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GAMA

Member of GAMA

General Aviation Manufacturers Association

Beechcraft Corporation

LIST OF EFFECTIVE PAGES

This listing contains all current pages with effective revision number or date. It should be used after posting changes to ensure the manual is complete and up-to-date. Always destroy superseded pages when you insert revised pages.

Model G58 Baron®

(Serials TH-2125 and After)

Pilot's Operating Handbook
and
FAA Approved Airplane Flight Manual

P/N 58-590000-67

Revision A12 - May, 2015

Hawker Beechcraft Corporation

LOG OF TEMPORARY CHANGES

Model G58 Baron

Pilot's Operating Handbook
and
FAA Approved Airplane Flight Manual

P/N 58-590000-67

June, 2011

Temporary Changes to this manual must be in the airplane for all flight operations.

PART NUMBER	SUBJECT	DATE
58-590000-67TC1 Rev 1	Uncommanded pulsing of the control column during overly aggressive autopilot captures and during use of the PIT mode (affects ABNORMAL and NORMAL PROCEDURES sections). (Rescinded when Service Bulletin 22-3795 has been complied with.) Temporary Change not applicable to TH-2159 and after.	June, 2006
58-590000-67TC2	Adds TAWS limitations regarding flight over large bodies of sea level water.	May, 2008
58-590000-67TC3	Incorporated into the 58-590000-67A7 revision. Please discard all 58-590000-67TC3 pages: 1 of 4 thru 4 of 4.	Incorporated
58-590000-67TC4	Incorporated into the 58-590000-67A8 revision. Please discard all 58-590000-67TC4 pages: 1 of 6 thru 6 of 6.	Incorporated

PART NUMBER	SUBJECT	DATE
58-590000-67TC5	Incorporated into the 58-590000-67A8 revision. Please discard all 58-590000-67TC5 pages: 1 of 4 thru 4 of 4.	Incorporated

NOTE: This page should be filed in the front of the manual immediately in front of the *Log Of Revisions* page(s). This page replaces any *Log Of Temporary Changes* page dated prior to the date of this Log.

Temporary Change
to the
Pilot's Operating Handbook
and
FAA Approved Airplane Flight Manual

P/N 58-590000-67TC1 Rev 1

Publication Affected	Model G58 Pilot's Operating Handbook and FAA Approved Airplane Flight Manual (58-590000-67, Issued November, 2005)
Airplane Serials Numbers Affected	TH-2125 thru TH-2158 not in compliance with S.B. 22-3795.
Description of Change	Uncommanded pulsing of the control column during overly aggressive autopilot captures and during use of the PIT mode (affects and ABNORMAL and NORMAL PROCEDURES Sections).
Filing Instructions	Insert the following pages of this temporary change into the Model G58 Pilot's Operating Handbook and FAA Approved Airplane Flight Manual and retain until rescinded by Service Bulletin 22-3795. - Page 2 of 4 and 1 of 4 following page 3A-14 (Abnormal Procedures section). - Page 3 of 4 and 4 of 4 following page 4-30 (Normal Procedures section).

Temporary Change to the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

P/N 58-590000-67TC2

Publication Affected	Model G58 Pilot's Operating Handbook and FAA Approved Airplane Flight Manual P/N 58-590000-67, Issued November, 2005.
Airplane Serial Numbers Affected	TH-2138, TH-2141 and after and prior airplanes in compliance with Service Bulletin 34-3774 without terrain database 08T2 or later database installed.
Description of Change	Adds limitation regarding flight over large bodies of sea level water.
Filing Instructions	Insert pages 1 of 4 and 2 of 4 of this temporary change into the Model G58 Pilot's Operating Handbook and FAA Approved Airplane Flight Manual following the Log of Temporary Changes. Insert pages 3 of 4 and 4 of 4 into the Model G58 Pilot's Operating Handbook and FAA Approved Airplane Flight Manual following page 2-24 (Limitations). Retain the temporary change pages until rescinded or replaced.

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Beechcraft Corporation

LOG OF REVISIONS

Model G58 Baron®

(Serials TH-2125 and After)

Pilot's Operating Handbook
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FAA Approved Airplane Flight Manual

P/N 58-590000-67

Revision A12 - May, 2015

PAGE	DESCRIPTION
Title Page	New
LOEP	New
LOR	New
Section 1	
All	Reformatted to change Hawker Beechcraft Corporation to Beechcraft Corporation.
1-1 and 1-2	Revised Table of Contents.
1-10	Revised AIRPLANE THREE-VIEW.
1-12 and 1-13	Revised PROPELLER MANUFACTURER and PROPELLER TYPE. Added PITCH SETTINGS and PROPELLER DIAMETER. Shifted data.
Section 2	
All	Reformatted to change Hawker Beechcraft Corporation to Beechcraft Corporation.
2-1 thru 2-4	Revised Table of Contents.
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PAGE	DESCRIPTION
2-9	Revised PROPELLER MANUFACTURER, PROPELLER TYPE and PROPELLER DIAMETER. Shifted data.
2-18	Revised website reference.
Section 7	
All	Reformatted to change Hawker Beechcraft Corporation to Beechcraft Corporation.
7-1 thru 7-6	Revised Table of Contents.
7-31	Revised PROPELLERS. Shifted data.

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LOG OF REVISIONS

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P/N 58-590000-67

Revision A11 - July, 2014

PAGE	DESCRIPTION
Title Page	New
LOEP	New
LOR	New
Section 5	
All	Reformatted to change Hawker Beechcraft Corporation to Beechcraft Corporation.
5-24	Added note to Manifold Pressure vs RPM graph - CONTINUOUS OPERATION AT PEAK EGT IS PERMITTED.

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P/N 58-590000-67

Revision A10 - August, 2013

PAGE	DESCRIPTION
Title Page	New
LOEP	New
LOR	New
Section 4	
4-22	Revised Step 4. of CRUISE procedure to reference Leaning Using EGT Indication in Other Normal Procedures.

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Revision A9 - April, 2012

PAGE	DESCRIPTION
Title Page	New
LOEP	New
LOR	New
Section 1	
1-18	Revised definition of OAT.
Section 4	
4-30	Revised Step 3. of the LEANING USING THE EXHAUST GAS TEMPERATURE (EGT) INDICATION procedure.
Section 5	
5-1 thru 5-4	Corrected Table of Contents.
5-12	Replaced references to IOAT with references to OAT.
5-24	MANIFOLD PRESSURE vs RPM graph: removed NOTE and revised 'Not Recommended for Cruise Power Settings' area of graph to include all engine speeds below 2300 rpm.
	A9

PAGE	DESCRIPTION
5-36 thru 5-39	Revised 2300 and 2500 rpm Cruise Power Settings tables to replace IOAT values with OAT values. Removed 2100 rpm Cruise Power Settings tables.
5-40 and 5-41	Removed 2100 rpm data from Cruise Speeds graphs. Shifted data.
5-42 and 5-43	Removed 2100 rpm data from Range Profile - 166 Gallons graphs. Shifted data.
5-44 and 5-45	Removed 2100 rpm data from Endurance Profile - 166 Gallons graphs. Shifted data.
5-46 and 5-47	Removed 2100 rpm data from Range Profile -194 Gallons graphs. Shifted data.
5-48 and 5-49	Removed 2100 rpm data from Endurance Profile - 194 Gallons graphs. Shifted data.
5-50 thru 5-54	Shifted data.
Section 7	
7-1 thru 7-6	Corrected and revised Table of Contents.
7-9	Revised and serialized OAT Gage description.

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Revision A8 - June, 2011

PAGE	DESCRIPTION
Title Page	New
LOEP	New
LOTC	New
LOR	New
Section 1	
1-13	Incorporated 58-590000-67TC4 (Chinese Aviation Gasoline).
1-23	Changed Generic to ***Generic:***. Added LNAV, LPV, RNAV and SBAS to Acronyms. Shifted data.
1-24	Changed Garmin to ***Garmin:***. Shifted data.
Section 2	
2-8	Incorporated 58-590000-67TC4 (Chinese Aviation Gasoline).
2-17	Revised the Approved Airframe System Software Versions for the Garmin G1000 Integrated System. Shifted data.
2-18	Shifted data.
	A8

PAGE	DESCRIPTION
2-23	Changed Versions to Version. Changed 'and' to 'or'.
2-25 and 2-26	Added Item 9. Renumbered remaining items. Shifted data.
2-27	Shifted data.
Section 3A	
3A-19	Changed FAILURE OF REMOTE AUTONOMOUS INTEGRITY MONITORING (RAIM) to LOSS OF RECEIVER AUTONOMOUS INTEGRITY MONITORING (RAIM).
Section 4	
4-1 thru 4-4	Revised Table of Contents.
4-28	Added a colon. Shifted data.
4-29 and 4-30	Incorporated 58-590000-67TC5 (Leaning using EGT). Shifted data.
4-31 thru 4-34	Shifted data.
4-35	Changed back ground to background. Shifted data.
4-36 thru 4-41	Shifted data.
4-42	Changed Versions to Version. Changed 'and' to 'or' (2 places). Shifted data.
4-43	Changed 'and' to 'or'. Shifted data.
4-44	Changed Versions to Version. Changed 'and' to 'or' (2 places). Shifted data.
4-45 thru 4-56	Shifted data.
Section 7	
7-49	Changed 'and' to 'or'.
	A8

PAGE	DESCRIPTION
7-50 thru 7-53	Shifted data.
7-69	Changed Versions to Version. Changed 'and' to 'or'.
7-74	Changed 'and' to 'or'.
7-80	Changed 'and' to 'or'. Removed 'precision'. Added 'approach with'.
7-83	Changed Versions to Version. Changed 'and' to 'or'.

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Revision A7 - December, 2009

PAGE	DESCRIPTION
Title Page	New
LOEP	New
LOR	New
1-1 and 1-2	Revised Table of Contents.
1-12	Added supplement AFMS 20002-1.
1-13	Removed Pitch Settings and Propeller Diameter.
1-15	Incorporated 58-590000-67TC3. Added - Two Engines.
2-1 thru 2-4	Revised Table of Contents.
2-9	Revised Propeller Manufacturer. Added supplement AFMS 20002-1. Removed Pitch Settings and Propeller Diameter.
2-22	Changed FM to FPM and 45°30'30' to 45°30'30".
Section 5 - ALL	**Changed Raytheon Aircraft Company to Hawker Beechcraft Corporation.**
5-1	Revised Table of Contents.
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PAGE	DESCRIPTION
5-23	Corrected spelling of angle.
5-45	Changed 196 to 190.
Section 6 - ALL	**Changed Raytheon Aircraft Company to Hawker Beechcraft Corporation.**
6-1	Corrected Table of Contents.
7-31	Revised Propellers. Added supplement AFMS 20002-1.
7-49	Changed V to VDC (2 places).
7-68	Changed Temperatures to Temperature.
7-69	Added "software versions".
7-70	Changed are to is.
7-74	Changed V to VDC (2 places).
7-83	Added "software versions" and a comma.
7-84	Changed Standby to standby and removed a period. Added comma.

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Revision A6 - February, 2009

PAGE	DESCRIPTION
Title Page	New
LOEP	New
LOR	New
2-3	Revised Table of Contents.
2-16	Added Software Version 0857.06.
2-17	Added Software Version 0857.06.
2-20	Shifted data.
2-21	Added Airframe System Software Version 0857.06 Table and shifted data.
2-22	Shifted data.
2-23	Changed "Limit" to "limit" and shifted data.
2-24	Shifted data.
2-25	Changed "equiped" to "equipped" and shifted data.
2-26	Shifted data.

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PAGE	DESCRIPTION
2-27	Changed “hanger” to “hangar” and shifted data.
2-28	Changed “data base” to “database” in three places and shifted data.
2-29 thru 2-41	Shifted data.
2-42	Added Magnetic Compass to the Kinds of Operations Equipment List and shifted data.
2-43	Shifted data.
2-44	Revised Shoulder Harness (crew compartment) entry in the Kinds of Operations Equipment List and shifted data.
4-41 thru 4-43	Added Software Version 0857.06.
4-44	Changed “airplane” to “aircraft”.
7-49	Added Software Version 0857.06.
7-67	Changed “earth's” to “Earth's”.
7-69	Added Software Version 0857.06.
7-74	Added Software Version 0857.06.
7-80	Added Software Version 0857.06.
7-83	Added Software Version 0857.06.

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Revision A5 - October, 2008

PAGE	DESCRIPTION
Title Page	New
LOEP	New
LOR	New
3A-10	Corrected landing gear retraction manifold pressure.
3A-13 thru 3A-17	Inserted "Cabin Heater" and "Wing Ice Light" procedures. Shifted data.
4-3 and 4-4	Inserted "Cabin Heater" procedure and updated RAC to Hawker Beechcraft.
4-10	Inserted "Cabin Heater Over-Temperature Switch," "Heater Exhaust Outlet" & "Heater Fuel Drain Line" Procedures.
4-11	Shifted data.
4-49	Inserted "Cabin Heater" Procedure.
4-50 thru 4-53	Shifted data.
4-55	Corrected flyover noise level.
7-12	Reformatted page number.
7-47	Corrected spelling of "Lights."
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Revision A4 - April, 2008

PAGE	DESCRIPTION
Title Page	New
LOEP	New
LOR	New
1-1 and 1-2	Revised Table of Contents and Reformatted
1-3 thru 1-22	Revised "Introduction", "Important Notice", "Revision Service", "Supplements", "Engine Controls and Instrument Terminology" and Reformatted
1-23 and 1-24	Revised "Acronyms" and Reformatted
2-1 thru 2-4	Revised Table of Contents and Reformatted
2-5 thru 2-15	Revised "Engine Type", "Engine Operating Limitations", "Oil Pressure", "Fuel Quantity" and Reformatted
2-16 thru 2-27	Revised "General", "Garmin G1000 Integrated Avionics System", Reformatted and Shifted Data.
2-28 thru 2-44	Revised "Placards/Markings", Added Placards, Reformatted and Shifted Data
3-1 and 3-2	Revised Table of Contents and Reformatted

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PAGE	DESCRIPTION
3-3 thru 3-14	Reformatted
3-15 and 3-16	Revised "Autopilot Automatic Disengagement", "Autopilot Overspeed Recovery [MAXSPD]" and Reformatted
3-17 thru 3-19	Revised "Electric Pitch Trim Failure [PTRM]", "Unscheduled Electric Pitch Trim" and Reformatted
3-20 thru 3-23	Revised "Garmin Terrain Awareness and Warning System (TAWS)" and Reformatted
3-24 thru 3-30	Added "Additional Warning Annunciations", Shifted Data and Reformatted
3A-1 and 3A-2	Revised Table of Contents and Reformatted
3A-3	Revised "Air Start" and Reformatted
3A-4 thru 3A-5	Reformatted and Shifted Data
3A-6	Revised "Starter Engage [L START ENGD] or [R START ENDG]", Shifted Data and Reformatted
3A-7 thru 3A-17	Added "Circuit Breaker Tripped", Revised "Engine and/or Fuel Display Failure", Shifted Data and Reformatted
3A-18 and 3A-19	Added "Failed Heading During Ground Operations", "Failure of Cooling Fans [PFD FAN FAIL, [MFD FAN FAIL] or [AVIONICS FAN] Advisory Message", Shifted Data and Reformatted
3A-20 thru 3A-23	Revised "Garmin Terrain Awareness and Warning System (TAWS)", Shifted Data and Reformatted
3A-24 thru 3A-26	Added "Additional Caution Annunciations" and Reformatted
4-1 thru 4-4	Revised Table of Contents and Reformatted
4-5 thru 4-17	Revised "Airspeeds for Safe Operation (5500 Lbs)", "Preflight Inspection" and Reformatted
	A4

PAGE	DESCRIPTION
4-18 thru 4-21	Revised “Before Takeoff (Runup)”, Shifted Data and Reformatted
4-22 thru 4-28	Revised “Cruise”, Shifted Data and Reformatted
4-29 thru 4-32	Revised “Leaning Using The Lean Assist Page”, “Monitoring Engine Systems (Oil, Fuel, Electrical)”, “Monitoring The CHTs and EGTs”, Shifted Data and Reformatted
4-33 thru 4-40	Revised “Autopilot/Flight Director Procedures”, Shifted Data and Reformatted
4-41 thru 4-56	Revised “Approach Procedures”, “Traffic Information Service (TIS)”, Shifted Data and Reformatted
7-1 thru 7-6	Revised Table of Contents and Reformatted
7-7 thru 7-11	Revised Illustrations and Reformatted
7-12 thru 7-48	Revised “Warning Horn and [GEAR UP] Annunciation”, “Propellers”, “Propeller Sync Pointer”, “Propeller Synchronizer”, Tables and Reformatted
7-49 thru 7-51	Revised Table and Reformatted
7-52 thru 7-64	Revised “Cabin Heating”, “Electrothermal Propeller Deice”, “General” and Reformatted
7-65 thru 7-72	Revised “Primary Flight Display (PFD)”, “Multi-functional Display (MFD)”, “Integrated Avionics Units (GIA)”, “Transponder (GTX)”, “Engine Display” and Reformatted
7-73 and 7-74	Revised Table and Reformatted
7-75 thru 7-95	Revised “Autopilot”, ”Skywatch 497 Traffic Advisory System (if installed)”, “Stormscope (if installed)”, Shifted Data and Reformatted
7-96 thru 7-98	Revised “Emergency Locator Transmitter”, Reformatted and Shifted Data
8-1 thru 8-4	Revised Table of Contents and Reformatted
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PAGE	DESCRIPTION
8-5 thru 8-18	Revised "Introduction to Servicing", "Publications", "Airplane Inspection Periods", "Alterations or Repairs to the Airplane", "Fuel Cells" and Reformatted
8-19 thru 8-34	Revised "Batteries", "Tires", "Brakes", "Heating and Ventilating System", "Alternators", "Exterior Painted Surfaces", "Magnetos", "Consumable Materials", "Lamp Replacement Guide" and Reformatted

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Hawker Beechcraft Corporation

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Revision A3 - March, 2007

PAGE	DESCRIPTION
Title Page	Revised for Company Name Change
Logo Page	Revised for Company Name Change
LOEP	Revised for Company Name Change
LOR	Revised for Company Name Change
	A3

Raytheon Aircraft Company

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P/N 58-590000-67

Revision A2 - January, 2007

PAGE	DESCRIPTION
Title Page	New
LOEP	New
LOR	New
1-5	Revised "Important Notice"
1-12	Revised "Propeller Manufacturer"
1-19	Revised "Engine Controls and Instruments Terminology"
2-17	Revised "Garmin G1000 Integrated Avionics System"
2-21	Revised "GPS Navigation"
2-27	Added Placard
2-28 thru 2-33	Deleted Placards and Shifted Data
2-34	Added Placard and Shifted Data
2-35 thru 2-38	Revised "Kinds of Operations Equipment List" and Shifted Data
3-11	Revised "Electrical Smoke or Fire"
3-14 and 3-15	Revised "Autopilot Manual Disengagement"
	A2

PAGE	DESCRIPTION
3-19	Revised "Attitude and Heading Reference System (AHRS) Failure"
3A-1 and 3A-2	Revised Table of Contents
3A-5	Revised "Starter Engage [L START ENGD] or [R START ENGD]"
3A-14	Revised "Autopilot Failures"
3A-23	Revised Heading and "Altimeter Disagreement"
4-8 and 4-9	Revised "Preflight Inspection"
4-11	Revised "Preflight Inspection"
4-12 and 4-13	Revised "Before Engine Starting"
4-15	Revised "Before Taxi"
4-32	Revised "Autopilot/Flight Director Procedures"
4-42	Revised "Preflight Inspection"
6-15	Revised "Loading Computing Procedure"
6-17 and 6-18	Revised Weight and Balance Loading Form
7-1 and 7-2	Reprinted
7-3 thru 7-6	Revised Table of Contents
7-7	Revised "Seating Arrangements"
7-8 thru 7-10	Reprinted
7-11	Revised Illustration
7-12 thru 7-19	Reprinted
7-20	Revised "Seats"
7-21 thru 7-26	Reprinted
7-27	Revised Illustration
7-28 thru 7-32	Reprinted
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PAGE	DESCRIPTION
7-33 thru 7-38	Added "Fuel Drain" and Shifted Data
7-39 thru 7-42	Revised "Fuel Off-Loading", "Protective Devices", "Distribution" and Shifted Data
7-43	Revised Illustration and Shifted Data
7-44 thru 7-48	Revised Tables and Shifted Data
7-49 and 7-50	Revised Table, "External Power" and Shifted Data
7-51 thru 7-56	Shifted Data
7-57 thru 7-66	Revised "Pitot Heat", "General" and Shifted Data
7-67 thru 7-69	Revised "Magnetometer (GMU)" and Shifted Data
7-70 and 7-71	Revised "Engine Display" and Shifted Data
7-72 thru 7-74	Revised "Alerting System" and Shifted Data
7-75 thru 7-90	Revised "Autopilot" and Shifted Data
7-91	Revised "PDA (Premature Descent Alert) [TOO LOW, TERRAIN]" and Shifted Data
7-92 and 7-93	Revised "Excessive Descent Rate (EDR) Alert" and Shifted Data
7-94 thru 7-96	Revised "Stormscope (if installed)", "Emergency Locator Transmitter", Added "Distance Measuring Equipment (if installed)" and Shifted Data
8-5	Revised "Introduction to Service"
8-16 thru 8-18	Added "Fuel Drains" and Shifted Data
8-34	Revised Lamp Replacement Guide

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Revision A1 - February, 2006

PAGE	DESCRIPTION
Title Page	New
LOEP	New
LOR	New
1-23	Revised "Acronyms"
2-1 thru 2-4	Revised Table of Contents
2-12	Revised "Weight Limit"
2-24 thru 2-26	Added "Garmin Terrain Awareness and Warning System (TAWS)" and Shifted Data
2-27 thru 2-31	Added Placard, Shifted Data
2-32 thru 2-40	Revised Illustration and Shifted Data
3-1 and 3-2	Revised Table of Contents
3-11	Revised "Electrical Smoke or Fire"
3-20 thru 3-26	Added "Garmin Terrain Awareness and Warning System (TAWS)" and Shifted Data
3A-1 and 3A-2	Revised Table of Contents

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PAGE	DESCRIPTION
3A-19 thru 3A-24	Added "Garmin Terrain Awareness and Warning System (TAWS)" and Shifted Data
4-1 thru 4-4	Revised Table of Contents
4-5 and 4-6	Reprint - No Change
4-7	Revised "Preflight Inspection"
4-8 thru 4-10	Reprint - No Change
4-11	Revised "Preflight Inspection" and Shifted Data
4-12 thru 4-15	Revised "Before Engine Starting" and Shifted Data
4-16 thru 4-19	Revised "Before Taxi", "Before Takeoff (Runup)" and Shifted Data
4-20 and 4-21	Revised "Takeoff", "Climb" and Shifted Data
4-22	Revised "Cruise" and Shifted Data
4-23	Revised "Descent" and Shifted Data
4-24 thru 4-27	Revised "Balk Landing", "Shutdown and Securing", Other Normal Procedures" and Shifted Data
4-28 thru 4-38	Revised "Shutdown" and Shifted Data
4-39 thru 4-41	Revised "Autopilot/Flight Director Procedures" and Shifted Data
4-42	Revised "Preflight Inspection" and Shifted Data
4-43 and 4-44	Revised "After Starting" and Shifted Data
4-45 thru 4-48	Deleted "Heating and Defrost" and Shifted Data
4-49 thru 4-52	Revised "Simulating One-Engine-Inoperative (Zero Thrust)" and Shifted Data
6-1 and 6-2	Revised Table of Contents
7-1 thru 7-6	Revised Table of Contents
7-7 and 7-8	Reprint - No Change

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PAGE	DESCRIPTION
7-9	Revised "Subpanel" and "Pedestal"
7-10 thru 7-14	Reprint - No Change
7-15	Revised "Ground Control" and "Wing Flaps"
7-16	Reprint - No Change
7-17 and 7-18	Revised "Position Lights", "Safety Switch", "Warning Horn and [GEAR UP] Annunciation" and "Manual Extension"
7-19	Revised "Brakes" and" Aft Baggage Compartment"
7-20 thru 7-24	Revised "Nose Baggage Compartment", "Seats" and Shifted Data
7-25	Revised "Utility Doors", Added "Operation with Aft utility Doors Removed" and Shifted Data
7-26	Revised "Openable Cabin Windows", Deleted "Emergency Exits" and Shifted Data
7-27 and 7-28	Revised "Control Locks" and Shifted Data
7-29	Revised "Engines" and "Throttles, Propellers, and Mixtures" and Shifted Data
7-30	Revised "Engine Ice Protection" and Shifted Data
7-31 and 7-32	Revised "Propellers", "Propeller Sync Pointer", "Fuel Cells" and Shifted Data
7-33	Revised "Fuel Quantity Indication" and Shifted Data
7-34 thru 7-36	Revised "Fuel Flow Indication" and Shifted Data
7-37	Revised "Fuel Boost Pumps" and Shifted Data
7-38 and 7-39	Revised "Fuel Required for Flight", "Power Sources" and Shifted Data
	A1

PAGE	DESCRIPTION
7-40 and 7-41	Revised "Distribution" Shifted Data
7-42	Revised Illustration and Shifted Data
7-43 thru 7-46	Revised Tables and Shifted Data
7-47	Revised "Monitoring the Electrical System" and Shifted Data
7-48	Revised Table and Shifted Data
7-49	Revised "Starters", "External Power" and Shifted Data
7-50 thru 7-55	Revised "Interior Lighting" and Shifted Data
7-56 and 7-57	Revised "Normal Static Air System", "Emergency Static Air System" and Shifted Data
7-58 thru 7-63	Revised "Stall Warning" and Shifted Data
7-64 thru 7-68	Revised "Primary Flight Display (PFD)" and Shifted Data
7-69 thru 7-85	Revised "Engine Display" and Shifted Data
7-86 thru 7-96	Added "Garmin Terrain Awareness and Warning System (TAWS)" and Shifted Data

A1

Raytheon Aircraft Company

LOG OF REVISIONS

Model G58 Baron

(Serials TH-2125 and After)

Pilot's Operating Handbook
and
FAA Approved Airplane Flight Manual

P/N 58-590000-67

Original Issue - November, 2005

PAGE	DESCRIPTION
Title Page	
LOEP	
L OR	
1-1 thru 1-24	
2-1 thru 2-38	
3-1 thru 3-24	
3A-1 thru 3A-20	
4-1 thru 4-52	
5-1 thru 5-58	
6-1 thru 6-22	
7-1 thru 7-84	
8-1 thru 8-34	
9-1 and 9-2	
Supplements	See Log of Supplements
10-1 thru 10-64	May, 1994
	A

SECTION 1
GENERAL

TABLE OF CONTENTS

SECTION 1
GENERAL

TABLE OF CONTENTS (CONT'D)

SUBJECT *PAGE*

INTRODUCTION

The format and contents of this Pilot's Operating Handbook and FAA Approved Airplane Flight Manual conform to GAMA (General Aviation Manufacturers Association) Handbook Specification No. 1 through Revision No. 2, dated October 18, 1996. Use of this specification by all manufacturers will provide the pilot with the same type of data in the same place in all handbooks.

Attention is called to Section 10, SAFETY INFORMATION. Beechcraft Corporation feels that it is highly important to have Safety Information in condensed form in the hands of the pilots. The Safety Information should be read and studied. Periodic review will serve as a reminder of good piloting techniques.

WARNING

Use only genuine Beechcraft Corporation or Beechcraft Corporation approved parts obtained from Beechcraft Corporation approved sources, in connection with the maintenance and repair of Beech airplanes.

Genuine Beechcraft Corporation parts are produced and inspected under rigorous procedures to ensure airworthiness and suitability for use in Beechcraft airplane applications. Parts purchased from sources other than Beechcraft Corporation, even if outwardly identical in appearance, may not have had the required tests and inspections performed, may be different in fabrication techniques and materials, and may be dangerous when installed in an airplane.

Salvaged airplane parts, reworked parts obtained from non-Beechcraft Corporation approved sources, or parts, components, or structural assemblies, the service history of which is unknown or cannot be authenticated, may have been subjected to unacceptable stresses or temperatures or have other hidden damage, not discernible through routine visual or usual nondestructive testing techniques. This may render the part, component, or structural assembly, even though originally manufactured by Beechcraft Corporation, unsuitable or unsafe for airplane use.

Beechcraft Corporation expressly disclaims any responsibility for malfunctions, failures, damage or injury caused by use of non-Beechcraft Corporation approved parts.

IMPORTANT NOTICE

This handbook should be read carefully by the owner and the operator in order to become familiar with the operation of the airplane. Suggestions and recommendations have been made within it to aid in obtaining maximum performance without sacrificing economy. Be familiar with, and operate the airplane in accordance with, the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual and/or placards which are located in the airplane. This handbook includes the material required to be furnished to the pilot by the Title 14 Code of Federal Regulations and additional information provided by the manufacturer and constitutes the FAA Approved Airplane Flight Manual.

As a further reminder, the owner and the operator should also be familiar with the Title 14 Code of Federal Regulations applicable to the operation and maintenance of the airplane, and, as appropriate 14 CFR Part 91 General Operating and Flight Rules. Further, the airplane must be operated and maintained in accordance with FAA Airworthiness Directives which may be issued against it.

The Title 14 Code of Federal Regulations places the responsibility for the maintenance of this airplane on the owner and the operator, who should ensure that all maintenance is done by qualified mechanics in conformity with all airworthiness requirements established for this airplane.

All limits, procedures, safety practices, time limits, servicing, and maintenance requirements contained in this handbook are considered mandatory for continued airworthiness and to maintain the airplane in a condition equal to that of its original manufacture.

Beechcraft Corporation Authorized Outlets can provide recommended modification, service, and operating procedures issued by both the FAA and Beechcraft Corporation, which are designed to get maximum utility and safety from the airplane.

USE OF THE HANDBOOK

WARNINGS, CAUTIONS, AND NOTES

The following definitions apply to (WARNINGS), (CAUTIONS), and (NOTES) found throughout the handbook:

WARNING

Operating procedures, techniques, etc., which could result in personal injury or loss of life if not carefully followed.

CAUTION

Operating procedures, techniques, etc., which could result in damage to equipment if not carefully followed.

NOTE

An operating procedure, technique, etc., which is considered essential to emphasize.

REVISING THE HANDBOOK

The Pilot's Operating Handbook is designed to facilitate maintaining the documents necessary for the safe and efficient operation of the airplane. The handbook has been prepared in loose-leaf form for ease in maintenance. It incorporates quick-reference tabs imprinted with the title of each section.

NOTE

In an effort to provide as complete coverage as possible, applicable to any configuration of the airplane, some optional equipment has been included in the scope of the handbook. However, due to the variety of airplane appointments and arrangements available, optional equipment described or depicted herein may not be designated as such in every case.

Immediately following the Title Page is a List of Effective Pages. A complete listing of all pages is presented along with the current status of the material contained; i.e. Original Issue, Reissued or Revised. A reissue of the manual or the revision of any portion will be received with a new List of Effective Pages to replace the previous one. Reference to the List of Effective Page(s) enables the user to determine the current issue, revision, or reissue in effect for each page in the handbook, except for the Supplements Section.

When the handbook is originally issued, and each time it is revised or reissued, a new Log of Revisions page is provided immediately following the List of Effective Pages. All Log of Revisions pages must be retained until the handbook is reissued. A capital letter in the lower right corner of the Log of Revisions page designates the Original Issue (“A”) or reissue (“B”, “C”, etc.) covered by the Log of Revisions page. If a number follows the letter, it designates the sequential revision (1st, 2nd, 3rd, etc.) to the Original Issue or reissue covered by the Log of Revisions page. Reference to the Log of Revisions page(s) provides a record of changes made since the Original Issue or the latest reissue.

That portion of a text or an illustration which has been revised by the addition of, or a change in, information is denoted by a solid revision bar located adjacent to the area of change and placed along the outside margin of the page.

REVISION SERVICE

The following publications will be provided, at no charge, to the registered owner/operator of this airplane:

1. Reissues and revisions of the Pilot’s Operating Handbook and FAA Approved Airplane Flight Manual.
2. Original issues and revisions of FAA Approved Airplane Flight Manual Supplements.
3. Original issues and revisions of Beechcraft Corporation Service Bulletins.

The above publications will be provided only to the registered owner/operator at the address listed on the FAA Aircraft Registration Branch List or the Beechcraft Corporation Domestic/International Owner’s Notification Service List. Further, the owner/operator will receive only those publications pertaining to the registered airplane serial number. For detailed information on how to obtain “Revision Service” applicable to this handbook or other Beechcraft Corporation Service Publications, consult any Beechcraft Corporation Authorized Outlet or refer to the latest revision of Beechcraft Corporation Service Bulletin No. 2001.

Beechcraft Corporation expressly reserves the right to supersede, cancel, and/or declare obsolete, without prior notice, any part, part number, kit, or publication referenced in this handbook.

The owner/operator should always refer to all supplements for possible placards, limitations, emergency, abnormal, normal and other operational procedures for proper operation of the airplane with optional equipment installed.

WARNING

It shall be the responsibility of the owner/operator to ensure that the latest revisions of publications referenced in this handbook are utilized during operation, servicing, and maintenance of the airplane.

SUPPLEMENTS

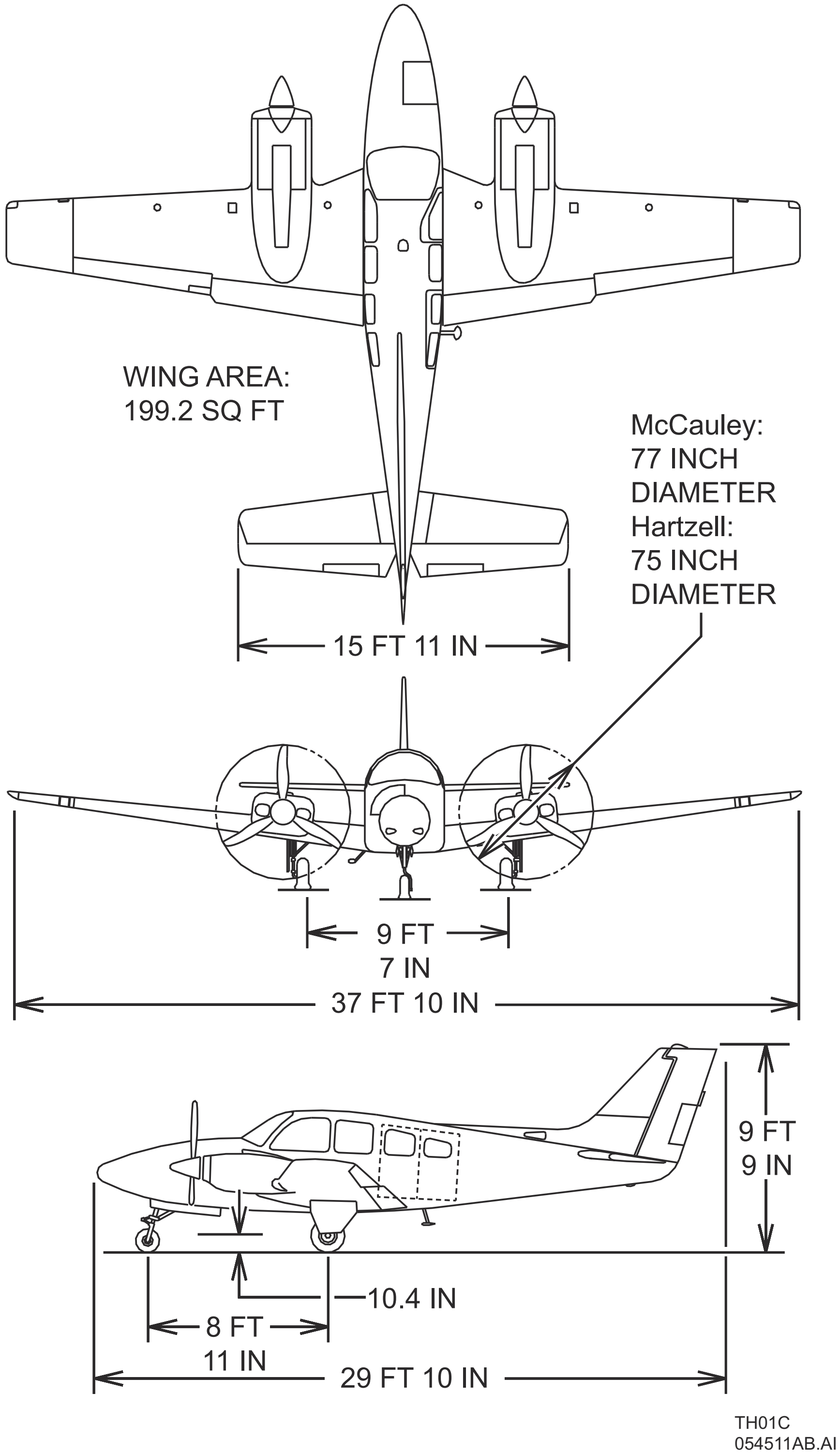
When a new airplane is delivered from the factory, the handbook delivered with it contains either an STC (Supplemental Type Certificate) Supplement or a Beechcraft Corporation Flight Manual Supplement for every installed item requiring a supplement. If a new handbook for operation of the airplane is obtained at a later date, it is the responsibility of the owner/operator to ensure that all required STC Supplements (as well as weight and balance and other pertinent data) are transferred into the new handbook.

AIRPLANE FLIGHT MANUAL SUPPLEMENTS REVISION RECORD

Section 9, SUPPLEMENTS, contains the FAA-approved Airplane Flight Manual Supplements, headed by a Log of Supplements page. When new supplements are received or existing supplements are revised, a new Log page will replace the previous one, since it contains a listing of all previous approvals, plus the new approval. The supplemental material will be added to the Section in accordance with the sequence specified on the Log page.

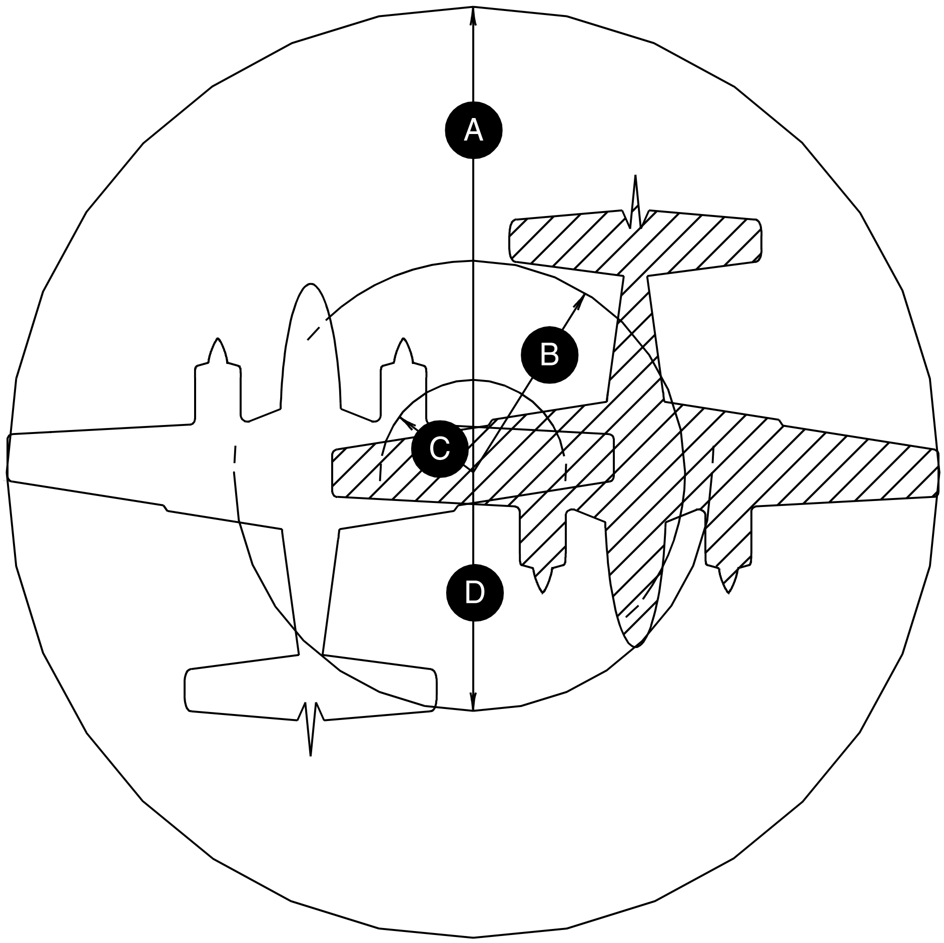
NOTE

Upon receipt of a new or revised supplement, compare the existing Log of Supplements in the handbook with the corresponding applicable Log page accompanying the new or revised supplement. It may occur that the Log page already in the handbook is dated later than the Log page accompanying the new or revised supplement. In any case, retain the Log page having the later date and discard the older Log page.



AIRPLANE THREE-VIEW

GROUND TURNING CLEARANCE



A	RADIUS FOR WING TIP.................31 FT. 6 IN.
B	RADIUS FOR NOSE WHEEL..........15 FT. 6 IN.
C	RADIUS FOR INSIDE GEAR...........7 FT. 11 IN.
D	RADIUS FOR OUTSIDE GEAR.......17 FT. 6 IN.

TURNING RADII ARE PREDICATED ON THE USE OF PARTIAL BRAKING ACTION AND DIFFERENTIAL POWER.

TH00C
020334AA.AI

DESCRIPTIVE DATA

ENGINES

NUMBER OF ENGINES

Two

ENGINE MANUFACTURER

Teledyne Continental Motors, Inc., (Mobile, Alabama)

ENGINE MODEL NUMBER

IO-550-C

ENGINE TYPE

Normally aspirated, Fuel-injected, direct-drive, air-cooled, six-cylinder, horizontally opposed, 550-cubic-inch displacement

HORSEPOWER RATING

300 H.P.

NUMBER OF PROPELLERS

Two

PROPELLER MANUFACTURER

McCauley Propeller (Vandalia, Ohio)

or

Hartzell Propeller, Inc (Piqua, Ohio)

NUMBER OF BLADES

Three

PROPELLER TYPE

McCauley Propellers (Standard):

Constant-speed, variable-pitch, three-blade propeller using a 3AF32C512-(X) hub with (X)-82NEA-5 blades.

NOTE

The letters appearing in the place of the (X) represent minor variations in the propeller hub or blades. They do not affect eligibility or interchangeability.

Hartzell Propellers (Optional):

Constant speed, variable-pitch, three-blade propeller using a PHC-J3YF-2UF hub with FC7391D(K) blades.

PITCH SETTINGS (30-INCH STATION)

McCauley Propellers (Standard):

Low . . . . 15.2° ± 0.2°

Feathered . . . . 82.5° ± 0.5°

Hartzell Propellers (Optional):

Low . . . . 12.8° ± 0.2°

High . . . . 18.5° ± 1.0°

Feathered . . . . 80.0° ± 0.5°

PROPELLER DIAMETER

McCauley Propellers (Standard):

Max. . . . . 77 inches

Min . . . . 76.5 inches

Hartzell Propellers (Optional):

Max. . . . . 75 inches

Min . . . . 73 inches

FUEL

APPROVED ENGINE FUELS

Aviation Gasoline Grade 100LL (blue)
Aviation Gasoline Grade 100 (green)
Aviation Gasoline Grade 115/145 (purple)
Chinese Aviation Gasoline RH-95/130
Chinese Aviation Gasoline RH-100/130

FUEL CAPACITY

STANDARD SYSTEM

Total Capacity . . . . 200 Gallons

Total Usable . . . . 194 Gallons

OPTIONAL SYSTEM

Total Capacity . . . . 172 Gallons

Total Usable . . . . 166 Gallons

ENGINE OIL

OIL CAPACITY

Total . . . . 12 Quarts (each engine)

SPECIFICATION

Use MIL-L-22851 Ashless Dispersant Oils meeting the requirements of the latest revision of Teledyne Continental Motors Corporation Specification MHS-24B or current applicable Teledyne Continental Service Bulletin. Refer to Section 8, HANDLING, SERVICING AND MAINTENANCE for a list of approved oils.

Ambient Air Temperature	Single Viscosity Grade Oil	Multiviscosity Grade Oil
Below 5°C	SAE 30 (max.)	15W-50, 20W-50
Above 5°C	SAE 50 (min.)	15W-50, 20W-50 25W-60

When operating temperatures overlap indicated ranges, use the lighter grade of oil.

MAXIMUM CERTIFICATED WEIGHTS

Maximum Take-off Weight . . . . 5500 lbs

Maximum Landing Weight . . . . 5400 lbs

Maximum Ramp Weight . . . . 5524 lbs

CABIN AND ENTRY DIMENSIONS

Cabin Length . . . . 12 ft 7 in.

Cabin Width (max.). . . . . 3 ft 6 in.

Cabin Height (max.) . . . . 4 ft 2 in.

Fwd Cabin Door . . . . 37 in. wide x 36 in. high

Aft Utility Door. . . . . 45 in. wide x 35 in. high

CABIN BAGGAGE VOLUMES

Aft Cabin Compartment . . . . 37 cu ft

Between Spars . . . . 12 cu ft

Extended Rear Compartment . . . . 10 cu ft

Nose Compartment. . . . . 18 cu ft

SPECIFIC LOADINGS (AT MAXIMUM TAKE-OFF WEIGHT)

Wing Loading . . . . .27.6 lbs/sq ft

Power Loading . . . . 9.16 lbs/hp

SERVICE CEILING

Service Ceiling - Two Engines . . . . 20,688 ft

SYMBOLS, ABBREVIATIONS AND TERMINOLOGY

The following glossary is applicable within this handbook.

GENERAL AIRSPEED TERMINOLOGY

CAS — *Calibrated Airspeed* is the indicated airspeed of an airplane 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* is the speed of an airplane as shown on the airspeed indicator when corrected for instrument error. IAS values published in this handbook assume zero instrument error.

KCAS — *Calibrated Airspeed* expressed in knots.

KIAS — *Indicated Airspeed* expressed in knots.

TAS *True Airspeed* is the airspeed of an airplane relative to undisturbed air, which is the CAS corrected for altitude, temperature, and compressibility.

V_{MCA} *Air Minimum Control Speed* is the minimum flight speed at which the airplane is directionally controllable as determined in accordance with Title 14 Code of Federal Regulations. The airplane certification conditions include one engine becoming inoperative and windmilling; a 5° bank towards the operative engine; take-off power on operative engine; landing gear up; flaps in take-off position; and most rearward C.G. For some conditions of weight and altitude, stall can be encountered at speeds above V_{MCA} as established by the certification procedure described above, in which event stall speed must be regarded as the limit of effective directional control.

V_{SSE} *Intentional One-Engine-Inoperative Speed* is a speed above both V_{MCA} and stall speed, selected to provide a margin of lateral and directional control when one engine is suddenly rendered inoperative. Intentional failing of one engine below this speed is not recommended.

V_A *Maneuvering Speed* is the maximum speed at which application of full available aerodynamic control will not overstress the airplane.

V_F *Design Flap Speed* is the highest speed permissible at which wing flaps may be actuated.

V_{FE}	*Maximum Flap Extended Speed* is the highest speed permissible with wing flaps in a prescribed extended position.
V_{LE}	*Maximum Landing Gear Extended Speed* is the maximum speed at which an airplane can be safely flown with the landing gear extended.
V_{LO}	*Maximum Landing Gear Operating Speed* is the maximum speed at which the landing gear can be safely extended or retracted.
V_{NE}	*Never Exceed Speed is the speed* limit that may not be exceeded at any time.
V_{NO} or V_C	*Maximum Structural Cruising Speed* is the speed that should not be exceeded except in smooth air and then only with caution.
V_S	*Stalling Speed* or the minimum steady flight speed at which the airplane is controllable.
V_{SO}	*Stalling Speed* or the minimum steady flight speed at which the airplane is controllable in the landing configuration.
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 in altitude in the shortest possible time.

METEOROLOGICAL TERMINOLOGY

Flight in Icing Conditions	Flight when the OAT is 5°C (41°F) or colder, and in the presence of visible moisture.
Indicated Pressure Altitude	The number actually read from an altimeter when the barometric subscale has been set to 29.92 inches of mercury (1013.2 millibars).
ISA	*International Standard Atmosphere* in which: (1) The air is a dry perfect gas; (2) The temperature at sea level is 15° Celsius (59° Fahrenheit); (3) The pressure at sea level is 29.92 inches of mercury (1013.2 millibars); (4) The temperature gradient from sea level to the altitude at which the temperature is -56.5°C (-69.7°F) is -0.00198°C (-0.003566°F) per foot and zero above that altitude.
OAT	*Outside Air Temperature* is the free air static temperature, obtained either from the temperature indicator (IOAT) adjusted for compressibility effects, or from ground meteorological sources.
Pressure Altitude	Altitude measured from standard sea-level pressure (29.92 in. Hg/1013.2 millibars) by a pressure (barometric) altimeter. It is the indicated pressure altitude corrected for position and instrument error. In this handbook, altimeter instrument errors are assumed to be zero. Position errors may be obtained from the Altimeter Correction graphs.

Station Pressure	Actual atmospheric pressure at field elevation.
Wind	The wind velocities recorded as variables on the charts of this handbook are to be understood as the headwind or tailwind components of the reported winds.

POWER TERMINOLOGY

Cruise Climb	Power recommended for cruise climb.
Economy Cruise	The lowest power setting for which cruise power settings are presented.
Maximum Cruise	The highest power settings recommended for cruise.
Recommended Cruise	Intermediate power settings for which cruise power settings are presented.
Take-off and Maximum Continuous	Highest power rating not limited by time. To be used only for conditions which warrant the use of this rating.

ENGINE CONTROLS AND INSTRUMENTS TERMINOLOGY

EGT	The Exhaust Gas Temperature Display is used to identify the lean and best-power fuel flow mixtures for various power settings during cruise.
Manifold Pressure	The regulated absolute air pressure in the intake manifold of the engine located between the throttle valve and the cylinders.
Manifold Pressure Display	Displays the absolute pressure in the intake manifold of an engine, expressed in inches of mercury (in. Hg).

Mixture Control	This lever, in the idle cut-off position, stops the flow of fuel at the injectors and in the intermediate through the full rich positions, regulates the fuel air mixture.
Propeller Control	Used to control the RPM setting of the propeller governor. Movement of the control results in an increase or decrease in prop RPM.
Propeller Governor	Regulates the RPM of the engine/propeller by increasing or decreasing the propeller pitch through a pitch change mechanism in the propeller hub.
Tachometer	Displays the rotational speed of the propeller in revolutions per minute (RPM).
Throttle Control	Used to control power by introducing fuel-air mixture into the intake passages of an engine. Settings are reflected by readings on the manifold pressure display.

AIRPLANE PERFORMANCE AND FLIGHT PLANNING TERMINOLOGY

Accelerate-Stop Distance	The distance required to accelerate an airplane to a specified speed and, assuming failure of an engine at the instant that speed is attained, to bring the airplane to a stop.
Accelerate-Go Distance	The distance required to accelerate an airplane to a specified speed and, assuming failure of an engine at the instant that speed is attained, feather inoperative propeller and continue takeoff on the remaining engine to a height of 50 feet.
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 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 is not limiting.
GPH	U.S. Gallons per hour.
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.

WEIGHT AND BALANCE TERMINOLOGY

Airplane Center of Gravity (C.G.)	The point at which an airplane would balance if suspended. Its distance from the reference datum is found by dividing the total moment by the total weight of the airplane.
Arm	The horizontal distance from the reference datum to the center of gravity (C.G.) of an item.
Basic Empty Weight	The weight of an empty airplane including full engine oil and unusable fuel. This equals empty weight plus the weight of unusable fuel, and the weight of all the engine oil required to fill the lines and tanks. Basic empty weight is the basic configuration from which loading data is determined.
C.G. Arm	The arm obtained by adding the airplane’s individual moments and dividing by the sum of the total weight.
C.G. Limits	The extreme center of gravity locations within which the airplane must be operated at a given weight.

Jack Points	Points on the airplane identified by the manufacturer as suitable for supporting the airplane for weighing or other purposes.
Leveling Points	Those points which are used during the weighing process to level the airplane.
Maximum Ramp Weight	Maximum weight approved for ground maneuvering (includes weight of start, taxi, and run up fuel).
Maximum Take-off Weight	Maximum weight approved for the start of the take-off run.
Maximum Landing Weight	Maximum weight approved for the landing touchdown.
Moment	The product of the weight of an item multiplied by its arm. (Moment divided by a constant is used to simplify balance calculations by reducing the number of digits)
Payload	Weight of occupants, cargo and baggage.
Reference Datum	An imaginary vertical plane from which all horizontal distances are measured for balance purposes.
Empty Weight	The weight of an empty airplane before any oil or fuel has been added. This includes all permanently installed equipment, fixed ballast, full hydraulic fluid, full chemical toilet fluid, and all other operating fluids full, except that the engines, tanks, and lines do not contain any engine oil or fuel.
Engine Oil	Total system oil including undrainable.
Station	A location along the airplane fuselage usually given in terms of distance from the reference datum.

