | PAX Row 4 LH / RH Arm. 347.17 in | PAX Row 5 LH / RH Arm. 381.17 in |
|----------------|---|---|---|---|---|
| | Moment (lb.in) | | | | |
| 50 | 11,708 | 13,658 | 15,658 | 17,358 | 19,058 |
| 60 | 14,050 | 16,390 | 18,790 | 20,830 | 22,870 |
| 70 | 16,392 | 19,122 | 21,922 | 24,302 | 26,682 |
| 80 | 18,733 | 21,853 | 25,053 | 27,773 | 30,493 |
| 90 | 21,075 | 24,585 | 28,185 | 31,245 | 34,305 |
| 100 | 23,417 | 27,317 | 31,317 | 34,717 | 38,117 |
| 110 | 25,758 | 30,048 | 34,448 | 38,188 | 41,928 |
| 120 | 28,100 | 32,780 | 37,580 | 41,660 | 45,740 |
| 130 | 30,441 | 35,511 | 40,711 | 45,131 | 49,551 |
| 140 | 32,783 | 38,243 | 43,843 | 48,603 | 53,363 |
| 150 | 35,125 | 40,975 | 46,975 | 52,075 | 57,175 |
| 160 | 37,466 | 43,706 | 50,106 | 55,546 | 60,986 |
| 170 | 39,808 | 46,438 | 53,238 | 59,018 | 64,798 |
| 180 | 42,150 | 49,170 | 56,370 | 62,490 | 68,610 |
| 190 | 44,491 | 51,901 | 59,501 | 65,961 | 72,421 |
| 200 | 46,833 | 54,633 | 62,633 | 69,433 | 76,233 |
| 210 | 49,175 | 57,365 | 65,765 | 72,905 | 80,045 |
| 220 | 51,516 | 60,096 | 68,896 | 76,376 | 83,856 |
| 230 | 53,858 | 62,828 | 72,028 | 79,848 | 87,668 |
| 240 | 56,200 | 65,560 | 75,160 | 83,320 | 91,480 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 6 - Weight and Balance (Authority approved) COM-10S-1 Passenger Moment Table

Table 6-10-2: COM-10S-1 Passenger Seat Occupant Moments (kg.m)

| Weight (kg) | PAX Row 1 LH / RH Arm. 5.948 m | PAX Row 2 LH / RH Arm. 6.938 m | PAX Row 3 LH / RH Arm. 7.954 m | PAX Row 4 LH / RH Arm. 8.818 m | PAX Row 5 LH / RH Arm. 9.682 m |
|----------------|---|---|---|---|---|
| | Moment (kg.m) | | | | |
| 25 | 148.70 | 173.46 | 198.86 | 220.45 | 242.04 |
| 30 | 178.43 | 208.15 | 238.63 | 264.54 | 290.45 |
| 35 | 208.17 | 242.84 | 278.40 | 308.63 | 338.86 |
| 40 | 237.91 | 277.54 | 318.18 | 352.72 | 387.26 |
| 45 | 267.65 | 312.23 | 357.95 | 396.81 | 435.67 |
| 50 | 297.39 | 346.92 | 397.72 | 440.90 | 484.08 |
| 55 | 327.13 | 381.61 | 437.49 | 484.99 | 532.49 |
| 60 | 356.87 | 416.30 | 477.26 | 529.08 | 580.90 |
| 65 | 386.61 | 451.00 | 517.04 | 573.17 | 629.30 |
| 70 | 416.35 | 485.69 | 556.81 | 617.26 | 677.71 |
| 75 | 446.09 | 520.38 | 596.58 | 661.35 | 726.12 |
| 80 | 475.82 | 555.07 | 636.35 | 705.44 | 774.53 |
| 85 | 505.56 | 589.76 | 676.12 | 749.53 | 822.94 |
| 90 | 535.30 | 624.46 | 715.90 | 793.62 | 871.34 |
| 95 | 565.04 | 659.15 | 755.67 | 837.71 | 919.75 |
| 100 | 594.78 | 693.84 | 795.44 | 881.80 | 968.16 |
| 105 | 624.52 | 728.53 | 835.21 | 925.89 | 1,016.57 |
| 110 | 654.26 | 763.22 | 874.98 | 969.98 | 1,064.98 |
| 115 | 684.00 | 797.92 | 914.76 | 1,014.07 | 1,113.38 |
| 120 | 713.74 | 832.61 | 954.53 | 1,058.16 | 1,161.79 |

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B



Section 6 - Weight and Balance (Authority approved)
COM-10S-1 Passenger Moment Table

Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

SECTION 7

Supplements

Table of Contents

| Subject | Page |
|---------------------|-------|
| List of Supplements | 7-1-1 |



Contents

Front Matter

Introduction

Limitations

Procedures

Performance

W & B

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List of Supplements

This section provides information in the form of supplements for the operation of the airplane when equipped with optional equipment or systems which are not installed on the standard airplane. The information contained in each supplement applies only when the specific equipment or system is installed in the airplane.

All of the supplements are EASA approved and those that are applicable are part of Airplane Flight Manual (report number 02371).

Table 7-1-1: List of Supplements



Table 7-1-1: List of Supplements (continued from previous page)