Tare	The weight of chocks, blocks, stands, etc., used on the scales when weighing an airplane.
Unusable Fuel	Fuel that is not available for flight planning.
Useful Load	Difference between Ramp Weight, and Basic Empty Weight.
Usable Fuel	Fuel available for flight planning.
Maximum Zero Fuel Weight	Maximum weight exclusive of usable fuel.

ACRONYMS

Generic:

ADC . . . . Air Data Computer

AHRS . . . . Attitude and Heading Reference System

GPS . . . . Global Positioning System

GPWS. . . . . Ground Proximity Warning System

LNAV. . . . . Lateral Navigation

LPV . . . . .Localizer Performance with Vertical Guidance

LRU. . . . . Line Replaceable Unit

MFD . . . . Multifunction Display

PFD. . . . . Primary Flight Display

RNAV . . . . Area Navigation

SBAS . . . . Satellite Based Augmentation System (equivalent to WAAS in the United States)

TAWS . . . . .Terrain Awareness and Warning System

VNAV or (VNV) . . . . Vertical Navigation

WAAS . . . . Wide Area Augmentation System

Garmin:

GDC . . . . Garmin Air Data Computer
GDU . . . . Garmin Display Unit
GEA . . . . Garmin Engine Airframe Unit
GIA . . . . Garmin Integrated Avionics Unit
GDL . . . . Garmin Data Link
GMA . . . . Garmin Audio Panel
GMU . . . . Garmin Magnetometer Unit
GRS . . . . Garmin Attitude and Heading Reference System
GSA . . . . Garmin Autopilot Servo
GSM . . . . Garmin Autopilot Servo Mount
GTX . . . . Garmin Transponder
GWX. Garmin Airborne Weather Radar

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SECTION 2
LIMITATIONS

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SUBJECT *PAGE*

SECTION 2
LIMITATIONS

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SECTION 2
LIMITATIONS

TABLE OF CONTENTS (CONT'D)

SUBJECT *PAGE*

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The limitations included in this section have been approved by the Federal Aviation Administration and must be observed in the operation of this airplane.

AIRSPEED LIMITATIONS

SPEED	KCAS	KIAS	REMARKS
Never Exceed (V_{NE})	223	223	Do not exceed this speed in any operation.
Maximum Structural Cruising (V_{NO} or V_C)	195	195	Do not exceed this speed except in smooth air and then only with caution.
Maneuvering (V_A)	156	156	Do not make full or abrupt control movements above this speed.
Maximum Flap Extension/ Extended (V_{FE}) Approach (15°) Full Down (30°)	 152 122	 152 122	Do not extend flaps or operate with flaps extended above this speed.
Maximum Landing Gear Operating/ Extended (V_{LO}/ V_{LE})	152	152	Do not extend, retract or operate with gear extended above this speed.
Single-Engine Minimum Control Speed (V_{MCA})	83	84	Minimum speed for directional controllability after sudden loss of engine.
Maximum With Utility Doors Removed	174	174	Utility door removal kit must be installed.

AIRSPEED INDICATOR DISPLAY

COLOR CODED SPEED RANGE STRIP OR MARKING	KIAS RANGE	SIGNIFICANCE
White Strip	74 - 122	Full Flap Operating Range Lower Limit = Stall speed with flaps down at maximum weight. Upper Limit = Maximum speed permissible with flaps fully extended.
White Triangle	152	Maximum Speed for approach flaps
Blue Strip	101	Single-Engine Best Rate-of-Climb Speed
Red Strip	84	Minimum Single-Engine Control (V_{MCA})
Green Strip	84 - 195	Normal Operating Range Lower Limit = Stall speed with flaps up at maximum weight. Upper Limit = Maximum Structural Cruise Speed
Yellow Strip	195 - 223	Caution Range. Approved for smooth air only. Upper Limit = Never Exceed Speed. Maximum speed for all Operations
Red & White Strip	> 223	High Speed Warning

The airspeed pointer will turn red when the airspeed or airspeed trend vector reaches 223 KIAS.

An airspeed trend vector is displayed on the right side of the color-coded speed range strip during accelerations and decelerations. The end of the trend vector indicates the airspeed that will be reached in 6 seconds if the current rate of acceleration is maintained. The trend vector is not displayed if the airspeed is constant.

Reference speeds for Glide, V_X, and V_Y are pilot programmable and selectable using the TMR/REF soft key on the PFD. If one or more of these speeds is selected for display, a pointer will be positioned on the right side of the airspeed display opposite the speed that was programmed. The pointers are placarded [G] for glide, [Y] for V_Y, and [X] for V_X.

POWER PLANT LIMITATIONS

NUMBER OF ENGINES

Two

ENGINE MANUFACTURER

Teledyne Continental Motors, Inc., (Mobile, Alabama)

ENGINE MODEL NUMBER

IO-550-C

ENGINE TYPE

Normally aspirated, fuel-injected, direct-drive, air-cooled, six-cylinder, horizontally opposed, 550-cubic-inch displacement, 300 H.P.

ENGINE OPERATING LIMITATIONS

Take-off and Maximum
Continuous Power . . . . Full Throttle, 2700 RPM

Maximum Cylinder Head Temperature. . . . . 238°C

Maximum Oil Temperature . . . . 116°C

Minimum Take-off Oil Temperature . . . . 24°C

Minimum Oil Pressure (idle) . . . . 10 psi

Maximum Oil Pressure . . . . 100 psi

STARTERS (Time For Cranking)

Do not operate starter continuously for more than 30 seconds in any 4-minute period. Allow starter to cool again before cranking.

FUEL LIMITS

APPROVED ENGINE FUELS

100LL (blue)
100 (green)
115/145 (purple)
RH-95/130 (Chinese)
RH-100/130 (Chinese)

FUEL CAPACITY

STANDARD FUEL SYSTEM

Total Capacity . . . . 200 Gallons

Total Usable . . . . 194 Gallons

OPTIONAL FUEL SYSTEM

Total Capacity . . . . 172 Gallons

Total Usable . . . . 166 Gallons

FUEL MANAGEMENT

Do not take off if fuel quantity display indicates in the yellow band or with less than 13 gallons in each wing fuel system.

The fuel crossfeed system to be used during emergency conditions in level flight only.

Maximum slip duration 30 seconds

OIL SPECIFICATION

Use MIL-L-22851 Ashless Dispersant Oils meeting the requirements of the latest revision of Teledyne Continental Motors Corporation Specification MHS-24B or current applicable Teledyne Continental Service Bulletin. Refer to Section 8, HANDLING, SERVICING and MAINTENANCE for a list of approved oils.

NUMBER OF PROPELLERS

Two

PROPELLER MANUFACTURER

McCauley Propeller (Vandalia, Ohio)

or

Hartzell Propeller, Inc (Piqua, Ohio)

NUMBER OF BLADES

Three

PROPELLER TYPE

McCauley propellers (Standard):

Constant-speed, variable-pitch, three-blade propeller using a 3AF32C512-(X) hub with (X)-82NEA-5 blades.

NOTE

The letters appearing in the place of the (X) represent minor variations in the propeller hub or blades. They do not affect eligibility or interchangeability.

Hartzell propellers (Optional):

Constant speed, variable-pitch, three-blade propeller using a PHC-J3YF-2UF hub with FC7391D(K) blades.

PROPELLER DIAMETER

McCauley Propellers:

Max. . . . . .77 inches

Min . . . . 76.5 inches

Hartzell Propellers:

Max. . . . . .75 inches

Min . . . . .73 inches

POWER PLANT INSTRUMENT MARKINGS

Power Plant displays are found on the MFD on the Engine Default page, the Systems page, and the Lean page in both digital and analog formats. When the MFD is not operable, the displays are found on the PFD.

The pointer, digital display, and instrument placard on the bar graphs are normally white, but will change color to yellow or red if the engine parameter is operating in a caution or prohibited range. If the engine parameter is operating in the prohibited range, the pointer, digits and placard will flash.

MANIFOLD PRESSURE

Operating Range (Green Arc). . . . . >15.0 to 29.6 in. Hg

TACHOMETER

Operating Range (Green Arc). . . . . >1800 to 2700 RPM

Prohibited Range (Red Arc) . . . . >2700 to 3000 RPM

Overspeed Indications:

2701 RPM to 2754 RPM for 4 minutes . . . . . White Digits, White Needle

2701 RPM to 2754 RPM for > 4 minutes . . . Yellow Digits, Yellow Needle

2755 RPM & Above . . . . Red Digits, Red Needle

FUEL FLOW

Operating Range (Green Bar) . . . . >3 to 27.4 GPH

Prohibited Range (Red Bar) . . . . >27.4 to 30.0 GPH

Leaning Indicator (Cyan Pointer) - This pointer will automatically be displayed during MCP Climb and Cruise Climb power settings. The pointer indicates the required fuel flow based on existing RPM, Fuel Flow, and altitude. Fuel flow must be manually set to match the pointer during climbs.

NOTE

The leaning indicator will provide the correct climb fuel flows for only two power settings:

2700 RPM and Full Throttle
2500 RPM and Full Throttle

CYLINDER HEAD TEMPERATURE

The number displayed in the pointer indicates the hottest cylinder.

Operating Range (Green Bar) . . . . >116° to 238°C

Prohibited Range (Red Bar) . . . . >238° to 250°C

OIL TEMPERATURE

If engine is operating below 500 RPM, oil temperatures in the yellow bar will not cause the pointer or digits to change color.

Caution Range (Yellow Bar) . . . . 0° to 24°C

Operating Range (Green Bar) . . . . >24° to 116°C

Prohibited Range (Red Bar) . . . . >116° to 120°C

OIL PRESSURE

If engine is operating below 500 RPM, oil pressures in the yellow or red bar will not cause the pointer or digits to change color.

Prohibited Range (Red Bar) .0 to 10 psi

Caution Range (Yellow Bar) . . . .>10 to 30 psi

Operating Range (Green Bar). . . . .>30 to 60 psi

Prohibited Range (Red Bar) . . . .>100 to 105 psi

MISCELLANEOUS INSTRUMENT MARKINGS

The pointer(s), digital display, and instrument placard on the bar graphs are normally white, but will change color to yellow if the parameter is operating in a caution range.

ALTERNATOR LOAD

Two pointers, placarded L and R, indicate the load of each alternator.

100% load on left alternator = 100 amps.

100% load on right alternator = 100 amps.

Operating Range (Green Bar). . . . . 0 to 100%

Caution Range (Yellow Bar, Yellow Digits). . . . . >100 to 110%

BUS VOLTAGE

Caution Range . . . . 10 to 24 volts

Operating Range. . . . . 24 to 30 volts

Caution Range . . . . 30 to 33 volts

FUEL QUANTITY

Two pointers, placarded L and R, indicate the fuel quantity in each tank.

Warning (Red Line). . . . . .0 Gal

Caution Range (Yellow Bar) . . . . >0 to 13 Gal

Operating Range (Green Bar). . . . . >13 to 75 Gal

DEICE PRESSURE GAGE

Normal Operating Range (Green Arc) . . . . .9 to 20 psi

Maximum Operating Range (Red Radial). . . . . 20 psi

PROPELLER DEICE AMMETER

Normal Operating Range (Green Arc) . . . . 14 to 18 amps

WEIGHT LIMITS

Maximum Take-off . . . . 5500 lbs

Maximum Landing . . . . 5400 lbs

Maximum Ramp . . . . 5524 lbs

Maximum Baggage Compartment Weights:

Main Cabin Compartment
(less occupants and equipment). . . . . 400 lbs

Extended Aft Compartment . . . . 120 lbs

Nose Compartment
(baggage and equipment combined) . . . . 300 lbs

Refer to Section 6, WEIGHT AND BALANCE/EQUIPMENT LIST for additional information.

CENTER OF GRAVITY (LANDING GEAR EXTENDED)

Forward Limits: 74.0 inches aft of datum at 4200 lbs and under, then straight line variation to 78.0 inches aft of datum at gross weight of 5400 lbs (maximum landing weight) and 78.3 inches aft of datum at gross weight of 5500 lbs.

Aft Limit: 86 inches aft of datum at all weights.

REFERENCE DATUM

Datum is 83.1 inches forward of center line through forward jack points.

MEAN AERODYNAMIC CHORD

MAC leading edge is 67.2 inches aft of datum.
MAC length is 63.1 inches.

MANEUVER LIMITS

This is a normal category airplane. Acrobatic maneuvers, including spins, are prohibited.

FLIGHT LOAD FACTORS (5500 Pounds)

Positive Maneuvering Load Factors:

Flaps Up (0°) . . . . .3.8 G

Flaps Down (30°) . . . . .2.0 G

MINIMUM FLIGHT CREW

One (1) Pilot

MAXIMUM PASSENGER SEATING CONFIGURATION

Five (5) passengers and one (1) pilot

SEATING

Do not take off or land with the seat back of an occupied pilot's or copilot's seat in the full back position. The seat back of an occupied optional copilot's full reclining seat and the seat backs of all other occupied seats must be in the most upright position for takeoffs and landings. Occupied aft-facing seats must have headrests fully extended.

ICING LIMITATIONS

Minimum Airspeed During
Icing Conditions . . . . 130 knots

Minimum Ambient Temperature for
Operation of Deicing Boots . . . . -40°C

Pneumatic pumps are time limited for engine operation to 400 hours.

Do not operate the propeller deice system when propellers are static.

Ground use of windshield heat is limited to 10 minutes at a time.

Sustained flight in icing conditions with flaps extended is prohibited except for approach and landings.

LIMITATIONS WHEN ENCOUNTERING SEVERE ICING CONDITIONS (Required By FAA AD 98-04-24)

WARNING

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.

1. During flight, severe icing conditions that exceed those for which the airplane is certificated shall be determined by the following visual cues. If one or more of these visual cues exists, immediately request priority handling from Air Traffic Control to facilitate a route or an altitude change to exit the icing conditions.
   a. Unusually extensive ice accumulation on the airframe and windshield in areas not normally observed to collect ice.
   b. Accumulation of ice on the upper surface of the wing, aft of the protected area.

c. Accumulation of ice on the engine nacelles and propeller spinners farther aft than normally observed.

2. Since the autopilot, when installed and operating, may mask tactile cues that indicate adverse changes in handling characteristics, use of the autopilot is prohibited when any of the visual cues specified above exist, or when unusual lateral trim requirements or autopilot trim warnings are encountered while the airplane is in icing conditions.

3. All wing icing inspection lights must be operative prior to flight into known or forecast icing conditions at night. [NOTE: This supersedes any relief provided by the Master Minimum Equipment List (MMEL).]

AVIONICS

GENERAL

1. The appropriate Garmin G1000 Cockpit Reference Guide for the Beechcraft Baron 58/G58, must be immediately available to the flight crew.

AIRFRAME SYSTEM SOFTWARE VERSION	COCKPIT REFERENCE GUIDE P/N
0500.01, 0500.02	190-00526-00 Revision A or Later
0857.05, 0857.06	190-00526-01 Revision B or Later

2. The L-3 Communications SkyWatch Traffic Advisory System Model SKY497 Traffic Advisory System Pilot's Guide, P/N 009-10801-001, Rev E, or later revision, must be available to the pilot during flight with the SkyWatch operating.

GARMIN G1000 INTEGRATED AVIONICS SYSTEM

1. Upon initial certification, the G1000 system was equipped with 58/G58 Airframe System Software Version 0500.01. The following Airframe System Software Versions have also been approved for the Model G58:
   - 0500.02 that adds autopilot enhancements
   - 0857.05 that adds SBAS (WAAS) capability
   - 0857.06 that adds SBAS capability for EASA operational requirements

   The airplane must utilize these versions of software, or later FAA approved versions. Avionics Line Replaceable Units (LRUs) associated with each version of software are listed on the following pages.

The following methods may be used to determine the level of software installed on the airplane.

a. Refer to the MFD upon initial power up. The “Splash Screen” will display the current system software version at the top of the page, (e.g. “Beechcraft 58/G58 System 0857.05”).

b. Select the SYSTEM STATUS page of the AUX Group on the MFD. The current software versions of the hardware shown in the tables below will be displayed.

c. Refer to the laminated card found at the back of this manual. This card shows the system software version and the software associated with each piece of hardware that is currently loaded in the G1000 system. The loader card is contained in a pouch located next to the laminated card.

The following methods may be used to determine if the software loaded in the airplane is the most current software available.

a. Call the Beechcraft Corporation Customer Support at 1-800-429-5372.

b. Visit the http://www.beechcraft.com/customer_support/technical_publications/ web site.

AIRFRAME SYSTEM SOFTWARE VERSION 0500.01

SYSTEM	ABBREVIATION	SOFTWARE VERSION
Primary Flight Display	PFD1	6.00
Multifunction Display	MFD1	6.00
Audio Control Panel & Marker Beacon System	GMA1	2.07
Attitude and Heading Reference System (AHRS)	GRS1	2.03
Air Data Computer (ADC)	GDC1	2.05
Integrated Avionics Unit	GIA1, GIA2	4.00
Engine/Airframe Unit (L/R)	GEA1, GEA2	2.06
Global Positioning System	GPS1, GPS2	3.01
Autopilot	GSA PTCH CTL, GSA PTCH MON, GSA PTCH TRIM C, GSA PTCH TRIM M, GSA ROLL CTL, GSA ROLL MON, GSA YAW CTL, GSA YAW MON	2.05
Data Link	GDL 69	3.00.00
Mode S Transponder	GTX1	4.02
Airborne Weather Radar	GWX	2.01

AIRFRAME SYSTEM SOFTWARE VERSION 0500.02

SYSTEM	ABBREVIATION	SOFTWARE VERSION
Primary Flight Display	PFD1	6.00
Multifunction Display	MFD1	6.00
Audio Control Panel & Marker Beacon System	GMA1	2.07
Attitude and Heading Reference System (AHRS)	GRS1	2.03
Air Data Computer (ADC)	GDC1	2.05
Integrated Avionics Unit	GIA1, GIA2	4.00
Engine/Airframe Unit (L/R)	GEA1, GEA2	2.06
Global Positioning System	GPS1, GPS2	3.01
Autopilot	GSA PTCH CTL, GSA PTCH MON, GSA PTCH TRIM C, GSA PTCH TRIM M, GSA ROLL CTL, GSA ROLL MON, GSA YAW CTL, GSA YAW MON	2.08
Data Link	GDL 69	3.00.00
Mode S Transponder	GTX1	4.02
Airborne Weather Radar	GWX	2.01

AIRFRAME SYSTEM SOFTWARE VERSION 0857.05

SYSTEM	ABBREVIATION	SOFTWARE VERSION
Primary Flight Display	PFD1	8.10
Multifunction Display	MFD1	8.10
Audio Control Panel & Marker Beacon System	GMA1	3.03
Attitude and Heading Reference System (AHRS)	GRS1	2.11
Air Data Computer (ADC)	GDC1	3.01
Integrated Avionics Unit	GIA1, GIA2	5.40
Engine/Airframe Unit (L/R)	GEA1, GEA2	2.07
Global Positioning System	GPS1, GPS2	3.0
Autopilot	GSA PTCH CTL, GSA PTCH MON, GSA PTCH TRIM C, GSA PTCH TRIM M, GSA ROLL CTL, GSA ROLL MON, GSA YAW CTL, GSA YAW MON	2.13
Data Link	GDL 69	3.20.00
Mode S Transponder	GTX1	4.06
Airborne Weather Radar	GWX	2.10

AIRFRAME SYSTEM SOFTWARE VERSION 0857.06

SYSTEM	ABBREVIATION	SOFTWARE VERSION
Primary Flight Display	PFD1	8.10
Multifunction Display	MFD1	8.10
Audio Control Panel & Marker Beacon System	GMA1	4.02
Attitude and Heading Reference System (AHRS)	GRS1	2.11
Air Data Computer (ADC)	GDC1	3.01
Integrated Avionics Unit	GIA1, GIA2	5.40
Engine/Airframe Unit (L/R)	GEA1, GEA2	2.07
Global Positioning System	GPS1, GPS2	3.0
Autopilot	GSA PTCH CTL, GSA PTCH MON, GSA PTCH TRIM C, GSA PTCH TRIM M, GSA ROLL CTL, GSA ROLL MON, GSA YAW CTL, GSA YAW MON	2.13
Data Link	GDL 69	3.20.00
Mode S Transponder	GTX1	4.06
Airborne Weather Radar	GWX	2.10

2. If not previously defined, the following default settings must be made on the MFD prior to operation by selecting the SYSTEM SETUP page of the AUX Group.

DISPLAY UNITS	DEFAULT SETTING	RESULTS
DIS. SPD	Nautical (NM, KT)	Distance will be shown in nautical miles and speed in knots.
ALT. VS	Feet (FT, FPM)	Altitude will be shown in feet and vertical speed in feet per minute.
POSITION	HDDD° MM.MM’	Latitude and longitude will be entered in degrees, minutes, and decimal minutes i.e. 45° 30’ 30” would be entered as 45° 30.5 minutes.
Map Datum	WGS 84	The G1000 will use the WGS 84 Datum. In some areas outside the United States, datums other than WGS 84 may be used. If the G1000 is authorized for use by the appropriate Airworthiness Authority, the required geodetic datum must be set in the G1000 prior to its use for navigation.

3. Use of the VOR/ILS receiver to fly approaches not approved for GPS require VOR/ILS navigation data to be valid on the PFD display.
4. Fuel Planning information found on the MFD by selecting the TRIP PLANNING page of the AUX Group are advisory only and do not replace the primary fuel quantity and fuel flow displays on the PFD.
5. The temperature limit of the G1000 system is -40° C. The temperature of the PFD and MFD must be -20° C or above to function properly.
6. Viewability of the PFD and MFD displays may be degraded when wearing polarized sunglasses.
7. For Airframe System Software Version 0500.01 or 0500.02, do not load a new arrival or departure procedure in the flight plan if one currently exists without first removing the existing arrival or departure procedure. Failing to observe this limitation can cause deviation indications, loss of GPS navigation information, and other display anomalies. If display anomalies are noted after editing the flight plan, perform either a direct to or activate leg operation as appropriate on the flight plan to ensure correct flight plan sequencing and guidance.

GPS NAVIGATION

1. Navigation is based upon use of only the Global Positioning System (GPS) operated by the United States of America.
2. Navigational information is referenced to the World Geodetic System 1984 (WGS-84), and must only be used with aeronautical information (electronic data and aeronautical charts) which conforms to WGS-84, or equivalent. Operations in areas outside of the United States which use datums other than WGS-84 are approved when authorized by the appropriate Airworthiness Authority. In such cases the required geodetic datum must be set in the G1000 prior to its use for navigation.

3. Navigation using the GPS system is prohibited unless the pilot verifies the currency of the Aviation Database or verifies each selected waypoint for accuracy by reference to current approved data. The Aviation Database version is displayed on the MFD power-up page immediately after system power-up and must be acknowledged.
4. Provided the Garmin G1000 GPS receivers are receiving adequate and usable GPS signals, it has been demonstrated capable of and meets the accuracy specifications for the following:
   a. VFR/IFR enroute, oceanic, and terminal operations within the U.S. National Airspace System in accordance with AC 20-138A.
   b. VFR/IFR non-precision instrument approach operations within the U.S. National Airspace System in accordance with AC 20-138A, including “GPS”, “or GPS”, and “RNAV(GPS)” approaches.
   c. VFR/IFR operations on Standard Instrument Departures (SIDs) (RNAV 1) and Standard Instrument Arrivals (STARs) (RNAV 1) in accordance with AC 90-100.
   d. VFR/IFR Oceanic and Remote operations in accordance with Appendix 1 of AC 20-138A. A Garmin Prediction Program, or equivalent, must have been run with satisfactory results. This does not constitute an operational approval.
   e. Operation in European B-RNAV airspace is accordance with AC 90-96, AC 20-138A, and JAA temporary Guidance Material, Leaflet No. 2, Rev. 1. This does not constitute an operational approval.
   f. Operations up to 70° North and 70° South Latitudes except as follows:
      1) Operations North of 65° Latitude are prohibited between 75° West and 120° West Longitude.

LIMITATIONS

AVIONICS

GENERAL

GARMIN TERRAIN AWARENESS AND WARNING SYSTEM (TAWS)

(TH-2138, TH-2141 and after and prior airplanes in compliance with Service Bulletin 34-3774)

1. The terrain data base provides world coverage. The obstacle data base provides coverage for only the continental U.S. Thus, obstacle cautions and warnings will not be provided outside of the continental U.S. An airport data base provides more detailed terrain information around airports to prevent nuisance alerts.
2. Terrain data is not displayed when the airplane latitude is greater than 75 degrees North or 60 degrees South. This will be annunciated as [TAWS N/A].
3. Navigation must not be predicated upon the use of the TAWS display. The TAWS display is intended to serve as a situational awareness tool only, and may not provide the accuracy and/or fidelity on which to solely base terrain or obstacle avoidance maneuvering decisions.
4. The GPS ALT displayed on the MFD is a calculated value and must not be considered as a primary source of altitude or used for navigation purposes.
5. Flight operations are prohibited over large bodies of sea level water IF that flight is conducted under operating regulations that require functioning TAWS until terrain database 08T2 or later database is installed.
6. TAWS Forward Looking Terrain Avoidance (FLTA) is not available when flying over the open ocean/sea (specifically any large body of water at sea level) until database 08T2 or later database is installed. Do not use TAWS

information for primary terrain avoidance. TAWS is intended only to enhance situational awareness.

2) Operations South of 55° Latitude are prohibited between 120° East and 165° East Longitude.

5. Instrument approaches must be accomplished in accordance with approved instrument approach procedures that are retrieved from the GPS database. The GPS database must incorporate the current update cycle or be verified for accuracy using current approved navigation data.
6. Instrument approaches must be conducted in the GPS approach mode and Receiver Autonomous Integrity Monitoring (RAIM) must be available at the Final Approach Fix.
7. Accomplishment of ILS, LOC, LOC-BC, LDA, SDF, MLS or any other type of approach not approved for GPS overlay with the GPS receiver is not authorized.
8. When an alternate airport is required by the applicable operating rules, it must be served by an approach based on other than GPS navigation, the airplane must have the operational equipment capable of using that navigation aid, and the required navigation aid must be operational.
9. Airplanes equipped with Airframe System Software Version 0857.05 or 0857.06 are approved for approach procedures with vertical guidance including LPV, L/VNAV and LNAV+V, within the U.S. National Airspace System.
10. Airplanes not equipped with Baro VNAV:
    VNAV information may be utilized for advisory information only. Use of VNAV information for Instrument Approach Procedures does not guarantee step-down fix altitude protection, or arrival at approach minimums in a normal position to land. VNAV also does not guarantee compliance with intermediate altitude constraints between the top of descent and the waypoint where the VNAV path terminates in terminal or enroute operations.

11. Airplanes equipped with Baro VNAV:
    Baro VNAV is approved for enroute and terminal vertical navigation only. Baro VNAV is not approved for instrument approaches.

GARMIN GFC 700 AUTOPILOT SYSTEM (AUTOPILOT, FLIGHT DIRECTOR, ELECTRIC TRIM)

1. The autopilot preflight self-test must be successfully completed prior to any flight in which the autopilot, flight director or manual electric trim is to be used.
2. During autopilot operations, a pilot must be seated in the left seat with the seat belt and shoulder harness fastened.
3. The autopilot and yaw damper must be off for takeoff and landing.
4. The autopilot minimum engagement heights are:
   After Takeoff - 400 feet
   During Cruise - 1000 feet
   During precision and non-precision approaches - 200 feet
5. Autopilot operations with the G1000 intentionally placed in the reversionary mode (either the PFD or MFD inoperative) is limited to VFR training operations.
6. Airspeed Limitations
   Autopilot
   Maximum: 210 KIAS
   Minimum: 90 KIAS
   Electric Trim
   Maximum: 210 KIAS
7. The maximum coupled intercept angle for a Back Course (BC) approach is 74°.
8. Overriding the autopilot in pitch or roll is prohibited.
9. Operation of the autopilot with a pitch trim failure (Red PTRM annunciation) is prohibited.

10. The autopilot system is only approved for Category I ILS approaches and non-precision approaches.
11. Airplanes with Airframe Software Version 0500.01 or 0500.02:
    When conducting GPS assisted intercepts of ILS final approach courses with the autopilot engaged, the ILS CDI Capture mode on the Systems Setup page of the Auxiliary Page Group must be set to Manual.
12. Maximum fuel imbalance with autopilot engaged is 15 GAL (~ 90 lbs).

L-3 COMMUNICATIONS SKYWATCH SKY497 TRAFFIC ADVISORY SYSTEM (if installed)

1. The pilot must not maneuver the airplane based only on the traffic display. The traffic display is intended to assist in visually locating traffic and lacks the resolution necessary for use in evasive maneuvering.
2. If the pilot is advised by Air Traffic Control to disable the altitude reporting function of the transponder, the Traffic Advisory System must be placed in Standby.

WEATHER RADAR

WARNING

The area within the scan arc and within 11 feet of an operating GWX 68 system can be a hazardous area. Do not operate the system in any mode other than STANDBY when the antenna might scan over personnel within range. Turning the transmitter on while inside the hangar is not advisable.

GARMIN TERRAIN AWARENESS AND WARNING SYSTEM (TAWS)

(TH-2138, TH-2141 and after and prior airplanes in compliance with Service Bulletin 34-3774.)

1. The terrain database provides world coverage. The obstacle database provides coverage for only the continental U.S. Thus, obstacle cautions and warnings will not be provided outside of the continental U.S. An Airport database provides more detailed terrain information around airports to prevent nuisance alerts.
2. Terrain data is not displayed when the airplane latitude is greater than 75 degrees North or 60 degrees South. This will be annunciated as [TAWS N/A].
3. Navigation must not be predicated upon the use of the TAWS display. The TAWS Display is intended to serve as a situational awareness tool only, and may not provide the accuracy and/or fidelity on which to solely base terrain or obstacle avoidance maneuvering decisions.
4. The GPS ALT displayed on the MFD is a calculated value and must not be considered as a primary source of altitude or used for navigation purposes.

PLACARDS/MARKINGS

Placards/markings are required to remind the flight crew and occupants of operating limitations and safety device limitations. The following illustrations depict placards/markings pertinent to operations and safety of flight.

On Left Side Panel

TURN STROBE LIGHTS OFF WHEN TAXING IN
VICINITY OF OTHER AIRCRAFT, OR WHEN
FLYING IN FOG OR CLOUDS. STANDARD POSITION LIGHTS
TO BE USED FOR ALL NIGHT OPERATIONS

TH00C
020329AA.AI

On Left Windshield Post If Electrothermal Heated Windshield Segment is Installed:

CAUTION

MAGNETIC
COMPASS IS
ERRATIC
WHEN
HEATED
WINDSHIELD
IS IN
OPERATION

C95TH02C0147 C

On Left Sidewall:

AIRSPEED LIMITATIONS

MAX. LDG GEAR EXTENDED (NORMAL)
-------------------------152 KTS
MAX. FLAPS EXTENDED (15° DOWN)
-------------------------152 KTS
MAX. FLAPS EXTENDED (NORMAL)
-------------------------122 KTS

MAX. DESIGN MANEUVER SPEED------------------156 KTS

MIN. CONTROL SPEED SINGLE ENGINE-----------84 KTS

NEVER EXCEED SPEED-------------------------------223 KTS

MAX. STRUCTURAL CRUISE SPEED---------------195 KTS

TH00C
020330AA.AI

On Instrument Panel Above MFD:

TAKEOFF & CLIMB - LEAN AS REQUIRED

DESCENT - ENRICH AS REQD

BEFORE LANDING - FULL RICH
OR AS REQD BY FIELD ELEV

E#02C
051578AA.AI

On Upper Left Side Panel, Airplanes Approved for Flight In Icing Conditions:

OPERATION LIMITATIONS

THIS AIRPLANE MUST BE OPERATED AS A NORMAL CATEGORY AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF PLACARDS, MARKINGS, AND MANUALS.
MAX. TAKEOFF WT. IS 5500 LBS. MAX. LANDING WT. IS 5400 LBS.
THIS AIRPLANE IS APPROVED FOR VFR. IFR. DAY AND NIGHT OPERATION.
THIS AIRPLANE IS APPROVED FOR FLIGHT IN ICING CONDITIONS.
NO ACROBATIC MANEUVERS INCLUDING SPINS,APPROVED.

C95TH02C0149 C

On Upper Left Side Panel, Airplanes Not Approved for Flight In Icing Conditions:

OPERATION LIMITATIONS

THIS AIRPLANE MUST BE OPERATED AS A NORMAL CATEGORY AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF PLACARDS, MARKINGS, AND MANUALS.
MAX. TAKEOFF WT. IS 5500 LBS. MAX. LANDING WT. IS 5400 LBS.
THIS AIRPLANE IS NOT APPROVED FOR FLIGHT IN ICING CONDITIONS OR ACROBATIC MANEUVERS, INCLUDING SPINS.

C95TH02C0151 C

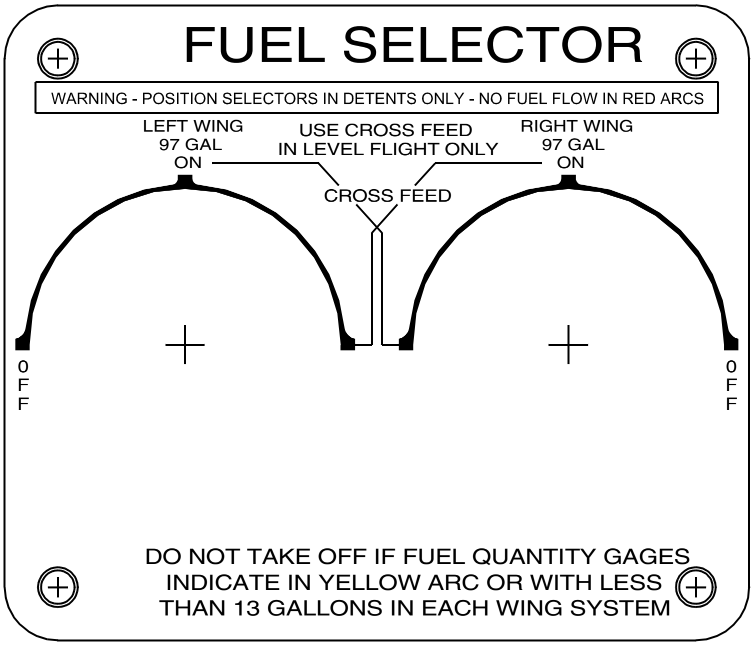
On Upper Right Side of Instrument Panel (TH-2173 and After):

NO SMOKING

TH02C
063324AA.AI

FOR STANDARD 194 GALLON CAPACITY FUEL SYSTEM

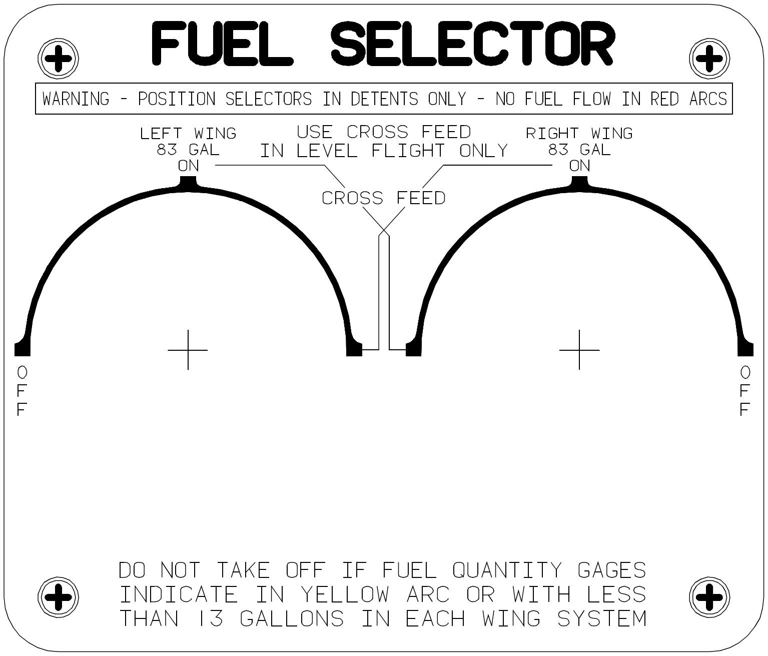
Between Fuel Selector Handles:



TH00C
020331AA.AI

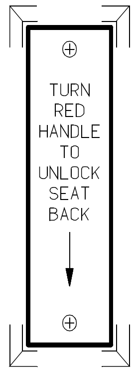
FOR OPTIONAL 166 GALLON CAPACITY FUEL SYSTEM

Between Fuel Selector Handles:



C96EA00C2519 C

On Inboard Side of Seat Backs for 3rd and 4th Seats:



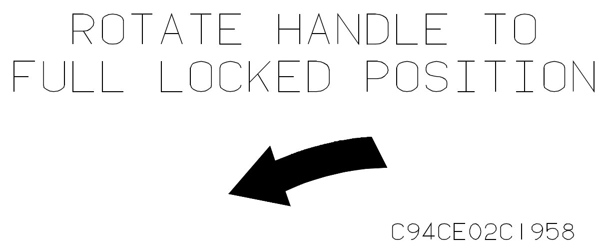
C94CE02C1963

On Top of Front Spar Carry-Thru Structure Between Front Seats:

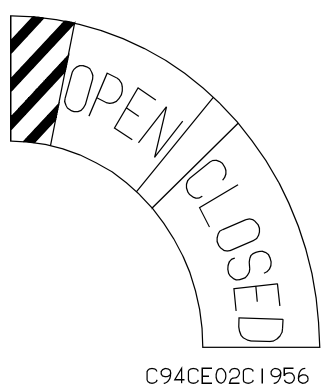
TH02C
000396AA.AI

On Emergency Crank Access Cover:

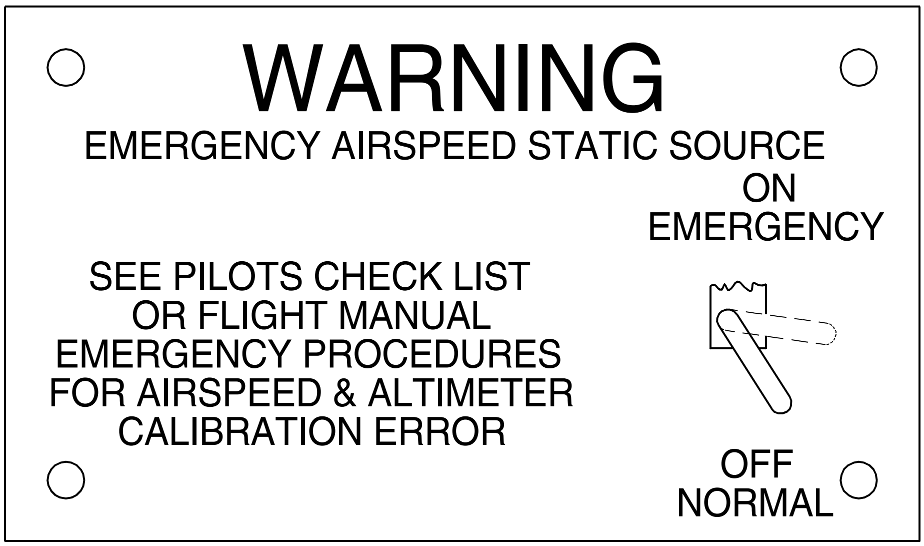
Adjacent To Cabin Door Handle:



On Inside of Cabin Door Adjacent to Door Handle:

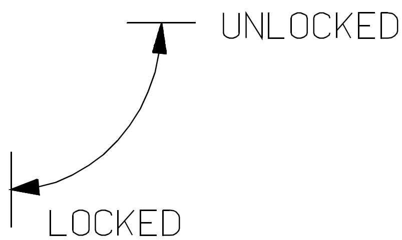


On Lower Sidewall Adjacent to Pilot:



TH02C
060621AA.AI

Adjacent to Openable Cabin Window Handles:



C94CE02C1978

On Face of Emergency Exit Latch Cover:

EMERGENCY EXIT

PULL COVER

ROTATE HANDLE UP

BREAKING SAFETY WIRE

PUSH WINDOW OUT

C94CE02C1954

On Emergency Exit Handle:

ROTATE HANDLE UP
BREAKING SAFETY
WIRE

PUSH WINDOW OUT

C94CE02C1955

On Openable Cabin Windows:

DO NOT OPEN IN FLIGHT	LATCH WINDOW BEFORE TAKE-OFF

C94CE02C1957

On Window Adjacent to Pilot's Seat:

SHOULDER HARNESS MUST BE WORN WHILE AT PILOT POSITIONS.
FOR TAKEOFF AND LANDING, SEAT BACK MUST NOT BE IN FULL BACK POSITION.

C94E#02C2445

On Window Adjacent to Copilot's Seat:

SHOULDER HARNESS MUST BE WORN WHILE AT PILOT POSITIONS.
FOR TAKEOFF AND LANDING, SEAT BACK MUST NOT BE IN FULL BACK POSITION OR OPTIONAL FULL RECLINING BACK MUST BE UPRIGHT.

C94E#02C2446

On Windows Adjacent to 5th and 6th Seats and 3rd & 4th Forward Facing Seats:

SHOULDER HARNESS
MUST BE WORN DURING
TAKE-OFF AND LANDING
WITH SEAT BACK UPRIGHT

C94CE02C1962 C

On Windows Adjacent to 3rd & 4th Aft Facing Club Seats:

SHOULDER HARNESS
MUST BE WORN DURING
TAKE-OFF AND LANDING
WITH SEAT BACK UPRIGHT
AND AFT FACING SEATS
MUST HAVE HEADREST
FULLY EXTENDED

C94E#02C2447 C

On Inside of Utility Door on Left Sidewall of Utility Compartment, or on Aft Bulkhead:

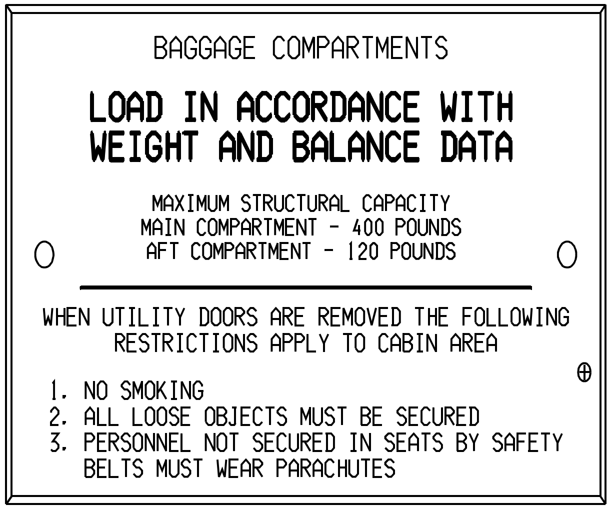
BAGGAGE COMPARTMENTS

LOAD IN ACCORDANCE WITH WEIGHT AND BALANCE DATA

MAXIMUM STRUCTURAL CAPACITY
MAIN COMPARTMENT - 400 POUNDS
AFT COMPARTMENT - 120 POUNDS

C95TH02C0160

On Left Sidewall of Utility Compartment or Aft Bulkhead (with utility door removal kit):



C95TH02C0161

On Panel When Utility Doors are Removed:

C95TH02C0162 C

In Plain View When Nose Baggage Compartment Door is Open:

C95TH02C0163 C

On Left Side of Instrument Panel (if Air Conditioner installed):

AIR COND. SYS. MUST BE
OFF BEFORE TAKEOFF

E#02C
060731AA.AI

Adjacent to Oil Filler Caps:

OIL

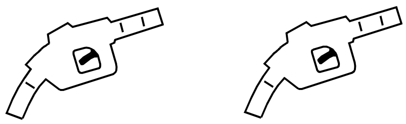
USE SAE 50 ABOVE 40° F

USE SAE 30 BELOW 40° F

TH02D
082106AA.AI

Adjacent to Fuel Filler Caps:

AVGAS ONLY



GRADE 100LL

GRADE 100

FOR ALTERNATE FUELS SEE
PILOTS OPERATING HANDBOOK

CAUTION

DO NOT INSERT FUEL NOZZLE
MORE THAN 3" INTO TANK

TH02D
082107AA.AI

For Standard 194 Gallon Capacity Fuel System

Adjacent to Fuel Filler Caps:

FUEL
100 US GAL.
(97 USABLE)

CAUTION

DO NOT FILL
ABOVE "FULL"
INDICATOR
MARK

TH02D
082105AA.AI

For Optional 166 Gallon Capacity Fuel System

Adjacent to Fuel Filler Caps:

FUEL
86 US GAL.
(83 USABLE)

CAUTION

DO NOT FILL
ABOVE
BOTTOM
OF TAB

TH02D
082103AA.AI

On External Power Compartment Door:

EXTERNAL
POWER
24 VOLT

TH02D
082104AA.AI

KINDS OF OPERATIONS

The Model G58 is approved for the following types of operations when the required equipment as shown in the KINDS OF OPERATIONS EQUIPMENT LIST, is installed and operable.

1. VFR day and night
2. IFR day and night
3. Icing Conditions

KINDS OF OPERATIONS EQUIPMENT LIST

This airplane may be operated in day or night VFR, day or night IFR, and icing conditions when the required systems and equipment are installed and operable.

The following equipment list identifies the systems and equipment upon which type certification for each kind of operation was predicated. The systems and equipment listed must be installed and operable for the particular kind of operation indicated unless:

1. The airplane is approved to be operated in accordance with a current Minimum Equipment List (MEL) issued by the FAA.

or;

2. An alternate procedure is provided in the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual for the inoperative state of the listed system or equipment and all limitations are complied with.

Numbers in the Kinds of Operations Equipment List refer to quantities required to be operative for the specified condition. The list does not include all equipment that may be required by specific operating rules. It also does not include components obviously required for the airplane to be airworthy, such as wings, empennage, engine, etc.

SYSTEM and/or EQUIPMENT	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITIONS	REMARKS and/or EXCEPTIONS
ELECTRICAL POWER						
Alternators	2	2	2	2	2	
Battery Systems	2	2	2	2	2	
COCKPIT DISPLAY SYSTEM						
Primary Flight Display (PFD)	1	1	1	1	1	
Multifunction Display (MFD)	0	1	1	1	1	
Integrated Avionics Unit (GIA)	1	1	2	2	2	
Attitude / Heading Unit (AHRS)	0	1	1	1	1	
Engine / Airframe Unit (GEA)	2	2	2	2	2	
Air Data Computer (ADC)	1	1	1	1	1	
Audio Panel (GMA)	0	0	1	1	1	
OAT	1	1	1	1	1	
STANDBY INSTRUMENTS						
Airspeed Indicator	1	1	1	1	1	
Attitude Indicator	1	1	1	1	1	
Altimeter	1	1	1	1	1	
Magnetic Compass	1	1	1	1	1	

SYSTEM and/or EQUIPMENT	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITIONS	REMARKS and/or EXCEPTIONS
ENVIRONMENTAL						
Cabin Heater	0	0	0	0	1	
FLIGHT CONTROLS						
Aileron Trim Tab Indicator	1	1	1	1	1	
Elevator Trim Tab Indicator	1	1	1	1	1	
Rudder Trim Tab Indicator	1	1	1	1	1	
Flap System	1	1	1	1	1	
Flap Position Indicator Lights	3	3	3	3	3	
Stall Warning System	1	1	1	1	1	
FUEL						
Electrically Driven Boost Pump	2	2	2	2	2	
Engine Driven Boost Pump	2	2	2	2	2	
Fuel Selector Valve	2	2	2	2	2	
ICE AND RAIN PROTECTION						
Emergency Static Air System	0	0	1	1	1	
Fuel Vent Heater	0	0	2	2	2	
Pitot Heater	0	0	1	1	1	
Propeller Deice System	0	0	0	0	1	
Electrothermal Heated Windshield Segment	0	0	0	0	1	
Surface Deice System (Inboard and Outboard Wing, Horizontal and Vertical Stabilizer Deice Boots)	0	0	0	0	1	
Stall Warning Heat	0	0	0	0	1	
Wing Ice Light	0	0	0	0	1	

SYSTEM and/or EQUIPMENT	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITIONS	REMARKS and/or EXCEPTIONS
LANDING GEAR						
Emergency Landing Gear Extension System	1	1	1	1	1	
Landing Gear Position Indicator Lights	4	4	4	4	4	
Landing Gear Motor and Gearbox	1	1	1	1	1	
Landing Gear Warning Horn	1	1	1	1	1	
LIGHTS						
Cockpit and Display Lighting System	0	1	1	1	1	
Landing Light	0	1	0	1	1	
Navigation Lights	0	3	0	3	3	
Flashing Beacon - Vert. Stab	0	1	0	1	1	
RESTRAINT SYSTEM						
Seat Belt (per seat)	1	1	1	1	1	
Shoulder Harness (per seat)	1	1	1	1	1	
Shoulder Harness (crew compartment)	1	1	1	1	1	Right side may be inoperative provided the seat remains unoccupied.

SECTION 3
EMERGENCY PROCEDURES

TABLE OF CONTENTS

SUBJECT *PAGE*

SECTION 3
EMERGENCY PROCEDURES
TABLE OF CONTENTS (CONT'D)

SUBJECT *PAGE*

All airspeeds quoted in this section are indicated airspeeds (IAS) and assume zero instrument error.

Closed [BRACKETS] in this section denotes Warning, Caution and Advisory annunciations which appear on the PFD and MFD.

NOTE

The following information is presented to enable the pilot to form, in advance, a definite plan of action for coping with the most probable emergency situations which could occur in the operation of the airplane.

In order to supply one safe speed for each type of emergency situation, the airspeeds presented were derived at 5500 lbs (5400 lbs for landing).

Immediate action procedures are delineated by bold type with the remaining procedures following.

EMERGENCY AIRSPEEDS (5500 LBS)

One-Engine-Inoperative Best Angle-of-Climb (V_{XSE}) . . . 95 kts

One-Engine-Inoperative Best Rate-of-Climb (V_{YSE}) . . . 101 kts

Air Minimum Control Speed (V_{MCA}) . . . . 84 kts

One-Engine-Inoperative Enroute Climb . . . . 101 kts

Emergency Descent . . . . 152 kts

One-Engine-Inoperative Landing (5400 lbs):

Maneuvering to Final Approach . . . . 107 kts

Final Approach (Flaps Down) (30°) . . . . 95 kts

Intentional One-Engine-Inoperative
Speed (V_{SSE}) . . . . 88 kts

Maximum Range Glide . . . . 115 kts

WARNING

The stall warning horn is inoperative when the battery and alternator switches are turned off.

ONE-ENGINE-INOPERATIVE PROCEDURES

CONTROLLABILITY VS. AIRSPEED

Airspeed is the single most important factor in maintaining airplane control during single engine operations. The airplane can be safely maneuvered or trimmed for normal hands-off operation and sustained in this configuration by the operative engine AS LONG AS SUFFICIENT AIRSPEED IS MAINTAINED.

OBTAINING THE BEST SINGLE-ENGINE CLIMB PERFORMANCE

To obtain best single-engine climb performance with one engine inoperative, the airplane must be banked 3° to 5° into the operative engine while maintaining a constant heading.

DETERMINING INOPERATIVE ENGINE

The following checks will help determine which engine is inoperative:

1. DEAD FOOT - DEAD ENGINE - The rudder pressure required to maintain directional control will be on the side of the operative engine.
2. THROTTLE - Partially retard the throttle for the engine that is believed to be inoperative; there should be no change in control pressures or in the sound of the engine if the correct throttle has been selected. AT LOW ALTITUDE AND AIRSPEED THIS CHECK MUST BE ACCOMPLISHED WITH EXTREME CAUTION.

Do not attempt to determine the inoperative engine by means of the tachometers or the manifold pressure displays. These displays often indicate near normal readings.

ENGINE FAILURE DURING GROUND ROLL

1. **Throttles . . . . .CLOSED**
2. **Braking . . . . AS REQUIRED TO ACHIEVE STOPPING DISTANCE**

If emergency shutdown is warranted:

3. **Fuel Selectors . . . . .OFF**
4. **Magnetos . . . . .OFF**
5. **Alternators. . . . . .OFF**
6. **Batteries . . . . .OFF**

ENGINE FAILURE AFTER LIFT-OFF AND IN FLIGHT

An immediate landing is advisable regardless of take-off weight. Continued flight cannot be assured if take-off weight exceeds the weight determined from the TAKE-OFF WEIGHT graph. Higher take-off weights will result in a loss of altitude while retracting the landing gear and feathering the propeller. Continued flight requires immediate pilot response to the following procedures.

1. **Landing Gear and Flaps . . . . UP**
2. **Throttle (inoperative engine) . . . . CLOSED**
3. **Propeller (inoperative engine) . . . . FEATHER**
4. **Power (operative engine) . . . . AS REQUIRED**
5. **Airspeed . . . . MAINTAIN SPEED AT ENGINE FAILURE (101 kts MAX.) UNTIL OBSTACLES ARE CLEARED**

NOTE

The most important aspect of engine failure is the necessity to maintain lateral and directional control. If airspeed is below V_{MCA} (84 kts), reduce power on the operative engine as required to maintain control. Refer to Section 10, SAFETY INFORMATION for additional information regarding pilot technique.

After positive control of the airplane is established:

6. Secure inoperative engine:
   a. Mixture Control . . . . CUT OFF
   b. Fuel Selector . . . . OFF
   c. Fuel Boost Pump . . . . OFF
   d. Magnetos . . . . OFF
   e. Alternator . . . . OFF

f. Alt Load . . . . MONITOR

g. Nonessential Electrical Equipment. . . . . OFF AS REQUIRED
(to reduce load on operative alternator)

h. Alternator . . . . BUS TIE
(ties the side with the functional alternator to the inoperative side)

i. Alt Load . . . . MONITOR

j. Nonessential Electrical Equipment. . . . . ON AS REQUIRED
(maintain load limits of operative alternator)

k. Cowl Flap . . . . CLOSED

ENGINE FIRE

ON THE GROUND

1. Mixture Controls . . . . CUT OFF

2. Starter (affected engine). . . . . CONTINUE TO CRANK

3. Fuel Selector Valves . . . . OFF

4. Magnetos . . . . OFF

5. Alternators. . . . . OFF

6. Batteries . . . . OFF

7. Exit airplane and move to a safe distance.

IN FLIGHT

Shut down the affected engine according to the following procedure and land immediately. Follow the applicable one-engine-inoperative procedures in this section.

1. Fuel Selector Valve . . . . OFF

2. Mixture Control . . . . CUT OFF

3. Propeller . . . . FEATHERED

4. Fuel Boost Pump . . . . OFF

5. Magnetos . . . . OFF

6. Alternator. . . . . OFF

EMERGENCY DESCENT

1. **Throttles . . . . CLOSED**
2. **Propellers . . . . 2700 RPM**
3. **Airspeed . . . . 152 KTS**
4. **Landing Gear . . . . DOWN**
5. **Flaps . . . . APPROACH (15°)**

GLIDE

1. **Propellers . . . . FEATHERED**
2. **Flaps . . . . UP (0°)**
3. **Landing Gear . . . . UP**

NOTE

The landing gear will not retract unless one of the throttles is in a position corresponding to approximately 15 in. Hg manifold pressure or above.

4. **Airspeed . . . . 115 KTS**
5. Glide Ratio. . . . . .2 nautical miles for each 1000 feet of altitude

LANDING EMERGENCIES

GEAR-UP LANDING

NOTE

The landing gear will not retract unless one of the throttles is in a position corresponding to approximately 15 in. Hg manifold pressure or above.

If possible, choose firm sod. When assured of reaching landing site:

1. Cowl Flaps . . . . CLOSED
2. Wing Flaps . . . . AS DESIRED
3. Throttles . . . . CLOSED
4. Fuel Selectors. . . . . .OFF
5. Mixture Controls . . . . CUT OFF
6. Magnetos . . . . .OFF
7. Alternators . . . . .OFF
8. Batteries . . . . .OFF
9. Wings . . . . KEEP LEVEL DURING TOUCHDOWN
10. Get clear of the airplane as soon as possible after it stops.

NOTE

The gear up landing procedures are based on the best available information and no actual tests have been conducted.

SYSTEMS EMERGENCIES

ONE-ENGINE-INOPERATIVE OPERATION ON CROSSFEED

NOTE

The fuel crossfeed system is to be used only during emergency conditions in level flight only.

Left Engine Inoperative:

1. Right Fuel Boost Pump . . . . LOW
2. Left Fuel Selector . . . . OFF
3. Right Fuel Selector . . . . CROSSFEED
(feel for detent; confirm visually)
4. Right Fuel Boost Pump . . . . . LOW or OFF (as required)

Right Engine Inoperative:

1. Left Fuel Boost Pump . . . . LOW
2. Right Fuel Selector . . . . OFF
3. Left Fuel Selector . . . . CROSSFEED
(feel for detent; confirm visually)
4. Left Fuel Boost Pump . . . . . . LOW or OFF (as required)

ELECTRICAL SMOKE OR FIRE

Action to be taken must consider existing conditions and equipment installed:

1. **Alternators. . . . . .OFF**
2. **Batteries . . . . .OFF**
3. **Heading Control . . . . . . MAINTAIN USING STANDBY COMPASS IF REQUIRED**

WARNING

The PFD, MFD and Stall Warning will become inoperative with the batteries and alternators off. Only the standby instruments will be available.

4. All Electrical Switches. . . . . .OFF
5. Dissipation of smoke may be aided by the following:
   a. Cabin Air and Cabin Heat Controls. . . . . FULL FORWARD
   b. Pilot Air and Copilot Air . . . . PULL OPEN
   c. Overhead Fresh Air Outlets . . . . OPEN

If smoke or fire ceases, individually restore electrical equipment to isolate defective equipment.

6. Batteries . . . . .ON
7. Alternators . . . . .ON
8. Essential Electrical Equipment . . . . ON ONE AT A TIME
9. Pilot's Storm Window (if required). . . . . OPEN
10. Land as soon as practical.

ALTERNATOR FAILURE [L ALT INOP] or [R ALT INOP]

Display of either [L ALT INOP] *or* [R ALT INOP] *warning alert on the PFD:*

1. MFD Softkeys . . . . . . SELECT ENGINE AND SYSTEM
2. Alt Load (failed side) . . . . CHECK FOR ZERO OUTPUT

If the loadmeter indicates zero load and there is no indication of a bus short (i.e. zero voltage on the battery bus or electrical smoke):

3. Alternator (failed side) . . . . OFF MOMENTARILY, THEN ON

If the warning alert extinguishes and a positive load is indicated:

4. Continue to use the alternator.

If the warning alert remains displayed:

5. Alternator (failed side) . . . . OFF
6. Nonessential Electrical Equipment . . . . OFF AS REQUIRED (to reduce load on operative alternator)
7. Alternator (failed side) . . . . BUS TIE (ties the side with the functional alternator to inoperative side)
8. ALT LOAD . . . . MONITOR
9. Nonessential Electrical Equipment . . . . ON AS REQUIRED (maintain load limits of operative alternator)

If the warning alert for the other alternator displays:

10. Repeat steps 1 thru 5 above for the other alternator.

If both alternators remain inoperative [L-R ALT INOP]*:*

11. Nonessential Electrical Equipment . . . . .OFF TO CONSERVE BATTERIES
12. If Icing Conditions Exist . . . . .EXIT AS SOON AS POSSIBLE
13. Land as soon as practical.

ELECTRICAL LOAD SHEDDING

The battery emergency operating time (30 minutes minimum per battery) is based on the following loads being shed:

1. Left and Right Alternators . . . . .OFF
2. Avionics Master . . . . .OFF
3. Prop Sync . . . . .OFF
4. Fuel Vent Heat . . . . .OFF
5. Stall Warning Heat . . . . .OFF
6. Propeller Deice . . . . .OFF
7. Windshield Anti-Ice . . . . .OFF
8. Air Conditioner/Blower (if installed). . . . . .OFF
9. Heater/Blower . . . . .OFF
10. Strobe Lights. . . . . .OFF
11. Beacon . . . . .OFF
12. Nav LIghts. . . . . .OFF
13. Flood Lights . . . . .AS REQUIRED
14. Panel Lights . . . . .OFF
15. Utility Power (if being used) . . . . .UNPLUG
16. Cabin Lights . . . . .OFF

AVIONICS

AUTOPILOT FAILURES

AUTOPILOT MALFUNCTION ALTITUDE LOSSES (FEET)

Climb, Cruise, Descent 79

Maneuvering 243

Approach. 50

AUTOPILOT MANUAL DISENGAGEMENT

When the autopilot is manually disengaged normally, the green [AP] in the AFCS Status Bar will change to a black [AP] on a yellow background, flash for 5 seconds, then extinguish, and a 2-second aural alert will sound. The [YD] will also change color and flash if it disconnects.

The autopilot can be manually disengaged by:

1. Pressing the red AP DISC switch on the pilot's control wheel. (Also disconnects the Yaw Damper)
2. Moving the left (outboard) side of the electric trim switch. (Yaw Damper will not disengage.)
3. Pressing the AP key on the MFD. (Yaw Damper will not disengage.)
4. Pressing the GO AROUND switch on the left side of the Throttle. (Yaw Damper will not disengage.)

The autopilot can also be disengaged in an emergency by turning the Avionics Switch off. If this procedure is used the following will occur:

1. No aural alert will sound.
2. A red flashing [AP] will be displayed in the AFCS Status Bar. The left side of the trim switch must be used to cancel it.

3. A yellow flashing [YD] will be displayed for 5 seconds then extinguish.
4. The Flight Director will remain displayed but cannot be used.
5. The electric trim will be inoperative.
6. The MFD will be inoperative.

AUTOPILOT AUTOMATIC DISENGAGEMENT

Red Flashing [AP] and Aural Tone

Red [AFCS]

Possible Red [PITCH] and/or [ROLL] to indicate axis failed

Loss of the following items will cause the autopilot to automatically disconnect. The autopilot will remain inoperative and cannot be re-engaged until the inoperative item is restored. AHRS, ADC, PFD, GIA 1 (INTEG AVION 1), and GIA 2 (INTEG AVION 2).

1. AP DISC Switch . . . . PRESS
   (to cancel tone and flashing [AP])

   or

2. Left (outboard) Side of Trim Switch . . . . ACTUATE
   (to cancel tone and flashing [AP])
3. Pitch Trim . . . . RETRIM AS REQD

WARNING

Do not re-engage the autopilot until the cause of the malfunction has been determined.

AUTOPILOT OVERSPEED RECOVERY [MAXSPD]

If the airspeed or airspeed trend vector reaches approximately 210 KIAS, a flashing yellow [MAXSPD] will be displayed above the airspeed display and the autopilot will command a pitch up in order to decelerate the airplane below 210 KIAS.

1. **Throttle . . . . REDUCE POWER AS REQUIRED**
2. **Autopilot**
   a. **Disconnect and manually slow the airplane**

   (or)

   b. **Use VS or PIT Mode and NOSE UP key to slow the airplane**
3. [MAXSPD] . . . . EXTINGUISHED
   (when speed is reduced below approx. 205 KIAS)

CAUTION

If in PIT mode, the flight director will revert to the original pitch attitude when the [MAX-SPD] is cancelled if the pitch attitude is not adjusted with the NOSE UP key.

4. Autopilot Overspeed Recovery is not available in Altitude Hold (ALT) or glideslope (GS) modes.
5. The speed reference cannot be adjusted while in the Overspeed Recovery Mode.

AUTOPILOT RESPONSE TO ERRONEOUS AHRS INPUT

A failure of the AHRS may cause erroneous autopilot responses and/or electric pitch trim activations.

One or more of the following indications may be present.

Red [AFCS]

Yellow or Red [AP]

Yellow [CHECK ATTITUDE]

Unexpected Roll or Pitch Deviations

Erroneous Attitude Indication

1. **Control Wheel . . . . HOLD FIRMLY**
2. **Standby Attitude Indicator . . . . . CROSS CHECK FOR PROPER ATTITUDE**
3. **AP DISC Switch. . . . . PRESS AND HOLD**
4. **Pitch Trim . . . . RETRIM IF REQD**
5. **AP DISC Switch. . . . . RELEASE**

If uncommanded deviation occurs again:

6. AP DISC Switch . . . . PRESS AND HOLD
7. AP SERVOS Circuit Breaker . . . . PULL
8. AP DISC Switch . . . . RELEASE
9. Pitch Trim . . . . RETRIM IF REQD

ELECTRIC PITCH TRIM FAILURE [PTRM]

Illumination of the red [PTRM] *annunciator on the PFD*:

1. Control Wheel . . . . HOLD FIRMLY and maintain (be prepared for out-of-trim condition)
2. AP DISC Switch . . . . PRESS AND RELEASE
3. Manual elevator trim . . . . AS REQUIRED

If the red [PTRM] *annunciator extinguishes:*

4. Autopilot (at pilot's discretion) . . . . ENGAGE

If the red [PTRM] *annunciator does not extinguish:*

5. Autopilot . . . . .DO NOT ENGAGE
6. Manual elevator trim . . . . .AS REQUIRED

NOTE

Reversal of flap travel while the red in-transit light is illuminated may cause a [PTRM] fault.

UNSCHEDULED ELECTRIC PITCH TRIM

Red Flashing [PTRM]

Possible yellow [↓ELE] or [↑ELE]

1. Airplane Attitude . . . . MAINTAIN USING ELEVATOR CONTROL (expect residual pitch forces)
2. AP DISC Switch . . . . .DEPRESS AND HOLD (to interrupt the pitch trim)
3. Avionics Switch . . . . OFF
4. AP DISC Switch . . . . .RELEASE
5. AP SERVOS Circuit Breaker. . . . . PULL
6. Avionics Switch . . . . ON
7. Pitch Trim . . . . RETRIM AS REQD

NOTE

Autopilot will not re-engage with a failed electric pitch trim system or with the AP SERVOS circuit breaker pulled.

AIR DATA COMPUTER (ADC) FAILURE

Yellow [AIRSPEED]

Yellow [ALTITUDE FAIL]

Yellow [VERT SPEED FAIL]

Red X over TAS and OAT Display

1. Refer to the standby airspeed and altimeter.
2. Land as soon as practical.

ATTITUDE AND HEADING REFERENCE SYSTEM (AHRS) FAILURE

Yellow [ATTITUDE FAIL]

Red X over attitude display

Removal of Sky/Ground Display

Yellow [HDG] with red X

Compass Rose Digits Removed

Course Pointer will indicate straight up

Autopilot and Yaw Damper will Disengage

1. AP DISC Switch . . . . PRESS
   (if required to cancel autopilot tone & flashing [AP])
2. Use Standby Attitude Indicator and Magnetic compass
3. Nav Course. . . . . .SET USING DIGITAL WINDOW
4. Land as soon as practical.

FAILURE OF PFD OR MFD

If the remaining display does not automatically revert to the reversionary mode:

1. DISPLAY BACKUP Button on Audio Panel . . . . PRESS
2. Com 1 and Nav 1 will be lost if the PFD fails.
3. Comm 2 and Nav 2 will be lost if the MFD fails.

FAILURE OF PFD AND MFD

1. Transition to the Standby Instruments.
2. 121.5 MHZ will automatically be available to the pilot through the pilot's headset.
3. Land as soon as practical.

EMERGENCY COMMUNICATIONS

The 121.5 MHZ Emergency frequency will be automatically loaded in the active frequency field under the following conditions.

1. Pressing and holding the COM Frequency Toggle Key for approximately 2 seconds.
2. When a COM tuning failure is detected by the system.
3. In the event of a failure of the PFD and the MFD, the emergency frequency will be available to the pilot through the headset.

GARMIN TERRAIN AWARENESS AND WARNING SYSTEM (TAWS)

(TH-2138, TH-2141 and after and prior airplanes in compliance with Service Bulletin 34-3774.)

TAWS FORWARD LOOKING TERRAIN WARNING [PULL UP]

Voice Warning Alert: See the following table.

Reduced Required Terrain (or Obstacle) Clearance (RTC or ROC) Warning - Voice warning alerts and annunciators are provided if the airplane flight path is projected to violate a set of terrain and obstacle minimum clearance requirements within approximately 30 seconds.

Imminent Terrain (or Obstacle) Impact (ITI or IOI) Warning - Voice warning alerts and annunciators are provided if the airplane flight path is projected to impact the terrain or an obstacle within approximately 30 seconds.

In all cases, a red [PULL UP] will be displayed on the PFD and the MFD TAWS page, if selected. One of the following voice alerts will be heard.

REASON	VOICE WARNING ALERT
Violation of Required Terrain Clearance (RTC) Requirements within 30 seconds	“Terrain, Terrain; Pull Up, Pull Up”
Imminent Terrain Impact (ITI) within 30 seconds	“Terrain Ahead, Pull Up; Terrain Ahead, Pull Up”
Violation of Required Obstacle Clearance (ROC) Requirements within 30 seconds	“Obstacle, Obstacle; Pull Up, Pull Up”
Imminent Obstacle Impact (IOI) within 30 seconds	“Obstacle Ahead, Pull Up; Obstacle Ahead, Pull Up”

The above warnings will normally be preceded by similar Cautions which will occur approximately 30 seconds prior to the warning. See Section 3A, ABNORMAL PROCEDURES.

NOTE

When the TAWS Page is not displayed, and a terrain or obstacle warning is issued, a pop-up window is displayed in the lower right corner of the MFD displaying an appropriate annunciator. See Section 7, SYSTEMS DESCRIPTION.

NOTE

Pilots are authorized to deviate from their current air traffic control (ATC) clearance to the extent necessary to comply with a TAWS warning.

The following procedures should be followed if any of the preceding warnings occur.

In IMC or at Night:

1. **Wings - Level**
2. **Power - Maximum Allowable**
3. **Pitch - Increase**
   a. **Promptly and smoothly increase pitch towards an initial pitch attitude of 15°.**
   b. **Adjust to maintain 92 KIAS.**
   c. **Adjust as required to avoid a continuous stall warning.**
4. **Gear and Flaps - Retracted**
5. Continue climb at 92 KIAS until terrain clearance is assured. (The voice warning alert will be repeated until the threat no longer exists.)
6. Advise Air Traffic Control as necessary

WARNING

Only vertical maneuvers are recommended unless the pilot, using all available information and instruments, determines that a turn, in addition to the vertical escape maneuver, is the safest course of action.

In Day VMC:

1. Evaluate flight path with respect to terrain or obstacle.
2. Take action as necessary to recover safe terrain or Obstacle Clearance.
3. Advise Air Traffic Control as necessary.

EXCESSIVE DESCENT RATE WARNING [PULL UP]

Voice Warning Alert: “Pull Up”

Excessive Descent Rate (EDR) Warning - A Voice warning alert and annunciators are provided if the airplane is below 5,000 feet and approaching the terrain at an excessive rate of descent in relation to the altitude above the terrain. The warning will be provided whether or not the TAWS system is inhibited. A red [PULL UP] will be displayed on the PFD and the MFD TAWS page, if selected, and the “PULL UP” voice warning alert will be heard. If the TAWS page is not selected, a red [PULL-UP] will be displayed in a pop-up window on the Map page. This warning will normally be preceded by a caution. See Section 3A, ABNORMAL PROCEDURES.

The following procedure should be followed if the above warning occurs.

- Level wings and reduce rate of descent until visual and aural warnings cease.

ADDITIONAL WARNING ANNUNCIATIONS

Illumination of a warning annunciation and its associated repeating aural tone:

1. **ALERTS softkey . . . . PRESS**
(Cancels aural alert and displays message in alerts window.)

NOTE

On some software versions exceeding a specific engine or electrical tolerance will cause the engine display to automatically revert to the default ENGINE page display. Hence, the following warning annunciations are not required. Other software versions require the pilot to manually select the ENGINE page display and necessitate additional warning annunciations. It remains the pilot's responsibility to monitor and operate the airplane within the specified limits.

2. **ENGINE softkey. . . . . PRESS**
(As required to return to primary engine page.)
3. **Appropriate action . . . . AS REQUIRED**

FUEL FLOW HIGH [FUEL FLOW HI]

1. Fuel Flow. .CONFIRM > 27.4 gph
2. Boost Pump (if not required) . . . . VERIFY OFF
3. Mixture. . . . . LEAN AS REQUIRED

CYLINDER HEAD TEMPERATURE HIGH [CHT HI]

1. CHT . . . . CONFIRM > 238°C
2. Cowl Flaps . . . . OPEN
3. Mixture . . . . ENRICH AS REQUIRED
4. Airspeed . . . . INCREASE AS REQUIRED
5. Power . . . . REDUCE AS REQUIRED

If CHT drops below 238°C and annunciation extinguishes:

6. Continue flight to destination at pilot's discretion, while continuing to monitor CHT.

If CHT remains > 238°C and annunciation remains displayed:

7. Perform ENGINE FAILURE AFTER LIFT-OFF AND IN FLIGHT procedures to secure affected engine.

or

8. Land at nearest suitable airport using the minimum power required.

OIL TEMPERATURE HIGH [OIL TEMP HI]

1. Oil Temperature . . . . CONFIRM > 116°C
2. Cowl Flaps . . . . OPEN
3. Power . . . . REDUCE TO LOWEST PRACTICAL
4. Oil Pressure . . . . CHECK

If oil temperature stabilizes below 116°C and annunciation extinguishes:

5. Continue flight to destination at pilot's discretion, while continuing to monitor oil temperature and oil pressure.

If oil temperature continues to rise > 116°C:

6. Perform ENGINE FAILURE AFTER LIFT-OFF AND IN FLIGHT procedures to secure affected engine.

or

7. Land at the nearest suitable airport using the minimum power required.

OIL PRESSURE HIGH [OIL PRESS HI]

1. Oil Pressure. CONFIRM > 100 psi
2. Power .REDUCE AS REQUIRED
3. Continue flight to destination at pilot's discretion, while continuing to monitor oil pressure.

OIL PRESSURE LOW [OIL PRESS LO]

1. Oil Pressure. CONFIRM < 10 psi

If confirmed:

2. Perform ENGINE FAILURE AFTER LIFT-OFF AND IN FLIGHT procedures to secure affected engine.

or

3. Land at the nearest suitable airport using the minimum power required.

FUEL QUANTITY LOW [FUEL QTY LO]

1. Fuel Indicators. . . . . CONFIRM LO QTY and TANK
2. Land at nearest suitable airport.

EMERGENCY EXITS

The openable windows on the left and right side of the cabin may be used for emergency egress in addition to the cabin door and utility doors. An emergency exit instructions placard is located on each openable Window/Emergency Exit latch cover.

To Open the Emergency Exit:

1. Remove cover as indicated by placard in the center of the openable window emergency exit latch.

2. Rotate exposed red latch handle up (as indicated by placard) breaking safety wire, and push window out.

NOTE

Anytime the window has been opened by breaking the safety wire on the red emergency latch handle, the window must be reattached and wired by a qualified mechanic using a single strand of QQ-W-343, Type S, .020 diameter copper wire prior to further airplane operation.

For Access Past the 3rd and/or 4th seats:

1. Rotate red handle located on lower inboard side of seat back.
2. Fold seat back over.

SPINS

Intentional spins are prohibited. If an unintentional spin is encountered, perform the following procedure IMMEDIATELY - THE LONGER THE DELAY, THE MORE DIFFICULT RECOVERY WILL BECOME. Steps 1 through 3 should be done AGGRESSIVELY and SIMULTANEOUSLY. The full forward position of the control column may be reduced slightly, if required, to prevent the airplane from exceeding a 90° nose down (inverted) attitude.

1. **Control Column. . . . . FULL FORWARD, AILERONS NEUTRAL**
2. **Full Rudder . . . OPPOSITE THE DIRECTION OF SPIN**
3. **Power Levers . . . . IDLE**
4. **Controls . . . NEUTRALIZE WHEN ROTATION STOPS**
5. **Execute a smooth pullout.**

NOTE

Federal Aviation Administration Regulations do not require spin demonstration of airplanes of this class; therefore, no spin tests have been conducted. The recovery technique is based on the best available information.

SEVERE ICING CONDITIONS (ALTERNATE METHOD OF COMPLIANCE WITH FAA AD 98-04-24)

THE FOLLOWING WEATHER CONDITIONS MAY BE CONDUCIVE TO SEVERE IN-FLIGHT ICING:

- Visible rain at temperatures below 0°C ambient air temperature.
- Droplets that splash or splatter on impact at temperatures below 0°C ambient air temperature.

PROCEDURES FOR EXITING THE SEVERE ICING ENVIRONMENT:

These procedures are applicable to all flight phases from takeoff to landing. Monitor the ambient air temperature. While severe icing may form at temperatures as cold as -18°C, increased vigilance is warranted at temperatures around freezing with visible moisture present. If the visual cues specified in Section 2, LIMITATIONS for identifying severe icing conditions are observed, accomplish the following:

1. Immediately request priority handling from Air Traffic Control to facilitate a route or an altitude change to exit the severe icing conditions in order to avoid extended exposure to flight conditions more severe than those for which the airplane has been certificated.
2. Avoid abrupt and excessive maneuvering that may exacerbate control difficulties.

3. Do not engage the autopilot.
4. If the autopilot is engaged, hold the control wheel firmly and disengage the autopilot.
5. If an unusual roll response or uncommanded roll control movement is observed, reduce the angle-of-attack.
6. Do not extend flaps when holding in icing conditions. Operation with flaps extended can result in a reduced wing angle-of-attack, with the possibility of ice forming on the upper surface further aft on the wing than normal, possibly aft of the protected area.
7. If the flaps are extended, do not retract them until the airframe is clear of ice.
8. Report these weather conditions to Air Traffic Control.

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SECTION 3A
ABNORMAL PROCEDURES

TABLE OF CONTENTS

SECTION 3A
ABNORMAL PROCEDURES
TABLE OF CONTENTS (CONT'D)

SUBJECT *PAGE*

Closed [BRACKETS] in this section denotes Warning, Caution and Advisory alerts which appear on the PFD and MFD.

AIR START

CAUTION

The pilot should determine the reason for engine failure before attempting an airstart.

1. Alternator (inoperative engine) . . . . .OFF
2. Fuel Selector Valve. . . . . .ON
   (feel for detent; confirm visually)
3. Throttle . . . . SET (approximately 1/4 travel)
4. Mixture Control:
   - FULL RICH, below 5000 ft (1/2 travel above 5000 ft)
5. Fuel Boost Pump . . . . LOW
6. Magnetos . . . . .ON
7. Propellers:

   With Unfeathering Accumulators:

   a. Propeller Control . . . . FORWARD OF FEATHERING DETENT (until engine obtains 600 RPM)
   b. Propeller Control . . . . BACK TO DETENT (to avoid overspeeding)
   c. Starter (if necessary) . . . . ENGAGE MOMENTARILY (to accomplish unfeathering)
   d. If propeller does not unfeather or engine does not turn, proceed to Without Unfeathering Accumulators procedure.

   Without Unfeathering Accumulators:

   a. Propeller Control. . . . . FORWARD OF FEATHERING DETENT

b. Starter . . . . ENGAGE
(to accomplish unfeathering)

c. If engine fails to run, clear engine by allowing it to windmill with mixture in CUT OFF. When engine fires, advance mixture to full rich.

8. After Engine Starts . . . . ADJUST THROTTLE, PROPELLER and MIXTURE CONTROLS
9. Fuel Boost Pump. . . . . OFF
(when reliable power has been regained)
10. Alternator. . . . . ON
11. Oil Pressure. . . . . .CHECK
12. Warm Up Engine (approximately 1500 RPM and 15 in. Hg)
13. Power . . . . .AS REQUIRED
14. Trim . . . . .AS REQUIRED

LANDING EMERGENCIES

ONE-ENGINE-INOPERATIVE LANDING

On final approach and when it is certain that the field can be reached:

1. Landing Gear. . . . . DOWN
2. Flaps . . . . APPROACH (15°)
3. Airspeed . . . . 107 KTS
4. Power . . . . .AS REQUIRED
(to maintain 800 ft/min rate of descent)

When it is certain there is no possibility of go-around:

5. Flaps . . . . .DOWN (30°)
6. Airspeed . . . . 95 KTS
7. Execute Normal Landing

ONE-ENGINE-INOPERATIVE GO-AROUND

WARNING

Level flight might not be possible for certain combinations of weight, temperature and altitude. In any event, DO NOT attempt a one-engine-inoperative go-around after flaps have been fully extended.

1. Power . . . . MAXIMUM ALLOWABLE
2. Landing Gear . . . . .UP
3. Flaps . . . . UP (0°)
4. Airspeed . . . . .MAINTAIN 101 KTS MINIMUM

SYSTEMS

STARTER ENGAGE [L START ENGD] or [R START ENGD]

After engine start, should the starter relay remain engaged, the starter will remain energized and the starter energized Warning Alert will remain illuminated. Continuing to supply power to the starter will result in eventual loss of electrical power.

Ground Operations:

1. Alternators . . . . OFF
2. Batteries . . . . OFF
3. DO NOT TAKE OFF.

Illuminated In Flight After Air Start:

1. Alternator (affected engine). OFF
2. Battery (affected engine). . . . . OFF

NOTE

Depending on which Bus is affected, heading and attitude information will be lost. Use standby instruments.

3. Land as soon as practical.

ALTERNATOR HIGH VOLTAGE [LBUS VOLT HI] or [RBUS VOLT HI]

Display of either [LBUS VOLT HI] *or* [RBUS VOLT HI] *caution alert on the PFD:*

1. MFD Softkeys . . . . . . SELECT ENGINE AND SYSTEM
2. Bus Volts (failed side) . . . . .CHECK

If voltage is less than 30 volts a false warning is indicated:

3. Continue to use the alternator.

If voltage is greater than 30 volts a failure on the voltage regulator is indicated:

4. Alternator (failed side). . . . . .OFF
5. Nonessential Electrical Equipment . . . . .OFF AS REQUIRED
   (to reduce load on operative alternator)
6. Bus Volts (failed side) . . . . VERIFY < 28 VOLTS
7. Alternator (failed side). . . . . BUS TIE
   (ties the side with the functional alternator to the inoperative side)
8. Alt Load. . . . . .MONITOR
9. Nonessential Electrical Equipment . . . . .ON AS REQUIRED
   (maintain load limits of operative alternator)

ALTERNATOR LOW VOLTAGE [LBUS VOLT LO] or [RBUS VOLT LO]

Display of either [LBUS VOLT LO] *or* [RBUS VOLT LO] *caution alert on the PFD:*

1. MFD Softkeys . . . . . . .SELECT ENGINE AND SYSTEM
2. Bus Volts (failed side) . . . . CHECK

If voltage is greater than 24 volts a false warning is indicated:

3. Continue to use the alternator.

If voltage is less than 24 volts a failure on the voltage regulator is indicated:

4. Alternator (failed side). . . . . .OFF
5. Nonessential Electrical Equipment . . . . .OFF AS REQUIRED
   (to reduce load on operative alternator)
6. Bus Volts (failed side) . . . VERIFY APPROX. 24 VOLTS

7. Alternator (failed side) . . . . BUS TIE
(ties the side with the functional alternator to the inoperative side)
8. Alt Load . . . . MONITOR
9. Nonessential Electrical Equipment . . . . ON AS REQUIRED
(maintain load limits of operative alternator)

CIRCUIT BREAKER TRIPPED

1. Nonessential Circuit . . . . . DO NOT RESET IN FLIGHT
2. Essential Circuit (necessary for continued safe flight):
   a. Circuit Breaker
   (after allowing to cool
   for a minimum of 10 sec) . . . . . . PUSH TO RESET

If Circuit Breaker Trips Again:

   b. Circuit Breaker . . . . DO NOT RESET

LANDING GEAR MANUAL EXTENSION

1. Airspeed . . . . .152 KTS or LESS

NOTE

Manual extension of the gear can be facilitated by first reducing the airspeed as much as practical.

2. LANDING GEAR MOTOR Circuit Breaker
(left circuit breaker panel). . . . . PULL
3. Landing Gear Handle . . . . DOWN
4. Handcrank Handle Cover
(at rear of front seat) . . . . REMOVE
5. Handcrank . . . . ENGAGE AND TURN CCW AS FAR AS POSSIBLE
(approximately 50 turns)

6. If the electrical system is operative, a positive gear down indication can be made as follows:
   a. LDG GR WARN and LDG GR POS LTS Circuit Breaker . . . . .CHECK IN
   b. Landing GEAR DN & LOCKED Lights. . . . . .ILLUMINATED (3 green)
   c. CHECK that the gear warning horn does not sound when either throttle is retarded to idle.
7. Handcrank . . . . .DISENGAGE, THEN STOW
8. Do not move the Landing Gear Handle or reset the LANDING GEAR MOTOR Circuit Breaker.
9. The landing gear should be considered UNLOCKED until the airplane is on jacks and the system has been cycled and checked.

CAUTION

Do not operate the landing gear electrically with the handcrank engaged. Damage to the mechanism could occur.

CAUTION

The manual extension system is designed to lower the landing gear only. DO NOT ATTEMPT TO RETRACT THE GEAR MANUALLY.

LANDING GEAR RETRACTION AFTER PRACTICE MANUAL EXTENSION

After practice manual extension of the landing gear, the gear can only be retracted electrically, as follows:

1. Handcrank . . . . CONFIRM STOWED
2. LANDING GEAR MOTOR Circuit Breaker . . . . IN
3. Landing Gear Handle . . . . .UP

NOTE

The landing gear will not retract unless the throttle is in a position corresponding to approximately 15 in. Hg manifold pressure or above.

ICE PROTECTION

SURFACE DEICE SYSTEM

Failure of the AUTO Mode:

- Surface Deice Switch. . . . . MANUAL
(Do not hold more than 8 seconds.)

NOTE

The boots will inflate only as long as the switch is held in the MAN (manual) position. When the switch is released, the boots will deflate.

Failure of boots to deflate:

1. Pull Surface Deice Circuit Breaker on pilot's sidewall circuit breaker panel.
2. If boots reinflate after Surface Deice Circuit Breaker is reset, use circuit breaker as a manual surface deice switch, following the procedures outlined in Failure of the AUTO Mode.

Failure of AUTO and MAN modes of operation:

- Exit icing conditions as soon as possible.

ELECTROTHERMAL PROPELLER DEICE SYSTEM

An abnormal reading on the Propeller Deice Ammeter indicates need for the following action:

1. Zero Amps:

   Check the propeller deice circuit breaker switch. If the circuit breaker portion of the switch has tripped the switch off, wait approximately 30 seconds before resetting. If the switch trips again, do not reset. If the ammeter reads zero and the switch has not tripped, check Alt Load for deflection as the switch is cycled on and off to confirm a malfunction of the ammeter. If Alt load does not show a deflection, consider the propeller deice system to be inoperative.

2. Zero to 14 Amps:

   If the propeller deice system ammeter occasionally or regularly indicates less than 14 amps, operation of the propeller deice system can continue unless serious propeller imbalance results from irregular ice shedding.

3. 18 to 23 Amps:

   If the propeller deice system ammeter occasionally or regularly indicates 18 to 23 amps, operation of the propeller deice system can continue unless serious propeller imbalance results from irregular ice shedding.

4. More than 23 Amps:

   If the propeller deice system ammeter occasionally or regularly indicates more than 23 amps, the system should not be operated unless the need for propeller deicing is urgent.

NOTE

If the propeller deice system becomes inoperative, leave icing conditions as soon as possible. Cycling of the propeller RPM will assist the propellers in shedding ice.

EMERGENCY STATIC AIR SOURCE SYSTEM

THE EMERGENCY STATIC AIR SOURCE SHOULD BE USED FOR CONDITIONS ANYTIME THE NORMAL STATIC SOURCE HAS BEEN OBSTRUCTED. When the airplane has been exposed to moisture and/or icing conditions (especially on the ground), the possibility of obstructed static ports should be considered. Partial obstruction will result in the rate of climb indication being sluggish during a climb or descent. Verification of suspected obstruction is possible by switching to the emergency system and noting a sudden sustained change in rate of climb. This may be accompanied by abnormal indicated airspeed and altitude changes beyond normal calibration differences.

Whenever any obstruction exists in the Normal Static Air System, or the Emergency Static Air System is desired for use:

1. Emergency Static Air Source . . . . . EMERGENCY (ON) (lower sidewall adjacent to pilot)
2. For Airspeed Calibration and Altimeter Correction, refer to Section 5, PERFORMANCE.

When the Emergency Static Air System is no longer needed:

3. Emergency Static Air Source . . . . (NORMAL) OFF

ELECTROTHERMAL HEATED WINDSHIELD SEGMENT

Failure of the heated windshield segment can be confirmed by cycling the WSHLD HEAT switch to OFF, then ON. If a deflection of the Alt Load is not apparent, consider the system inoperative and exit icing conditions. Partial windshield deicing may be accomplished using the defroster. Maximum defrost heat is achieved as follows:

1. Heater Switch . . . . .HEATER
2. Cabin Air Control. . . . . .PULL AFT (not more than 1/2 travel)

3. Cabin Heat Control . . . . PULL OUT
4. Defrost Control . . . . PULL OUT
5. Pilot Air Control. . . . . .PUSH IN
6. Copilot Air Control. . . . . .PUSH IN

HEATED PITOT TUBE

Failure of pitot heat in icing conditions may be noticed by a rapid decrease in indicated airspeed, or some other inappropriate reading for the given flight condition. Leave icing conditions as soon as possible.

CABIN HEATER

Failure of the cabin heater in icing conditions:

1. Heater . . . . TURN OFF
2. Icing Conditions . . . . . . EXIT AS SOON AS POSSIBLE

WING ICE LIGHT

Failure of the Wing Ice Light at night in icing conditions:

1. Cabin Lights Circuit Breaker . . . . .CHECK
2. Icing Conditions . . . . . . EXIT AS SOON AS POSSIBLE

FORWARD CABIN DOOR OPEN IN FLIGHT

If the forward cabin door is not properly latched, it may open during takeoff roll or during flight. The door may trail open approximately 3 inches, but the flight characteristics of the airplane will not be affected. The rate-of-climb will be reduced.

If the forward cabin door opens in flight:

1. Maintain Control of the Airplane.
2. Do not attempt to close the door until after landing.
3. All Occupants remain seated with seat belts fastened.
4. Land as soon as practical using Normal Procedures.

If occupant in right seat can assist:

5. Hold door during and after landing to prevent it from swinging open.

AVIONICS

AUTOPILOT FAILURES

FAILURE OF AUTOPILOT PRE-FLIGHT TEST

Red [PFT]

1. AP SERVOS Circuit Breaker. . . . . PULL
   [PFT] - Extinguished
2. Do Not Reset Circuit Breaker Unless Airplane is on the Ground.

AUTOPILOT OUT-OF-TRIM

Yellow [RUD→], [←RUD], [←AIL], [AIL→], [↑ELE], or [↓ELE]

CAUTION

Do not attempt to overpower the autopilot in the event of a mistrim. The autopilot servos will oppose pilot input and, in the case of the pitch axis, will trim the elevator in the opposite direction to the pilot input. This could lead to a significant out-of-trim condition.

If [←AIL] *or* [AIL→], *is illuminated:*

1. Slip/Skid Indicator . . . . .VERIFY CENTER
2. Fuel Imbalance . . . . .CHECK
   (max. allowable = 15 Gal. or ~1.6 divisions on indicator)

If [←RUD] *or* [RUD→] *is illuminated during a climb:*

3. Rudder Trim . . . . ADJUST
   (as required)

Temporary Change to the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

P/N 58-590000-67TC1 Rev 1

Publication Affected	Model G58 Pilot's Operating Handbook and FAA Approved Airplane Flight Manual (58-590000-67, Issued November, 2005)
Airplane Serials Numbers Affected	TH-2125 thru TH-2158 not in compliance with S.B. 22-3795.
Description of Change	Uncommanded pulsing of the control column during overly aggressive autopilot captures and during use of the PIT mode (affects and ABNORMAL and NORMAL PROCEDURES Sections).
Filing Instructions	Insert the following pages of this temporary change into the Model G58 Pilot's Operating Handbook and FAA Approved Airplane Flight Manual and retain until rescinded by Service Bulletin 22-3795. - Page 2 of 4 and 1 of 4 following page 3A-14 (Abnormal Procedures section). - Page 3 of 4 and 4 of 4 following page 4-30 (Normal Procedures section).

ABNORMAL PROCEDURES

AVIONICS

AUTOPILOT FAILURES

NUISANCE PITCH PULSE

If a nuisance pitch pulse is encountered, disconnect autopilot. Retrim and stabilize airplane in the desired flight path and re-engage the autopilot, if desired.

If an annunciation remains illuminated:

4. Control Wheel . . . . HOLD FIRMLY
   (be prepared to apply force in the direction of the arrow)
5. AP DISC Switch . . . . PRESS
6. Pitch & Aileron Trim . . . . .RETRIM IF REQD
7. Autopilot (after mistrim is corrected) . . . . . RE-ENGAGE

LOSS OF A FLIGHT DIRECTOR/AUTOPILOT MODE

Yellow flashing Mode Annunciator

Loss of a mode, or failure of it to engage, will be annunciated by a flashing of the mode in yellow in the AFCS status bar. After 10 seconds the flight director will revert to the default mode (ROL or PIT).

Loss of Selected Vertical Mode (FLC, VS, ALT, GS), or,
Loss of Selected Lateral Mode (HDG, VOR, GPS, BC, LOC, VAPP, LOC)

1. Autopilot Mode Control . . . . SELECT ANOTHER VERTICAL OR LATERAL MODE

If on an Instrument Approach:

2. Autopilot (if coupled) & Flight Director . . DISCONNECT
   (continue the approach manually or execute missed approach)

LOSS OF NAVIGATION INFORMATION

Yellow flashing Mode annunciator [VOR], [VAPP], [GPS], [LOC], [BC], or [GS]

Loss of a navigation signal will be annunciated by a flashing of the mode in yellow in the AFCS status bar. After 10 seconds the flight director will revert to the default ROL mode.

1. CDI Soft Key . . . . . .SELECT ANOTHER NAV SOURCE
2. HDG Bug (if reqd.) . . . . . SELECT INTERCEPT ANGLE
3. HDG Mode (if reqd.) . . . . SELECT

4. NAV Mode . . . . ARM

If on an instrument approach at the time the navigation signal is lost:

5. Execute Missed Approach

AVIONICS MASTER SWITCH FAILURE

If the Avionics Master Switch fails to Operate in the on Position:

• AVIONICS MASTER Circuit Breaker (Left panel) . . . . PULL

NOTE

Turning on the Avionics Master Switch removes power that holds the avionics relay open. If the switch fails to the OFF position, pulling the AVIONICS MASTER circuit breaker will restore power to the avionics buses.

TRANSPONDER FAILURE

[XPDR FAIL]

The display is not receiving information from the transponder.

1. Confirm status of transponder with ATC.

If Transponder is inoperative:

2. Traffic Advisory System (TAS) (if installed). . . . . . STBY

ENGINE AND/OR FUEL DISPLAY FAILURE

Indications which are not compatible with other instruments.

If the L or R ENG/AFR SENSOR Circuit Breaker is out, the following displays will be inoperative for the corresponding engine: MAP, RPM, EGT, CHT, Oil Press, Oil Temp, Fuel Flow, Fuel Qty, and Alt Load.

If all engine instruments are inoperative:

1. L and R ENG/AFR SENSOR
   Circuit Breaker . . . . .CHECK IN

If a partial failure has occurred:

2. L or R ENG/AFR SENSOR
   Circuit Breaker (affected side) . . . . . PULL AND RESET

If one or more engine or fuel displays remain inoperative:

3. Power
   (if RPM and/or MAP are inop) . . . . . . SET BASED ON:
   a. Throttle Position
   b. Engine Noise
   c. Airspeed
   d. Fuel Flow from cruise tables in Section 5, PERFORMANCE
   e. EGT
4. Available Instruments . . . . .MONITOR

ERRONEOUS FAILURE DISPLAYS

Erroneous Warning, Caution or Advisory Alerts, Red X's, or Erroneous Exceedence displays.

There is a remote chance that an alert, red X or red exceedence display may be erroneously displayed.

If it is suspected that an erroneous failure display has occurred:

1. Use other system information to determine if the failure display is valid.

If the validity of the failure display cannot be confirmed:

2. Assume the failure display is valid and follow the appropriate Emergency or Abnormal procedures.

FAILED HEADING DURING GROUND OPERATIONS

(RED “X” OVER [HDG] FLAG ON PFD)

Interference from GPS repeaters operating inside nearby hangars or magnetic anomalies caused by nearby structures can cause an intermittent loss of heading display while the airplane is on the ground. Moving the airplane more than 100 yards away from the source of the interference should alleviate the condition. Takeoff should not be attempted until fault clears.

SYSTEM FAILURE WITHOUT AN ASSOCIATED FAILURE DISPLAY

There is a remote chance that a system failure could occur WITHOUT an associated failure indication (Alert, Red X, or Exceedence Display.)

1. Use other system information to determine if the system failure is valid.

If it cannot be determined that the system failure is the result of an erroneous display:

2. Assume the failure is valid and follow the appropriate Emergency or Abnormal procedures.

FAILURE OF COOLING FANS [PFD FAN FAIL], [MFD FAN] or [AVIONICS FAN] Advisory Message

Presentation of one or more of these advisory messages indicates that the PFD fan has failed, the MFD fan has failed, or the Avionics Fan has failed. Cooling extends the life of this equipment, but is not required for continued operation.

1. Continue to destination.
2. Repair as soon as practical.

GLOBAL POSITIONING SYSTEM (GPS)

LOSS OF, OR INVALID GPS SIGNAL

• Utilize NAV 1 or NAV 2 receivers.

POSITION ERROR [POSN ERROR]

1. GPS signal will flag.
2. Utilize NAV 1 or NAV 2 receivers.

LOSS OF RECEIVER AUTONOMOUS INTEGRITY MONITORING (RAIM)

During enroute, oceanic, terminal, or initial approach phase of flight:

1. Continue to navigate using GPS.
2. Verify position using NAV 1 or NAV 2 every 15 minutes.

Or:

3. Utilize NAV 1 or NAV 2 receivers.

During Final Approach:

1. GPS navigation will continue for up to 5 minutes.
2. Conduct missed approach.
3. If terminal GPS sensitivity is lost during the missed approach, revert to NAV 1 or NAV 2 receivers.

GARMIN TERRAIN AWARENESS AND WARNING SYSTEM (TAWS)

(TH-2138, TH-2141 and after and prior airplanes in compliance with Service Bulletin. 34-3774.)

TAWS FORWARD LOOKING TERRAIN CAUTIONS [TERRAIN]

Voice Caution Alert: See the following table.

Reduced Required Terrain (or Obstacle) Clearance (RTC or ROC) Caution - Voice caution alerts and annunciators are provided if the airplane flight path is projected to violate a set of terrain and obstacle minimum clearance requirements within approximately 60 seconds.

Imminent Terrain (or Obstacle) Impact (ITI or IOI) Caution - Voice caution alerts and annunciators are provided if the airplane flight path is projected to impact the terrain or an obstacle within approximately 60 seconds.

In all cases, a yellow [TERRAIN] will be displayed on the PFD and the MFD TAWS page, if selected. One of the following voice caution alerts will be heard.

REASON	VOICE CAUTION ALERT
Violation of Required Terrain Clearance (RTC) Requirements within 60 seconds	“Caution Terrain, Caution Terrain”
Imminent Terrain Impact (ITI) within 60 seconds	“Terrain Ahead, Terrain Ahead”
Violation of Required Obstacle Clearance (ROC) Requirements within 60 seconds	“Caution Obstacle, Caution Obstacle”
Imminent Obstacle Impact (IOI) within 60 seconds	“Obstacle Ahead, Obstacle Ahead”

NOTE

When the TAWS Page is not displayed and a terrain or obstacle caution is issued, a pop-up window is displayed in the lower right corner of the MFD displaying an appropriate annunciator. See Section 7, SYSTEMS DESCRIPTION.

NOTE

Pilots are authorized to deviate from their current air traffic control (ATC) clearance to the extent necessary to comply with a TAWS caution.

The following procedure should be followed if any of the preceding cautions occur.

1. Stop descending, or climb, and/or turn as necessary, based on analysis of all available instruments and visual observations, in order to cancel the alert. (The voice caution alert will be repeated until the threat no longer exists.)
2. Advise Air Traffic Control as necessary.

EXCESSIVE DESCENT RATE CAUTION [TERRAIN]

Voice Caution Alert: “Sink Rate”

Excessive Descent Rate (EDR) Caution - A Voice caution alert and annunciator are provided if the airplane is below 5,000 feet and approaching the terrain at an excessive rate of descent in relation to the altitude above the terrain. The cautions will be provided whether or not the TAWS system is enabled. A yellow [TERRAIN] will be displayed on the PFD and the MFD TAWS page, if selected, and the voice caution alert “SINK RATE” will be heard. If corrective action is not taken, an EDR warning will follow the caution. See Section 3, EMERGENCY PROCEDURES.

NOTE

When the TAWS Page is not displayed, and an EDR caution is issued, a pop-up window is displayed in the lower right corner of the MFD displaying a yellow [SINK RATE].

The following procedure should be followed if the above caution occurs.

- Level wings and reduce rate of descent until visual and aural alerts cease.

NEGATIVE CLIMB RATE AFTER TAKEOFF [TERRAIN]

Voice Caution Alert: "Don't Sink"

A Voice caution alert and annunciator are provided to alert the pilot that the airplane is losing altitude after takeoff. The cautions will be provided whether or not the TAWS system is enabled. The alerts are only active if all of the following conditions are met:

- The takeoff phase of flight. (The system must have detected an actual takeoff. Alerts are not provided for go-arounds or missed approaches.)
- The height above the terrain is less than 700 feet.
- The airplane is less than 2 nm from the departure airport.
- The airplane heading is less than 110 from the departure runway heading.

The following procedure should be followed if the above caution occurs.

- Level wings and immediately establish a positive rate of climb.

PREMATURE DESCENT DURING AN APPROACH [TERRAIN]

Voice Caution Alert: “Too Low, Terrain”

A Voice caution alert and annunciator are provided to alert the pilot that the airplane has descended too low for the particular kind of approach; e.g. a visual approach (no approach loaded), a non-precision approach, or an ILS approach.

The following procedure should be followed if the preceding caution occurs.

- Initiate positive action to fly the airplane up to the glide path to cancel the alerts.

DITCHING, OFF-AIRPORT LANDING, OR FLYING VFR AROUND UNIQUE TERRAIN

Inhibit the visual and voice alerts of the TAWS system using the following procedure. The terrain page will remain operational on the MFD and the GPWS functions will still be operational.

On the MFD:

1. Large FMS Knob. . . . . .SELECT THE MAP GROUP
2. Small FMS Knob . . . . SELECT THE TAWS PAGE
3. Press the MENU Key
4. Small FMS Knob . . . . SELECT “INHIB TAWS”
5. Press ENT

ALTIMETER DISAGREEMENT

If a significant difference is noted between the altitude displayed on the PFD and the standby altimeter, the GPS ALT displayed on the MFD may be used as a third altitude source to help resolve the discrepancy.

WARNING

The GPS ALT displayed on the MFD is a calculated value and must not be considered as a primary source of altitude. The GPS ALT and the altitude displayed on the PFD may differ by 100 feet or more. Its use is not approved for navigation.

ADDITIONAL CAUTION ANNUNCIATIONS

Illumination of a CAUTION annunciation and its associated single aural tone:

1. ALERTS softkey . . . . PRESS
   (displays message in alerts window)

NOTE

On some software versions exceeding a specific engine or electrical tolerance will cause the engine display to automatically revert to the default ENGINE page display. Hence, the following caution annunciations are not required. Other software versions require the pilot to manually select the ENGINE page display and necessitate additional caution annunciations. It remains the pilot's responsibility to monitor and operate the airplane within the specified limits.

2. ENGINE softkey . . . . PRESS
   (As required to return to primary engine page.)
3. Appropriate action . . . . .AS REQUIRED

OIL PRESSURE LO [OIL PRESS LO]

1. Oil Pressure . . . . CONFIRM < 30 psi

If confirmed:

2. Consider ENGINE FAILURE AFTER LIFT-OFF AND IN FLIGHT procedures to secure affected engine.

or

3. Land at the nearest suitable airport using the minimum power required.

FUEL QUANTITY LOW [FUEL QTY LO]

1. Fuel Indicators .CONFIRM QTY
2. Power .REDUCE AS REQUIRED
3. Mixture . . . . .LEAN AS REQUIRED
4. Crossfeed (if fuel imbalance > 15 gals) . AS REQUIRED
5. Fuel Quantity . . . . .MONITOR

WARNING

Do not take off if the fuel quantity display indicates in the yellow band or with less than 13 gallons in each wing fuel system.

ALTERNATOR LOAD HIGH [ALT LOAD]

1. Alternator load (affected side). . CONFIRM > 100 AMPS
2. Non-essential electrical equipment. . . . . .OFF

If load does not decrease below 100 amps and annunciation remains displayed:

3. Alternator (affected side) . . . . .OFF
4. Bus Voltage (affected side). . . . . .MONITOR (reads battery voltage)

CAUTION

Depending on the cause of the Bus Overload condition, battery operating time on the affected side may be less than 30 minutes. When power to the Left Bus is only being supplied by the battery, be prepared to use standby instruments.

5. Land at the nearest suitable airport.

SURFACE DEICE AIR PUMP [L AIR PUMP] or [R AIR PUMP]

1. Surface Deice Boots . . . . .CHECK OPERATION
2. Deice pressure gage:
   a. While boots are inflating . . . . 9 to 20 PSI
   b. When boots are fully inflated . . . . . 15 PSI MINIMUM

If boots operate normally:

3. Operations in icing conditions at pilot's discretion; avoid, if possible.

Otherwise:

4. Do not enter or continue operations in icing conditions.

SECTION 4
NORMAL PROCEDURES

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SECTION 4
NORMAL PROCEDURES

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SUBJECT *PAGE*

SECTION 4
NORMAL PROCEDURES

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All airspeeds quoted in this section are indicated airspeeds (IAS) and assume zero instrument error.

AIRSPEEDS FOR SAFE OPERATION (5500 LBS)

Maximum Demonstrated Crosswind Component . . . . 22 kts

Takeoff:

Rotation . . . . 85 kts

50-ft Speed . . . . 100 kts

Two-Engine Best Angle-of-Climb (V_X) . . . . 92 kts

Two-Engine Best Rate-of-Climb (V_Y) . . . . 105 kts

Cruise Climb . . . . 136 kts

Turbulent Air Penetration . . . . 156 kts

Landing Approach (5400 lbs):

Flaps Down (30°) . . . . 95 kts

Balked Landing Climb. . . . . 95 kts

Intentional One-Engine-Inoperative Speed (V_{SSE}). . . . . 88 kts

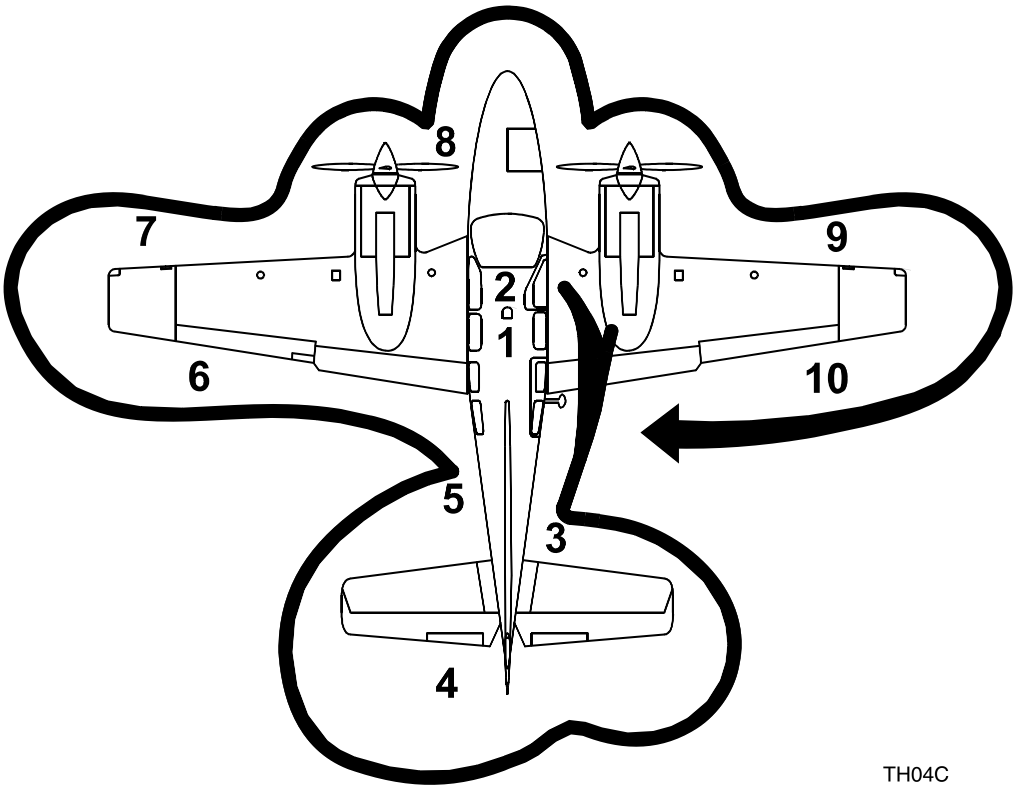
Air Minimum Control Speed (V_{MCA}) . . . . 84 kts

Minimum During Icing Conditions. . . . . 130 kts

NOTE

Refer to all applicable Hawker Beechcraft Corporation Supplements and STC Supplements for flight phase procedures for optional equipment installed in the airplane.

PREFLIGHT INSPECTION



TH04C
054024AA.AI

1. CABIN
   a. Emergency Exits. . . . . .CHECK
      1) Safety Wire (Beneath Cover). . . . . INTACT
      2) Windows . . . . CLOSED & LOCKED
   b. Seats and Seat Belts . . . . . PROPERLY INSTALLED
   c. Baggage . . . . SECURE

2. COCKPIT

   a. Landing Gear Emergency Handcrank . . . . STOWED AND ACCESSIBLE
   b. Fire Extinguisher . . . . CHECK
   c. Parking Brake . . . . .SET
   d. Control Locks . . . . REMOVE
   e. All Switches . . . . .OFF
   f. Landing Gear Handle .DOWN
   g. Trim Tabs . . . . SET TO ZERO
   h. Battery System . . . . CHECK
      1) L BAT and R BAT . . . . .ON
      2) PFD . . . . VERIFY REVERSIONARY MODE
      3) Soft Keys . . . . SELECT ENGINE & SYSTEM
      4) L Bus & R Bus Voltages . . . . CHECK
         a) L Bus = 23 Volts minimum
         b) R Bus = 23 Volts minimum
   i. Landing Gear Position Lights . . . . .CHECK 3 GREEN
   j. Annunciator Test Button . . . . PRESS
      • Gear In-Transit Light and Flap Lights. . . . . ILLUMINATED
   k. Exterior/Interior Lights . . . . .CHECK, AS REQUIRED
   l. Standby Attitude Indicator . . . . FLAG PULLED
   m. L BAT & R BAT . . . . .OFF
   n. Standby Attitude Indicator . . . . .YELLOW LED BLINKING
      • Will automatically shutdown after 1 minute

3. RIGHT FUSELAGE

   • Static Port . . . . CLEAR

4. EMPENNAGE
   a. Vertical & Horizontal Stabilizers . . . . CHECK
   b. Deice Boots . . . . CHECK
   c. Rudder & Elevator . . . . CHECK MOVEMENT & SECURITY
   d. Rudder & Elevator Trim Tab. . . . CHECK SECURITY, ALIGNMENT WITH ELEVATOR & RUDDER
   e. Static Wicks . . . . CHECK
   f. Nav Light and Rotating Beacon . . . . CHECK
   g. Tie Down . . . . REMOVE
5. LEFT FUSELAGE
   a. Cabin Air Intake . . . . CLEAR
   b. Cabin Air Exhaust. . . . . CLEAR
   c. Static Port. . . . . CLEAR
   d. All Antennas . . . . CHECK
   e. Lower Flashing Beacon . . . . CHECK
6. LEFT WING TRAILING EDGE
   a. Fuel Sump Aft of Wheel Well . . . . . DRAIN & CHECK FUEL
   b. Fuel Vents . . . . CLEAR
   c. Flap. . . . . CHECK
   d. Aileron Trim Tab . . . . CHECK SECURITY, ALIGNMENT WITH AILERON
   e. Aileron . . . . CHECK MOVEMENT & SECURITY
   f. Static Wicks . . . . CHECK
   g. Wing Tip . . . . CHECK
7. LEFT WING LEADING EDGE
   a. Navigation and Strobe Lights . . . . CHECK

b. Fuel . . . . .CHECK QTY, O RING, CAP SECURE (Always check wing tip tank (if installed) first; do not remove inboard cap if fuel is visible in tip tank.)

c. Wing Tip Tank Sump (if installed) . . . . .DRAIN & CHECK FUEL

d. Siphon Break Port . . . . CLEAR

e. Deice Boots . . . . CHECK

f. Stall Warning Vane . . . . CHECK MOVEMENT

g. Tie Down . . . . REMOVE

h. ADC OAT Probe . . . . CHECK

i. Fuel Sight Gage . . . . CHECK

j. Engine Oil . . . . 10 QTS MINIMUM

k. Engine Cowling . . . . .SECURE

l. Landing Light . . . . CHECK

m. Engine Air Intake . . . . CLEAR

n. Propeller / Spinner . . . . CHECK (Nicks, Leaks, Deice Boots)

o. Cowl Flap . . . . CHECK

p. Left Main Gear . . . . CHECK

   1) Gear Doors . . . . .SECURE & FLUSH

   2) Landing Gear Uplock Roller . . . . CHECK

   3) W.O.W. Switch Linkage . . . . .SECURE

   4) Scissor Linkage .SECURE

   5) Shock Strut . . . . .PROPER INFLATION

   6) Tire . . . . CONDITION

   7) Chocks . . . . REMOVE

q. Fuel Strainer and Selector Drains . . . . .DRAIN & CHECK FUEL

r. Fuel Sump Drain . . . . DRAIN & CHECK FUEL

8. NOSE SECTION
   a. OAT Probe . . . . CHECK
   b. Heat Air Inlet. . . . . CLEAR
   c. Pitot . . . . CLEAR
   d. Taxi Light . . . . CHECK
   e. Nose Gear . . . . CHECK
      1) Gear Doors . . . . SECURE
      2) Shock Strut . . . . PROPER INFLATION
      3) Shimmy Damper . . . . SECURE
      4) Scissor Linkage & Tow Pins . . . . CHECK
      5) Tire. . . . . CONDITION
      6) Chocks. . . . . REMOVE
   f. Baggage Compartment . . . . CHECK
      1) Brake Fluid Reservoir . . . . CHECK
      2) Circuit Breakers . . . . CHECK
      3) Baggage . . . . SECURE
      4) Baggage Compartment Door. . . . . CLOSE & SECURE
   g. Cabin Heater Over-Temperature Switch . . . . CHECK
   h. Heater Exhaust Outlet . . . . CHECK
   i. Heater Fuel Drain Line . . . . CHECK
9. RIGHT WING LEADING EDGE
   a. Fuel Strainer and Fuel Selector Drains . . . . . DRAIN & CHECK FUEL
   b. Fuel Sump Drains. . . . . DRAIN & CHECK FUEL
   c. Left Main Gear . . . . CHECK
      1) Gear Doors . . . . SECURE & FLUSH
      2) Landing Gear Uplock Roller. . . . . CHECK
      3) W.O.W Switch Linkage . . . . SECURE
      4) Scissors Linkage . . . . SECURE

5) Shock Strut . . . . PROPER INFLATION

6) Tire . . . . CONDITION

7) Chocks . . . . REMOVE

d. Cowl Flap . . . . CHECK

e. Engine Oil . . . . 10 QTS MINIMUM

f. Engine Cowling and Doors . . . . SECURE

g. Landing Light . . . . CHECK

h. Engine Air Intake . . . . CLEAR

i. Propeller / Spinner . . . . CHECK
(Nicks, Leaks, Deice Boots)

j. Fuel Sight Gage . . . . CHECK

k. Deice Boots . . . . CHECK

l. Tie Down . . . . REMOVE

m. Fuel . . . . CHECK QTY, O RING, CAP SECURE
(Always check wing tip tank (if installed) first; do not remove inboard cap if fuel is visible in tip tank.)

n. Wing Tip Tank Sump (if installed) . . . . DRAIN
& CHECK FUEL

o. Siphon Break Port . . . . CLEAR

p. Navigation and Strobe Lights . . . . CHECK

10. RIGHT WING TRAILING EDGE

a. Wing Tip . . . . CHECK

b. Static Wicks . . . . CHECK

c. Aileron . . . . CHECK MOVEMENT & SECURITY

d. Flaps . . . . CHECK

e. Fuel Vents . . . . CLEAR

f. Fuel Sump Aft of Wheel Well . . . . DRAIN
& CHECK FUEL

g. Utility Doors . . . . CLOSED AND LOCKED

BEFORE ENGINE STARTING

1. Seats . . . . POSITION FOR TAKEOFF
2. Rudder Pedals. . . . . ADJUST
3. Seat Belts and Shoulder Harnesses . FASTEN/ADJUST
4. Parking Brake . . . . .CONFIRM SET
5. Left Side Circuit Breakers . . . . IN
6. Static Air Source . . . . DRAIN
   - Emergency Static Air Source . . . SELECT EMERGENCY POSITION THEN RETURN TO NORMAL
7. Subpanel Switches . . . . .OFF, BEACON ON
8. Landing Gear Handle . . . . DN
9. Throttles . . . . CLOSE
10. Propellers . . . . HIGH RPM
11. Mixture. . . . . .FULL RICH
12. Flaps . . . . UP
13. Cowl Flaps. . . . . OPEN
14. Avionics Circuit Breakers . . . . IN
15. ELT Switch . . . . ARM
16. Battery System Check. . . . . CONFIRM COMPLETE
17. L & R BAT, L & R ALT. . . . . ON
18. PFD . . . . .VERIFY REVERSIONARY MODE
19. White [TAWS TEST] (if installed) . . . . . . ILLUMINATED (Indicates TAWS-B system test is in progress)
20. Alerts . . . . .CHECK & CONSIDERED
21. White [TAWS TEST] (if installed) . . . . EXTINGUISHED (Indicates TAWS-B system test was satisfactory)
22. Fuel Remaining . . . . SET
    a. Select ENGINE and SYSTEM Soft Keys
    b. With Full Fuel . . . . Press 194 GAL (or 166 GAL)

c. With Partial Fuel (if required) . . . . . Press DEC FUEL or INC FUEL (to adjust GAL REM)

23. Fuel Selector Valves. . . . . .ON (feel for detent; confirm visually)

WARNING

Do not take off if fuel quantity indication is in the yellow band or with less than 13 gallons in each tank.

24. R Fuel Boost Pump. . . . . .VERIFY OPERATION

a. R Fuel Boost Pump . . . . .SELECT LO, LISTEN FOR OPERATION

b. R Fuel Boost Pump . . . . SELECT OFF

25. L Fuel Boost Pump . . . . .VERIFY OPERATION

a. L Fuel Boost Pump . . . . .SELECT LO, LISTEN FOR OPERATION

b. L Fuel Boost Pump . . . . SELECT OFF

ENGINE STARTING (BATTERY)

CAUTION

Do not engage starter for more than 30 seconds in any 4-minute period.

COLD STARTS

1. Throttle . . . . FULL OPEN
2. Propeller . . . . HIGH RPM
3. Mixture . . . . .FULL RICH
4. Fuel Boost Pump . . . . . HI UNTIL FUEL FLOW PEAKS THEN OFF

5. Throttle . . . . CLOSE, THEN OPEN APPROXIMATELY 1/2 INCH
6. Magnetos/Start Switch . . . . START (Release to BOTH when engine starts)
   - The [START ENGD] Caution Alert will illuminate during the Start and should extinguish when starter is released.
7. Throttle (after start) . . . . 900 to 1000 RPM
8. Oil Pressure. . . . . .CHECK

CAUTION

Engine oil pressure must be out of the red band within 30 seconds.

9. Other Engine . . . . START REPEAT STEPS 1 - 8

FLOODED ENGINE

1. Mixture. . . . . CUT OFF
2. Propeller . . . . HIGH RPM
3. Throttle . . . . OPEN
4. Magneto / Start Switch . . . . START (Release to BOTH when engine starts)
5. As Engine Starts:
   a. Throttle . . . . IDLE
   b. Mixture . . . . .FULL RICH

HOT STARTS

1. Mixture. . . . . CUT OFF
2. Propeller . . . . HIGH RPM
3. Fuel Boost Pump. . . . . HI FOR 30-60 SECONDS, THEN OFF
4. Mixture. . . . . .FULL RICH

5. Throttle . . . . FULL OPEN
6. Fuel Boost Pump . . . . . HI UNTIL FUEL FLOW PEAKS THEN OFF
7. Throttle . . . . .CLOSE; THEN OPEN APPROXIMATELY 1/2 INCH
8. Magneto/Start Switch . . . . START (Release to BOTH when engine starts)
9. Fuel Boost Pump . . . . HI (Momentarily after starting to purge the system)
10. Fuel Boost Pump . . . . .OFF

BEFORE TAXI

1. Throttles . . . . 900 to 1000 RPM
2. Oil Pressure and Temperature . . . . CHECK

CAUTION

Engine oil and oil pressure must be in green band prior to engine run-up above 1200 RPM.

3. Avionics Master . . . . .ON
4. Autopilot Preflight Test . . . . COMPLETE
   a. Red AFCS Message . . . . ILLUMINATED WHILE AHRS ALIGNS
   b. Red AFCS Message . . . . .EXTINGUISHED
   c. White PFT Message . . . . ILLUMINATED (~ 5 Seconds)
   d. White PFT Message . . . . .EXTINGUISHED
   e. Autopilot Disconnect Tone . . . . .SOUNDS
5. MFD . . . . AVIATION DATABASE ACKNOWLEDGE (press ENT to continue)
6. PFD and MFD. . . . . . .DISPLAYED IN NORMAL MODE
7. AHRS . . . . ALIGNED

8. Electrical System. . . . . .CHECK
   a. MFD Soft Keys . . . SELECT ENGINE AND SYSTEM
   b. L Alt and R Alt Load . . . . .POSITIVE
   c. L Bus and R Bus Voltage . . . . 27.5 - 29.0 Volts
   d. L Alt . . . . OFF
      1) L Alt Load. 0%
      2) Alerts . . . . [L ALT INOP] - ILLUMINATED
      3) L Bus . . . . Reads Battery Voltage
   e. L ALT . . . . BUS TIE
      1) R Alt Load . . . . MONITOR INCREASE
      2) Alerts . . . . [BUSES TIED] - ILLUMINATED
      3) L Bus and R Bus Voltage. . . . . . . 27.5 - 29.0 Volts
   f. L ALT . . . . ON
      1) L Alt and R Alt Load. . . . . .POSITIVE
      2) Alerts . . . .[L ALT INOP] & [BUSES TIED] - EXTINGUISHED
      3) L Bus and R Bus Voltage. . . . . . . 27.5 - 29.0 Volts
   g. Steps (d) - (f) . . . . .REPEAT for R ALT
9. Lights. . . . . .AS REQUIRED
10. Avionics. . . . . CHECK & SET
   a. Radios - Comm and Nav
   b. Altimeter
   c. CDI Nav Source
   d. Transponder
   e. Altitude Preselect
   f. Flight Plan
11. TAS (if installed) . . . . TEST
   a. Large FMS Knob (if reqd.) . . SELECT MAP GROUP
   b. Small FMS Knob. . . . . SELECT TRAFFIC MAP

c. TEST Softkey . . . . PRESS

1) Test Pattern. . . . . VERIFY ON MFD

2) [TRAFFIC] . . . . VERIFY ON PFD

d. Verify Voice Message . . . . . "Traffic Advisory System Test Passed"

e. ALT MODE. . . . . SET AS DESIRED

f. Small FMS Knob . . . SELECT DESIRED MAP PAGE

12. TAWS (if desired) (if installed) . . . . .TEST

a. Large FMS Knob (if reqd.) . . . SELECT MAP GROUP

b. Small FMS Knob . . . . . . SELECT THE TAWS PAGE

c. Press the MENU Key

d. Small FMS Knob . . . . SELECT "Test TAWS"

e. Press ENT Key

f. Verify a white [TAWS TEST] is displayed on the PFD.

g. Verify the TAWS page turns black, a yellow [TAWS TEST] is displayed in the center of the page and a white [TAWS TEST] is displayed in the lower right corner.

h. Verify "TAWS SYSTEM TEST, OK" is heard at the end of the test.

13. Standby Attitude Indicator. . . . . CHECK

a. Standby Battery . . . . CHECK IF DESIRED (see OTHER NORMAL PROCEDURES)

b. STBY PWR LED . . . . .EXTINGUISHED

c. Flag . . . . PULLED

d. PULL-TO-CAGE Knob . . . . PULL TO ERECT (release knob slowly)

CAUTION

The indicator may be damaged if the PULL-TO-CAGE knob is released with a snap.

14. Standby Altimeter . . . . SET
15. Brakes . . . . .RELEASE AND CHECK

CAUTION

Never taxi with a flat shock strut

BEFORE TAKEOFF (RUNUP)

1. Parking Brake . . . . SET
2. Seat Belts and Shoulder Harnesses . . . . .CONFIRM BUCKLED
3. Engine Instruments . . . CHECK WITHIN OPER. LIMITS
4. Flight Instruments . . . . .CHECK
5. Throttles . . . . 2200 RPM
6. Propellers . . . . .EXERCISE (to obtain 200 to 300 RPM drop)
7. Throttles . . . . 1700 RPM
8. Magnetos. . . . . .CHECK
   a. Variance between individual magnetos should not exceed 50 RPM
   b. Maximum drop should not exceed 150 RPM
9. Throttles . . . . 1500 RPM
10. Propellers . . . . .FEATHERING CHECK
    a. Move the propeller controls past the detent
    b. Do not allow an RPM drop of more than 300 RPM on either engine.

CAUTION

Failure to observe the RPM limits during the FEATHERING CHECK will impose high stresses on the propeller mechanisms, blade shanks and engines.

11. Electric Elevator Trim . . . . CHECK
    a. Left and Right Segments . . . . ACTUATE INDIVIDUALLY
       (verify there is no trim movement. Red PTRM illuminated on PFD if actuated for >4 sec.)
    b. Left and Right Segments . . . ACTUATE TOGETHER
       (verify proper trim movement)
    c. AP DISC Switch . . . . ACTUATE WITH TRIM IN MOTION
       (verify trim motion stops)
12. Trim. . . . . .SET
    a. Aileron and Rudder . . . . NEUTRAL
    b. Elevator . . . . SET WITHIN GREEN BAND
13. Flaps . . . . . CHECK OPERATION, SET FOR TAKEOFF
14. Flight Controls. . . .CHECK FREEDOM OF MOVEMENT AND PROPER DIRECTION OF TRAVEL
15. Doors and Windows . . . . .SECURE
    - Cabin Door Lock Indicator. . . . . CHECK CLOSED
16. Fuel Selectors . . . . .ON
    (feel for detent; confirm visually)
17. Fuel Boost Pump . . . . .OFF
    (if ambient temperature is 32°C or above, use LOW pressure boost)
18. Alerts/Messages . . EXTINGUISHED OR CONSIDERED
19. PFD Attitude and Heading . . . . .NORMAL
20. GPS Position . . . . VALID
    ('LOI' not annunciated on HSI)
21. Standby Attitude Indicator. . . . . .ERECT AND NORMAL
22. Parking Brake . . . . RELEASE

BEFORE TAKEOFF (FINAL ITEMS)

1. Ice Protection Systems . . . . .AS REQUIRED
2. Lights. . . . . .AS REQUIRED
3. Transponder Code . . . . .CONFIRM SET
4. Rotation Speed . . . . .CONFIRM
   (for 5500 lbs., Flaps Up = 85 KTS)

TAKEOFF

1. Take-off Power . . . . SET
   a. Throttles . . . . .FULL FORWARD
   b. Propellers . . . . HIGH RPM
   c. Mixtures . . . . SET FUEL FLOW AT CYAN
      CLIMB FUEL FLOW MARKER
2. Brakes . . . . .RELEASE
3. Instruments . . . . .CHECK
   (MAP, RPM, Fuel Flow, Oil Temp/Press)
4. Rotation Speed . . . . .ROTATE
5. Landing Gear
   (when positive R/C established) . . . . RETRACT

CLIMB

1. Power . . . . SET
   a. Throttles . . . . .FULL FORWARD
   b. Propellers . . . . .MCP Climb - 2700 RPM
      Cruise Climb - 2500 RPM
   c. Prop Sync. . . . . ON
   d. Mixtures . . . . .MAINTAIN FUEL FLOW AT
      CYAN CLIMB FUEL FLOW MARKER

NOTE

The fuel flow marker will not revert to the Cruise Climb schedule until the RPM is initially reduced to 2490 or below. The Cruise Climb schedule will be available up to 2530 RPM.

2. Cowl Flaps . . . . AS REQUIRED
3. Airspeed . . . . 105 KTS FOR MCP CLIMB
136 KTS FOR CRUISE CLIMB
4. Engine Temperatures .MONITOR
5. Fuel Boost Pump . . . . AS REQUIRED

CAUTION

Engine roughness, fuel flow fluctuation or low fuel flow can occur when climbing on hot days. These can be eliminated by switching the fuel boost pump from OFF to LO and leaning the fuel flow to the cyan climb fuel flow marker.

The cyan climb fuel flow marker on the fuel flow indicator is programmed to follow the schedule noted below when climbing at 2700 RPM. When climbing at 2500 RPM, the fuel flow marker is programmed to follow a schedule which is 2 GPH less than that shown below.

PRESSURE ALTITUDE (FT)	CYAN CLIMB FUEL FLOW MARKER @ 2700 RPM* (GPH)
SL	26.6
2000	25.9
4000	24.3
6000	22.8
8000	21.8
10,000	20.9
12,000	20.0
14,000	19.1
16,000	18.3
17,000	18.0

* Subtract 2 GPH when cruise climbing at 2500 RPM.

CRUISE

1. Cowl Flaps. . . . . CLOSE
2. Power . . . . SET
   (See Cruise Tables in Section 5, PERFORMANCE)

NOTE

Return the mixture control to full rich before turning the Fuel Boost Pump off.

3. Fuel Boost Pump (if selected on for climb) . . . . OFF
4. Mixtures. . . . . LEAN USING EGT
   (See Leaning Using EGT Indication in Other Normal Procedures. Cyan Climb Fuel Flow Marker will extinguish as fuel flow is leaned.)

NOTE

When not using the ENGINE SYSTEM page or the LEAN PAGES the MFD should be kept at all time on the main ENGINE page.

DESCENT

1. Altimeter (PFD and Standby) . . . . SET
2. Cowl Flaps. CONFIRM CLOSED
3. Power . . . . .AS REQUIRED
   (Avoid prolonged idle settings. Cylinder head temperatures should not fall below the green band.)
4. Mixtures. . . . . ENRICH AS REQUIRED
   (The mixtures must be manually enriched as the airplane descends. An optional procedure is to retard the throttles as the airplane descends to maintain a constant manifold pressure. Then adjust the mixtures to maintain the EGTs within their limits.)
5. Engine Temperatures . . . . MONITOR
6. Flaps . . . . .AS REQUIRED

7. Windshield Defroster. . . . . AS REQUIRED
(ON before descent into warm, moist air)
8. Descent Speed . . . . RECOMMENDED
16,000 to 13,000 ft . . . . 160 KTS
Below 13,000 ft . . . . 170 KTS

BEFORE LANDING

1. Seat Belts and Shoulder Harnesses . . . . FASTENED
2. Seat Backs . . . . POSITION FOR LANDING
3. Fuel Selector Valves. CHECK ON
(feel for detent; confirm visually)
4. Fuel Boost Pumps . . . . OFF OR LOW AS PER AMBIENT TEMPERATURE
5. Cowl Flaps . . . . AS REQUIRED
6. Mixture Controls . . . . FULL RICH
(or as required by field elevation)
7. Landing Gear (152 kts or below). . DOWN AND CHECK
8. Landing Lights . . . . AS REQUIRED
9. Propellers . . . . HIGH RPM

NORMAL LANDING

1. Flaps (122 kts or below) . . . . FULL DOWN
2. Airspeed . . ESTABLISH NORMAL APPROACH SPEED
3. Yaw Damp . . . . OFF

BALKED LANDING

1. Throttles and Propellers . . . . FULL FORWARD
2. Airspeed . . . . 95 KTS
3. Flaps . . . . UP
4. Landing Gear . . . . RETRACT
5. Cowl Flaps . . . . AS REQUIRED

AFTER LANDING

1. Landing, Taxi and Strobe Lights . . . . AS REQUIRED
2. Flaps . . . . UP
3. Cowl Flaps. . . . . OPEN
4. Trim Tabs . . . . RESET AS REQUIRED
5. Fuel Boost Pumps. . . . . AS REQUIRED

SHUTDOWN AND SECURING

1. Parking Brake . . . . SET
2. Avionics. . . . . OFF
   a. MFD . . . . EXTINGUISHED
   b. PFD . . . . VERIFY REVERSIONARY MODE
3. Electrical Equipment . . . . OFF
4. Throttles . . . . 1000 RPM
5. Fuel Boost Pumps. . . . . OFF
6. Mixture Controls . . . . CUT OFF
7. Magnetos. . . . . OFF (after engines stop)
8. L ALT and R ALT. . . . . OFF
9. L BAT and R BAT . . . . OFF
10. Standby Attitude Indicator (if desired) . . . . CHECK EMERGENCY MODE (See OTHER NORMAL PROCEDURES)
11. Control Locks . . . . INSTALL
12. Wheel Chocks . . . . INSTALL
13. Parking Brake . . . . RELEASE

NOTE

Induction air scoop covers, included in the loose tools and accessories, are to prevent foreign matter from entering the air scoops while the airplane is parked.

OTHER NORMAL PROCEDURES

EXTERNAL POWER

The following precautions shall be observed using external power:

1. Batteries must be installed in the airplane. This protects the voltage regulators and associated equipment from voltage transients (power fluctuations).
2. The airplane has a negative ground system. Connect the positive lead of the external power unit to the positive terminals of the airplane's external power receptacle and the negative lead of the external power unit to the negative terminal of the external power receptacle.
3. In order to prevent arcing, ensure external power unit is off while the connection is being made.

ENGINE STARTING USING EXTERNAL POWER

1. L BAT and R BAT . . . . .OFF
2. L ALT and R ALT . . . . .OFF
3. Avionics Master Switch . . . . .OFF
4. Electrical Equipment . . . . .OFF
5. External Power Source . . . . . SET OUTPUT, THEN OFF (27.0 to 28.5 volts)
6. External Power Source . . . . CONNECT
7. L BAT and R BAT . . . . .ON
8. External Power Source . . . . .ON
9. Alerts. . . . . [BUSES TIED] ILLUMINATED
10. Right Engine . . . . START USING NORMAL PROCEDURES
11. External Power Source . . OFF AFTER ENGINE START
12. Alerts. . . . .[BUSES TIED] EXTINGUISHED
13. External Power Source . . . . DISCONNECT

14. L ALT and R ALT. . . . . ON
15. Left Engine . .START USING NORMAL PROCEDURES
16. L and R ALT LOAD . . . . MONITOR

STANDBY ATTITUDE INDICATOR

AFTER STARTING

After allowing the gyro to spin up for approximately one minute, the PULL-TO-CAGE knob must be pulled fully out and held momentarily until the display stabilizes, then released slowly.

CAUTION

The indicator may be damaged if knob is released with a “snap”.

BEFORE TAKEOFF

Standby Battery Check

The status of the standby battery may be checked as follows:

1. STBY PWR Button . . . . PRESS AND HOLD UNTIL STBY PWR LED STARTS FLASHING (places battery in one minute test mode)
2. Green Test LED . . . . ILLUMINATED
3. Red Test LED . . . . EXTINGUISHED
4. Emergency LED Lighting. . . . . ILLUMINATED
5. Amber Standby Power LED . . . . EXTINGUISHED (after approx. 1 minute)
6. Green Test LED . . . . EXTINGUISHED

CAUTION

If the red test LED illuminates any time during the one minute test, the standby battery is not sufficiently charged. This may indicate that additional charging is required, or that the standby battery must be removed for service or replacement.

NOTE

All LEDs extinguish after one minute. Thus, the red LED could illuminate towards the end of the test period and then extinguish when the test is complete without the pilot's knowledge unless the display is continually monitored.

SHUTDOWN

During a normal shutdown, the Standby Power LED will flash for approximately one minute after power is removed. No action is required and the standby attitude indicator will automatically shutdown after the one minute has elapsed. If desired, the STBY PWR button may be pushed TWICE to manually turn the indicator off.

NOTE

A momentary pause must occur between each push of the STBY PWR button. If the second push of the button occurs too quickly, it will not be recognized. If the processor detects only one push of the STBY PWR button the standby battery will be latched on and continue to power the indicator. This will cause the standby battery to completely drain if not turned off by a second push of the button. If the standby battery is allowed to completely drain, it will have to be removed and serviced prior to the next flight. The airplane power will not adequately recharge a completely drained battery.

Emergency Mode

The emergency mode may be checked during shutdown after all power has been removed from the airplane as follows:

1. L BAT and R BAT . . . . OFF
2. Amber Standby Power LED . . . . FLASHING
3. STBY PWR Button . . . . PRESS ONCE (latches standby battery on)
   - Gyro Warning Flag. . . . . OUT OF VIEW
   - Amber Standby Power LED. . . . . EXTINGUISHED
4. STBY PWR Button . . . . PRESS ONCE (disconnects standby battery)
   - Gyro Warning Flag. . . . . IN VIEW
5. R BAT . . . . ON
   - Gyro Warning Flag. . . . . OUT OF VIEW

6. R BAT . . . . OFF
   - Amber Standby Power LED . . . . FLASHES FOR ONE MINUTE, THEN EXTINGUISHES
7. Gyro Warning Flag . . . . IN VIEW

LEANING USING THE EXHAUST GAS TEMPERATURE (EGT) INDICATION

A thermocouple-type exhaust gas temperature (EGT) probe is mounted in each cylinder exhaust. All probes interface with the Engine/Airframe Unit (GEA 71). The indicators are calibrated in degrees Celsius. Use the EGT system to lean the fuel/air mixture when cruising at 2500 rpm and 25 in. Hg manifold pressure power setting or less in the following manner:

See the following information in Section 5, PERFORMANCE:

- MANIFOLD PRESSURE vs RPM graph for leaning limitations
- CRUISE POWER SETTING tables

The EIS Lean page is found on the MFD.

1. ENGINE Softkey . . . . PRESS
2. LEAN Softkey . . . . PRESS
   a. Rich of Peak: Slowly lean the mixture and note the first cylinder EGT to peak. Then enrich the mixture to the desired cruise mixture. Enriching the mixture is referred to as operation on the rich side of peak EGT.
   b. Lean of Peak: Slowly lean the mixture and note the last cylinder EGT to peak. Further lean the mixture to the desired cruise mixture. Further leaning is referred to as operation on the lean side of peak EGT.

3. The engine should not be operated closer to peak EGT than 20°C (rich side or lean side) as indicated on the MANIFOLD PRESSURE vs RPM graph (Section 5, PERFORMANCE).
4. If engine roughness is encountered operating at lower power settings on the lean side of peak, enrich the mixture slightly for smooth engine operation.
5. If required fuel flows cannot be achieved when leaning to the rich side of peak, switch the fuel boost pump to LO, then lean as required.
6. Changes in altitude and power settings require the peak EGT to be rechecked and the mixture reset.
7. MFD Softkeys . . . . .RETURN TO MAIN ENGINE PAGE

NOTE

A Lean Assist function is available through the Garmin software utilizing the CYL SLCT and ASSIST Softkeys. Reference Garmin Cockpit Reference Guide for details on the procedure.

MONITORING ENGINE SYSTEMS (OIL, FUEL, ELECTRICAL)

The Engine Systems page is found on the MFD.

1. ENGINE Soft Key . . . . PRESS
2. SYSTEM Soft Key. . . . . PRESS
3. MFD Softkeys . . . . .RETURN TO MAIN ENGINE PAGE

NORMAL PROCEDURES

AVIONICS

AUTOPILOT/FLIGHT DIRECTOR

GENERAL

NOTE

If above 150 KTS, operation in the PIT mode can result in nuisance pitch pulsing when using the NOSE-UP or NOSE-DOWN command keys. Transition to ALT, FLC or VS mode prior to using NOSE-UP or NOSE-DOWN keys. With the autopilot engaged, recommended climb or descent rate is 800 fpm or less.

AVIONICS

AUTOPILOT/FLIGHT DIRECTOR

AUTOPILOT/FLIGHT DIRECTOR PROCEDURES

Engaging the Autopilot (90-210 KTS)

NOTE

Without the FD selected, trim and stabilize airplane in desired flight condition prior to engaging the autopilot.

With the FD selected, center the command bars and trim the airplane prior to engaging the autopilot.

FAA Approved by:____________________________

Thomas Tremain
Raytheon Aircraft Company
DOA-230339-CE

MONITORING THE CHTS AND EGTS

Specific EGT and CHT values for each cylinder are found on the MFD.

1. ENGINE Soft Key . . . . PRESS
2. LEAN Soft Key . . . . PRESS
3. CYL SLCT Soft Key . . . . PRESS
   (Each press of the key cycles the display to the next cylinder. The selected cylinder display number changes color from white to cyan and the digital displays show the absolute temperature and deviation from Peak temperature for the selected cylinder.)
4. MFD Softkeys . . . . . RETURN TO MAIN ENGINE PAGE

AVIONICS

AUTOPILOT/FLIGHT DIRECTOR

GENERAL

WARNING

It is the responsibility of the Pilot to monitor the autopilot when it is engaged. The pilot should be prepared to immediately disconnect the autopilot and take prompt corrective action in the event of unexpected or unusual autopilot behavior.

Do not attempt to manually fly the airplane with the autopilot engaged except when using the Control Wheel Steering (CWS) button. The autopilot pitch servo will oppose pilot pitch inputs and will trim the elevator in the opposite direction of the pilot input. This could lead to a significant out-of-trim condition in the pitch axis. Disconnect the autopilot using the AP DISC switch, the left side of the trim switch, or the AP key if manual control is desired.

The pilot must use proper autopilot modes and proper engine power settings to ensure that airplane speed is maintained between 90 KTS and 210 KTS. Operation in the pitch (PIT) or vertical speed (VS) modes below 90 KTS can result in a stall. If an inadvertent stall is encountered as indicated by the stall warning horn, airframe buffeting, or loss of control effectiveness, disconnect the autopilot using the AP DISC switch and manually return the airplane to stabilized flight prior to re-engaging the autopilot.

AUTOPILOT/ FLIGHT DIRECTOR PROCEDURES

The following are basic guidelines for operation of the autopilot and Flight Director. They are one way, but not necessarily the only way; of operating the AFCS. See Section 2, LIMITATIONS; Section 3, EMERGENCY PROCEDURES; Section 3A, ABNORMAL PROCEDURES; Section 7, SYSTEMS DESCRIPTION; and the Garmin G1000 Cockpit Reference Guide or G1000 Pilot's Guide for more information.

<u>Yaw Damp (With Autopilot Off)</u>

To Engage the Yaw Damper:

1. YD Key . . . . PRESS
   Green [YD] Displayed

To disengage the YD use one of the following methods. *The green* [YD] *will change to a black* [YD] on a yellow background, *flash for 5 seconds*, then extinguish.

1. AP DISC Switch . . . . PRESS

(or)

2. YD Key . . . . PRESS

Engaging the Autopilot (90 - 210 KTS)

1. AP Key . . . . . .PRESS TO ENGAGE AUTOPILOT & YD
   green [ROL], [AP], [YD], [PIT], & white [ALT] Displayed
2. ALT Key . . . . .PRESS TO HOLD EXISTING ALTITUDE
   [PIT] & [ALT] are replaced by a green [ALT XXXXX$_{FT}$]
3. HDG Knob (if required) . . . . . .SET DESIRED HEADING
4. HDG Key. . . . . PRESS
   [HDG] replaces [ROL]
5. CRS Knob (if required) . . . . . . SET DESIRED COURSE
6. NAV Key (if required) . . . . PRESS
   [VOR] or [GPS] or [LOC] Displayed

Disengaging the Autopilot or Autopilot & Yaw Damper

When the autopilot is manually disengaged the green [AP] will change to a black [AP] on a yellow background, flash for 5 seconds, then extinguish, and a 2-second aural alert will sound. The [YD] will also change color and flash if it disconnects

To disengage only the AP and leave the FD and YD engaged use one of the following methods:

1. Left Side of Trim Switch . . . . .ACTUATE

(or)

2. AP Key . . . . PRESS

To disengage the AP and YD and leave the FD engaged:

1. AP DISC Switch . . . . PRESS

Use of Roll Mode [ROL]

1. AP Key . . . . . PRESS TO ENGAGE AUTOPILOT & YD
   green [ROL], [AP], [YD], [PIT], & white [ALT] Displayed

If bank angle is ≥ 6°:

2. Bank Angle is Maintained

If bank angle is < 6°:

3. Existing heading is maintained

To Change Bank Angle or Heading:

4. CWS Switch . . . . PRESS
5. Heading or Bank Angle . . . . CHANGE AS DESIRED
6. CWS Switch . . . . .RELEASE

Use of Heading Hold Mode [HDG]

1. Heading Knob . . . . SET DESIRED HEADING
   a. Press knob to select existing heading.
   b. Rotate knob to select a new heading.
   c. New heading will be displayed in box to left of HSI for 3 seconds.
2. HDG Key . . . . PRESS
   [HDG] Displayed
3. The airplane will turn in the direction the HDG bug is moved unless the heading change is greater than 340°.

Use of Navigation Mode [GPS], [VOR], [LOC], or [BC]

If not initially established on the desired course:

1. CDI Key . . . . SELECT NAVIGATION SOURCE
2. CRS Knob (if required) . . . . . .SET DESIRED COURSE
   (course will be displayed in the box to right of HSI for 3 seconds)
3. HDG Knob . . . . .SELECT INTERCEPT HEADING

4. HDG Key. . . . . PRESS
[HDG] Displayed

5. NAV Key . . . . PRESS

If CDI Deviation is > 1Dot:

a. [GPS], [VOR], [LOC], or [BC] . . . . DISPLAYED IN WHITE

When CDI Deviation is ≤ 1 Dot:

b. [GPS], [VOR], [LOC], or [BC] . . . . DISPLAYED IN GREEN

Use of Altitude Preselect

1. ALT Knob . . . . ROTATE TO SET DESIRED ALTITUDE (Desired altitude displayed in altitude reference box above altitude display)
2. PIT, VS, or FLC Mode . . . . SET TO INTERCEPT ALTITUDE
   a. At 1000 feet from desired altitude, the altitude in the reference box will change from cyan digits on a black background to black digits on a cyan background, and the box will flash for 5 seconds.
   b. At 300 feet from the desired altitude, a cyan altitude reference bug will be visible on the left side of the altitude display opposite the desired altitude.
   c. At 200 feet from the desired altitude, the altitude in reference box returns to cyan digits on a black background, will flash for 5 seconds, and a tone will sound.
   d. When established on the desired altitude, the altitude reference bug will be aligned with the indicated altitude. The white [ALT] in the AFCS Status Bar will be replaced with a green [ALT XXXXX$_{FT}$]. The [ALT] will flash for 10 seconds.

e. If the indicated altitude deviates more than ± 200 feet, the altitude reference box will change to yellow digits on a black background and will flash for 5 seconds. A tone will be heard. The yellow display will remain until the deviation is corrected or the desired altitude is changed.

Use of the Pitch Mode (PIT)

1. ALT Knob . . . . .SET DESIRED LEVEL-OFF ALTITUDE
   a. Preset Altitude is displayed in window above the altimeter display.
2. Deselect other vertical modes (VS or FLC), if required.
3. Green [PIT] and White [ALT]. . . . . DISPLAYED IN AFCS STATUS BAR
4. NOSE UP or NOSE DN Key . .PRESS AS REQ TO SET CLIMB OR DESCENT PITCH ATTITUDE (each press changes pitch by 0.5 degrees)

(or)

5. CWS Switch . . . . PRESS AND HOLD WHILE ADJUSTING PITCH, THEN RELEASE (Pitch reference will change to that which exists when switch is released.)
6. Power . . . . .AS REQUIRED
7. Upon Reaching the Preset Altitude, the green [PIT] and white [ALT] will be replaced by a green [ALT] and [XXXXX$_{FT}$] and the green [ALT] will flash 10 seconds and then become steady.

Use of Altitude Hold Mode [ALT]

To Maintain a desired altitude:

1. ALT Key . . . . PRESS
   Green [ALT XXXXX$_{FT}$] Displayed

To change the selected altitude:

2. CWS Switch . . . . PRESS AND HOLD
3. Airplane Altitude . . . . CHANGE AS DESIRED
4. CWS Switch . . . . RELEASE
   (new altitude will be displayed next to [ALT])
5. Barometric Changes . . . . AIRPLANE WILL CLIMB OR DESCEND TO MAINTAIN SELECTED ALTITUDE

Use of the Vertical Navigation Mode [VNV] (if installed)

NOTE

Vertical navigation will only function when the navigation source is GPS. The airplane's heading must be within 75 degrees of the desired GPS course and within 10 NM cross track error in order for VNAV to function.

VNAV functions only for enroute and terminal descents. Vertical navigation is not available during climbs or descents between the final approach fix (FAF) and the missed approach point (MAP).

For VNAV Descent

1. ALT knob . . . . SET DESIRED ALTITUDE
2. VNV . . . . . . PRESS WITHIN 5 MINUTES OF THE TOD
3. 1 Minute Prior to TOD . . . . VERIFY
   a. VNAV target altitude on PFD.
   b. Vertical Deviation Indicator (VDI) on PFD.

NOTE

If the VNV softkey is pressed more than 5 minutes before the top of descent (TOD) or the altitude preselect is not reset to a lower altitude, VPTH will begin to flash inverse video (white/black) when the aural "Vertical Track" alert sounds 1 minute prior to TOD. Pressing the VNV softkey and/or resetting the altitude preselect to a lower altitude cancels the flashing VPTH and the autopilot will capture and track the vertical profile. If the VNV softkey is not pressed, or the altitude preselect is not reset to a lower altitude, VPTH stops flashing at the TOD and the airplane will remain in ALT mode and not descend.

4. At TOD . . . . VERIFY
   a. Green [VPTH] in the AFCS status window on PFD.
   b. White [ALTS] or [ALTV] in the AFCS armed window on PFD.
   c. Airplane tracks vertical path.
5. Power . . . . .AS REQUIRED

For Vertical DIRECT TO

1. ALT knob. . . . . .SET DESIRED ALTITUDE
2. VNV Softkey . . . . .PRESS
3. VNV -D> Softkey on MFD flight plan page . . . . . PRESS
4. Desired Waypoint . . . . SELECT AND ACTIVATE

Use of the Vertical Speed Mode [VS]

1. ALT Knob . . . . . SET DESIRED LEVEL-OFF ALTITUDE
   a. Preset Altitude is displayed in window above the altimeter display.

NOTE

If the Flight Director is in Altitude Hold (green [ALT XXXXX$_{FT}$] displayed in the AFCS status bar), the desired altitude must be set either above or below the Altitude Hold value for the VS mode to function.

2. VS Key . . . . PRESS
   a. Green [VS] and green current vertical speed [XXXX$_{FPM}$] displayed in AFCS status bar.
   b. Current vertical speed displayed in window above (for a climb) or below (for a descent) the Vertical Speed display.
   c. Cyan VS Reference bug displayed on left side of VS display.
   d. White [ALT] Displayed in AFCS Status Bar.
3. NOSE UP or NOSE DN Key . . . . PRESS AS REQ TO SET CLIMB OR DESCENT VS (each press changes VS by 100 fpm)

(or)

4. CWS Switch . . . . PRESS AND HOLD WHILE ADJUSTING PITCH TO CHANGE VS, THEN RELEASE (VS reference will change to that which exists when switch is released.)
5. Power . . . . ADJUST AS REQUIRED FOR DESIRED AIRSPEED

6. Maximum and minimum VS references are 1500 fpm R/C and -3000 fpm R/S.

NOTE

The VS pointer will only indicate a maximum of -2000 FPM; however, the digits in the pointer will continue to indicate the vertical speed up to -3000 FPM.

7. Upon Reaching the Preset Altitude, the green [VS], [XXXX$_{FPM}$], and white [ALT] will be replaced by a green [ALT] and [XXXXX$_{FT}$], and the green [ALT] will flash for 10 seconds and then become steady.

<u>Use of the Flight Level Change Mode [FLC]</u>

1. ALT Knob . . . . .SET DESIRED LEVEL-OFF ALTITUDE
   a. Preset Altitude is displayed in window above the altimeter display.

NOTE

If the Flight Director is in Altitude Hold (green [ALT XXXXX$_{FT}$] displayed in the AFCS status bar), the desired altitude must be set either above or below the Altitude Hold value for the FLC mode to function.

2. FLC Key . . . . PRESS
   a. Green [FLC] and green current airspeed [XXX$_{KT}$] displayed in AFCS status bar.
   b. Current airspeed displayed in window above the airspeed display.
   c. Cyan airspeed reference bug displayed on right side of the airspeed display.
   d. White [ALT] Displayed in AFCS Status Bar.

3. NOSE UP or NOSE DN Key . . . . PRESS AS REQ TO SET CLIMB OR DESCENT SPEED (each press changes speed by 1 knot)

(or)

4. CWS Switch . . . . PRESS AND HOLD WHILE ADJUSTING PITCH TO CHANGE AIRSPEED, THEN RELEASE (FLC airspeed reference will change to the airspeed that exists when switch is released.)
5. Power . . . . ADJUST AS REQUIRED FOR DESIRED R/C OR R/S
6. Maximum and minimum FLC reference airspeeds are 210 and 90 Kts.
7. Upon Reaching the Preset Altitude, the green [FLC], [XXX$_{KT}$], and white [ALT] will be replaced by a green [ALT] and [XXXXX$_{FT}$], and the green [ALT] will flash for 10 seconds and then become steady.

APPROACH PROCEDURES

<u>VOR or ILS Approaches [VAPP] or [LOC] & [GS]</u>

1. CDI Key . . . . SELECT VOR 1 OR VOR 2
2. CRS Knob . . . . .SET REQUIRED COURSE
3. HDG Knob . . . . .SELECT INTERCEPT HEADING
4. HDG Key. . . . . PRESS
   [HDG] Displayed
5. APR Key . . . . PRESS
   White [VAPP] Display for VOR Approaches
   White [LOC], & [GS] Displayed for ILS Approaches
6. Airspeed . . . . ESTABLISH
7. AFCS Status Bar . . . . . VERIFY MODE IS CAPTURED (white annunciator(s) turns green)

GPS Approach [GPS]
(Software Version 0500.01 or 0500.02)

1. CDI Key . . . . SELECTED GPS
2. Approach . . . . VERIFY ACTIVATED
3. NAV or APR Key . . . . PRESS
   [GPS] Displayed
4. Airspeed . . . . ESTABLISH
5. PFD . . . . VERIFY [GPS APR] MODE
   WITHIN 2 NM OF FAF

GPS Approach [LPV] or [L/VNAV]
(Software Version 0857.05 or 0857.06)

1. Baro Minimums . . . . SET
2. CDI Key . . . . SELECTED GPS
3. Approach . . . . VERIFY ACTIVATED
4. APR Key . . . . PRESS
   Green [GPS] and White [GP] Displayed
5. Airspeed . . . . ESTABLISH
6. AFSC Status Bar . . . . VERIFY [GPS] AND [GP]
   MODES ARE CAPTURED

GPS Approach [LNAV+V]
(Software Version 0857.05 or 0857.06)

1. Baro Minimums . . . . .SET
2. CDI Key . . . . SELECTED GPS
3. Approach . . . . VERIFY ACTIVATED
4. Altitude Preselect . . . . .SET
5. NAV Key . . . . PRESS
   Green [GPS] Displayed
6. Airspeed . . . . ESTABLISH
7. AFSC Status Bar . . . . VERIFY [GPS] MODES ARE CAPTURED

NOTE

During LNAV+V approaches it will be necessary to follow the glide path using either the [VS] or [PITCH] modes in order for the airplane to level off at the preselected MDA.

Back Course Approach [BC]

1. CDI Key . . . . SELECT VOR 1 OR VOR 2
2. CRS Knob . . . . .SET TO ILS FRONT COURSE
3. HDG Knob . . . . SELECT INTERCEPT HEADING
4. HDG Key . . . . PRESS
   [HDG] Displayed
5. NAV Key . . . . PRESS
   White [BC] Displayed
6. Airspeed . . . . ESTABLISH
7. AFCS Status Bar . . . . . VERIFY MODE IS CAPTURED
   (white [BC] annunciator turns green)

Go Around [GA] & [GA] (With an Active Approach Loaded)
(Software Version 0500.01 or 0500.02)

1. Go Around Button on Throttle . . . . PRESS
2. Throttles and Propellers . . . . FULL FORWARD
3. Flaps . . . . UP
4. Landing Gear. . . . . UP
5. Missed Approach. . . . . EXECUTE
6. CDI Key (if required) . . . . PRESS TO SELECT GPS
7. SUPS (if required) . . . . PRESS TO INITIATE GPS MISSED APPROACH SEQUENCE
8. ALT Knob (if required). . . . . SET ALTITUDE

At 400 feet minimum:

9. AP Key . . . . PRESS TO ENGAGE AUTOPILOT
10. CWS . . . . PRESS TO CNX GA MODE & ADJUST PITCH
11. HDG or NAV Key. . . . . PRESS

Go Around [GA] & [GA] (With an Active Approach Loaded)
(Software Version 0857.05 or 0857.06)

1. Go Around Button on Throttle . . . . PRESS
2. Throttles and Propellers . . . . FULL FORWARD
3. Flaps . . . . UP
4. Landing Gear. . . . . UP
5. Missed Approach. . . . . EXECUTE
6. CDI Key (if required) . . . . PRESS TO SELECT GPS
7. ALT Knob (if required). . . . . SET ALTITUDE

At 400 feet minimum:

8. AP Key . . . . PRESS TO ENGAGE AUTOPILOT

9. CWS . . . . PRESS TO CNX GA MODE & ADJUST PITCH
10. HDG or NAV Key . . . . PRESS

TRAFFIC INFORMATION SERVICE (TIS)

1. If the SKY497 TAS system is installed, TIS will not be available.
2. TIS is only available when the airplane is within the service volume of a TIS capable terminal radar site.
3. TIS information is displayed on the MFD on the Traffic Map page of the Map Group.
4. Rotate the RANGE knob to change the display range.

L-3 COMMUNICATIONS SKYWATCH SKY497 TRAFFIC ADVISORY SYSTEM (TAS) (IF INSTALLED)

WARNING

The SKY497 can only detect aircraft that are equipped with operating transponders.

1. Traffic information shown on the PFD and MFD is provided as an aid in visually acquiring traffic. Pilots must maneuver the airplane based only upon ATC guidance or positive visual acquisition of conflicting traffic.
2. If the pilot is advised by ATC to disable transponder altitude reporting, the SKY497 must be placed in STANDBY.

COLD WEATHER OPERATION

PREFLIGHT INSPECTION

Verify that the tires are not frozen to the ramp, and that the brakes are free of ice contamination. Deicing or anti-icing solutions may be used on the tires and brakes if they are frozen. Solutions which contain a lubricant, such as oil, must not be used as they will decrease the effectiveness of the brakes.

In addition to the normal exterior preflight inspection, special attention should be given all vents, openings, static ports, control surfaces, hinge points, the stall warning vane, the windshield, and the wing, tail, and fuselage surfaces for accumulations of ice or snow. Removal of these accumulations is necessary prior to takeoff. The removal of frozen deposits by chipping or scraping is not recommended. A soft brush, squeegee, or mop may be used to clear snow that is not adhering to the surfaces. Airfoil contours may be altered by the ice and snow to the extent that their lift qualities will be seriously impaired. Ice and snow on the fuselage can increase drag and weight. Frost that may accumulate on the wing, the tail surfaces, or on any control surface, must be removed prior to flight.

Conditions for accumulating moisture in the fuel tanks are most favorable at low temperatures due to the condensation increase and the moisture that enters as the system is serviced. Therefore, close attention to draining and sampling the fuel system will assume particular importance during cold weather.

Use Approved Engine Oil in accordance with Section 8, HANDLING, SERVICING AND MAINTENANCE. Always pull the propeller through by hand, opposite the direction of rotation, several times to clear the engine and “limber up” the cold, heavy oil before using the starter. This will also lessen the load on the battery if external power is not used.

Under very cold conditions, it may be necessary to preheat the engines prior to a start. Particular attention should be given to the oil cooler, engine sump and propeller hub to ensure proper preheat. A start with congealed oil in the system may produce an indication of normal pressure immediately after the start, but then the oil pressure may decrease when residual oil in the engine is pumped back with the congealed oil in the sump. If an engine heater capable of heating both the engine sump and cooler is not available, the oil should be drained while the engine is hot and stored in a warm area until the next flight.

AFTER STARTING

If there is no oil pressure within the first 30 seconds after start, or if oil pressure drops after a few minutes of ground operation shut down and check for broken oil lines, oil cooler leaks, or congealed oil.

NOTE

It is advisable to use external power for starting in cold weather.

During warm-up, monitor engine temperature closely since it is quite possible to exceed the cylinder head temperature limit in trying to increase the oil temperature. Exercise the propeller several times to remove cold oil from the pitch change mechanism. The propellers should also be cycled occasionally in flight.

TAXIING

Avoid taxiing through water, slush or muddy surfaces if possible. In cold weather, water, slush or mud splashed onto landing gear mechanisms or control surface hinges may freeze, preventing free movement and resulting in structural damage.

BEFORE TAKEOFF

After completion of the normal Before Takeoff checklist, verify that the airplane is still free of frozen contaminants.

Ensure the runway is free from hazards such as snow drifts, glazed ice, and ruts.

TAKEOFF

Allow additional take-off distance when snow or slush is on the runway. Extra cycling of the landing gear when above 500 feet AGL may help clear any contamination from the gear system.

DESCENT

During descent and landing, give special attention to engine temperatures, since the engines will have a tendency toward overcooling.

LANDING

Braking and steering are less effective on slick runways. Also, hydroplaning may occur under wet runway conditions at higher speeds. Use the rudder to maintain directional control until the tires make solid contact with the runway surface.

HEATER OPERATION

NOTE

During preflight, ensure the heater over-temperature switch located on the aft end of the heater is not tripped. Push the switch in to reset, if required.

1. Cabin Vent Air Control . . . . ON (½ OR MORE)

NOTE

Heater will not operate if control is pulled aft more than half way.

2. Heater Switch . . . . .ON
3. Heater Blower Switch . . . . .ON

NOTE

Blower will automatically turn off when the landing gear is retracted.

4. Cabin Heat Control . . . . PULL AFT TO INCREASE TEMPERATURE
5. Pilot Air, Copilot Air, Defrost Controls . . . . . . PULL OUT TO INCREASE AIR FLOW

To Increase Heat To The Cabin:

6. Pilot Air, Copilot Air, Defrost Controls . . . . PUSH IN

To Turn Heater Off During Ground Operations:

7. Cabin Heat Control . . . . PUSH IN
8. Cabin Vent Air. . . . . .ON (Full Forward)
9. Heater . . . . .OFF
10. Heater Blower (a minimum of 2 minutes after turning heater off) . . . . .OFF

NOTE

Blower must be left on for a minimum of two minutes after turning the heater off to ensure heater does not over temp causing the over-temperature switch to open.

WINDSHIELD DEFOGGING

To Achieve Maximum Windshield Defogging:

1. Heater Switch . . . . ON
2. Heater Blower Switch . . . . ON
3. Cabin Heat Control . . . . .PULL AFT TO INCREASE TEMPERATURE
4. Pilot Air and Copilot Air Controls. . . . . .PUSH IN
5. Defrost Control . . . . PULL OUT

If View Through Windshield Is Insufficient For Landing:

6. Pilot's Storm Window . . . . .OPEN

ICE PROTECTION SYSTEMS

Airplanes are approved for flight in icing conditions only when properly equipped and operated per the procedures herein and the applicable Title 14 CFRs. No multiengine airplane is approved for flight into severe icing conditions and none are intended for indefinite flight in continuous icing conditions. The pilot should exit icing conditions if the capacity of the ice protection system is exceeded or any of the required ice protection equipment fails in flight (also refer to the Kinds Of Operations Equipment List in Section 2, LIMITATIONS).

BEFORE TAKEOFF

CABIN HEATER

1. Cabin Vent Air Control . . . . ON (1/2 OR MORE)
2. Heater Switch . . . . .ON
3. Heater Blower Switch . . . . .ON
4. Operate Heater . . . . TWO MINUTES (MIN)

SURFACE DEICE SYSTEM

1. Right Throttle . . . . .2000 RPM
2. Surface Deice . . . . .AUTO (up), and RELEASE
   a. Check visually for inflation and 15 psi minimum deice pressure.
   b. Check visually for hold down when cycle is complete.
3. Right Throttle . . . . IDLE
4. Left Throttle. . . . . .2000 RPM (Repeat Step 2)
5. Surface Deice . . . . MAN (down)
   UNTIL PRESSURE PEAKS (not more than 8 seconds)
   Then RELEASE
   a. Check visually for inflation and 15 psi minimum deice pressure.
   b. Check visually for hold down when cycle is complete.
6. Left Throttle. . . . . IDLE

ELECTROTHERMAL PROPELLER DEICE

1. Propeller Deice . . . . .ON
2. Propeller Deice Ammeter . . . . .CHECK (14 to 18 amps)
3. Propeller Deice . . . . .OFF
   (if not required for takeoff)

FUEL VENT HEAT, STALL WARNING HEAT, PITOT HEAT, WINDSHIELD HEAT, AND ICE LIGHT

1. MFD Soft Keys . . . . . SELECT ENGINE AND SYSTEM
2. Switches . . . . . CYCLE ON AND OFF, ONE AT A TIME
3. L ALT and R ALT. . . MONITOR FOR LOAD INCREASE

NOTE

Some systems only produce a slight increase after a short time delay.

IN FLIGHT

WARNING

Minimum airspeed for flight in icing conditions is 130 KIAS. This applies to all phases of flight except takeoff and landing. If airspeed is decreasing due to ice accumulation, and power or altitude changes fail to curtail airspeed deceleration, alter flight to exit icing conditions before speeds of less than 130 KIAS are reached.

CAUTION

Flight in icing conditions may eventually cause the cowling inlets to become partially blocked, resulting in higher cylinder head temperatures. If cowl flaps are required to keep cylinder head temperatures below the red line, the flight should be altered to leave the icing conditions as soon as possible.

SURFACE DEICE SYSTEM

NOTE

Deicing pressure gage will indicate approximately 5 psi during periods when boots are not utilized.

When ice accumulates 1/2 to 1 inch:

1. Surface Deice . . . . .AUTO (up)
2. Deice Pressure:
   a. While Boots Are Inflating . . . . 9 TO 20 PSI
   b. When Boots Are Fully Inflated . . . . 15 PSI MINIMUM
3. Repeat . . . . .AS REQUIRED

CAUTION

Rapid cycles in succession or cycling before at least 1/2 inch of ice has accumulated may cause the ice to grow outside the contour of the inflated boots and prevent ice removal.

NOTE

Either engine will supply sufficient vacuum and pressure for deice operation.

ELECTROTHERMAL PROPELLER DEICE

- Propeller Deice. . . . . .ON
  (the system may be operated continuously in flight and will function automatically until the switch is turned OFF)

ELECTROTHERMAL HEATED WINDSHIELD SEGMENT

Prior to Entering Icing Conditions:

- Windshield Heat . . . . ON

NOTE

Continuous operation is permitted.

PITOT HEAT, STALL WARNING HEAT, AND FUEL VENT HEAT

Switches should be ON prior to entering icing conditions. Switches may be left ON during flight.

AFTER LANDING

- Fuel Vent, Stall Warning, Pitot, Propeller
  and Windshield Heat . . . . OFF

SIMULATING ONE-ENGINE-INOPERATIVE (ZERO THRUST)

Use the following power setting (only on one engine at a time) to establish zero thrust. Use of this power setting avoids the difficulties of restarting an engine and preserves the availability of power to counter potential hazards.

The following procedure should be accomplished by alternating small reductions of propeller and then throttle, until the desired setting has been reached.

1. Propeller Lever . . . . . RETARD TO FEATHER DETENT
2. Throttle . . . . . . .SET 12 in. Hg MANIFOLD PRESSURE

NOTE

This setting will approximate Zero Thrust using the recommended One-Engine-Inoperative Climb speed.

PRACTICE DEMONSTRATION OF V_{MCA}

V_{MCA} demonstration may be required for multi-engine pilot certification. The following procedure shall be used at a safe altitude of at least 5000 feet above the ground in clear air only.

WARNING

INFLIGHT ENGINE CUTS BELOW V_{SSE} SPEED OF 88 KTS ARE PROHIBITED.

1. Landing Gear . . . . UP
2. Flaps . . . . UP
3. Airspeed . . . . ABOVE 88 KTS (V_{SSE})
4. Propeller Levers . . . . HIGH RPM
5. Throttle (simulated inoperative engine). . . . . IDLE
6. Throttle (other engine) . . . . MAXIMUM MANIFOLD PRESSURE
7. Airspeed . . . . REDUCE APPROXIMATELY 1 KNOT PER SECOND UNTIL EITHER V_{MCA} OR STALL WARNING IS OBTAINED.

CAUTION

Use rudder to maintain directional control (heading) and ailerons to maintain 5° bank towards the operative engine (lateral attitude). At the first sign of either V_{MCA} or stall warning (which may be evidenced by: inability to maintain heading or lateral attitude, aerodynamic stall buffet, or stall warning horn sound) immediately initiate recovery: reduce power to idle on the operative engine and immediately lower the nose to regain V_{SSE}.

ENGINE BREAK-IN INFORMATION

Refer to Section 7, SYSTEMS DESCRIPTION.

NOISE CHARACTERISTICS

Approach to and departure from an airport should be made so as to avoid prolonged flight at low altitude near noise-sensitive areas. Avoidance of noise-sensitive areas, if practical, is preferable to overflight at relatively low altitudes.

For VFR operations over outdoor assemblies of persons, recreational and park areas, and other noise-sensitive areas, pilots should make every effort to fly not less than 2000 feet above the surface, weather permitting, even though flight at a lower level may be consistent with the provisions of government regulations.

NOTE

The preceding recommended procedures do not apply where they would conflict with Air Traffic Control clearances or instructions, or where, in the pilot's judgement, an altitude of less than 2,000 feet is necessary to adequately exercise his duty to see and avoid other airplanes.

Flyover noise level established in compliance with 14 CFR Part 36 is:

Using Maximum Continuous Power:

Full Throttle at 2700 RPM . . . . 77.4 dB(A)

No determination has been made by the Federal Aviation Administration that the noise level of this airplane is or should be acceptable or unacceptable for operation at, into, or out of any airport.

Section 5
Performance

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Performance

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Except as noted, all airspeeds quoted in this section are indicated airspeeds (IAS) and assume zero instrument error.

INTRODUCTION TO PERFORMANCE

The graphs and tables in this section present performance information for flight planning at various parameters of weight, power, altitude and temperature. Examples have been presented on all performance graphs.

PERFORMANCE IN ICING CONDITIONS

1. On a clean airplane (no ice build-up) stall speeds are increased 4 knots in all configurations when surface deice boots are inflated.
2. Residual ice on the airplane can disrupt the airflow over lifting surfaces and may cause an increase in the stall speeds and a change in the amount of warning provided by the stall warning vane.
3. The wings, stabilizers, and all control surfaces must be cleared of frost, ice or snow prior to takeoff.
4. Ice accumulations on unprotected surfaces will decrease climb rates, cruise speeds, and range. Therefore, flight planning should be accomplished for altitudes where adequate performance margins exist.
5. Two-engine climb performance at maximum continuous power will be reduced due to the 130 KIAS minimum climb speed.
6. The minimum recommended holding speed in icing conditions is 140 KIAS.

HOW TO USE THE GRAPHS

1. In addition to presenting the answer for a particular set of conditions, the example on the graph also presents the order in which the various scales on the graph should be used. For instance, if the first item in the example is OAT, then enter the graph at the known OAT and proceed to the remaining item(s) in the order given in the example.
2. The reference lines indicate where to begin following the guidelines. Always project to the reference line first, then follow the guidelines to the next known item by maintaining the same PROPORTIONAL DISTANCE between the guideline above and guideline below the projected line. For instance, if the projected line intersects the reference line in the ratio of 30% down/70% up between the guidelines, then maintain this same 30%/70% relationship between the guidelines all the way to the next known item or answer.
3. The associated conditions define the specific conditions from which performance parameters have been determined. They are not intended to be used as instructions; however, performance values determined from charts can only be achieved if the specified conditions exist.
4. Indicated airspeeds (IAS) were obtained by using the AIRSPEED CALIBRATION-NORMAL SYSTEM graph.
5. The full amount of usable fuel is available for all approved flight conditions.

EXAMPLE CALCULATIONS

The calculations for flight time, block speed and fuel required for a proposed flight are listed below:

CONDITIONS

At Departure:

Outside Air Temperature . . . . .15°C (59°F)

Field Elevation. . . . . .5333 ft

Altimeter Setting . . . . .29.60 in. Hg

Runway 26L Length . . . . 10,004 ft

Wind . . . . 300° at 13 kts

At Destination:

Outside Air Temperature .25°C (77°F)

Field Elevation. . . . . .3605 ft

Altimeter Setting . . . . .29.56 in. Hg

Wind . . . . 190° at 12 kts

Runway 22 Length . . . . 13,502 ft

ROUTE SEGMENT	AVERAGE MAGNETIC COURSE	AVERAGE MAGNETIC VARIATION	DIST NM	WIND AT 11,500 FEET DIR/KTS	OAT 11,500 FEET °C
LEG A	155°	12°E	51	010°/30	-5
LEG B	153°	12°E	40	010°/30	-5
LEG C	135°	12°E	74	100°/20	0
LEG D	132°	11°E	87	200°/20	9
LEG E	126°	10°E	70	200°/20	10

PRESSURE ALTITUDE

To determine pressure altitude at departure and destination airports, add 1000 ft to field elevation for each 1.00 in. Hg below 29.92, and subtract 1000 ft from field elevation for each 1.00 in. Hg above 29.92.

Pressure Altitude at Departure:

29.92 - 29.60 = 0.32 in. Hg
0.32 x 1000 = 320 ft

The Pressure Altitude at the departure airport is 320 ft above the field elevation.

5333 + 320 = 5653 ft

Pressure Altitude at Destination:

29.92 - 29.56 = 0.36 in. Hg

0.36 x 1000 = 360 ft

The Pressure Altitude at the destination airport is 360 ft above the field elevation.

3605 + 360 = 3965 ft

NOTE

For flight planning, the difference between cruise altitude and cruise pressure altitude has been ignored.

TAKE-OFF WEIGHT

Maximum Allowable Take-off Weight = 5500 lbs

Ramp Weight = 5500 + 24 = 5524 lbs

NOTE

Fuel for start, taxi and run-up is normally 24 lbs.

Enter the Take-Off Weight graph at 5653 ft pressure altitude and 15°C, to determine the maximum take-off weight to achieve a positive one-engine-inoperative rate-of-climb at lift-off.

Take-off Weight = 4870 lbs

TAKE-OFF DISTANCE

Enter the Take-Off Distance graph at 15°C, 5653 ft pressure altitude, 5500 lbs, and 10 knots headwind component:

Ground Roll . . . . .2200 ft

Total Distance over 50-ft Obstacle . . . . .3775 ft

Enter the Accelerate-Stop graph at 15°C, 5653 ft pressure altitude, 5500 lbs, and 10 knots headwind component:

Accelerate-Stop Distance . . . . .3960 ft

NOTE

Since 3960 ft is less than the available field length of 10,004 ft, the accelerate-stop procedure can be performed at any weight.

Take-off at 5500 lbs can be accomplished. However, if an engine failure occurs before becoming airborne, the accelerate-stop procedure must be performed.

The following example assumes the airplane is loaded so that the take-off weight is 4700 lbs.

Although not required by regulations, information has been presented to determine the take-off weight, field requirements and take-off flight path assuming an engine failure occurs during the take-off procedure. The following illustrates the use of these graphs.

Enter the Accelerate-Go graph at 15°C, 5653 ft pressure altitude, 4700 lbs, and 10 knots headwind component:

Total Distance Over 50-ft Obstacle . . . . 9400 ft

Ground Roll Distance. . . . . 3760 ft

Enter the graph for Take-Off Climb Gradient - One-Engine-Inoperative at 15°C, 5653 ft pressure altitude, and 4700 lbs:

Climb Gradient. 2.6%

A 2.6% climb gradient is 26 ft of vertical height per 1000 ft of horizontal distance.

NOTE

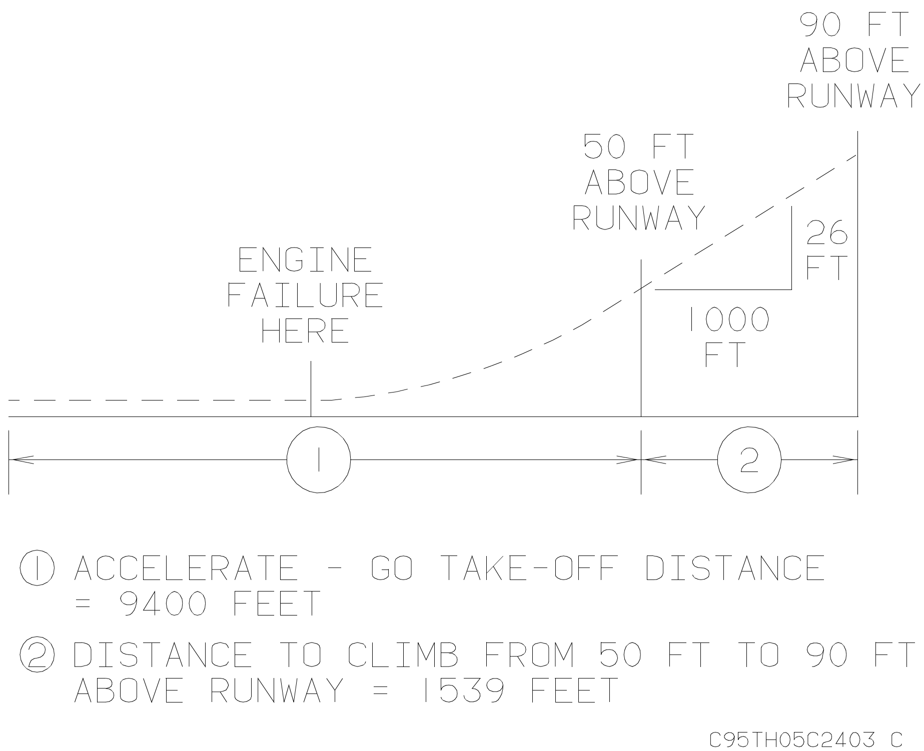
The Take-off Climb Gradient - One-Engine-Inoperative graph assumes zero wind conditions. Climbing into a headwind will result in higher angles of climb, and hence, better obstacle clearance capabilities.

Calculation of horizontal distance to clear an obstacle 90 ft above the runway surface:

Horizontal distance used to climb from 50 ft to 90 ft =
(90-50) X (1000 ÷ 26) = 1539 ft

Total Distance = 9400 + 1539 = 10,939 ft

The results are illustrated as follows:



FLIGHT TIME, BLOCK SPEED AND FUEL REQUIREMENT

CRUISE CLIMB

Enter the TIME, FUEL AND DISTANCE TO CRUISE CLIMB Graph at the takeoff temperature of 15°C and trace up to 5653 ft pressure altitude. Then trace right to 5500 lbs. and then down to obtain the time, fuel, and distance to climb from S.L to 5653 ft. Repeat the process starting with the cruise temperature of -5°C, cruise altitude of 11,500 ft, and initial cruise weight of 5500 lbs. to obtain the time, fuel and distance to climb from S.L. to 11,500 ft. Subtract the former values from the latter values to obtain the time, fuel and distance to climb from 5653 ft to 11,500 ft.

Time to Climb = (13 - 5) = 8 min

Fuel Used to Climb = (9.5 - 3.9) = 5.6 gal

Distance Traveled = (32 - 11.5) = 20.5 nm

CRUISE

The air temperatures for cruise are presented for 20°C below a Standard Day (ISA -20°C), for a Standard Day (ISA) and for 20°C above a Standard Day (ISA +20°C). OAT is used to enter the Cruise Power Setting tables to determine the enroute cruise power setting. OAT is displayed in the OAT Box located in the lower left corner of the PFD. For temperature values between ISA and ISA ±20°C, interpolate to determine the cruise power setting.

Enter the ISA CONVERSION Graph at 11,500 ft and the true temperature for the route segment:

ROUTE SEGMENT	OAT	ISA CONDITION
LEG A-B	-5°C	ISA + 3°C
LEG C	0°C	ISA + 8°C
LEG D	9°C	ISA + 17°C
LEG E	10°C	ISA + 18°C

Enter the MAXIMUM CRUISE POWER table at 10,000 ft and at 12,000 ft at ISA and ISA + 20°C:

ALTITUDE FEET	TEMPERATURE			
	ISA		ISA + 20°C	
	FUEL FLOW PER ENG GAL/HR	TAS KNOTS	FUEL FLOW PER ENG GAL/HR	TAS KNOTS
10,000	14.8	198	14.3	199
12,000	13.8	195	13.3	196

Interpolate for 11,500 ft and the temperature for the appropriate route segment. Results of the interpolations are:

ROUTE SEGMENT	ISA CONDITION	FUEL FLOW PER ENG GAL/HR	TAS KNOTS
LEG A-B	ISA + 3°C	14.0	196
LEG C	ISA + 8°C	13.9	196
LEG D	ISA + 17°C	13.6	197
LEG E	ISA + 18°C	13.6	197

Time and fuel used are calculated as follows:

Time = Distance ÷ Ground Speed

Fuel Used = (Distance ÷ Ground Speed) x Fuel Flow

Results are:

ROUTE SEGMENT	DISTANCE NM	EST GROUND SPEED KNOTS	TIME AT CRUISE ALTITUDE HRS:MIN	FUEL USED CRUISE GAL
LEG A	*30.5	224	:08.2	3.8
LEG B	40.0	223	:10.8	5.0
LEG C	74.0	182	:24.4	11.3
LEG D	87.0	186	:28.1	12.7
LEG E	*22.0	188	:07.0	3.2
TOTAL	253.5		1:19	36.0

* Distance required to climb or descend has been subtracted from segment distance.

DESCENT

Enter the TIME, FUEL, and DISTANCE TO DESCEND Graph at the cruise pressure altitude of 11,500 ft and trace right to the reference line. Then trace down to obtain the time, fuel, and distance to descend to S.L. Repeat the process starting with destination field pressure altitude of 3965 ft. to obtain the time, fuel and distance to descend from 3965 ft to S.L. Subtract the former values from the latter values to obtain the time, fuel and distance to descend from 11,500 ft. to 3695 ft.

Time to Descend = (23 - 7.8) = 15.2 min

Fuel Used to Descend = (8.7 - 2.8) = 5.9 gal

Descent Distance = (70 - 22) = 48 NM

TIME - FUEL - DISTANCE SUMMARY

ITEM	TIME HRS:MINS	FUEL GAL	DISTANCE NM
Start, Runup, Taxi, and Take-off acceleration	0:00	4.5	0
Climb	0:08.0	5.6	20.5
Cruise	1:19.0	36.0	253.5
Descent	0:15.2	5.9	48.0
Total	1:42.2	52.0	322.0

Total Flight Time: 1 hour, 42.2 min

Block Speed: 322 NM ÷ 1 hour, 42.2 min = 189 kts

RESERVE FUEL

Enter the ECONOMY CRUISE POWER table at ISA and ISA + 20°C at 10,000 ft and 12,000 ft. Interpolate to find the Fuel Flow at 11,500 ft at ISA + 18°C:

Total Fuel Flow . . . . 17.4 gph

Reserve Fuel (45 minutes) (17.4 gph). . . . . 13.1 gal

TOTAL FUEL REQUIRED

Total Fuel Required = Calculated Fuel Usage + Reserve Fuel

Total Fuel Required

= 52.0 + 13.1 = 65.1 gal

LANDING

The estimated landing weight is determined by subtracting the fuel required for the trip from the ramp weight:

Assumed Ramp Weight. . . . . 5524 lbs

Estimated Fuel (52.0 gal at 6 lbs/gal) . . . . 312 lbs

Estimated Landing Weight (5524 - 312) . . . . 5212 lbs

NOTE

For the Landing Distance example, a 5039 lbs weight and a 9.5 kts headwind component were assumed.

Enter the LANDING DISTANCE graph at 25°C, 3965 ft pressure altitude, 5039 lbs landing weight an 9.5 kts headwind component:

Ground Roll . . . . 1450 ft

Total Distance over 50 ft. Obstacle . . . . 2500 ft

Approach Speed . . . . 91 kts

BALKED LANDING CLIMB PERFORMANCE

NOTE

For the Balked Landing Climb performance example, a weight of 5166 lbs was assumed.

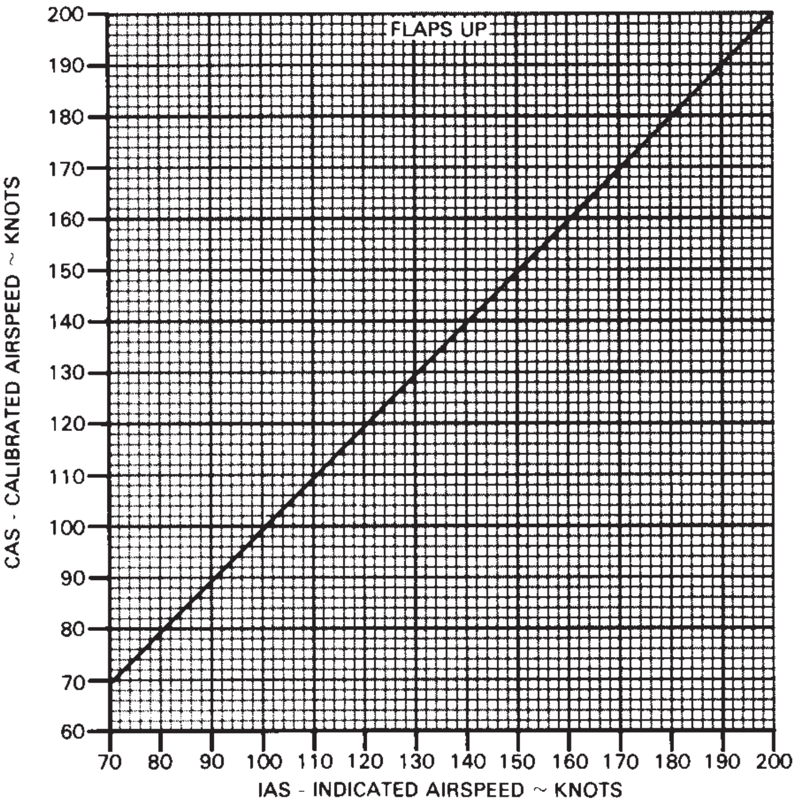
Enter the CLIMB-BALKED LANDING graph at 25°C, 3965 ft pressure altitude and 5166 lbs:

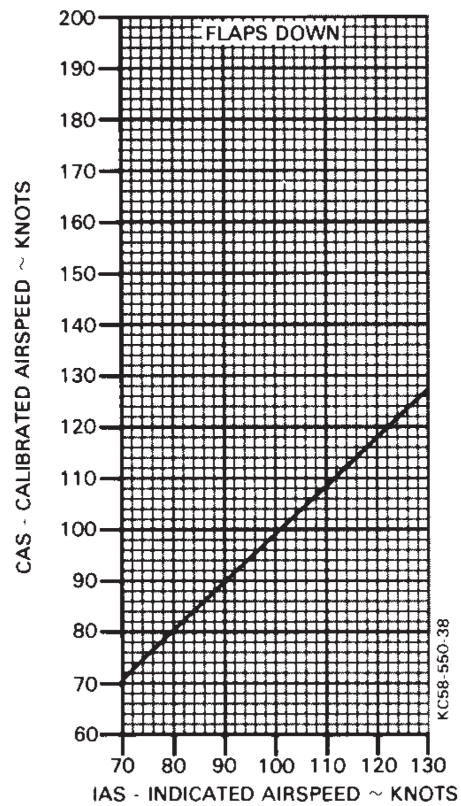
Rate-of-Climb . . . . 765 ft/min

Climb Gradient 6.9%

AIRSPEED CALIBRATION — NORMAL SYSTEM

NOTE: INDICATED AIRSPEED ASSUMES ZERO INSTRUMENT ERROR



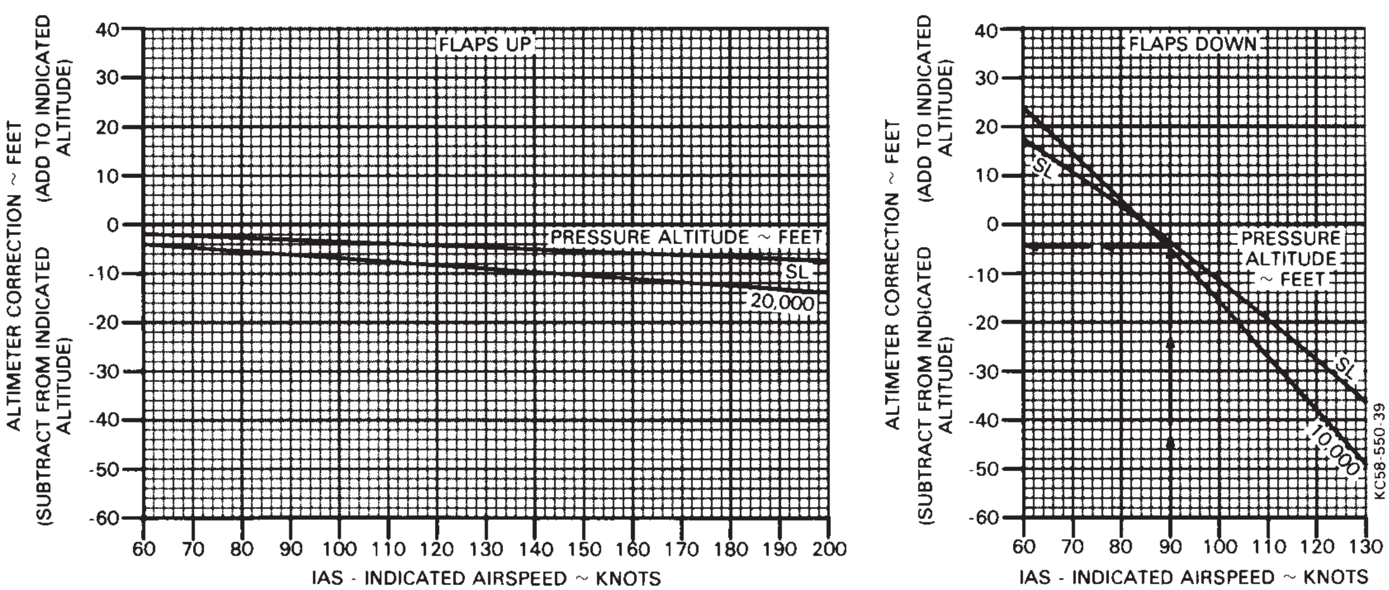


ALTIMETER CORRECTION — NORMAL SYSTEM

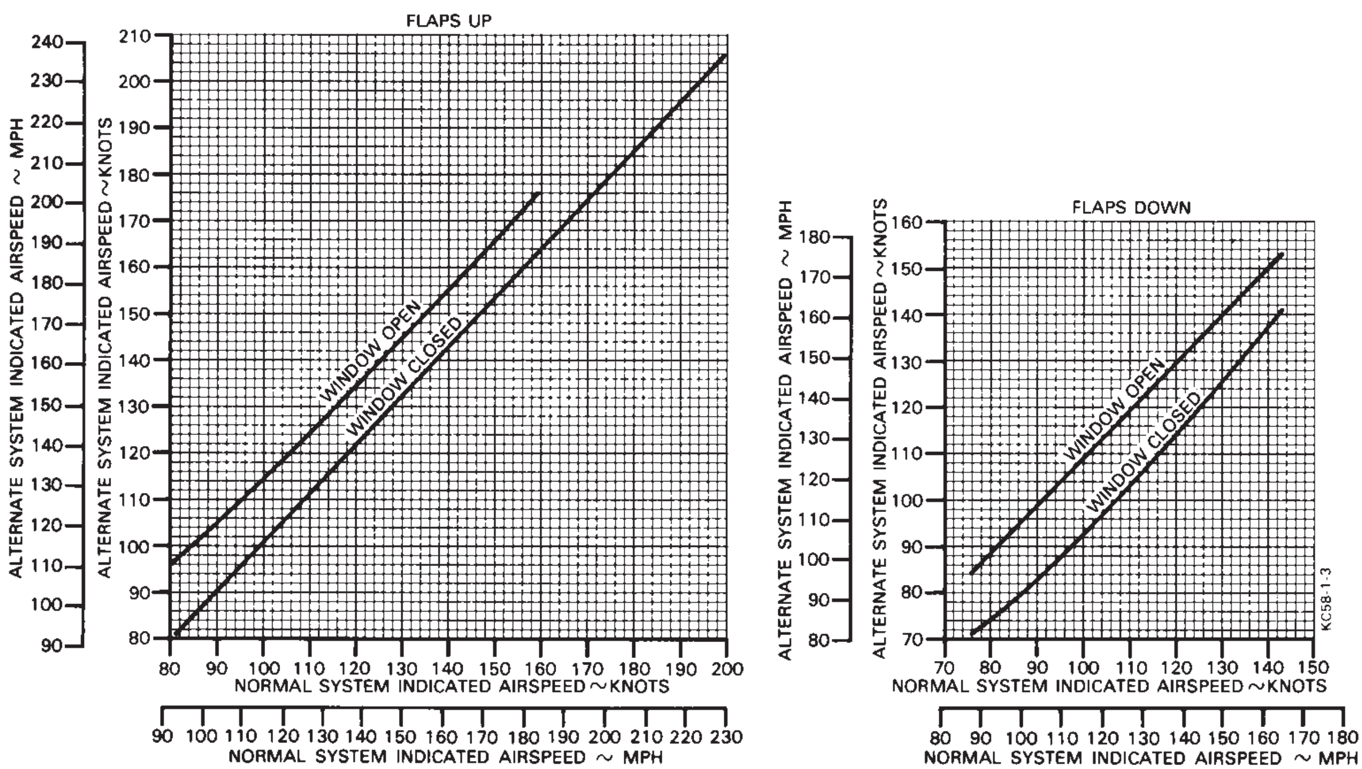
NOTE: INDICATED ALTITUDE AND INDICATED AIRSPEED ASSUME ZERO INSTRUMENT ERROR

EXAMPLE:

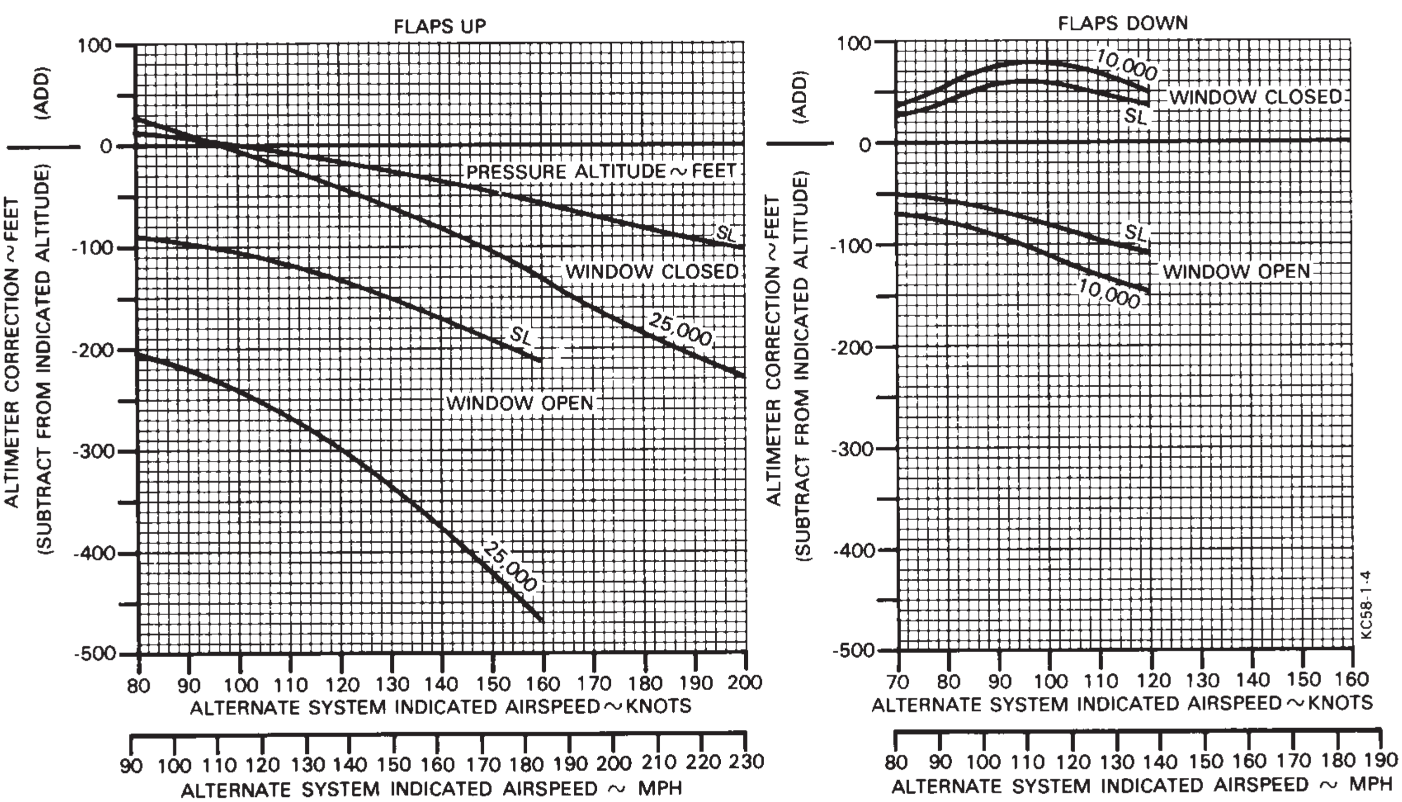
IAS	90 KTS
FLAPS	DOWN
INDICATED PRESSURE ALTITUDE	3965 FT
ALTIMETER CORRECTION	-4.5 FT
ACTUAL PRESSURE ALTITUDE	(3965 - 4.5) 3960 FT



AIRSPEED CALIBRATION - EMERGENCY SYSTEM

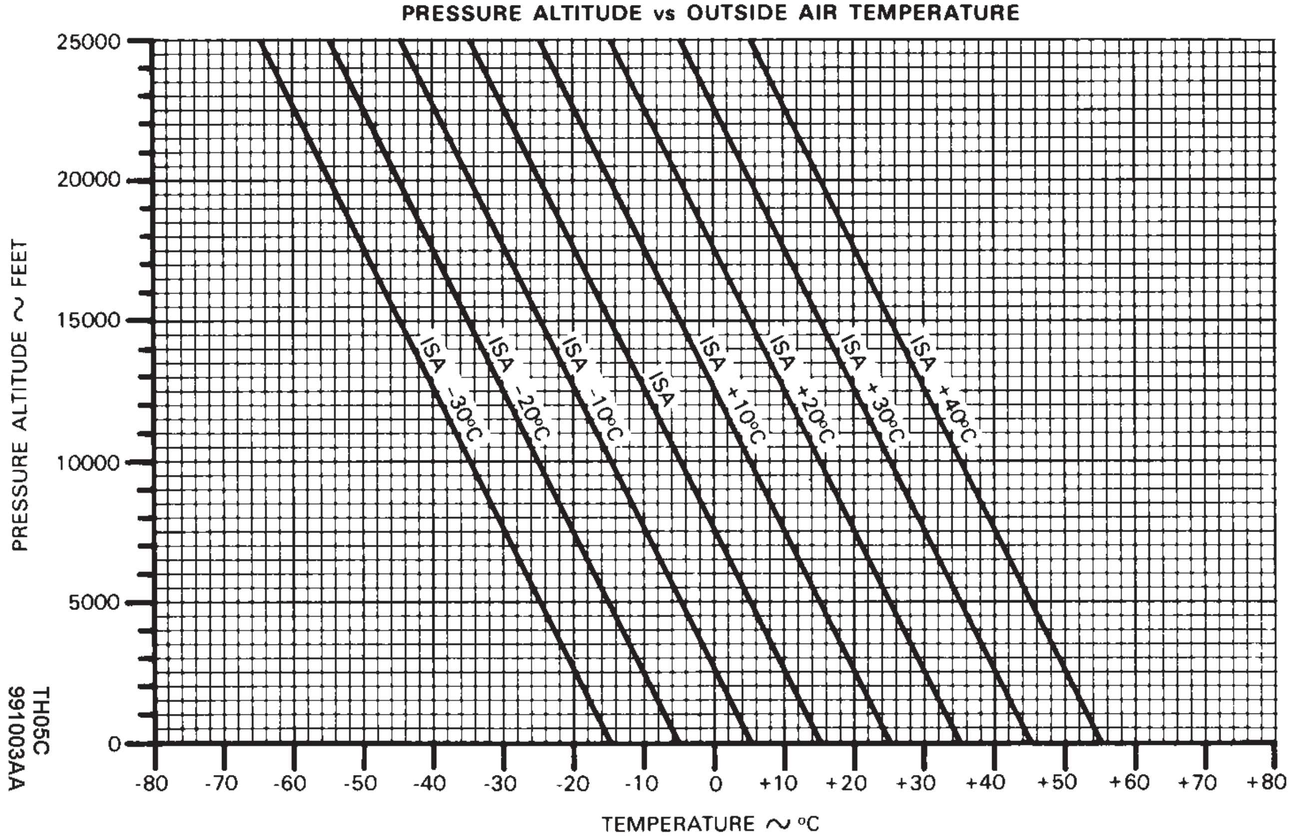


ALTIMETER CORRECTION - EMERGENCY SYSTEM

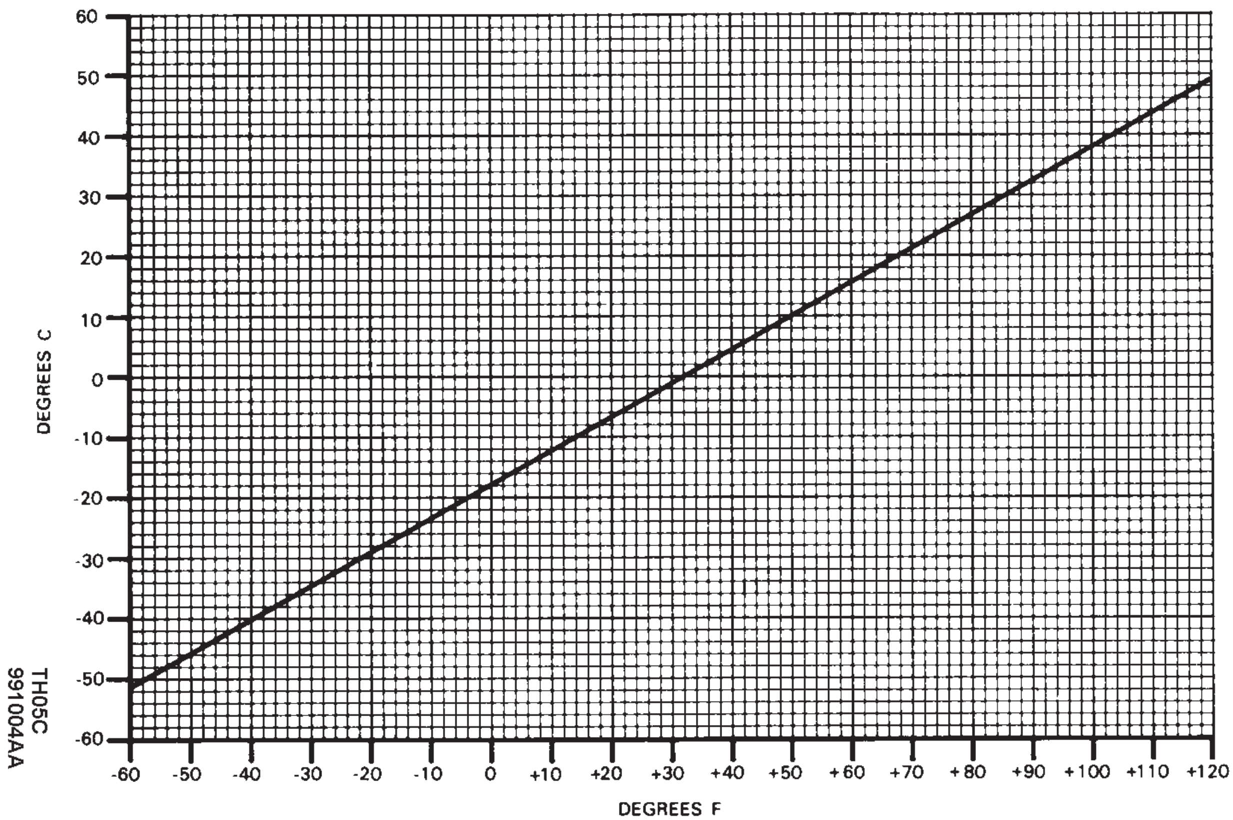


ISA CONVERSION

PRESSURE ALTITUDE vs OUTSIDE AIR TEMPERATURE



FAHRENHEIT TO CELSIUS TEMPERATURE CONVERSION

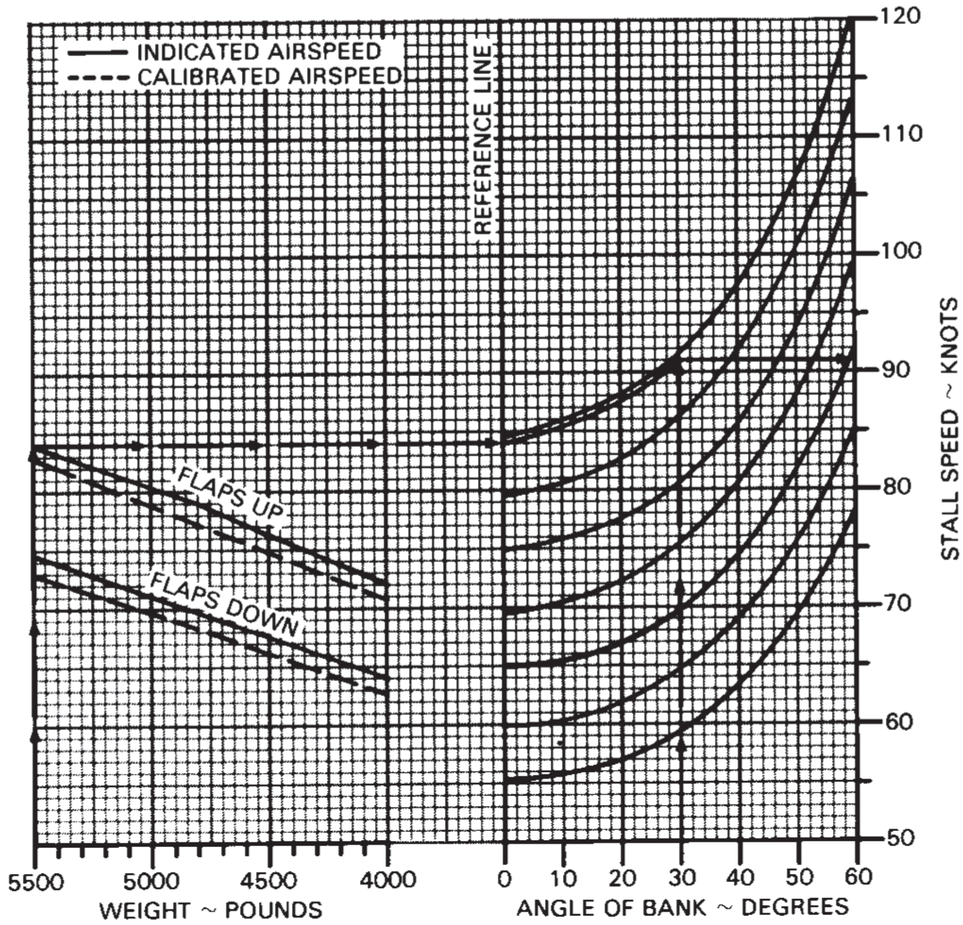


STALL SPEEDS - POWER IDLE

EXAMPLE
WEIGHT.......................5500 LBS
FLAPS....................................UP
ANGLE OF BANK...................30°
STALL SPEED.............91 KCAS

NOTE: 1. THE MAXIMUM ALTITUDE LOSS EXPERIENCED WHILE CONDUCTING STALLS IN ACCORDANCE WITH 14 CFR PART 3.120 WAS 400 FT.

2. A NORMAL STALL RECOVERY TECHNIQUE MAY BE USED.



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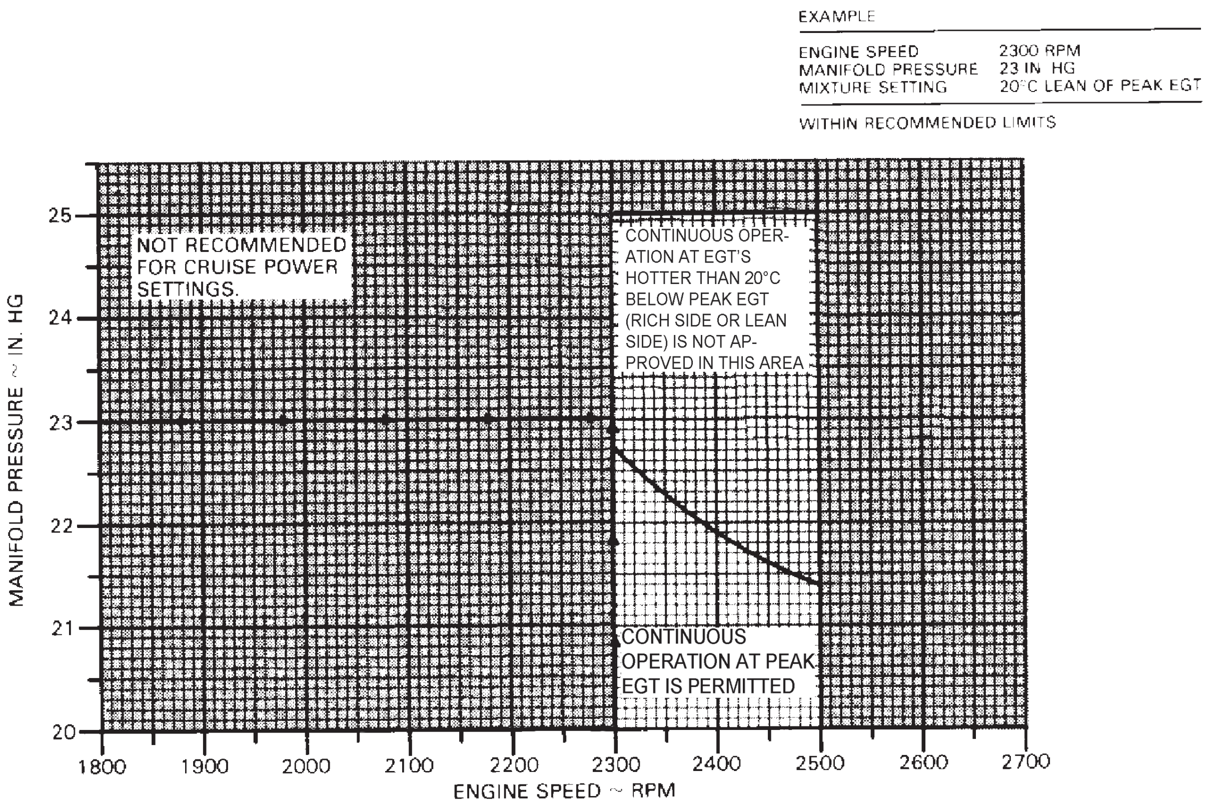
MANIFOLD PRESSURE vs RPM



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TAKE-OFF WEIGHT

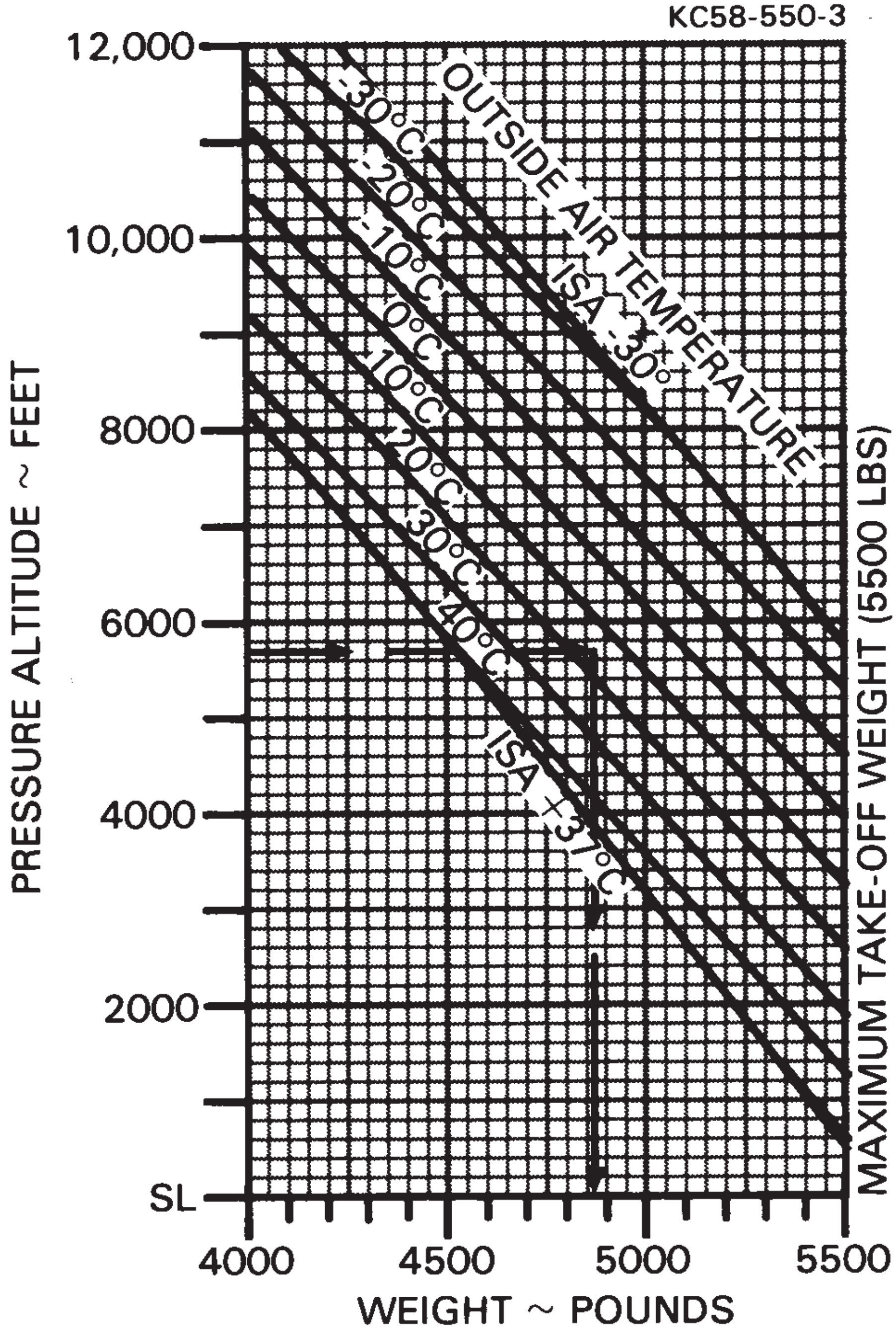
TO ACHIEVE POSITIVE ONE-ENGINE-INOPERATIVE CLIMB AT LIFT-OFF

ASSOCIATED CONDITIONS:

POWER	TAKE-OFF
FLAPS	UP
LANDING GEAR	DOWN
INOPERATIVE PROPELLER	FEATHERED

EXAMPLE

PRESSURE ALTITUDE	5653 FT
OAT	15°C
TAKE-OFF WEIGHT	4870 LBS

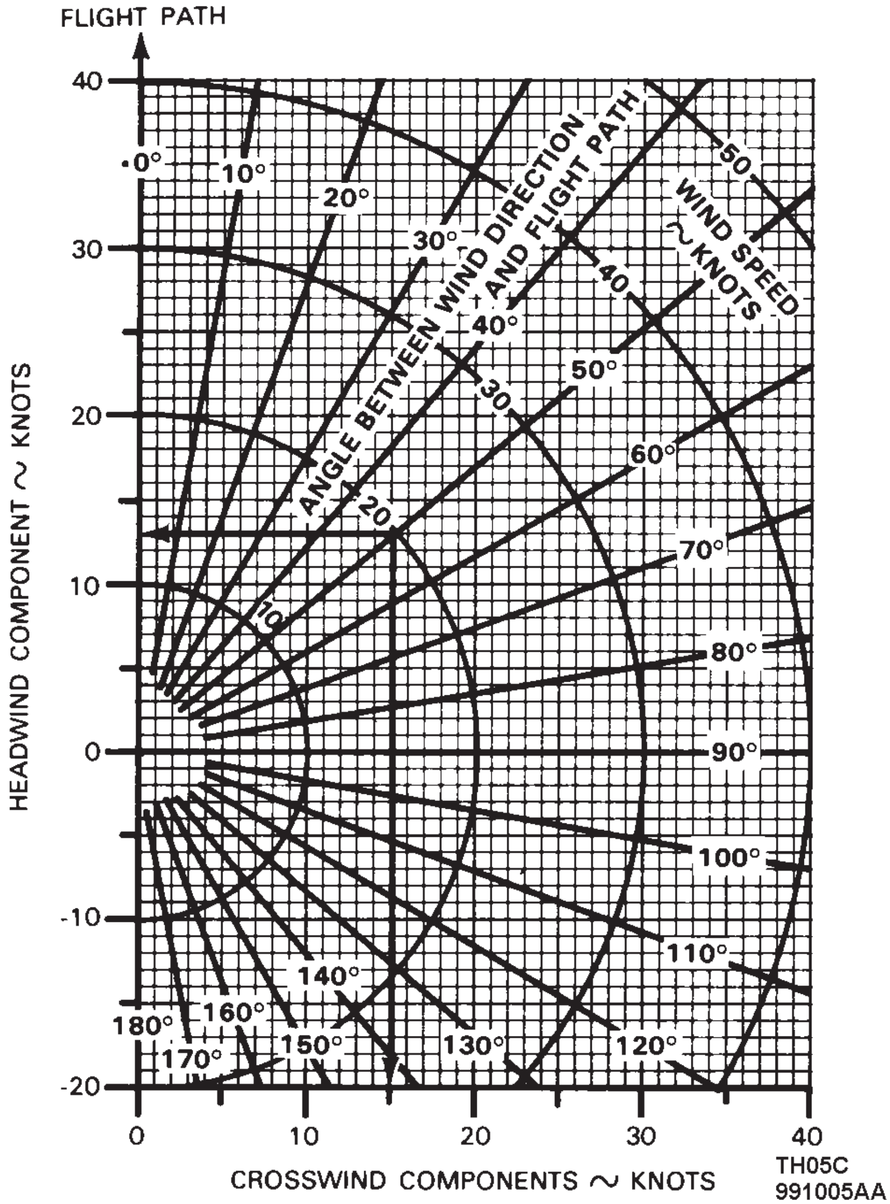


WIND COMPONENTS

Demonstrated Crosswind Component is 22 kts

EXAMPLE:

WIND SPEED	20 KTS
ANGLE BETWEEN WIND DIRECTION AND FLIGHT PATH	50°
HEADWIND COMPONENT	13 KTS
CROSSWIND COMPONENT	15 KTS



TAKE-OFF DISTANCE

TAKE-OFF SPEEDS (ALL WEIGHTS)

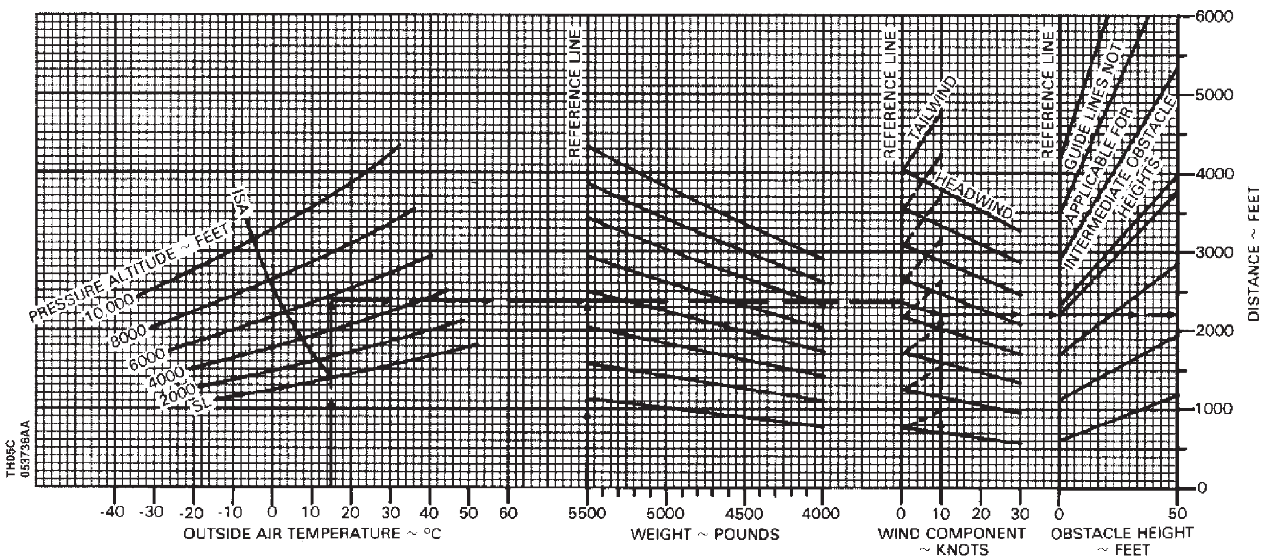
ROTATION	85 KNOTS
50 FEET	100 KNOTS

ASSOCIATED CONDITIONS:

POWER	TAKE-OFF POWER SET BEFORE BRAKE RELEASE
MIXTURE	SET FUEL FLOW AT CYAN CLIMB FUEL FLOW MARKER
FLAPS	UP
LANDING GEAR	RETRACT AFTER POSITIVE CLIMB ESTABLISHED
COWL FLAPS	OPEN
RUNWAY	PAVED, LEVEL, DRY SURFACE

EXAMPLE:

OAT	15°C
PRESSURE ALTITUDE	5653 FT
TAKE-OFF WEIGHT	5500 LBS
HEADWIND COMPONENT	10 KTS
GROUND ROLL	2200 FT
TOTAL DISTANCE OVER 50-FT OBSTACLE	3775 FT



ACCELERATE - STOP DISTANCE

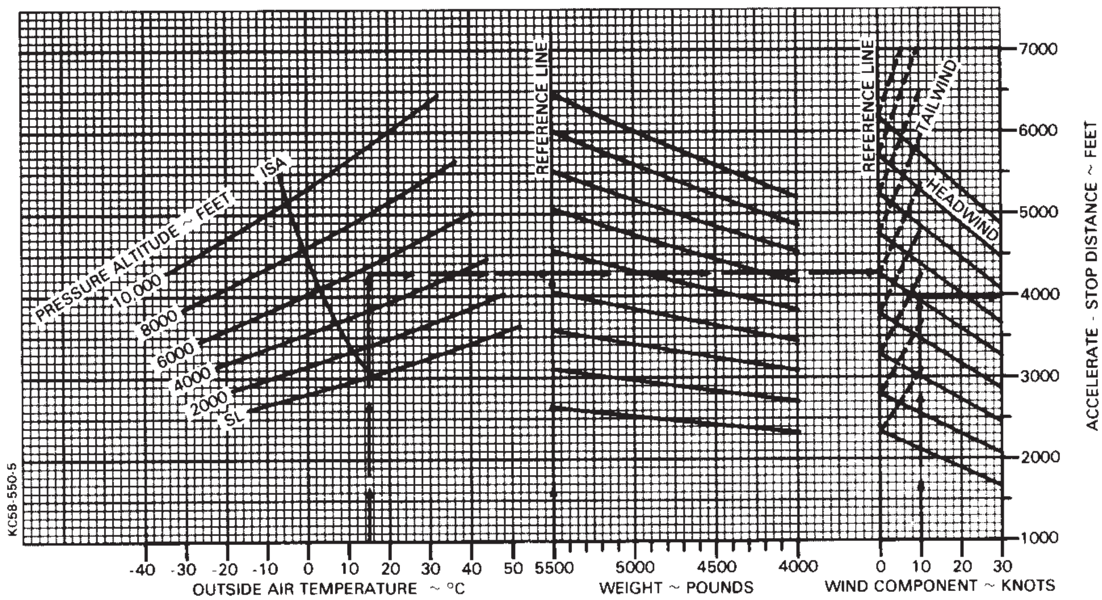
DECISION SPEED (ALL WEIGHTS)
85 KNOTS

ASSOCIATED CONDITIONS:

POWER	TAKE-OFF POWER SET BEFORE BRAKE RELEASE
FLAPS	UP
COWL FLAPS	OPEN
RUNWAY	PAVED, LEVEL, DRY SURFACE

EXAMPLE:

OAT	15°C
PRESSURE ALTITUDE	5653 FT
TAKE-OFF WEIGHT	5500 LBS
HEADWIND	10 KTS
ACCELERATE-STOP DISTANCE	3960 FT



ACCELERATE - GO DISTANCE

ASSOCIATED CONDITIONS:

POWER	TAKE-OFF POWER SET BEFORE BRAKE RELEASE
MIXTURE	SET FUEL FLOW AT CYAN CLIMB FUEL FLOW MARKER
FLAPS	UP
LANDING GEAR	RETRACT AFTER LIFT-OFF
RUNWAY	PAVED, LEVEL, DRY SURFACE

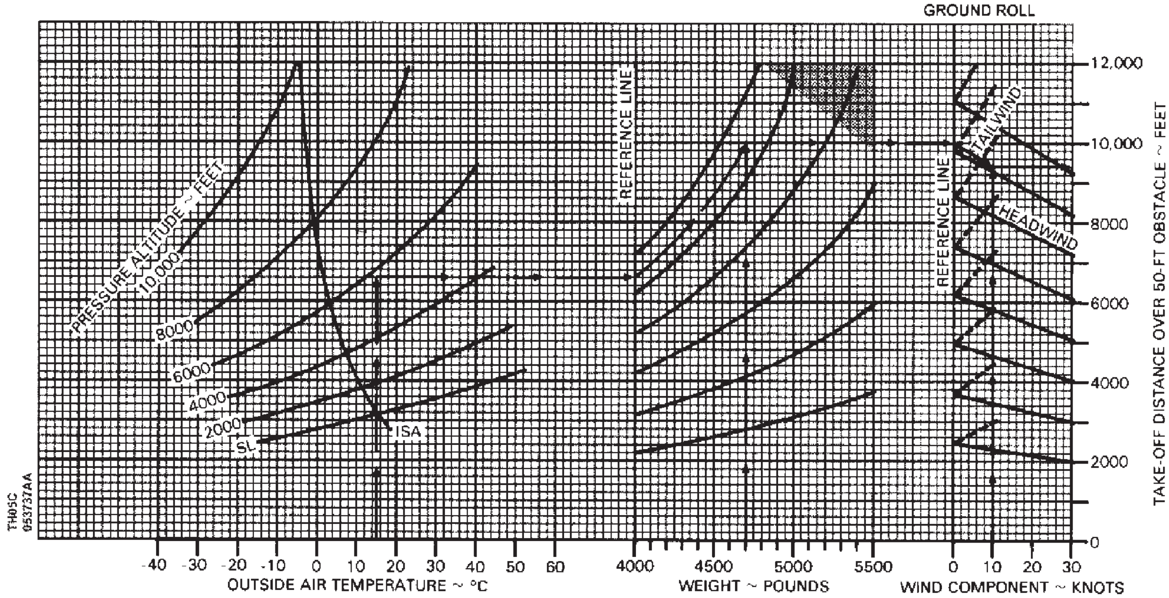
1. GROUND ROLL DISTANCE IS 40% OF TAKE-OFF DISTANCE OVER 50-FT OBSTACLE.
2. DISTANCES ASSUME AN ENGINE FAILURE AT ROTATION AND PROPELLER IMMEDIATELY FEATHERED.
3. WEIGHTS IN SHADED AREA MAY NOT PROVIDE POSITIVE ONE-ENGINE-INOPERATIVE CLIMB. REFER TO **TAKE-OFF WEIGHT** GRAPH FOR MAXIMUM WEIGHT AT WHICH THE ACCELERATE-GO PROCEDURE SHOULD BE ATTEMPTED.

TAKE-OFF SPEEDS (ALL WEIGHTS):

ROTATION	85 KNOTS
50 FEET	100 KNOTS

EXAMPLE:

OAT	15°C
PRESSURE ALTITUDE	5653 FT
TAKE-OFF WEIGHT	4700 LBS
HEADWIND COMPONENT	10 KTS
TAKE-OFF DISTANCE OVER 50-FT OBSTACLE	9400 FT
GROUND ROLL	3760 FT



TAKE-OFF CLIMB GRADIENT — ONE ENGINE INOPERATIVE

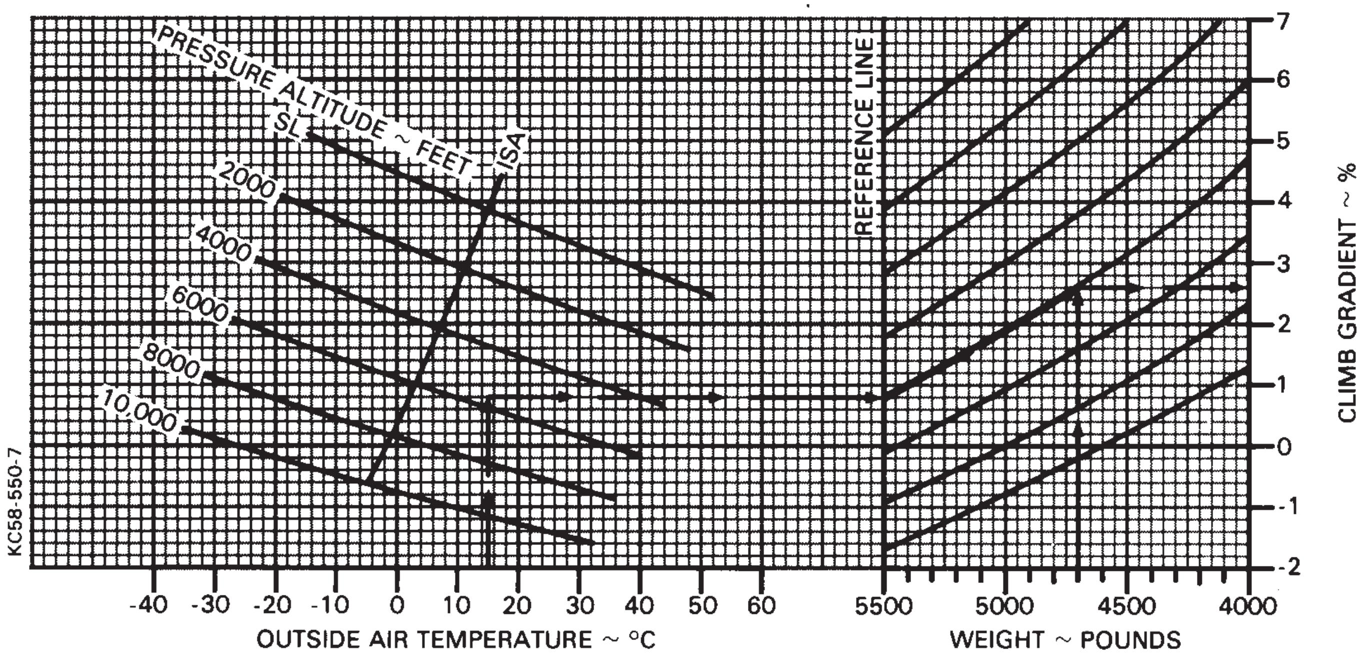
ASSOCIATED CONDITIONS:

POWER	TAKE-OFF
LANDING GEAR	UP
FLAPS	UP
INOPERATIVE PROPELLER	FEATHERED

CLIMB SPEED: 101 KNOTS (ALL WEIGHTS)

EXAMPLE:

OAT	15°C
PRESSURE ALTITUDE	5653 FT
WEIGHT	4700 LBS
CLIMB GRADIENT	2.6%



CLIMB — TWO ENGINE

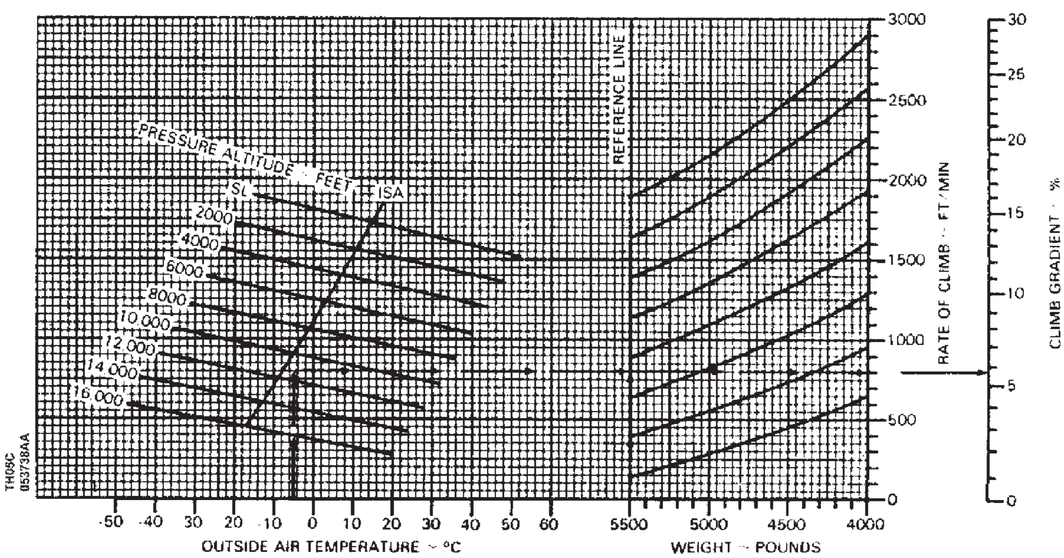
ASSOCIATED CONDITIONS:

POWER	MAXIMUM CONTINUOUS
MIXTURE	SET FUEL FLOW AT CYAN CLIMB FUEL FLOW MARKER
FLAPS	UP
LANDING GEAR	UP
COWL FLAPS	OPEN

CLIMB SPEED: 105 KNOTS (ALL WEIGHTS)

EXAMPLE

OAT	-5°C
PRESSURE ALTITUDE	11,500 FT
WEIGHT	5500 LBS
RATE OF CLIMB	800 FT/MIN
CLIMB GRADIENT	5.7%



CLIMB — ONE ENGINE INOPERATIVE

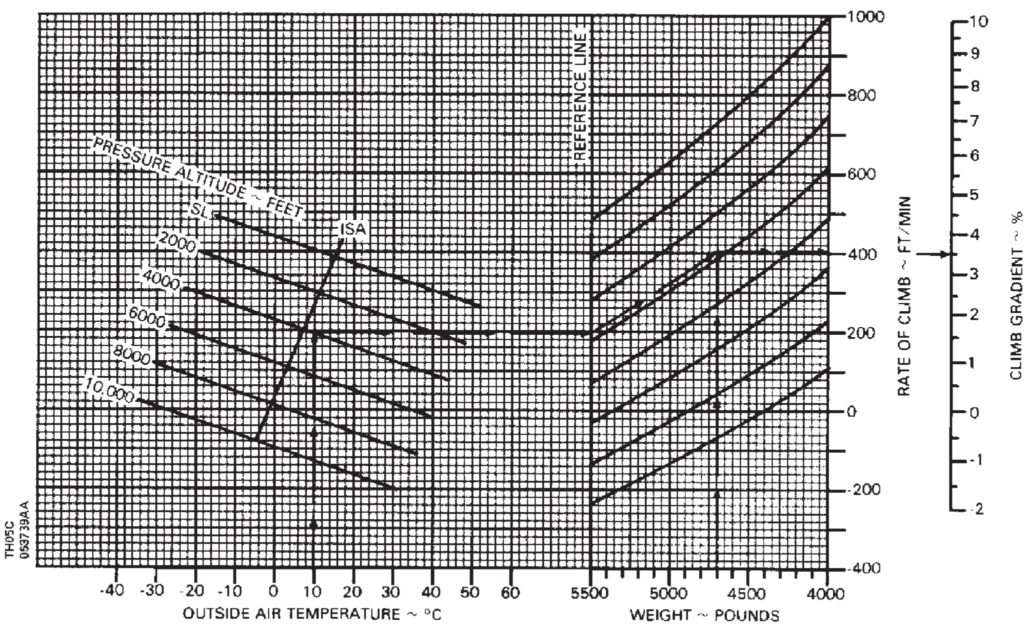
CLIMB SPEED: 101 KNOTS (ALL WEIGHTS)

ASSOCIATED CONDITIONS:

POWER	MAXIMUM CONTINUOUS
MIXTURE	SET FUEL FLOW AT CYAN CLIMB FUEL FLOW MARKER
FLAPS	UP
LANDING GEAR	UP
INOPERATIVE PROPELLER	FEATHERED
COWL FLAPS	OPEN

EXAMPLE:

OAT	10°C
PRESSURE ALTITUDE	4000 FT
WEIGHT	4700 LBS
RATE OF CLIMB	405 FT/MIN
CLIMB GRADIENT	3.5%

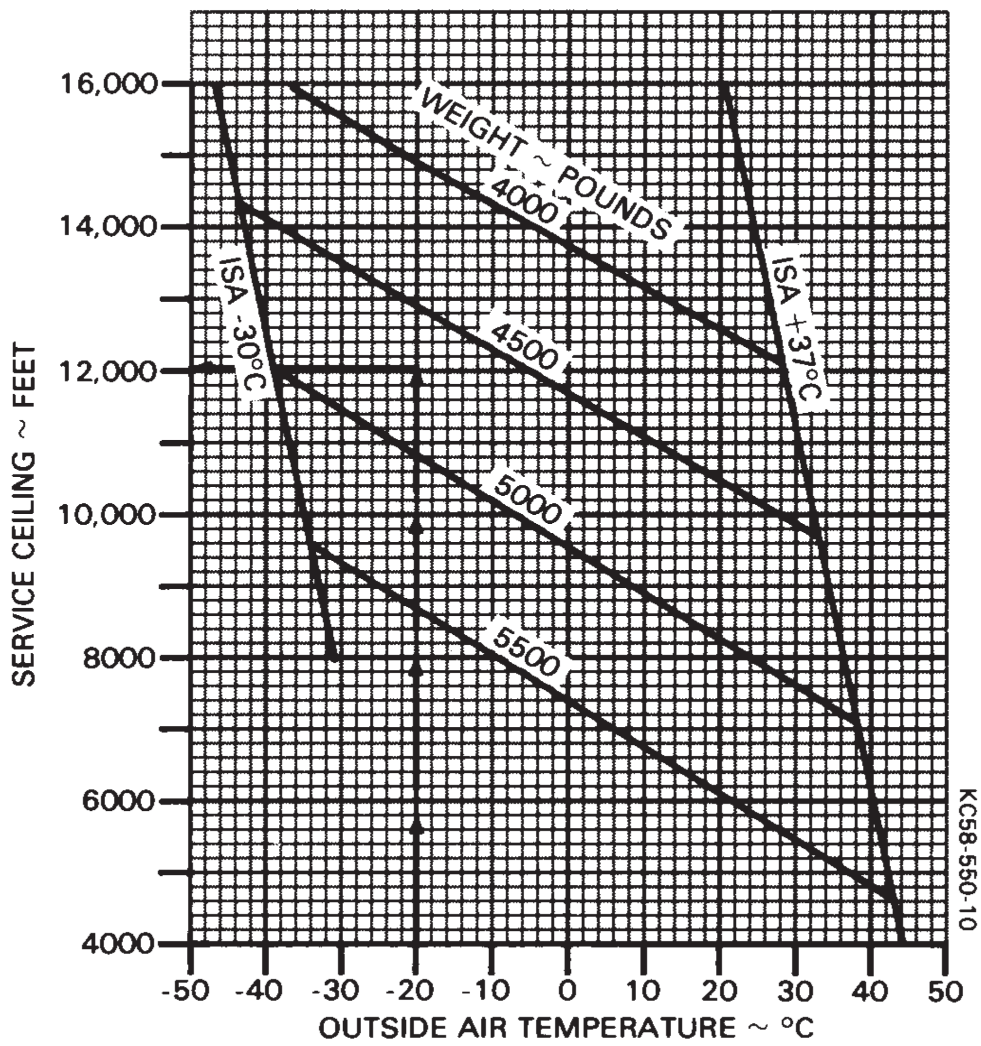


SERVICE CEILING - ONE-ENGINE-INOPERATIVE

CLIMB SPEED: 101 KNOTS (ALL WEIGHTS)

ASSOCIATED CONDITIONS:		EXAMPLE:	
POWER	MAXIMUM CONTINUOUS	OAT	-20°C
LANDING GEAR	UP	WEIGHT	4700 LBS
INOPERATIVE PROPELLER	FEATHERED	SERVICE CEILIN	12,015 FT
FLAPS	UP		
MIXTURE	AS REQUIRED BY ALTITUDE		

NOTE: ONE-ENGINE-INOPERATIVE SERVICE CEILING IS THE MAXIMUM PRESSURE ALTITUDE AT WHICH THE AIRPLANE HAS THE CAPABILITY OF CLIMBING AT 50 FT/MINUTE WITH ONE PROPELLER FEATHERED.



TIME, FUEL, AND DISTANCE TO CRUISE CLIMB

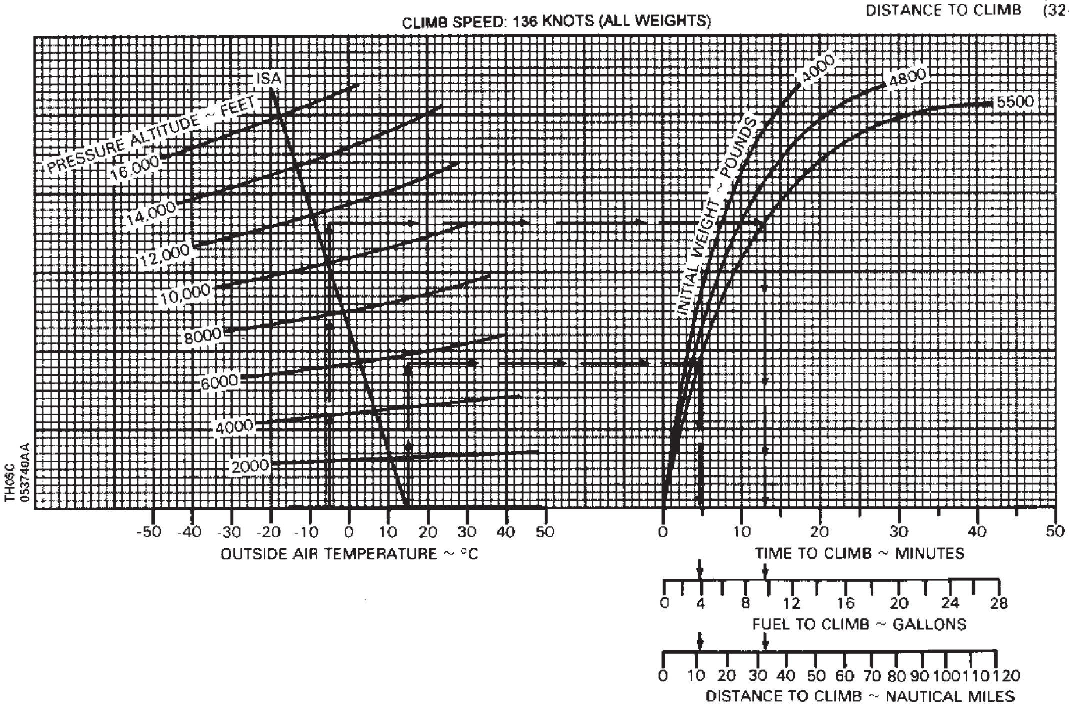
ASSOCIATED CONDITIONS:

POWER	FULL THROTTLE, 2500 RPM
MIXTURE	SET FUEL FLOW AT CYAN CLIMB FUEL FLOW MARKER
FLAPS	UP
FUEL DENSITY	6.0 LBS/GAL
COWL FLAPS	OPEN

EXAMPLE:

OAT AT TAKEOFF	15°C
OAT AT CRUISE	-5°C
AIRPORT PRESSURE ALTITUDE	5653 FT
CRUISE PRESSURE ALTITUDE	11,500 FT
INITIAL CLIMB WEIGHT	5500 LBS
TIME TO CLIMB	(13-5) = 8 MIN
FUEL TO CLIMB	(9.5-3.9) = 5.6 GAL
DISTANCE TO CLIMB	(32-11.5) = 20.5 NM

CLIMB SPEED: 136 KNOTS (ALL WEIGHTS)



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CRUISE POWER SETTINGS

20°C RICH
OF PEAK EGT

MAXIMUM CRUISE POWER
25 IN. HG (OR FULL THROTTLE)
@ 2500 RPM (5200 LBS.)

	PRESS. ALT.	OAT		MAN. PRESS.	FUEL FLOW /ENGINE		AIR-SPEED	
	FEET	°C	°F	IN. HG	PPH	GPH	KIAS	KTAS
ISA - 20° C (ISA - 36° F)	SL	-5	23	25	101	16.8	194	187
	2000	-9	16	25	105	17.5	195	193
	4000	-13	9	25	109	18.2	196	199
	6000	-17	2	24	105	17.5	191	200
	8000	-21	-6	22	98	16.3	184	198
	10,000	-25	-13	21	92	15.3	177	196
	12,000	-29	-20	19	86	14.3	169	194
	14,000	-33	-27	18	80	13.3	162	191
	16,000	-37	-34	16	74	12.3	154	187
STANDARD DAY (ISA)	SL	15	59	25	98	16.3	189	188
	2000	11	52	25	101	16.8	190	195
	4000	7	45	25	105	17.5	191	201
	6000	3	38	24	102	17.0	186	202
	8000	-1	30	22	95	15.8	179	200
	10,000	-5	23	21	89	14.8	171	198
	12,000	-9	16	19	83	13.8	162	195
	14,000	-13	9	18	77	12.8	156	192
	16,000	-17	2	16	72	12.0	148	188
ISA + 20° C (ISA + 36° F)	SL	35	95	25	95	15.8	184	190
	2000	31	88	25	98	16.3	185	196
	4000	27	81	25	101	16.8	185	202
	6000	23	74	24	98	16.3	181	203
	8000	19	66	22	92	15.3	173	201
	10,000	15	59	21	86	14.3	166	199
	12,000	11	52	19	80	13.3	159	196
	14,000	7	45	18	75	12.5	151	193
	16,000	3	38	16	70	11.7	143	188

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NOTES:
1. Full throttle manifold pressure settings are approximate.
2. Shaded area represents operation with full throttle.
3. Fuel flows are to be used for flight planning only and will vary from airplane to airplane. Lean using the EGT.

CRUISE POWER SETTINGS

20°C LEAN
OF PEAK EGT

RECOMMENDED CRUISE POWER
25 IN. HG (OR FULL THROTTLE)
@ 2500 RPM (5200 LBS.)

	PRESS. ALT.	OAT		MAN. PRESS.	FUEL FLOW /ENGINE		AIR-SPEED	
	FEET	°C	°F	IN. HG	PPH	GPH	KIAS	KTAS
ISA - 20° C (ISA - 36° F)	SL	-5	23	25	87	14.5	189	182
	2000	-9	16	25	91	15.2	191	188
	4000	-13	9	25	94	15.7	191	194
	6000	-17	2	24	91	15.2	186	195
	8000	-21	-6	22	84	14.0	179	193
	10,000	-25	-13	21	78	13.0	172	191
	12,000	-29	-20	19	72	12.0	164	188
	14,000	-33	-27	18	67	11.2	157	185
	16,000	-37	-34	16	62	10.3	149	181
STANDARD DAY (ISA)	SL	15	59	25	84	14.0	184	184
	2000	11	52	25	87	14.5	185	190
	4000	7	45	25	91	15.2	186	196
	6000	3	38	24	88	14.7	181	197
	8000	-1	30	22	81	13.5	174	195
	10,000	-5	23	21	75	12.5	167	193
	12,000	-9	16	19	70	11.7	159	190
	14,000	-13	9	18	65	10.8	152	186
	16,000	-17	2	16	60	10.0	143	182
ISA + 20° C (ISA + 36° F)	SL	35	95	25	81	13.5	179	185
	2000	31	88	25	84	14.0	180	191
	4000	27	81	25	87	14.5	181	197
	6000	23	74	24	84	14.0	176	198
	8000	19	66	22	78	13.0	169	196
	10,000	15	59	21	72	12.0	161	192
	12,000	11	52	19	67	11.2	154	190
	14,000	7	45	18	62	10.3	146	187
	16,000	3	38	16	58	9.7	138	182

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NOTES:
1. Full throttle manifold pressure settings are approximate.
2. Shaded area represents operation with full throttle.
3. Fuel flows are to be used for flight planning only and will vary from airplane to airplane. Lean using the EGT.

CRUISE POWER SETTINGS

20°C RICH
OF PEAK EGT

RECOMMENDED CRUISE POWER
23 IN. HG (OR FULL THROTTLE)
@ 2300 RPM (5200 LBS.)

	PRESS. ALT.	OAT		MAN. PRESS.	FUEL FLOW /ENGINE		AIR-SPEED	
	FEET	°C	°F	IN. HG	PPH	GPH	KIAS	KTAS
ISA - 20° C (ISA - 36° F)	SL	-5	23	23	81	13.5	176	170
	2000	-9	16	23	84	14.0	178	176
	4000	-13	9	23	87	14.5	179	182
	6000	-17	2	23	91	15.2	180	188
	8000	-21	-6	22	89	14.8	177	190
	10,000	-25	-13	21	84	14.0	169	188
	12,000	-29	-20	19	78	13.0	162	185
	14,000	-33	-27	18	73	12.2	154	182
	16,000	-37	-34	17	68	11.3	146	178
STANDARD DAY (ISA)	SL	15	59	23	78	13.0	171	171
	2000	11	52	23	79	13.5	173	177
	4000	7	45	23	85	14.2	174	183
	6000	3	38	23	88	14.7	175	190
	8000	-1	30	22	87	14.5	171	192
	10,000	-5	23	21	81	13.5	164	189
	12,000	-9	16	19	76	12.7	156	186
	14,000	-13	9	18	71	11.8	149	183
	16,000	-17	2	17	66	11.0	140	178
ISA + 20° C (ISA + 36° F)	SL	35	95	23	76	12.7	166	171
	2000	31	88	23	79	13.2	168	178
	4000	27	81	23	82	13.7	169	184
	6000	23	74	23	85	14.2	169	191
	8000	19	66	22	84	14.0	166	193
	10,000	15	59	21	78	13.0	159	190
	12,000	11	52	19	73	12.2	151	187
	14,000	7	45	18	68	11.3	143	182
	16,000	3	38	17	64	10.7	135	178

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NOTES:
1. Full throttle manifold pressure settings are approximate.
2. Shaded area represents operation with full throttle.
3. Fuel flows are to be used for flight planning only and will vary from airplane to airplane. Lean using the EGT.

CRUISE POWER SETTINGS

20°C LEAN
OF PEAK EGT

RECOMMENDED CRUISE POWER
23 IN. HG (OR FULL THROTTLE)
@ 2300 RPM (5200 LBS.)

	PRESS. ALT.	OAT		MAN. PRESS.	FUEL FLOW /ENGINE		AIR-SPEED	
	FEET	°C	°F	IN. HG	PPH	GPH	KIAS	KTAS
ISA - 20° C (ISA - 36° F)	SL	-5	23	23	67	11.2	171	164
	2000	-9	16	23	70	11.7	172	170
	4000	-13	9	23	73	12.2	173	176
	6000	-17	2	23	76	12.7	174	182
	8000	-21	-6	22	75	12.5	171	184
	10,000	-25	-13	21	69	11.5	164	182
	12,000	-29	-20	19	64	10.7	156	179
	14,000	-33	-27	18	60	10.0	149	176
	16,000	-37	-34	17	56	9.3	140	171
STANDARD DAY (ISA)	SL	15	59	23	64	10.7	166	165
	2000	11	52	23	67	11.2	167	171
	4000	7	45	23	70	11.7	168	177
	6000	3	38	23	73	12.2	169	184
	8000	-1	30	22	72	12.0	166	185
	10,000	-5	23	21	67	11.2	158	183
	12,000	-9	16	19	62	10.3	151	180
	14,000	-13	9	18	58	9.7	143	176
	16,000	-17	2	17	54	9.0	135	171
ISA + 20° C (ISA + 36° F)	SL	35	95	23	62	10.3	161	166
	2000	31	88	23	65	10.8	162	172
	4000	27	81	23	68	11.3	163	178
	6000	23	74	23	70	11.7	164	184
	8000	19	66	22	69	11.5	160	186
	10,000	15	59	21	64	10.7	153	182
	12,000	11	52	19	60	10.0	145	180
	14,000	7	45	18	56	9.3	137	175
	16,000	3	38	17	52	8.7	128	169

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NOTES:
1. Full throttle manifold pressure settings are approximate.
2. Shaded area represents operation with full throttle.
3. Fuel flows are to be used for flight planning only and will vary from airplane to airplane. Lean using the EGT.

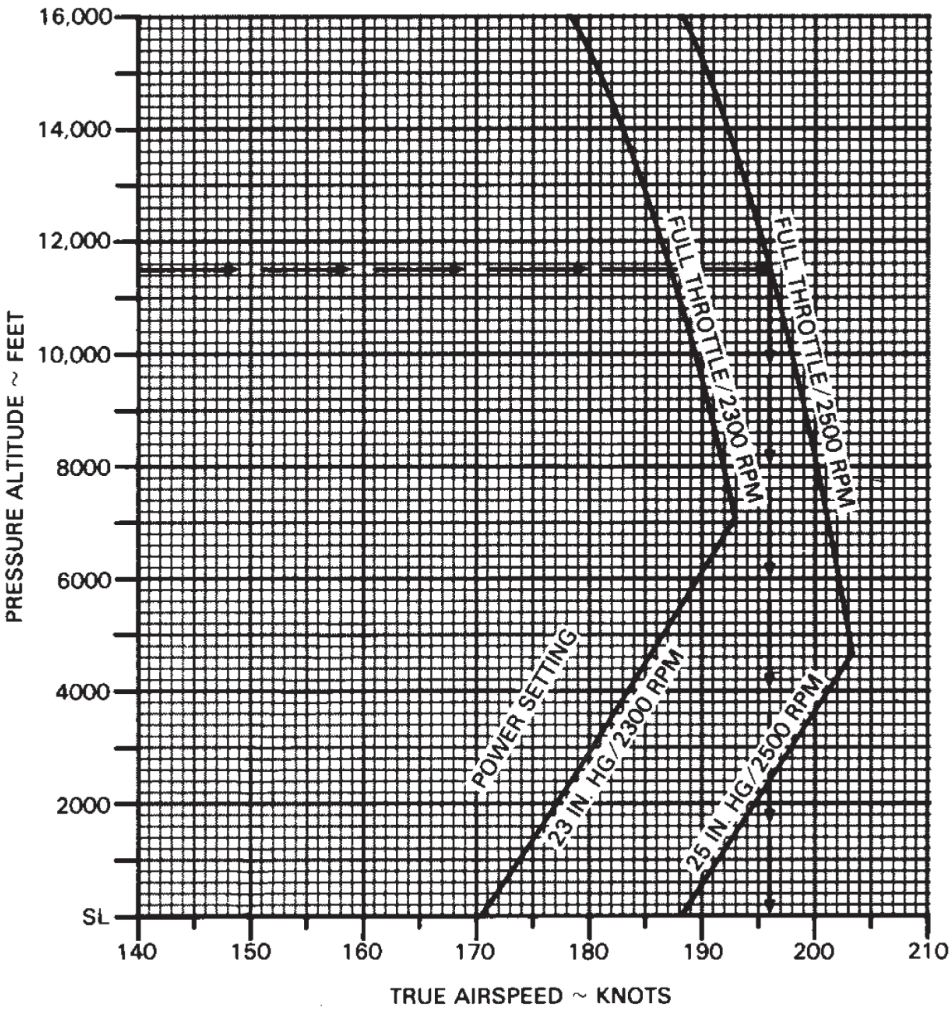
CRUISE SPEEDS
20°C RICH
OF PEAK EGT

ASSOCIATED CONDITIONS:

AVERAGE CRUISE WEIGHT	5200 LBS
TEMPERATURE	STD DAY (ISA)

EXAMPLE:

CRUISE ALTITUDE	11,500 FT
POWER SETTING	FULL THROTTLE, 2500 RPM
TRUE AIRSPEED	196 KTS



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CRUISE SPEEDS

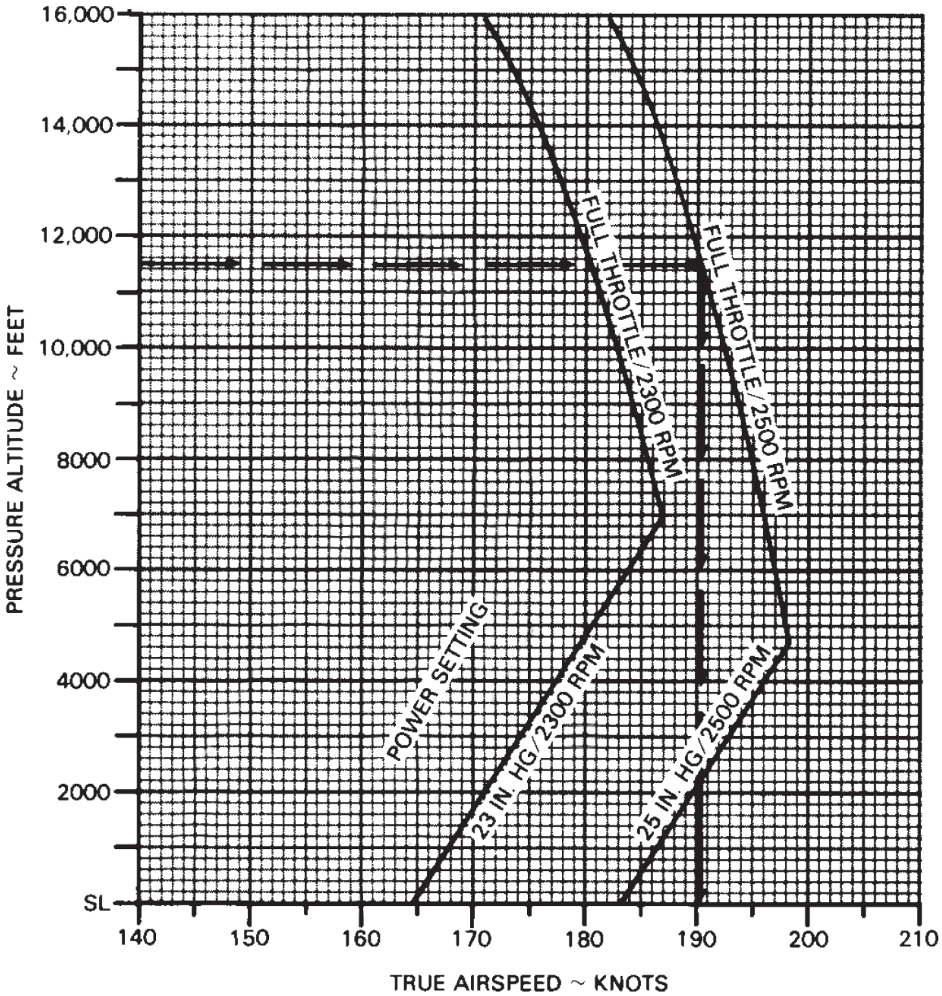
20°C LEAN
OF PEAK EGT

ASSOCIATED CONDITIONS:

AVERAGE CRUISE WEIGHT	5200 LBS
TEMPERATURE	STD DAY (ISA)

EXAMPLE:

CRUISE ALTITUDE	11,500 FT
POWER SETTING	FULL THROTTLE, 2500 RPM
TRUE AIRSPEED	190 KTS



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RANGE PROFILE - 166 GALLONS

STANDARD DAY (ISA)

ASSOCIATED CONDITIONS:

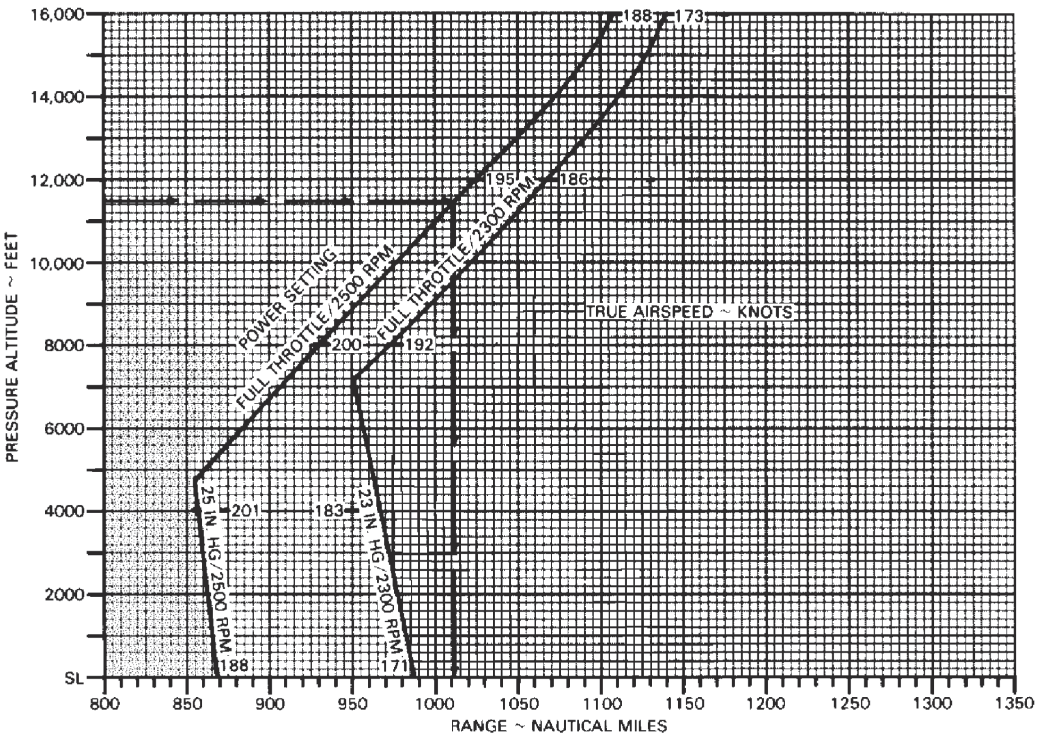
WEIGHT	5524 LBS BEFORE ENGINE START
FUEL	AVIATION GASOLINE
FUEL DENSITY	6.0 LBS/GAL
INITIAL FUEL LOADING	166 U.S. GAL (996 LBS)
TAKE-OFF ALTITUDE	SL
WIND	ZERO

20°C RICH OF PEAK EGT

EXAMPLE:

CRUISE ALTITUDE	11,500 FT
POWER SETTING	FULL THROTTLE, 2500 RPM
RANGE	1012 NM

NOTE: RANGE ALLOWS FOR TAXI AND RUNUP; INCLUDES CRUISE CLIMB AND DESCENT; AND ALLOWS FOR 45 MINUTES RESERVE FUEL AT MAXIMUM RANGE POWER.



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RANGE PROFILE - 166 GALLONS

STANDARD DAY (ISA)

20°C LEAN OF PEAK EGT

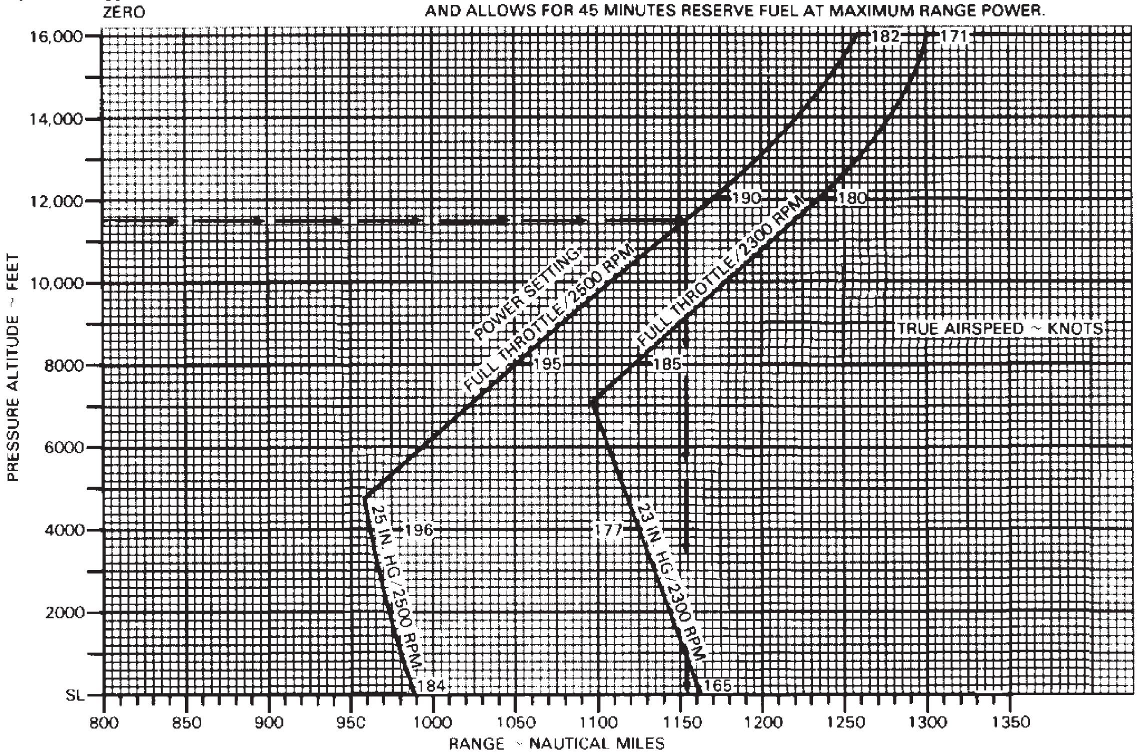
ASSOCIATED CONDITIONS:

WEIGHT	5524 LBS BEFORE ENGINE START
FUEL	AVIATION GASOLINE
FUEL DENSITY	6.0 LBS/GAL
INITIAL FUEL LOADING	166 U.S. GAL (996 LBS)
TAKE-OFF ALTITUDE	SL
WIND	ZERO

EXAMPLE:

CRUISE ALTITUDE	11,500 FT
POWER SETTING	FULL THROTTLE, 2500 RPM
RANGE	1154 NM

NOTE: RANGE ALLOWS FOR TAXI AND RUNUP; INCLUDES CRUISE CLIMB AND DESCENT; AND ALLOWS FOR 45 MINUTES RESERVE FUEL AT MAXIMUM RANGE POWER.



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ENDURANCE PROFILE - 166 GALLONS

STANDARD DAY (ISA)

20°C RICH

OF PEAK EGT

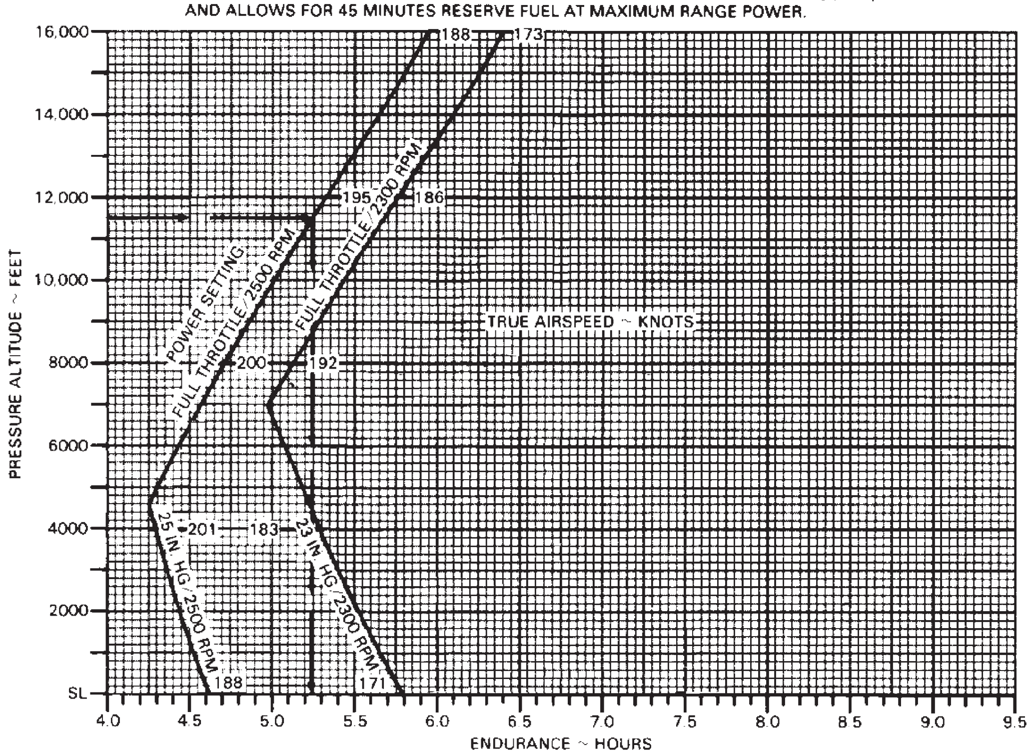
ASSOCIATED CONDITIONS

WEIGHT	5524 LBS BEFORE ENGINE START
FUEL	AVIATION GASOLINE
FUEL DENSITY	6.0 LBS/GAL
INITIAL FUEL LOADING	166 U.S. GAL (996 LBS)

EXAMPLE:

CRUISE ALTITUDE	11,500 FT
POWER SETTING	FULL THROTTLE, 2500 RPM
ENDURANCE	5.24 HRS

NOTE: ENDURANCE ALLOWS FOR TAXI AND RUNUP; INCLUDES CRUISE CLIMB AND DESCENT; AND ALLOWS FOR 45 MINUTES RESERVE FUEL AT MAXIMUM RANGE POWER.



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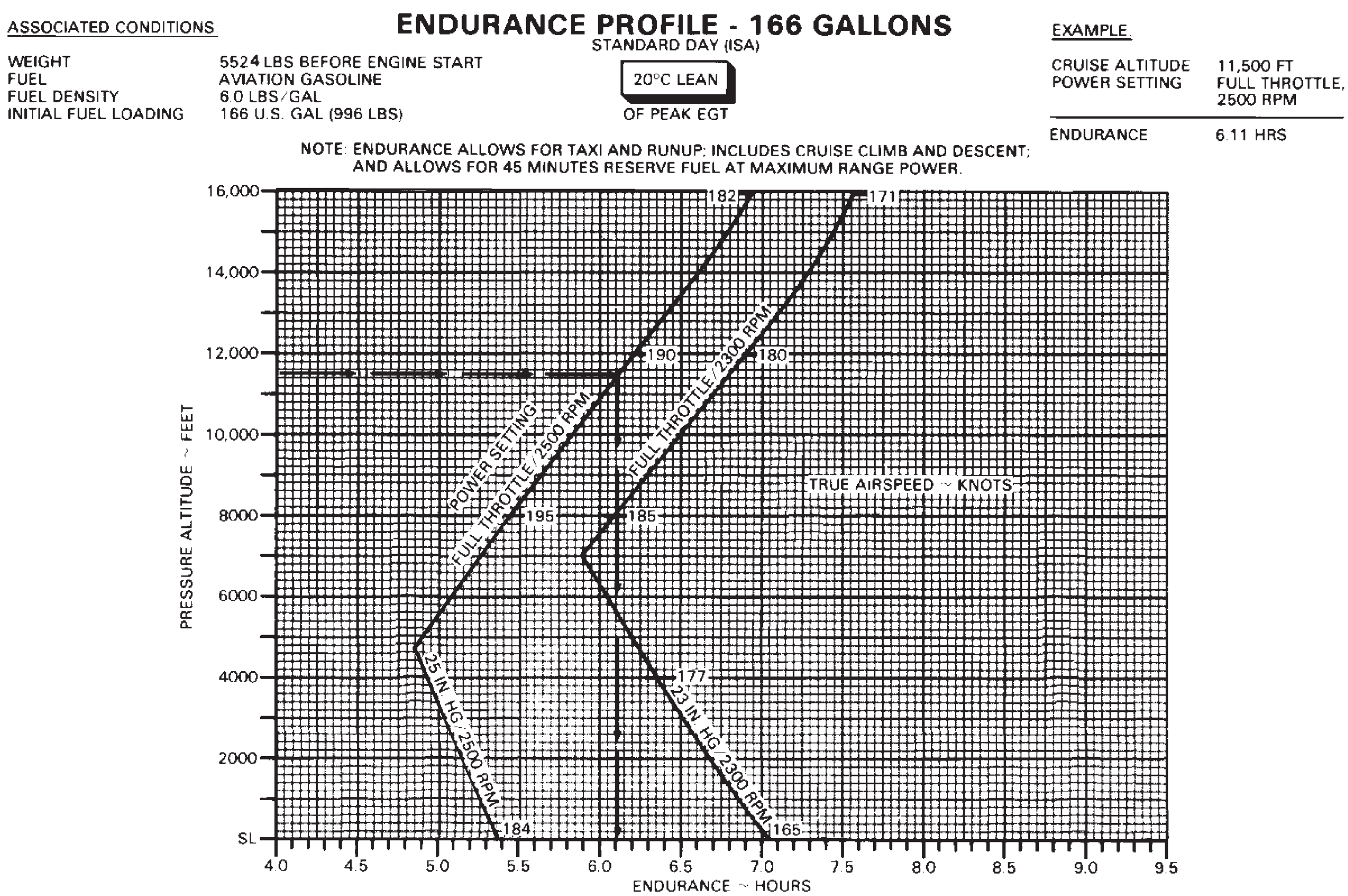

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ASSOCIATED CONDITIONS:

WEIGHT	5524 LBS BEFORE ENGINE START
FUEL	AVIATION GASOLINE
FUEL DENSITY	6.0 LBS/GAL
INITIAL FUEL LOADING	194 U.S. GAL (1164 LBS)
TAKE-OFF ALTITUDE	SL
WIND	ZERO

RANGE PROFILE - 194 GALLONS

STANDARD DAY (ISA)

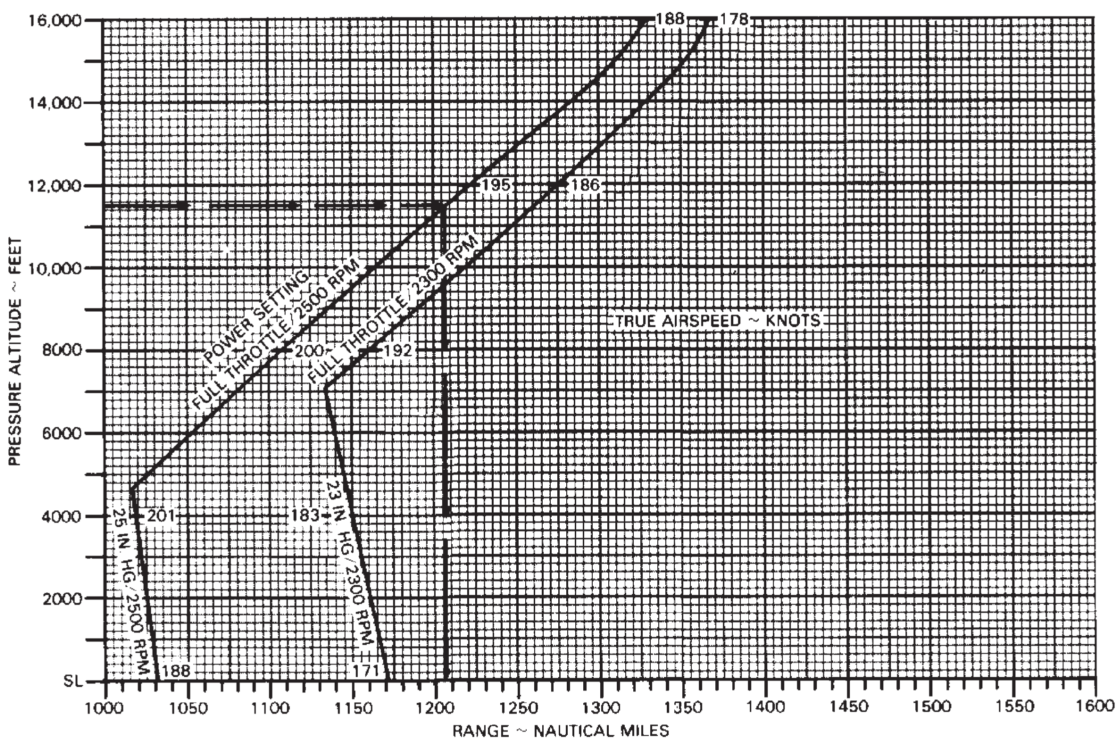
20°C RICH

OF PEAK EGT

EXAMPLE:

CRUISE ALTITUDE	11,500 FT
POWER SETTING	FULL THROTTLE, 2500 RPM
RANGE	1207 NM

NOTE: RANGE ALLOWS FOR TAXI AND RUNUP; INCLUDES CRUISE CLIMB AND DESCENT; AND ALLOWS FOR 45 MINUTES RESERVE FUEL AT MAXIMUM RANGE POWER.



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RANGE PROFILE - 194 GALLONS

ASSOCIATED CONDITIONS:

WEIGHT	5524 LBS BEFORE ENGINE START
FUEL	AVIATION GASOLINE
FUEL DENSITY	6.0 LBS/GAL
INITIAL FUEL LOADING	194 U.S. GAL (1164 LBS)
TAKE-OFF ALTITUDE	SL
WIND	ZERO

STANDARD DAY (ISA)

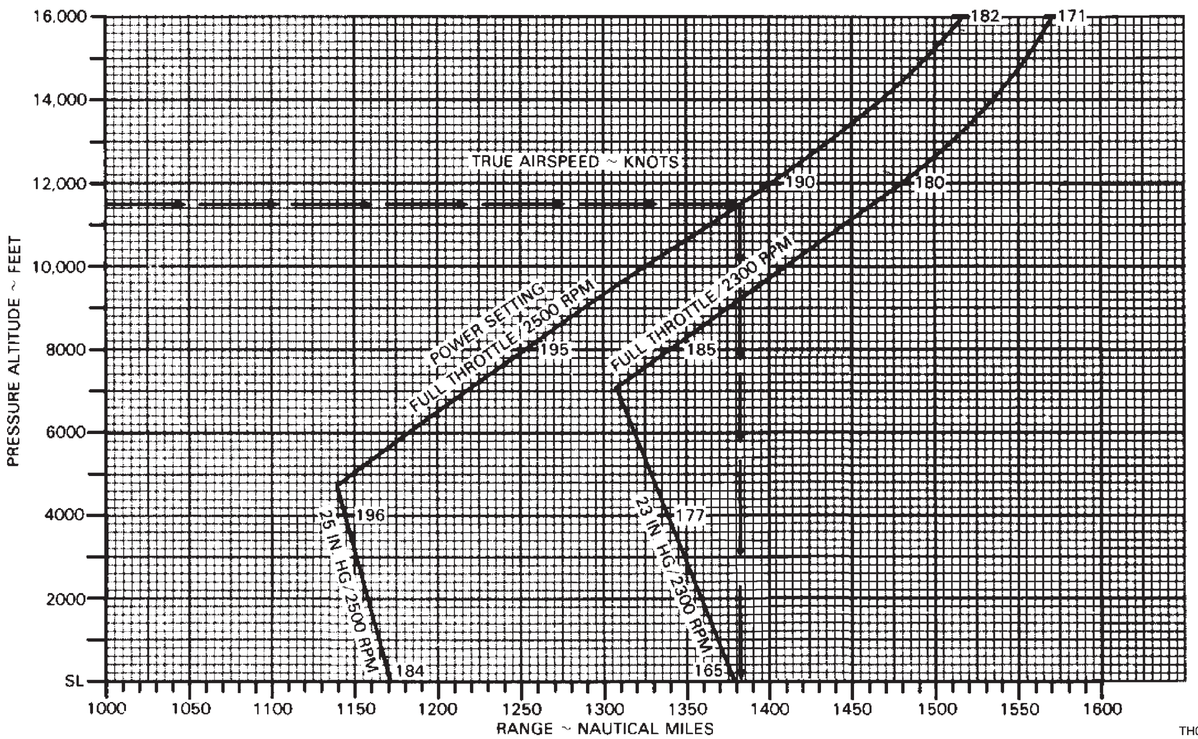
20°C LEAN

OF PEAK EGT

EXAMPLE:

CRUISE ALTITUDE	11,500 FT
POWER SETTING	FULL THROTTLE, 2500 RPM
RANGE	1382 NM

NOTE: RANGE ALLOWS FOR TAXI AND RUNUP; INCLUDES CRUISE CLIMB AND DESCENT; AND ALLOWS FOR 45 MINUTES RESERVE FUEL AT MAXIMUM RANGE POWER.



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ENDURANCE PROFILE - 194 GALLONS

STANDARD DAY (ISA)

20°C RICH

OF PEAK EGT

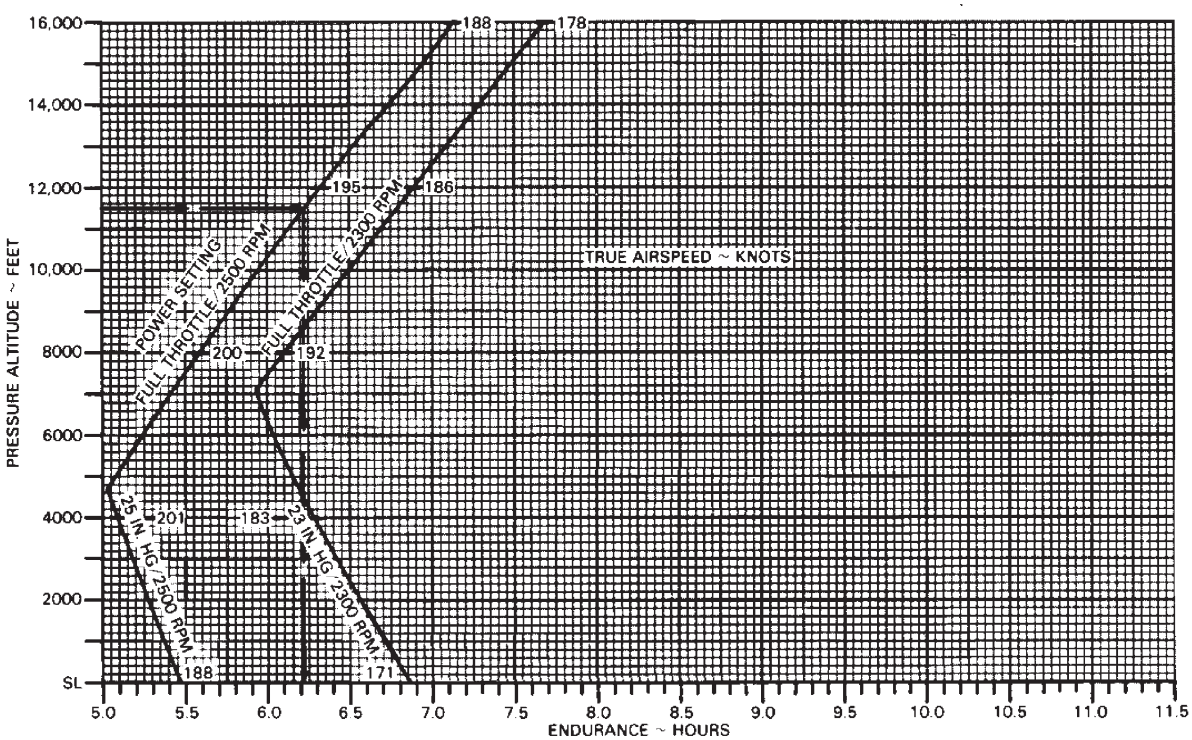
ASSOCIATED CONDITIONS:

WEIGHT	5524 LBS BEFORE ENGINE START
FUEL	AVIATION GASOLINE
FUEL DENSITY	6.0 LBS/GAL
INITIAL FUEL LOADING	194 U.S. GAL (1164 LBS)

EXAMPLE:

CRUISE ALTITUDE	11,500 FT
POWER SETTING	FULL THROTTLE, 2500 RPM
ENDURANCE	6.22 HRS

NOTE: ENDURANCE ALLOWS FOR TAXI AND RUNUP; INCLUDES CRUISE CLIMB AND DESCENT; AND ALLOWS FOR 45 MINUTES RESERVE FUEL AT MAXIMUM RANGE POWER.



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ASSOCIATED CONDITIONS:

WEIGHT	5524 LBS BEFORE ENGINE START
FUEL	AVIATION GASOLINE
FUEL DENSITY	6.0 LBS/GAL
INITIAL FUEL LOADING	194 U.S. GAL (1164 LBS)

ENDURANCE PROFILE - 194 GALLONS

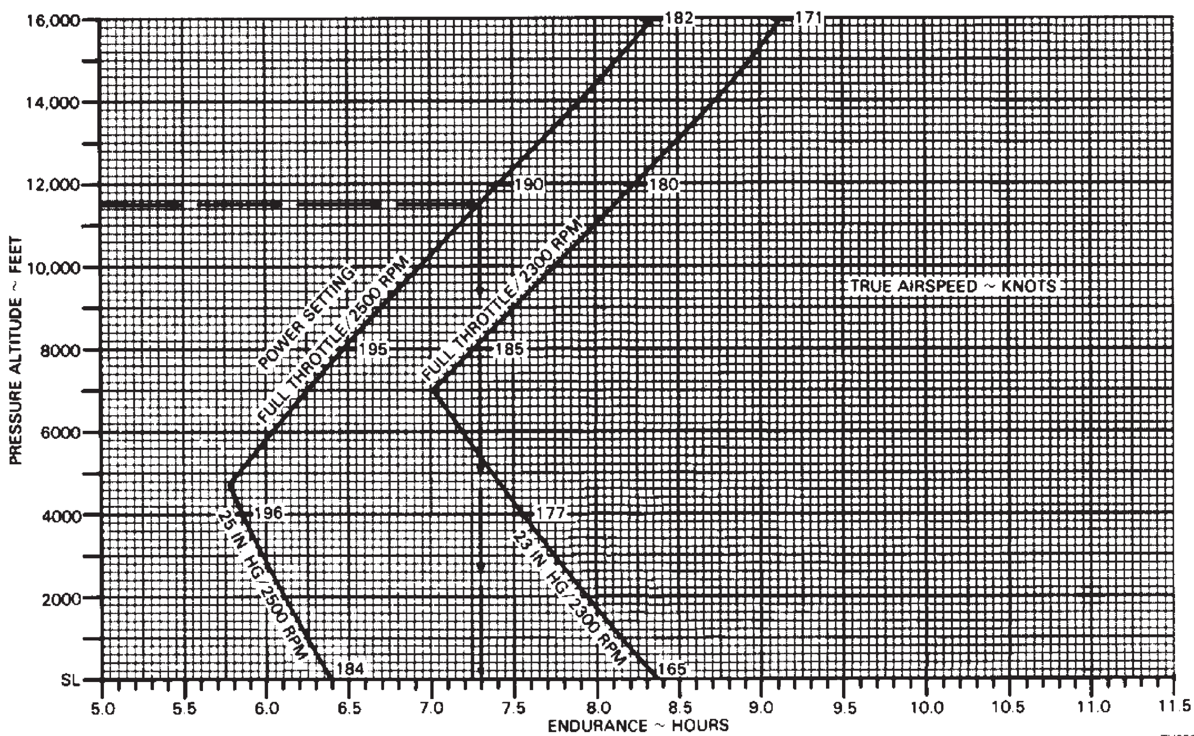
STANDARD DAY (ISA)

20°C LEAN OF PEAK EGT

EXAMPLE:

CRUISE ALTITUDE	11,500 FT
POWER SETTING	FULL THROTTLE 2500 RPM
ENDURANCE	7.3 HRS

NOTE: ENDURANCE ALLOWS FOR TAXI AND RUNUP; INCLUDES CRUISE CLIMB AND DESCENT; AND ALLOWS FOR 45 MINUTES RESERVE FUEL AT MAXIMUM RANGE POWER.



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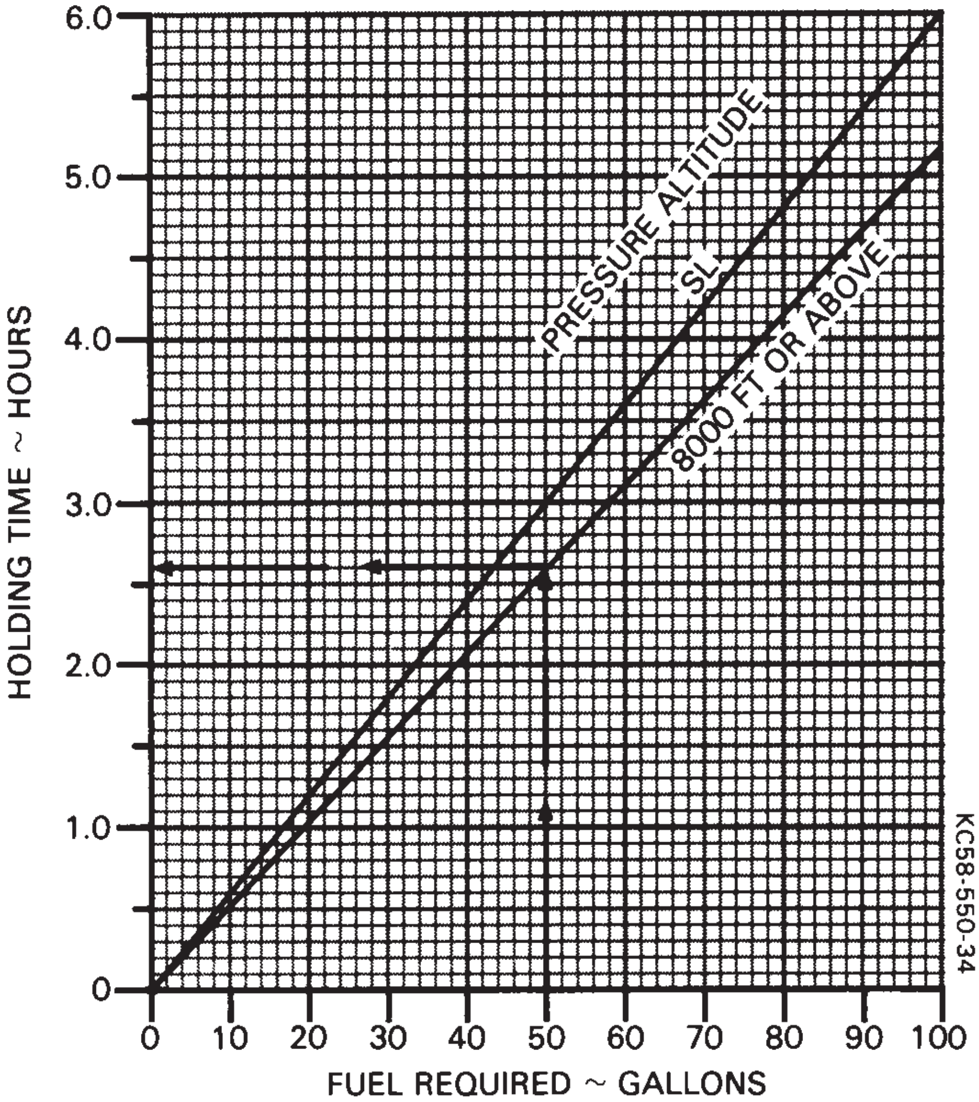
HOLDING TIME
(APPLICABLE FOR ALL TEMPERATURES)

ASSOCIATED CONDITIONS:

POWER SETTINGS	21 IN. HG OR FULL THROTTLE AT 2100 RPM
MIXTURE	20°C LEAN OF PEAK EGT
WEIGHT	5200 LBS

EXAMPLE:

FUEL AVAILABLE FOR HOLDING	50 GAL
PRESSURE ALTITUDE	11,500 FT
HOLDING TIME	2.6 HRS



TIME, FUEL, AND DISTANCE TO DESCEND

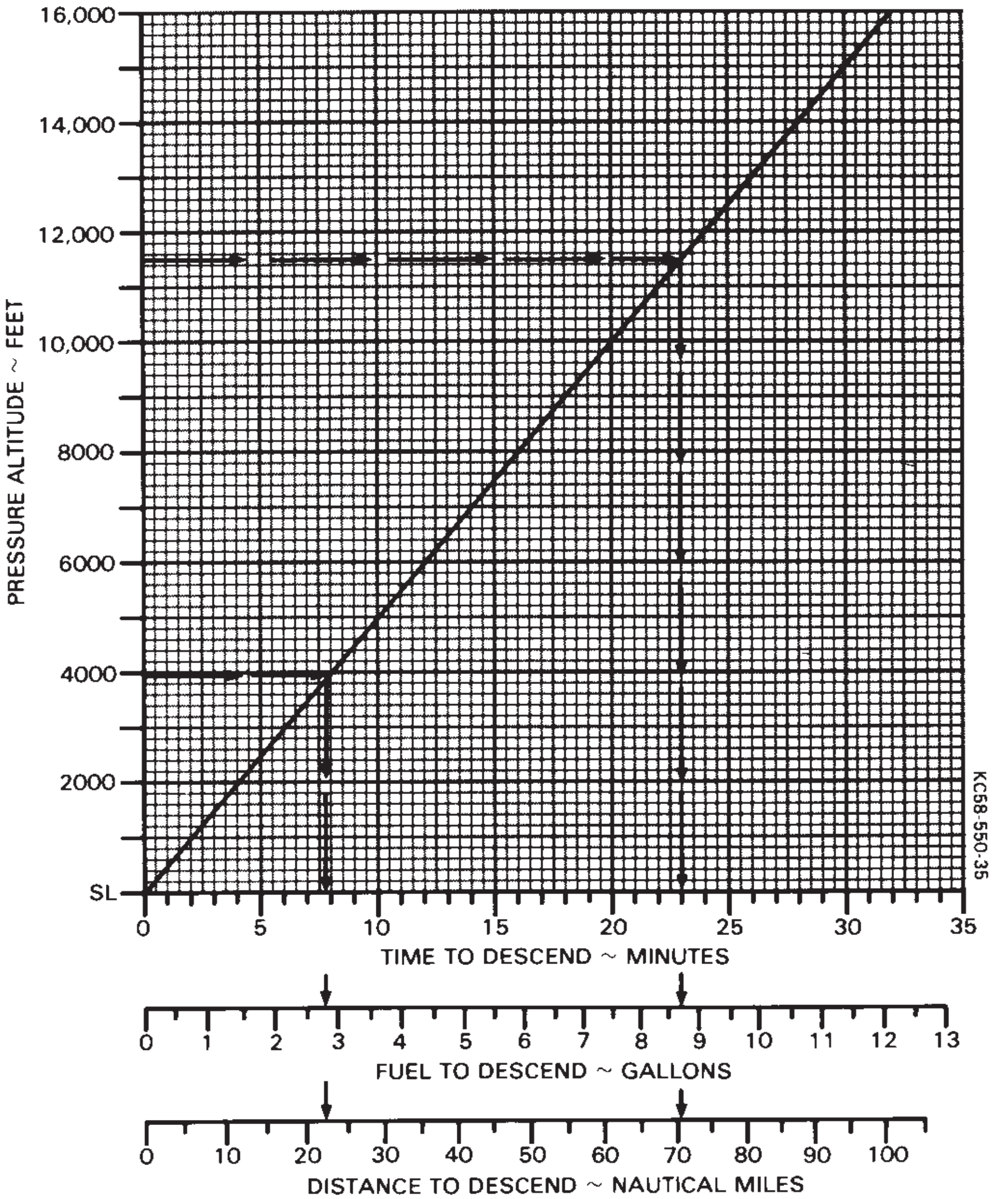
ASSOCIATED CONDITIONS:

POWER	AS REQUIRED TO MAINTAIN 500 FT/MIN RATE OF DESCENT
LANDING GEAR	UP
FLAPS	UP

EXAMPLE:

INITIAL ALTITUDE	11,500 FT
FINAL ALTITUDE	3965 FT
TIME TO DESCEND	(23-7.8) = 15.2 MIN
FUEL TO DESCEND	(8.7-2.8) = 5.9 GAL
DISTANCE TO DESCEND	(70-22) = 48 NM

DESCENT SPEED SCHEDULE	
ALTITUDE ~ FT	AIRSPEED ~ KTS
16,000 to 13,000	160
BELOW 13,000	170



CLIMB — BALKED LANDING

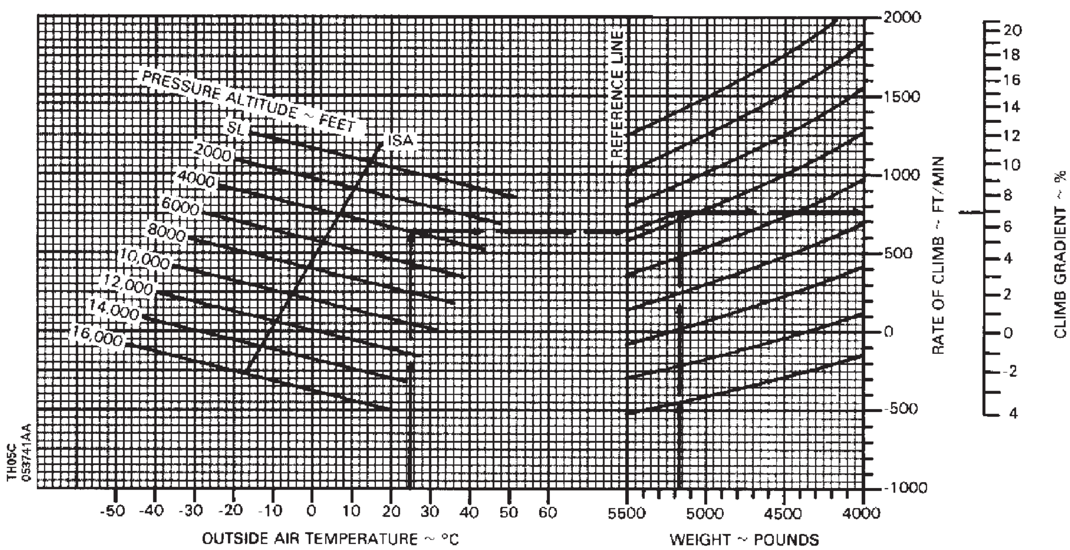
CLIMB SPEED: 95 KNOTS (ALL WEIGHTS)

ASSOCIATED CONDITIONS:

POWER	TAKE-OFF
MIXTURE	SET FUEL FLOW AT CYAN CLIMB FUEL FLOW MARKER
FLAPS	DOWN (AMBER)
LANDING GEAR	DOWN

EXAMPLE:

OAT	25°C
PRESSURE ALTITUDE	3965 FT
WEIGHT	5166 LBS
RATE OF CLIMB	765 FT/MIN
CLIMB GRADIENT	6.9%



LANDING DISTANCE

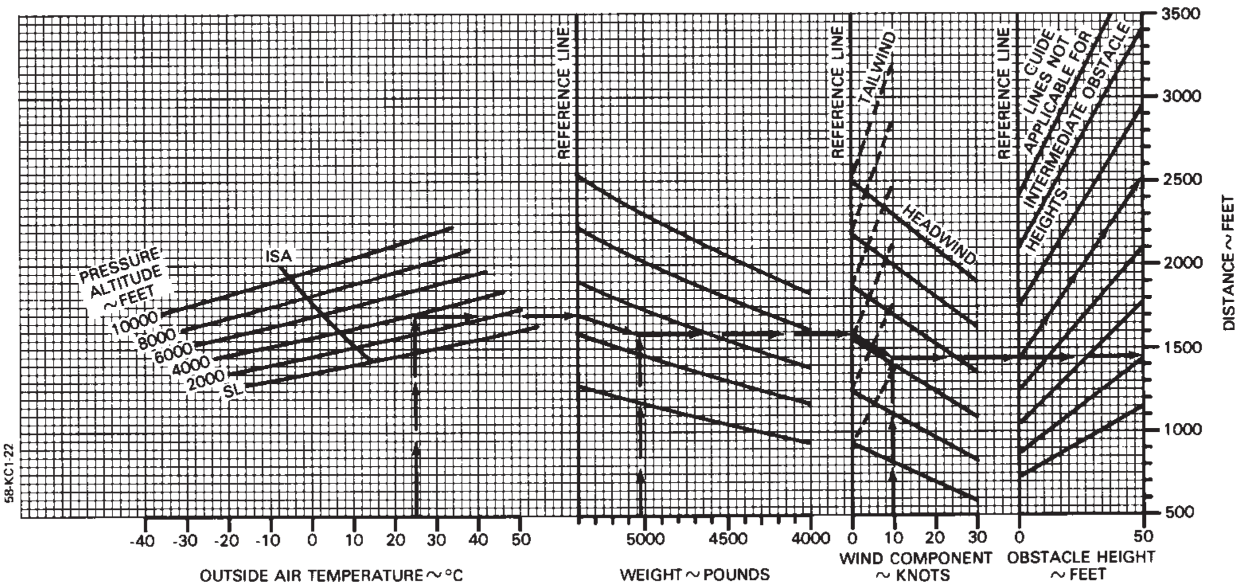
ASSOCIATED CONDITIONS:

POWER	RETARDED TO MAINTAIN 800 FT/MIN ON FINAL APPROACH
FLAPS	DOWN
LANDING GEAR	DOWN
APPROACH SPEED	IAS AS TABULATED
BRAKING	MAXIMUM
RUNWAY	PAVED, LEVEL, DRY SURFACE

WEIGHT ~ POUNDS	SPEED AT 50 FT KNOTS
5400	95
5000	91
4600	87
4000	81

EXAMPLE:

OAT	25°C (77°F)
PRESSURE ALTITUDE	3965 FT
WEIGHT	5039 LBS
WIND COMPONENT	9.5 KTS
GROUND ROLL	1450 FT
TOTAL OVER 50 FT OBSTACLE	2500 FT
APPROACH SPEED	91 KTS (105 MPH)



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SECTION 6
WEIGHT AND BALANCE/EQUIPMENT LIST

TABLE OF CONTENTS

SUBJECT *PAGE*

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BASIC EMPTY WEIGHT AND BALANCE - ACTUAL
(THIS PAGE TO BE REPLACED UPON AIRCRAFT DELIVERY)

SAMPLE LOADING
(THIS PAGE TO BE REPLACED UPON AIRCRAFT DELIVERY)

INTRODUCTION

Every new Model G58 is delivered with the following forms which are unique to each serial-numbered airplane:

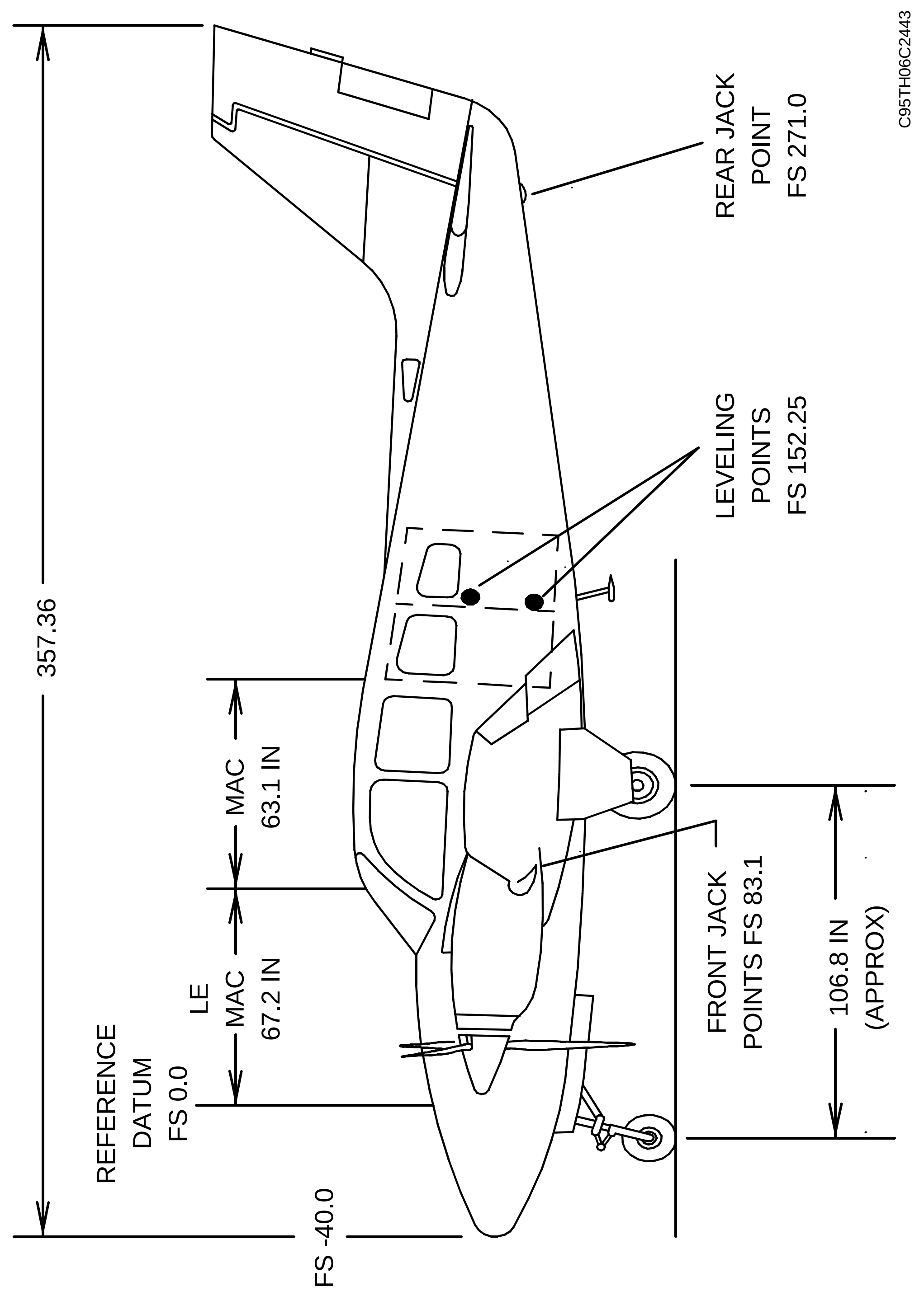
- Basic Empty Weight and Balance (Actual)
- Sample Loading
- Equipment List

It is the Owner's responsibility to ensure that changes in equipment and weight and balance are kept up to date. It is recommended that the *Weight and Balance Record* in this POH/AFM Section, or similar form, be used. The current Equipment List and Basic Empty Weight and Balance data must stay with the airplane when it changes ownership. Hawker Beechcraft Corporation cannot maintain the current airplane configuration status.

The airplane Pilot-in-Command is responsible for the airplane to be properly loaded for each flight. All pertinent weight and balance loading data is presented in this POH/AFM Section. The airplane weight and center of gravity limits are shown on the *Weight and Balance Diagram* page, with the moment limits shown in the *Moment Limits vs. Weight Table*. A blank *Weight and Balance Loading Form*, along with *Computing Procedure* instructions on how to complete it, are provided for the Pilot's use, or to use as an example for creating a separate loading form. Payload and fuel weights, center of gravities, moments/100 and applicable limits are shown on the *Useful Load Weights and Moments* pages.

All Weights are in pounds (lb) and all Arms are in horizontal inches (in.) from the Fuselage Datum, which may also be expressed as Fuselage Stations (FS). Moments/100 are in pound-inches (lb-in.).

WEIGHING INSTRUCTIONS



DIMENSIONAL DATA

Periodic weighing of the airplane may be required to keep the Basic Empty Weight current. All changes to the airplane affecting weight and balance are the responsibility of the airplane's owner and/or operator.

1. Three jack points are provided for weighing: two on the wing front spar at Fuselage Station 83.1 and one on the aft fuselage at Fuselage Station 271.0.
2. Fuel should be drained prior to weighing. Tanks are drained from the regular drain ports with the airplane in static ground attitude. When tanks are drained, 5.7 pounds of trapped fuel remain in the airplane at Fuselage Station 81.6. The remainder of the unusable fuel to be added to a drained system is 30.3 pounds at Fuselage Station 78.5.
3. Engine oil must be at the full level or completely drained. Total engine oil when full is 45 pounds at Fuselage Station 43.
4. To determine airplane configuration at time of weighing, installed equipment is checked against the airplane equipment list or superseding forms. All installed equipment must be in its proper place during weighing.
5. The airplane must be longitudinally and laterally level with the landing gear fully extended at the time of weighing. Leveling screws are located on the left side of the fuselage at Fuselage Station 152.25 (approximately). Longitudinally level attitude is determined with a plumb bob. Laterally level attitude is obtained when the vertical distance from each wing tip to the floor is equal.

6. Measurement of the reaction arms for a wheel weighing is made using a steel measuring tape. Measurements are taken with the airplane level on the scales, from the reference (a plumb bob dropped from the center of either main jack point) to the axle center line of the main gear and then to the nose wheel axle center line. The main wheel axle center line is best located by stretching a string across from one main wheel to the other. All measurements are to be taken with the tape level with the hangar floor and parallel to the fuselage center line. The locations of the wheel reactions will be approximately at Fuselage Station 96.7 for main wheels and Fuselage Station -10.3 for the nose wheel.
7. Jack point weighings are accomplished by placing scales at the jack points specified in step 1 above. Since the center of gravity of the airplane is forward of Fuselage Station 83.1, the tail reaction of the airplane will be in an up direction. This can be measured on regular scales by placing ballast of approximately 200 pounds on the scales to which the aft weighing point is attached by cable of adjustable length. The up reaction will then be total ballast weight minus the scale reading and is entered in the weighing form as a negative quantity.
8. Weighing should always be made in an enclosed area which is free from air currents. The scales used should be properly calibrated and certified.

BASIC EMPTY WEIGHT AND BALANCE

BARON G58 SER. NO ______ REG. NO ______ DATE ______

STRUT POSITION - NOSE		MAIN	JACK POINT LOCATION		PREPARED BY
EXTENDED	-11.6	96.0	*FORWARD*	83.1	*Company* ______
COMPRESSED	-9.8	97.0	*AFT*	271.0	*Signature* ______

REACTION WHEEL - JACK POINTS	SCALE READING	TARE	NET WEIGHT	ARM	MOMENT
LEFT MAIN					
RIGHT MAIN					
NOSE OR TAIL					
TOTAL (AS WEIGHED)					
Space below provided for additions and subtractions to as - weighed condition					
ADD:					
DRAINABLE UNUSABLE FUEL			30.3	78.5	2379
BASIC EMPTY WEIGHT					

NOTE: Basic Empty Weight includes full engine oil and unusable fuel.

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WEIGHT AND BALANCE RECORD

SERIAL NO. ________ REGISTRATION NO. ________ PAGE NO. ________

DATE	ITEM NO.		DESCRIPTION OF ARTICLE OR CHANGE	WEIGHT CHANGE ADDED (+) OR REMOVED (-)			RUNNING BASIC EMPTY WEIGHT	
	IN	OUT		WT (LBS)	ARM (IN.)	$\frac{MOM}{100}$	WT (LBS)	$\frac{MOM}{100}$

BT04946

WEIGHT AND BALANCE RECORD

SERIAL NO. ____________ REGISTRATION NO. ____________ PAGE NO. ____________

DATE	ITEM NO.		DESCRIPTION OF ARTICLE OR CHANGE	WEIGHT CHANGE ADDED (+) OR REMOVED (-)			RUNNING BASIC EMPTY WEIGHT	
	IN	OUT		WT (LBS)	ARM (IN.)	$\frac{\text{MOM}}{100}$	WT (LBS)	$\frac{\text{MOM}}{100}$

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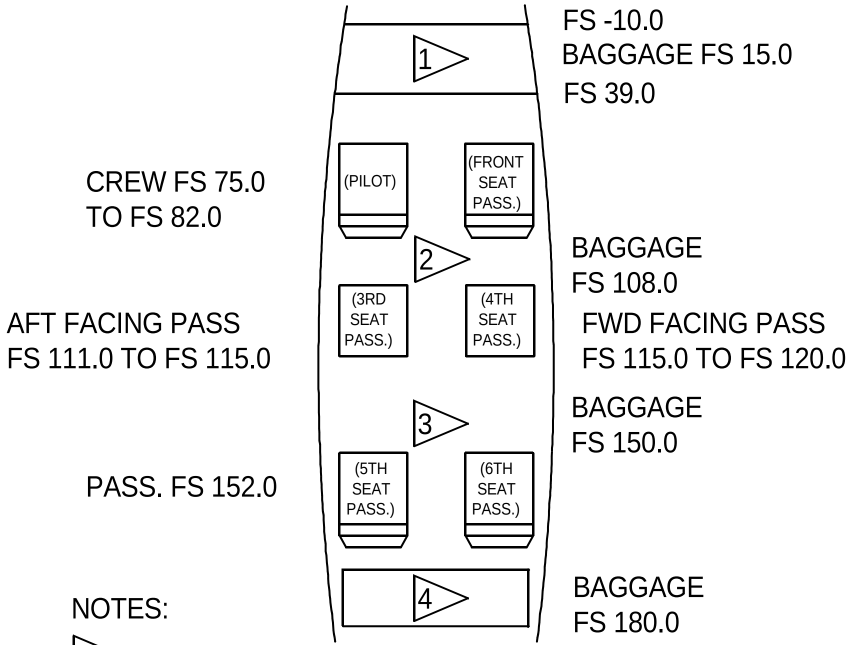
PAYLOAD LOCATIONS



NOTES:

1 ▷ Maximum Baggage Weight is 300 pounds.

2 ▷ Maximum Baggage Weight is 200 pounds between Front and Rear Spars with aft facing or removed 3rd and 4th seats. This location is not approved for baggage when the 3rd and 4th seats are facing forward.

3 ▷ Maximum Baggage Weight is 400 pounds aft of the Rear Spar, with 5th and 6th seats removed, or 200 pounds with only the 5th or 6th seat removed.

4 ▷ Maximum Baggage Weight is 120 pounds.

Notes

1. The floor structure load limit is 50 pounds per square foot between the front and rear spars, and 100 pounds per square foot aft of the rear spar.
2. Any combination of the 3rd, 4th, 5th and 6th seats may be removed by the Owner/Operator or Pilot-in-Command, with the appropriate Log Book approved entry and Weight and Balance Record change. Refer to the Equipment List for seat weights and arms.
3. All Maximum Baggage Weights include baggage, cargo and installed equipment, if applicable. All baggage and cargo must be secured with an approved retention system.

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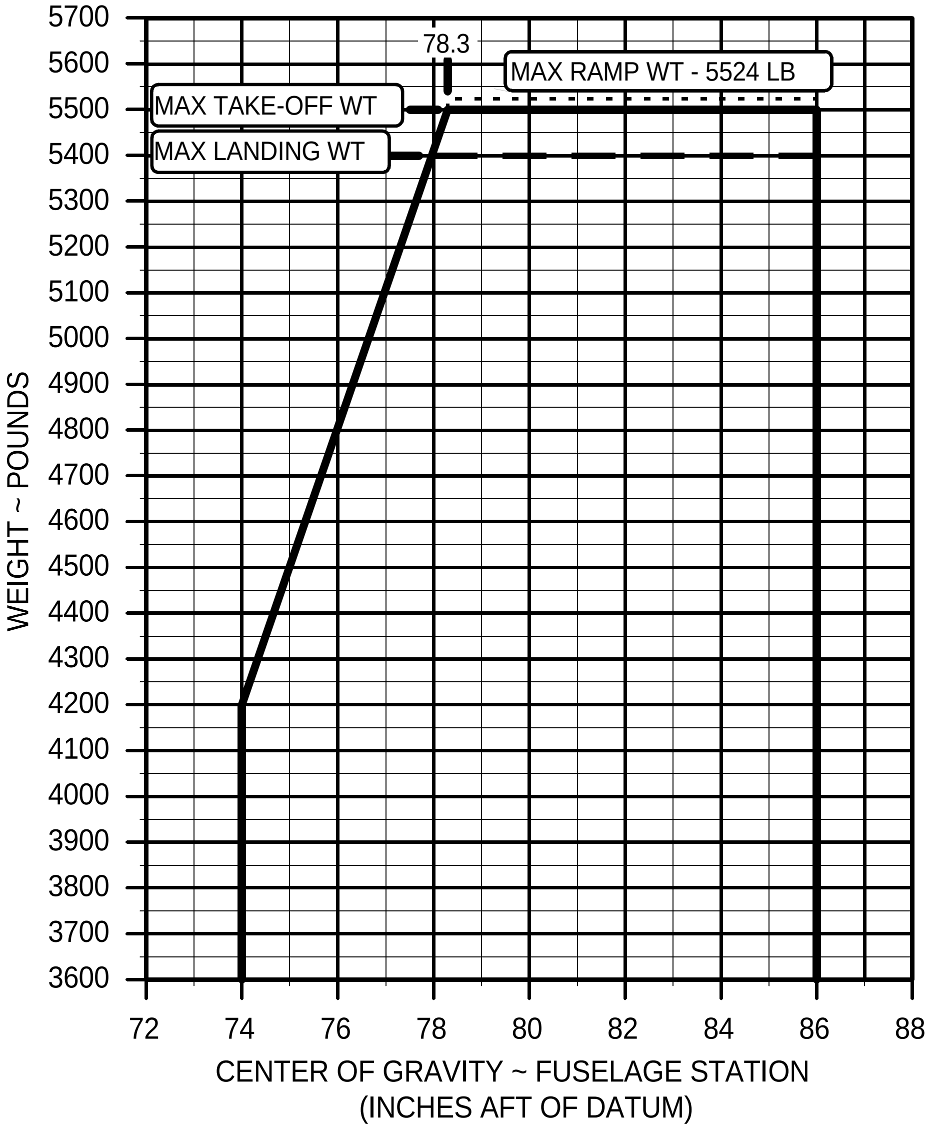
WEIGHT AND BALANCE DIAGRAM



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MOMENT LIMITS vs. WEIGHT TABLE

WEIGHT (lb)	MOMENT/100 (lb-in.)	
	FWD LIMIT	AFT LIMIT
3800	2812	3268
3850	2849	3311
3900	2886	3354
3950	2923	3397
4000	2960	3440
4050	2997	3483
4100	3034	3526
4150	3071	3569
4200	3108	3612
4250	3152	3655
4300	3196	3698
4350	3241	3741
4400	3285	3784
4450	3330	3827
4500	3375	3870
4550	3420	3913
4600	3465	3956
4650	3510	3999
4700	3556	4042
4750	3601	4085
4800	3647	4128
4850	3693	4171
4900	3740	4214
4950	3786	4257
5000	3832	4300
5050	3879	4343
5100	3926	4386
5150	3973	4429
5200	4020	4472
5250	4067	4515
5300	4115	4558
5350	4163	4601
5400	4210	4644
5450	4258	4687
5500	4307	4730

LOADING COMPUTING PROCEDURE

NOTE

Loadings may be prepared accumulating weights and moments/100 only and using the *Moment Limits vs. Weight Table* for Step 10. compliance. Or, by also including the calculated arms as indicated and using the *Weight and Balance Diagram* for Step 10. compliance. For each step that indicates the Arm to be calculated, divide the total moment/100 by the total weight and multiply the result by 100.

1. Record the most current **Basic Empty Weight**, Arm (optional) and Moment on line 1. The moment must be divided by 100 to correspond to the *Useful Load Weights and Moments Tables*.
2. Record the weight, arm (optional) and corresponding moment/100 from the appropriate *Useful Load - Payload, Weights and Moments Table*, for each payload item on lines 2. through 9.
3. Total the weight column and moment/100 column to determine the **Zero Fuel Weight** on line 10. Calculate the arm.
4. Record the weight and corresponding moment/100 for the total fuel loaded on line 11. Add the fuel weight and moment/100 to the Zero Fuel Weight values to determine the **Ramp Weight** on Line 12. Calculate the arm.
5. Record the weight and corresponding moment/100 for the fuel to be used for start, taxi and take-off on Line 13. Subtract the fuel weight and moment/100 from the Ramp Weight values to determine the **Take-off Weight** on Line 14. Calculate the arm.

6. Copy the fuel load weight only from Line 11. to Line 15.
7. Off to the side, add the calculated fuel to destination to the Start, Taxi and Run-Up fuel. Record the total weight only on line 16.
8. Subtract the Line 16. weight from the Line 15 weight and record the results on Line 17. Obtain the corresponding moment/100 from the Usable Fuel Table. Interpolation may be necessary.
9. Copy the **Zero Fuel Weight** from Line 10. to Line 18. and the fuel remaining from Line 17. to Line 19. Add the Line 19. weight and moment/100 to the Line 18. values to determine the **Landing Weight** on Line 20. Calculate the arm.
10. Refer to the *Moment Limits vs. Weight Table* or the *Weight and Balance Diagram* and ensure that the **Zero Fuel Weight**, **Take-Off Weight** and **Landing Weight** are all within the Weight and Center of Gravity or Moment/100 Limits. If not, rearrange or remove Useful Load Item(s) to stay within the limits.

WEIGHT AND BALANCE LOADING FORM

Serial No.: _______________ **Date:** ____________

LINE	ITEM	WEIGHT (lb)	ARM (in.)	MOMENT / 100 (lb-in.)
1.	**BASIC EMPTY WEIGHT**			
2.	Pilot and Front Seat Passenger			
3.	3rd and/or 4th Seat Passengers			
4.	5th and/or 6th Seat Passengers		152.0	
5.	Baggage - Nose Compartment		15.0	
6.	Baggage - Between Spars		108.0	
7.	Baggage - Aft of Rear Spar		150.0	
8.	Baggage - Aft Compartment		180.0	
9.	Other -			
10.	**ZERO FUEL WEIGHT**			
11.	Fuel Load			
12.	**RAMP WEIGHT** *(DO NOT EXCEED 5524 LB)*			
13.	*Less Fuel for Start, Taxi and Run-Up			
14.	**TAKE-OFF WEIGHT** *(DO NOT EXCEED 5500 LB)*			
15.	Fuel Load from Line 11.			
16.	Less Fuel to Destination <u>including</u> Start, Taxi and Run-up from Line 13.			
17.	Fuel Remaining - Moment/100 from Usable Fuel Table			
18.	Zero Fuel Weight from Line 10.			
19.	Add Fuel Remaining from Line 17.			
20.	**LANDING WEIGHT** *(DO NOT EXCEED 5400 LB)*			

* Fuel for start, taxi and run-up is typically 24 lb with a Moment/100 of 20 lb-in., which may operationally vary.

WEIGHT AND BALANCE LOADING FORM

Serial No.: _______________ **Date:** ____________

LINE	ITEM	WEIGHT (lb)	ARM (in.)	MOMENT/100 (lb-in.)
1.	**BASIC EMPTY WEIGHT**			
2.	Pilot and Front Seat Passenger			
3.	3rd and/or 4th Seat Passengers			
4.	5th and/or 6th Seat Passengers		152.0	
5.	Baggage - Nose Compartment		15.0	
6.	Baggage - Between Spars		108.0	
7.	Baggage - Aft of Rear Spar		150.0	
8.	Baggage - Aft Compartment		180.0	
9.	Other -			
10.	**ZERO FUEL WEIGHT**			
11.	Fuel Load			
12.	**RAMP WEIGHT** *(DO NOT EXCEED 5524 LB)*			
13.	*Less Fuel for Start, Taxi and Run-Up			
14.	**TAKE-OFF WEIGHT** *(DO NOT EXCEED 5500 LB)*			
15.	Fuel Load from Line 11.			
16.	Less Fuel to Destination <u>including</u> Start, Taxi and Run-up from Line 13.			
17.	Fuel Remaining - Moment/100 from Usable Fuel Table			
18.	Zero Fuel Weight from Line 10.			
19.	Add Fuel Remaining from Line 17.			
20.	**LANDING WEIGHT** *(DO NOT EXCEED 5400 LB)*			

* Fuel for start, taxi and run-up is typically 24 lb with a Moment/100 of 20 lb-in., which may operationally vary.

USEFUL LOAD - PAYLOAD, WEIGHTS AND MOMENTS TABLE

OCCUPANTS

Weight (lb)	Pilot & 2nd Seats		3rd & 4th Seats: Aft Facing (Club Arr.)		3rd & 4th Seats: Forward Facing		5th & 6th Seats
	Fwd. Pos. Arm 75 (in.)	Aft Pos. Arm 82 (in.)	Fwd. Pos Arm 111 (in.)	Aft Pos. Arm 115 (in.)	Fwd. Pos. Arm 115 (in.)	Aft Pos. Arm 120 (in.)	Arm 152 (in.)
	Moment/100 (lb-in.)						
100	75	82	111	115	115	120	152
110	83	90	122	127	127	132	167
120	90	98	133	138	138	144	182
130	98	107	144	150	150	156	198
140	105	115	155	161	161	168	213
150	113	123	167	173	173	180	228
160	120	131	178	184	184	192	243
170	128	139	189	196	196	204	258
180	135	148	200	207	207	216	274
190	143	156	211	219	219	228	289
200	150	164	222	230	230	240	304

Note: Occupant Arms and Moments/100 for adjustable seats are shown at their extreme positions. Intermediate positions (0.75 in. increments for the front seats and 1.00 in. increments for the 3rd & 4th seats) will require interpolation of the Moment/100 values.

USEFUL LOAD WEIGHTS AND MOMENTS TABLE

BAGGAGE					
Weight (lb)	Nose Compart ment Arm 15 (in.)	Between Spars (Aft Facing or Removed 3rd and 4th Seats) Arm 108 (in.)	Aft of Rear Spar (5th or 6th Seat Removed) Arm 150 (in.)	Aft of Rear Spar (5th and 6th Seats Removed) Arm 150 (in.)	Aft Compart ment Arm 180 (in.)
		Moment/100 (lb-in.)			
10	2	11	15	15	18
20	3	22	30	30	36
30	5	32	45	45	54
40	6	43	60	60	72
50	8	54	75	75	90
60	9	65	90	90	108
70	11	76	105	105	126
80	12	86	120	120	144
90	14	97	135	135	162
100	15	108	150	150	180
110	17	119	165	165	198
120	18	130	180	180	216
130	20	140	195	195	
140	21	151	210	210	
150	23	162	225	225	
160	24	173	240	240	
170	26	184	255	255	
180	27	194	270	270	
190	29	205	285	285	
200	30	216	300	300	
210	32			330	
220	33			360	
240	36			390	
260	39			420	
280	42			450	
300	45			480	
320				510	
340				540	
360				570	
380				600	
400					

NOTE: All baggage must be secured with an approved retention system.

USEFUL LOAD WEIGHTS AND MOMENTS TABLE

USABLE FUEL			
Variable Arm			
Gallons	Weight (lb)	166 Gal.	194 Gal.
		Moment/100 (lb-in.)	
10	60	46	46
20	120	92	92
30	180	140	140
40	240	189	189
50	300	238	238
60	360	288	288
70	420	338	338
80	480	388	388
90	540	439	439
100	600	489	489
110	660	539	539
120	720	590	590
130	780	641	641
140	840	692	692
150	900	743	743
160	960	793	793
166	996	824	824
170	1020		845
180	1080		899
190	1140		953
194	1164		974

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SECTION 7
SYSTEMS DESCRIPTION

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SYSTEMS DESCRIPTION
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AIRFRAME

The Model G58 is an all-metal, low-wing, twin-engine monoplane with full retractable tricycle landing gear and a conventional horizontal and vertical stabilizer.

SEATING ARRANGEMENTS

The Model G58 is a six-place airplane. The standard configuration consist of club seating in the cabin, with the 3rd and 4th seats facing aft and the 5th and 6th seats facing forward. An optional cabin seating arrangement is available which allows the 3rd and 4th seats to be arranged in a forward-facing position.

FLIGHT CONTROLS

CONTROL SURFACES

Control surfaces are bearing supported and operated through push-pull rods and conventional chain/cable systems terminating in bellcranks.

CONTROL COLUMNS

The airplane is equipped with dual control columns for the pilot and copilot. The control wheels are interconnected and provide aileron and elevator control.

RUDDER PEDALS

To adjust the rudder pedals, press the spring-loaded lever on the side of each pedal and move the pedal to its forward or aft position. The adjustment lever can also be used to place the right set of rudder pedals against the floor (when the copilot brakes are not installed) when not in use.

TRIM CONTROLS

Trim tabs on the rudder, left aileron, and elevator are adjustable with the controls that are mounted on the center console. The trim tabs and controls are connected through closed cable systems. Mechanical position indicators for each of the trim tabs are integrated with their respective controls. The left aileron tab incorporates servo action in addition to its trimming purpose. Elevator trim is accomplished through the manual pitch trim system.

INSTRUMENT PANEL

The standard instrument panel of the Model G58 has an upper flight/navigation instrument panel and a lower subpanel.

The avionics circuit breaker panel is located below the lower right subpanel and the electrical circuit breaker panel is on the side panel to the left of the pilot's seat.

FLIGHT/NAVIGATIONAL INSTRUMENT PANEL

The flight/navigation instrument panel is equipped with electronic displays, an audio panel and standby flight instruments. The electronic displays consist of a Primary Flight Display (PFD) located in front of the pilot and a Multifunction Display (MFD) located to the right of the PFD and audio panel. The audio panel is located between the PFD and the MFD. Located to the right of the MFD in a vertical stack are an airspeed indicator, attitude indicator, and altimeter that function as standby instruments.

SUBPANEL

The magneto/start switches and switches for the batteries, alternators, avionics master, prop sync, fuel vent, stall warning heat, windshield heat, surface deice, air condition and heat control, pitot heat, propeller deice, exterior and interior lights, vent blower, and fuel boost pumps are located in the left subpanel. Also located in the left subpanel are the landing gear position indicator lights and landing gear handle. The prop deice ammeter is located in the center subpanel. Located in the right subpanel are the flap switch, flap position lights, utility power outlet, lighting rheostats, and glove compartment. The avionics circuit breaker panel is below the right subpanel and the left circuit breaker panel is on the side panel to the left of the pilot's seat.

OAT GAGE (TH-2125 THRU TH-2339, EXCEPT TH-2310)

The OAT (Outside Air Temperature) gage is located on the left cabin side panel just aft of the instrument panel. Its temperature sensing probe extends through the cabin sidewall into the outside air. The indicated Outside Air Temperature (IOAT) shown on this gage varies with airspeed and must be corrected for compressibility effects to provide true outside air temperature. The indicated OAT is equal to true outside air temperature only at zero airspeed.

PEDESTAL

The pedestal is located below the center portion of the instrument subpanel. The upper portion of the pedestal houses the throttle (black), propeller (blue), and mixture (red) controls. The elevator trim tab control is located on the left side of the pedestal. The rudder and aileron trim tab controls are mounted on the front of the pedestal along with the cowl flap controls.

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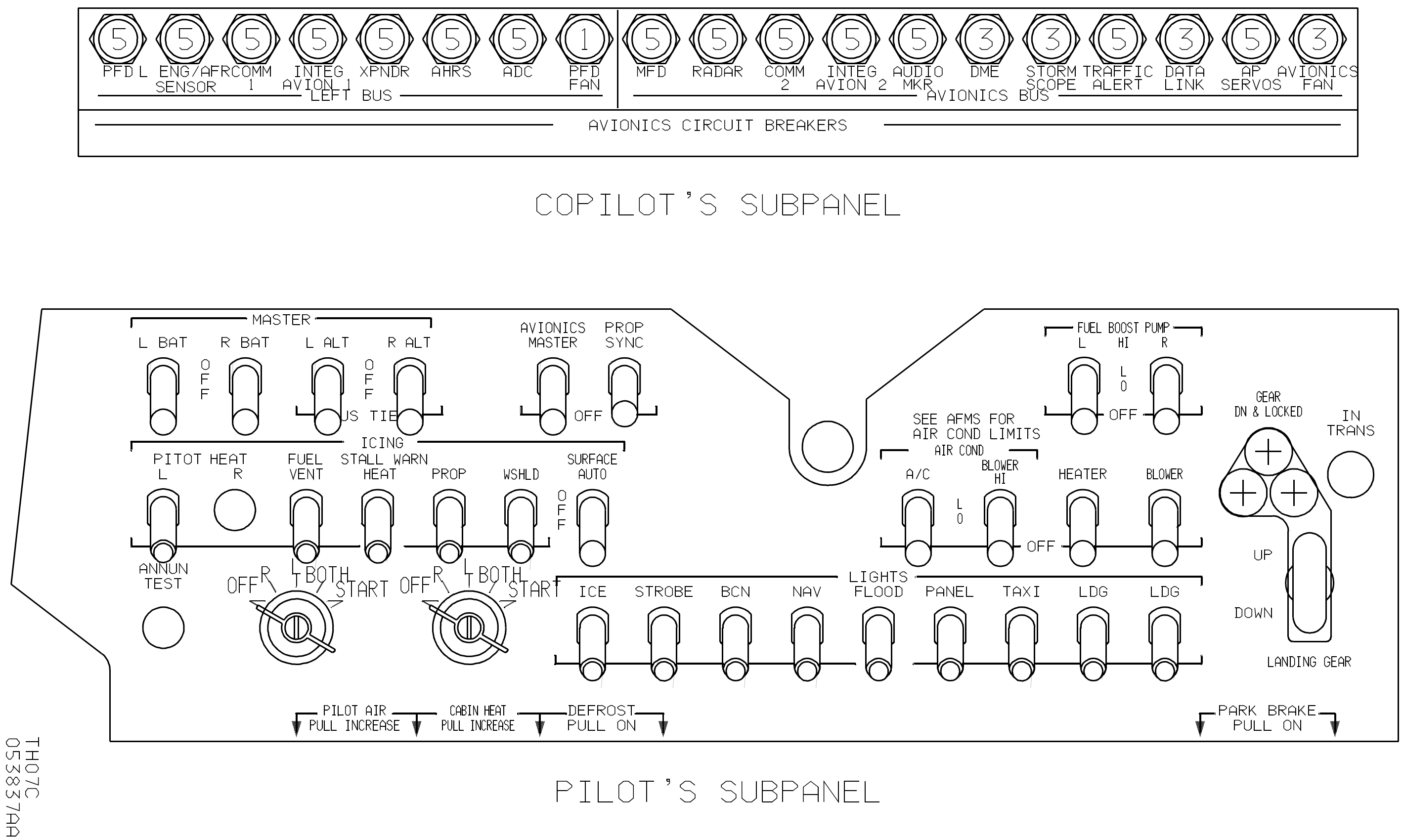
TYPICAL INSTRUMENT PANEL


PFD L
ENG/AFR SENSOR
COMM 1
INTEG AVION 1
XPNDR
AHRS
ADC
PFD FAN
LEFT BUS
MFD
RADAR
COMM 2
INTEG AVION 2
AUDIO MKR
DME
STORM SCOPE
TRAFFIC ALERT
DATA LINK
AP SERVOS
AVIONICS FAN
AVIONICS BUS
AVIONICS CIRCUIT BREAKERS
COPILOT'S SUBPANEL
MASTER
L BAT
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L ALT
R ALT
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BUS TIE
AVIONICS MASTER
PROP SYNC
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FUEL BOOST PUMP
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SEE AFMS FOR AIR COND LIMITS
AIR COND
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BLOWER HI
HEATER
BLOWER
OFF
GEAR DN & LOCKED
IN TRANS
UP
DOWN
LANDING GEAR
ICING
PITOT HEAT L R
FUEL VENT
STALL WARN HEAT
PROP
WSHLD
SURFACE AUTO
ANNUN TEST
OFF R L BOTH START
LIGHTS
ICE
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PILOT'S SUBPANEL
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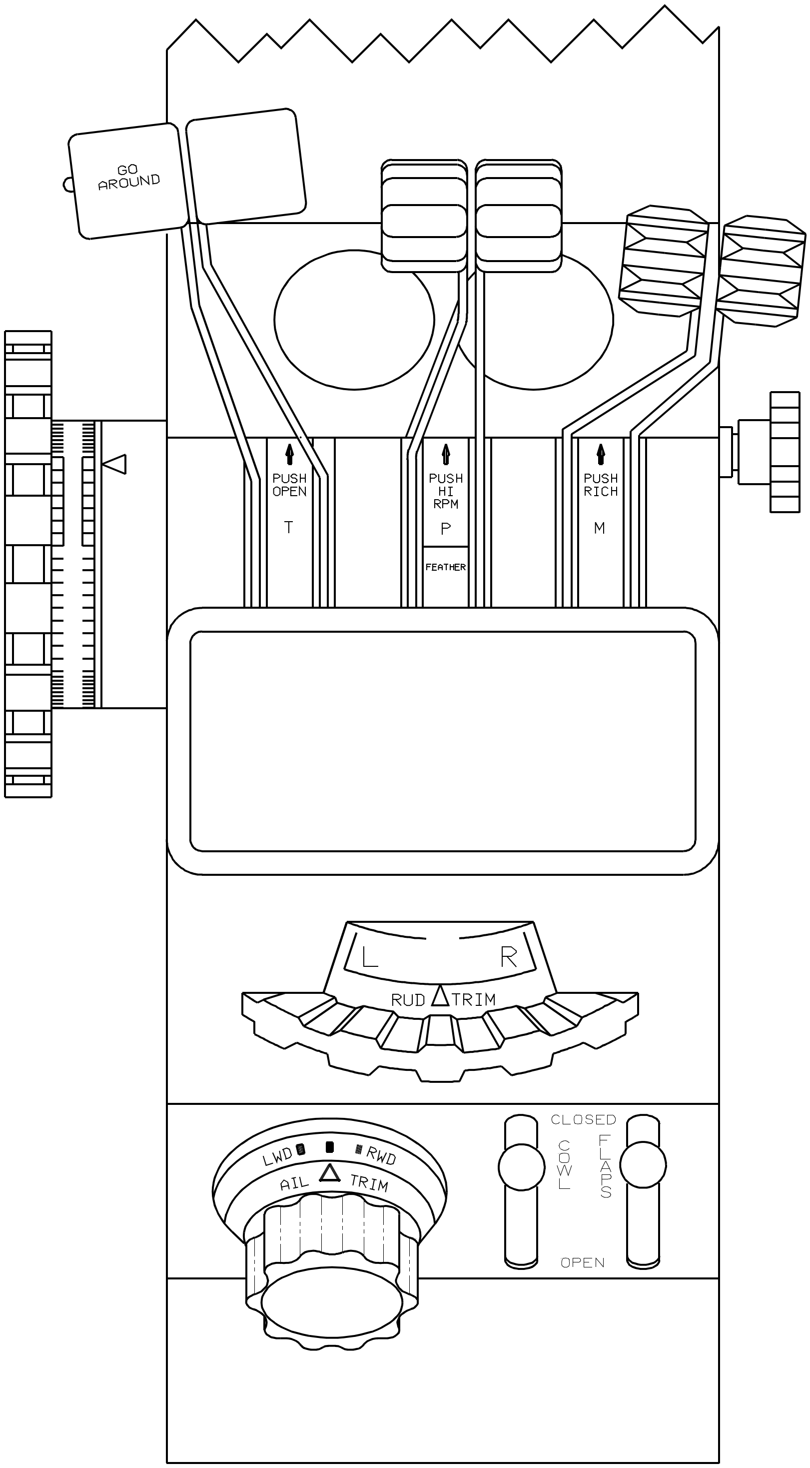

PEDESTAL

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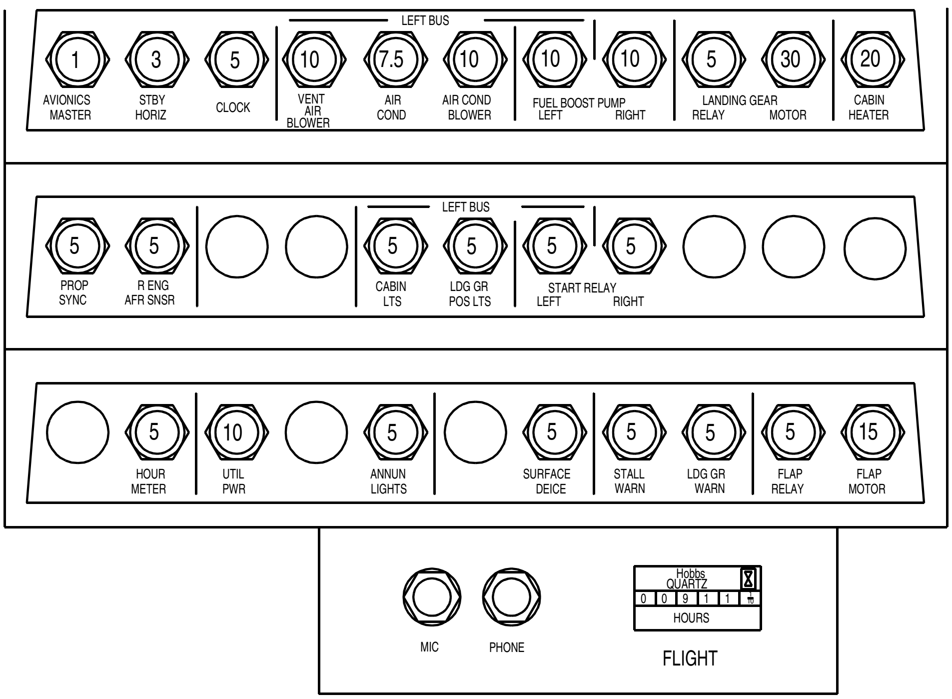


LEFT CIRCUIT BREAKER PANEL

GROUND CONTROL

Spring-loaded linkage from the nose gear to the adjustable rudder pedals allows for nose wheel steering. Smooth turning is accomplished by allowing the airplane to roll while depressing the appropriate rudder pedal. Sharper turns require light brake pedal pressure on the depressed rudder pedal.

The minimum wing tip turning radius, using partial braking action and differential power is 31 feet 6 inches.

WING FLAPS

A three-position wing flap switch, UP (0°), APH (15°), and DN (30°), is located on the copilot's subpanel. The switch must be pulled out of a detent to change flap position. The flaps can be moved to any of the three positions from any previously selected position; there are no intermediate positions.

Three flap position lights, placarded IN TRANSIT (red), APH (blue), and DN (amber), are located immediately to the left of the flap switch. All of the lights are extinguished when the flaps are in the UP position. The illumination intensity of the lights is controlled by the photoelectric cell dimmer switch located above the landing gear position lights. The lamps can be tested by pressing the ANNUN TEST button on the left side of the pilot's subpanel.

Lowering the flaps in flight will produce the following effects:

- Attitude - Nose Down
- Airspeed - Reduced
- Stall Speed - Lowered

LANDING GEAR SYSTEM

CAUTION

Never taxi with a flat strut.

CONTROL SWITCH

The landing gear is controlled by a two-position switch on the right side of the pilot's subpanel. The switch handle must be pulled out of the safety detent before it can be moved to the opposite position. Never operate the landing gear electrically with the handcrank engaged.

CAUTION

The landing gear will not retract unless one of the throttles is in a position corresponding to approximately 15 in. Hg manifold pressure or above.

CAUTION

Do not change the position of the control switch to reverse the direction of the landing gear while the gear is in transit, as this could cause damage to the retract mechanism.

POSITION LIGHTS

Landing gear position lights are located above the control switch. Three green lights, forming a triangle to represent the individual gears, are illuminated whenever the gears are down and locked. A red light, immediately to the right of the three green lights, illuminates anytime one or all of the landing gears are in transit or in any intermediate position. All of the lights are extinguished when the gears are up and locked.

The photoelectric cell dimmer switch located above the gear position lights controls the illumination intensity of the landing gear position lights. The ANNUN TEST switch on the pilot's left subpanel is pressed to determine lamp integrity.

SAFETY SWITCHES

Retraction of the landing gear on the ground is prevented by compressing the two main strut safety switches or by retarding both throttles below approximately the 15 in. Hg manifold pressure position. When either strut is compressed (or both throttles are below the preset position), the control circuit is open and the gear cannot retract. However, taxing over rough terrain with at least one throttle above approximately 15 in. Hg manifold pressure may allow the gear struts to extend momentarily, closing the circuit long enough to begin retraction. NEVER RELY ON THE SAFETY SWITCHES TO KEEP THE GEAR DOWN DURING GROUND MANEUVERING. CHECK TO SEE THAT THE LANDING GEAR HANDLE IS DOWN.

WARNING HORN AND [GEAR UP] ANNUNCIATION

With the landing gear retracted, a warning horn will sound intermittently and the red [GEAR UP] warning alert will be displayed in the annunciation window of the PFD if either throttle is retarded below approximately 13 in. Hg manifold pressure or if the flaps are fully extended. The ALERTS softkey in the lower right of the PFD will also change to a red flashing WARNING. During one engine operation, the horn can be silenced by advancing the throttle of the inoperative engine until the throttle warning horn switch opens the circuit.

NOTE

The switches which activate the warning horn and [GEAR UP] Warning Alert are operated by the throttles, thus the horn and [GEAR UP] Warning Alert will always activate at the same throttle position. The resultant manifold pressure is dependent on altitude and RPM.

MANUAL EXTENSION

The landing gear can be manually extended, but not retracted, by operating the handcrank at the rear of the pilot's seat. Make certain that the landing gear handle is in the down position and pull the landing gear MOTOR circuit breaker before manually extending the gear. When the electrical system is operative, the landing gear may be checked for full down with the gear position lights, provided the landing gear RELAY circuit breaker is engaged. After the landing gear is down, disengage the handcrank. For electrical retraction of the landing gear after a practice manual extension use the procedures outlined in Section 3A, ABNORMAL PROCEDURES.

If the landing gear was extended for emergency reasons, do not move any landing gear controls or reset any switches or circuit breakers until the airplane is on the ground and the malfunction has been determined and corrected, to prevent a gear retraction on the ground. These procedures are outlined in Section 3A, ABNORMAL PROCEDURES.

BRAKES

The brakes on the main landing gear wheels are operated by applying toe pressure to the top of the rudder pedals.

The parking brake control is located on the pilot's subpanel just left of the elevator trim control. To set the parking brakes, pull the control out and pump each toe pedal until solid resistance is felt. Push the control in to release the brakes.

CAUTION

The parking brake should be left off and wheel chocks installed if the airplane is to be left unattended. Changes in ambient temperature can cause the brakes to release or exert excessive pressures.

The brake hydraulic fluid reservoir is accessible through the nose baggage door. Fluid level is checked with the dipstick attached to the reservoir cap. The brakes require no adjustments, since the pistons move outward to compensate for lining wear.

BAGGAGE COMPARTMENTS

AFT BAGGAGE COMPARTMENT

The aft baggage compartment is accessible through the utility doors on the right side of the fuselage. This area extends aft of the pilot's seats to the rear bulkhead. Because of structural limitations, this area is divided into three sub-compartments, each having a different weight limitation. Loading within the baggage compartment must be in accordance with the data in Section 6, WEIGHT AND BALANCE/EQUIPMENT LIST. All baggage must be secured with the approved cargo retention systems.

WARNING

Unless authorized by applicable Department of Transportation regulations, do not carry hazardous material anywhere in the airplane.

Do not carry children in the baggage compartment unless secured in a seat.

NOSE BAGGAGE COMPARTMENT

The nose baggage compartment is easily accessible through a large door on the right side of the nose. The door incorporates a pair of push-to-release type latches and a lift-to-release secondary latch. Hinged at the top, the door swings upward, clear of the loading area. The total weight allowed in this compartment is 300 lbs which includes baggage and any equipment which may be installed. The nose baggage compartment incorporates the full width of the fuselage as usable space. Straps are provided and should be used to secure any baggage loaded into the compartment.

SEATS

The front two seats are adjustable as follows:

Forward and Aft - Pull up on the release bar located below the forward left side of the seat and slide the seat to the desired position.

On airplanes TH-2125 thru TH-2148, vertical adjustment can be made by pulling up on the release lever located below the forward right side of the seat, lean forward, and shift weight forward. The seat will tilt forward and can be adjusted to numerous angles as required. On airplanes TH-2149 and after, seats are equipped with special conforming foam to automatically accommodate pilots of different weights/heights.

Seat Backs - Use the release lever located at the aft inboard side of each seat to vary the inclination of the seat back to one of four preset positions. Lean forward to release pressure on the seat back. Lift the lever up, and then allow the seat back to recline to the desired position. (The seat backs of the middle two seats may have to be folded aft to reach the full aft position.)

The middle two seats are adjustable as follows:

Forward and Aft - Pull up on the release bar located below the forward right side of the seat and slide the seat to the desired position.

Seat Backs - The seat backs are equipped with a locking back to accommodate the shoulder harness. Thus, the seat backs cannot be reclined, but can be folded down by releasing the handle located on the aft inboard side of each seat.

The Aft two seats are adjustable as follows:

The seat backs can be folded down to provide access to the extended baggage compartment. The seat cushions can be folded up to provide additional floor space.

Outboard armrests for all seats are built into the cabin sidewalls. Center armrests of the front two seat and the middle two seats can be elevated or positioned flush with the seat cushions. Lift up on the arm rest and raise to the elevated position. It will automatically lock into place. To lower the arm rests, lift up and move it forward.

When the club seating arrangement is utilized, the aft-facing seats must have the headrests in the fully raised position during takeoff and landing.

If desired, the 3rd and 4th seats can be arranged to face forward in the cabin. These movable stops are located on the tracks under each seat. The stops should be located as follows:

For Aft-facing Seats:

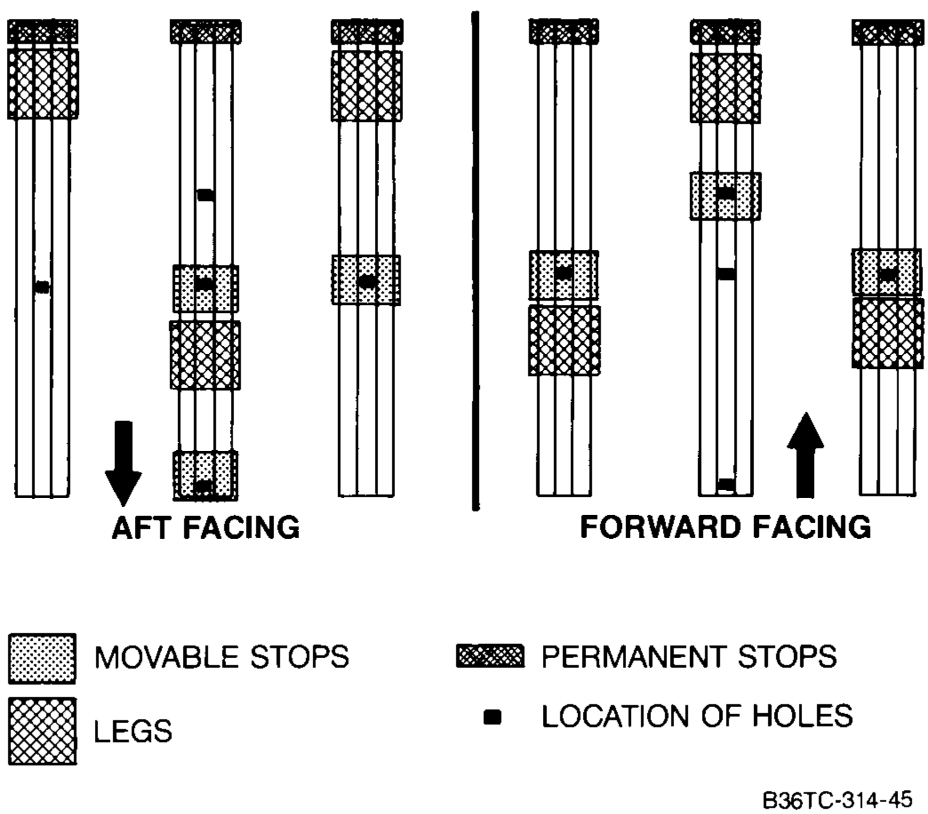
1. One stop in each of the two aft holes of the center track (position center leg between stops).
2. One stop stowed in one of the outer tracks.

For Forward-facing Seats:

3. One stop in the only hole in each outer track (for convenience, install these stops prior to installation of seats).
4. One stop in the most forward available hole of the center track.

NOTE

When installing the seats, ensure that the armrests are toward the center of the airplane.



SEAT CHANGE SCHEMATIC

SEAT BELTS

Every seat in the airplane is equipped with a seat belt. The seat belt can be lengthened by turning the male half of the buckle at a right angle to the belt, then pulling the male half in the direction away from the anchored end of the belt. The buckle is locked by sliding the male half into the female half of the buckle. The belt is then tightened by pulling the short end of the belt through the male half of the buckle until a snug fit is obtained. The belt is released by lifting the large, hinged release lever on the female buckle half and pulling the male half of the buckle free. All occupants must wear seat belts during takeoff and landing.

SHOULDER HARNESSES

A shoulder harness is standard with all seats. The spring loading at the inertial reel keeps the harness snug but will allow normal movement during flight operations. The inertial reel is designed with a locking device that will secure the harness in the event of sudden forward movement or an impact action. When using the shoulder harness, the limitations stated on the cabin window placards must be observed.

Each shoulder harness is worn over the shoulder and down across the body, where it is fastened by a metal loop into the seat belt buckle. For the pilot seats, the harness strap is contained in an inertial reel attached to the lower cabin sidewall behind the pilot's seats. The inertial reel is covered with an escutcheon and the strap runs up from the reel location to a looped fitting attached to the window frame just aft of the pilot seats. For the third and fourth passenger seats, the inertial reel is contained within the seatback structure and is covered with the seatback upholstery. The strap runs up the inside of the seatback and over the outboard corner of the seatback. For the fifth and sixth passenger seats, the strap is contained in an inertial reel attached to the upper cabin sidewall, just aft of the seatback and is covered with an escutcheon.

NOTE

The seat belt is independent of the shoulder harness, but the outboard seat belt and the shoulder harness must be connected for stowage when the seat is not occupied.

DOORS, WINDOWS AND EXITS

CABIN DOOR

The airplane has a conventional cabin door on the forward right side of the fuselage. The spring-loaded outside handle will fit into the door recess creating a flat, aerodynamically clean surface. The door may be locked with a key.

To open the door from the outside, lift the handle from its recess and pull until the door opens.

To close the cabin door from the inside, observe that the door handle is in the open position. In this position, the latch handle is free to move approximately one inch in either direction before engagement of the locking mechanism. Grasp the door and firmly pull the door closed. Rotate the door handle fully counterclockwise into the locked position. Observe that the door handle indicator is in the CLOSED position. When the door is properly locked, the door latch handle is free to move approximately one inch in either direction.

NOTE

When checking the door latch handle, do not move it far enough to engage the door latch release mechanism.

Press firmly outward at the top rear corner of the door. If any movement of the door is detected, completely open the door and close again following the above instructions.

To open the door from the inside, depress the lock button and rotate the handle clockwise.

UTILITY DOORS

The utility doors, located on the aft right side of the cabin, provide for loading and unloading of passengers and baggage. Each door is half-hinged at the forward and aft edge of the door opening. The aft door must be closed first. A latch on the forward edge of the aft door moves downward to a locked position to secure the hooks at the top and bottom of the door to the door frame. The forward door cannot be fully closed until the latch of the aft door is latched and flush with the edge of the door. After the forward door is closed, it can be latched from the outside by rotating the half-moon shaped handle to the CLOSED position. A conventional handle on the inside of this door provides for opening or closing from the inside.

The [AFT DOOR] (amber) caution alert will be displayed in the annunciation window of the PFD and remain until the doors are properly latched. The ALERTS SOFTKEY in the lower right of the PFD will change to an amber flashing CAUTION until the key is pressed to acknowledge the alert or the doors are properly latched.

OPERATION WITH AFT UTILITY DOORS REMOVED

The Model G58 is approved for operation with the aft utility doors removed. The factory installed placards pertaining to airspeed and other operating restrictions when the utility doors are removed are shown in Section 2, LIMITATIONS.

OPENABLE CABIN WINDOWS

NOTE

Windows are to be closed before and during flight.

A plastic covered multi-purpose latch on each openable window is used to provide partial opening of the window for ventilation during ground operations. It also provides quick unlatching for emergency egress.

To Open Window For Ventilation (Only On Ground):

NOTE

Use red handle for emergency exit only.

1. Rotate lock handle to UNLOCKED position.
2. Lift thumb catch (window will release).
3. Push latch up and outward to over-center position.

To close window:

1. Pull latch inward and push down until locked (listen for catch engagement).
2. Rotate lock handle to LOCKED position.

To operate the window as an emergency exit:

1. Remove Emergency Exit Latch Cover.
2. Rotate exposed red handle up, breaking safely wire, and push window out.

NOTE

Anytime the window has been opened by breaking the safety wire on the red emergency latch, the window must be reattached and wired by a qualified mechanic using a single strand of QQ-W-343, Type S, .020 diameter copper wire prior to further airplane operation.

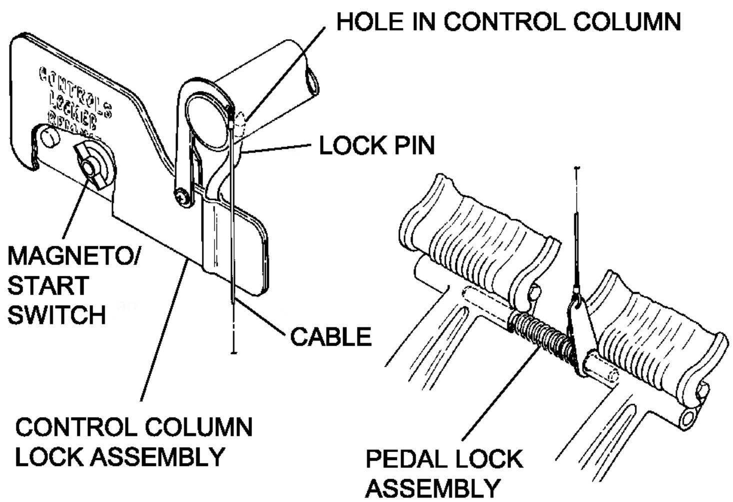
CONTROL LOCKS

To Install The Control Locks:

1. Rotate pilot's control wheel and move column so the hole in the bottom of the collar lock and the hole in the column align to accept the lock pin.
2. Push the control column lock pin through the hole provided in the collar lock and into the hole in the control column. Push pin through hole as far as possible.
3. Rotate control lock hanger over control column so interconnecting cable is to the right of control column.
4. Assure positive retention of the lock pin by checking for movement in the control wheel.
5. Position pilot's rudder pedals in aft position and install spring lock between pedals.

WARNING

Before starting engine, remove the lock, reversing the above procedure.



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The control column lock assembly is placarded with the installation instructions. The placard reads:

On Instruction Side:

INSTALLATION INSTRUCTIONS

INSTALL OTHER SIDE FACING PILOT

1. ROTATE CONTROL WHEEL APPROX 12° TO THE RIGHT. INSTALL LOCK PIN THROUGH COLLAR LOCK & CONTROL COLUMN (PILOT'S) ROTATE HOOK OVER CONTROL COLUMN.
2. POSITION PEDALS IN AFT POSITION & INSTALL LOCK IN PILOT'S RUDDER PEDALS WITH CABLE AROUND RIGHT SIDE OF CONTROL COLUMN.
3. REMOVE IN REVERSE ORDER.

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On Side Facing Pilot with Locks Properly Installed:

CONTROLS
LOCKED
REMOVE
BEFORE
FLIGHT

C95EA07C0573

ENGINES

The Model G58 is powered by two Teledyne Continental Motors, Inc. Model IO-550-C, normally aspirated, fuel-injected, direct drive, air-cooled, horizontally opposed, 6-cylinder, 550-cubic-inch displacement, 300 H.P engines.

ENGINE CONTROLS

THROTTLES, PROPELLERS, AND MIXTURES

The control levers are grouped along the upper portion of the pedestal. Pushing forward on a control lever increases its appropriate function, pulling back decreases it. The knobs on the levers are shaped to standard FAA configuration so they can be identified by touch. The controls are centrally located for ease of operation from either the pilot's or the copilot's seat. An adjustable friction knob, located on the right side of the pedestal, is provided to prevent creeping of the control levers.

INDUCTION AIR

Induction air is available from filtered ram air or unfiltered alternate air. Filtered ram air enters from the intake air scoop on top of the cowling. Should the filter become obstructed, a spring-loaded door on the alternate air intake will open automatically and the induction system will operate on alternate air taken from the engine accessory section.

ENGINE ICE PROTECTION

Engine ice protection consists of electrothermal fuel vent heaters controlled by a switch on the left subpanel, and an automatic alternate air induction system.

The only significant ice accumulation is impact ice on the inlet scoop and filter. Should the induction air scoop or filter become clogged with ice, a spring-loaded door on the firewall will open automatically, and the induction system will operate on alternate air.

ENGINE LUBRICATION

The engine oil system for each engine is the full pressure, wet sump type, with a full flow, integrally mounted oil filter and has a 12-quart capacity. Oil operating temperatures are controlled by an automatic thermostat bypass control. The bypass control will limit oil flow through the oil cooler when operating temperatures are below normal and will permit the oil to bypass the cooler if it should become blocked.

The oil system may be checked through access doors in the engine cowling. A calibrated dipstick attached to the filler cap indicates the oil level. Due to the canted position of the engines, the dipsticks are calibrated for either right or left engines and are not interchangeable.

The oil grades listed in Section 8, HANDLING, SERVICING & MAINTENANCE are general recommendations only, and will vary with individual circumstances. The determining factor for choosing the correct grade of oil is the average ambient temperature.

COWL FLAPS

The cowl flap for each engine is controlled by a manual control lever located on the lower center console. The cowl flap is closed when the lever is in the up position and open when the lever is down.

PROPELLERS

McCauley Propellers (Standard):

Installed as standard equipment are two McCauley constant-speed, variable-pitch propellers, each with three aluminum alloy blades. Maximum diameter allowed is 77 inches. Minimum diameter allowed is 76.5 inches. The pitch setting at the 30-inch station is 15.2° ± 0.2° low pitch and 82.5° ± 0.5° feathered.

Hartzell Propellers (Optional):

If the airplane is equipped with two Hartzell, constant speed, variable pitch, three blade, aluminum hub, aluminum blade, model PHC-J3YF-2UF/FC7391D(K) propellers, the (K) in the propeller blade designates that the propeller is equipped with electro-thermal deice. Maximum diameter allowed is 75 inches. Minimum diameter allowed is 73 inches. The pitch setting at the 30-inch station is 12.8° ± 0.2° low pitch, 18.5° ± 1.0° high pitch and 80.0° ± 0.5° feathered.

All Propellers:

Propeller RPM is controlled by a governor in each engine which regulates hydraulic oil pressure to the hubs. Push-pull levers on the center pedestal allow the pilot to select each governor’s RPM range.

If engine oil pressure is lost, the propeller will go to the full high pitch position. This is because propeller low pitch is obtained by governor boosted engine oil pressure working against the centrifugal twisting moment of the blades.

The propellers should be cycled occasionally during cold weather operation. This will help maintain warm oil in the propeller hubs so that the oil will not congeal.

PROPELLER SYNCHRONIZER

The propeller synchronizer automatically matches the RPM of both propellers. The system's range of authority is limited to approximately 25 RPM. Normal governor operation is unchanged but the synchronizer will continuously monitor propeller RPM and adjust one governor as required.

A magnetic pickup mounted in each propeller governor transmits electric pulses to a transistorized control box installed behind the pedestal. The control box converts any pulse rate differences into correction commands, which are transmitted to the appropriate governor.

A toggle switch installed on the pilot's subpanel turns the system on. To operate the system, manually synchronize the propellers and then turn the PROP SYNC switch ON. To change RPM, adjust both propeller controls at the same time. This will keep the setting within the limiting range of the system. If the PROP SYNC switch is ON but unable to adjust the propeller RPM, the system has reached its range limit. Turn the PROP SYNC switch OFF, synchronize the propellers manually, and turn the PROP SYNC switch ON.

PROPELLER SYNC POINTER

A propeller sync pointer, located in the RPM display, aids the pilot in accomplishing manual synchronization of the propellers. The pointer will point to the left or right of its 12 o'clock position to indicate the slow-running-engine.

FUEL SYSTEM

The fuel system is an OFF-ON-CROSSFEED arrangement. The fuel selector panel, located on the floor forward of the front seats, contains the fuel selector for each engine and a schematic diagram of fuel flow.

WARNING

Position selectors in detents only. There is no fuel flow to the engines between detents, indicated by red arcs. Visually confirm fuel selector position.

FUEL CELLS

The standard wing fuel system has a total capacity of 200 gallons with the wet wing tip tanks installed. An optional 172 total capacity system is available without the wet wing tip tanks. The fuel placard adjacent to each filler cap indicates fuel capacity and usable fuel when that wing fuel system is full. Refer to Section 2, LIMITATIONS for usable fuel in each system.

A vapor return line returns excess fuel from the engine to its respective wing system. All of the fuel cells, standard or optional, in each wing are interconnected in order to make all the usable fuel in each wing available to its engine when the fuel selector valve is turned to ON. The optional 172 gallon fuel system is filled through a single filler located in each wing. Wet wing tip tanks have two additional filler caps, one per wing. Refer to Section 8, HANDLING, SERVICING & MAINTENANCE for additional information.

CAUTION

When the wet wing tip tanks are filled with fuel, DO NOT OPEN the inboard wing leading edge filler caps, as fuel will exit from respective filler port.

FUEL DRAINS

The optional 172 gallon fuel system has six underwing drain locations. There are two additional drain locations with the wet wing tip tank system.

These fuel drains are snap-type valves which are actuated by pushing up and twisting on the valve and then releasing when the desired amount of fuel has been drained. The drain may be locked open.

The fuel drains should be sampled after refueling and prior to each flight in accordance with the Preflight Inspection in Section 4, NORMAL PROCEDURES. When possible, the inspection of the fuel should be made after sufficient time has been allotted for any contaminants to settle into the sumps. If inspections are made immediately after the airplane has been moved or refueled, contaminants may be flushed from the sump, or newly added contaminants may not have had time to settle into the sumps. Sampling should be conducted with the airplane parked on level ground. Check fuel for the proper grade, type and absence of water, dirt, rust or other contaminants.

WARNING

Do not fly the airplane with contaminated or unapproved fuel.

FUEL QUANTITY INDICATION

Fuel quantity is measured by float-operated fuel level sensors located in each wing tank system. These sensors transmit electrical signals to the engine and airframe interface units (GEAs) to generate a left and right usable fuel quantity display in the engine and systems display portion of the MFD.

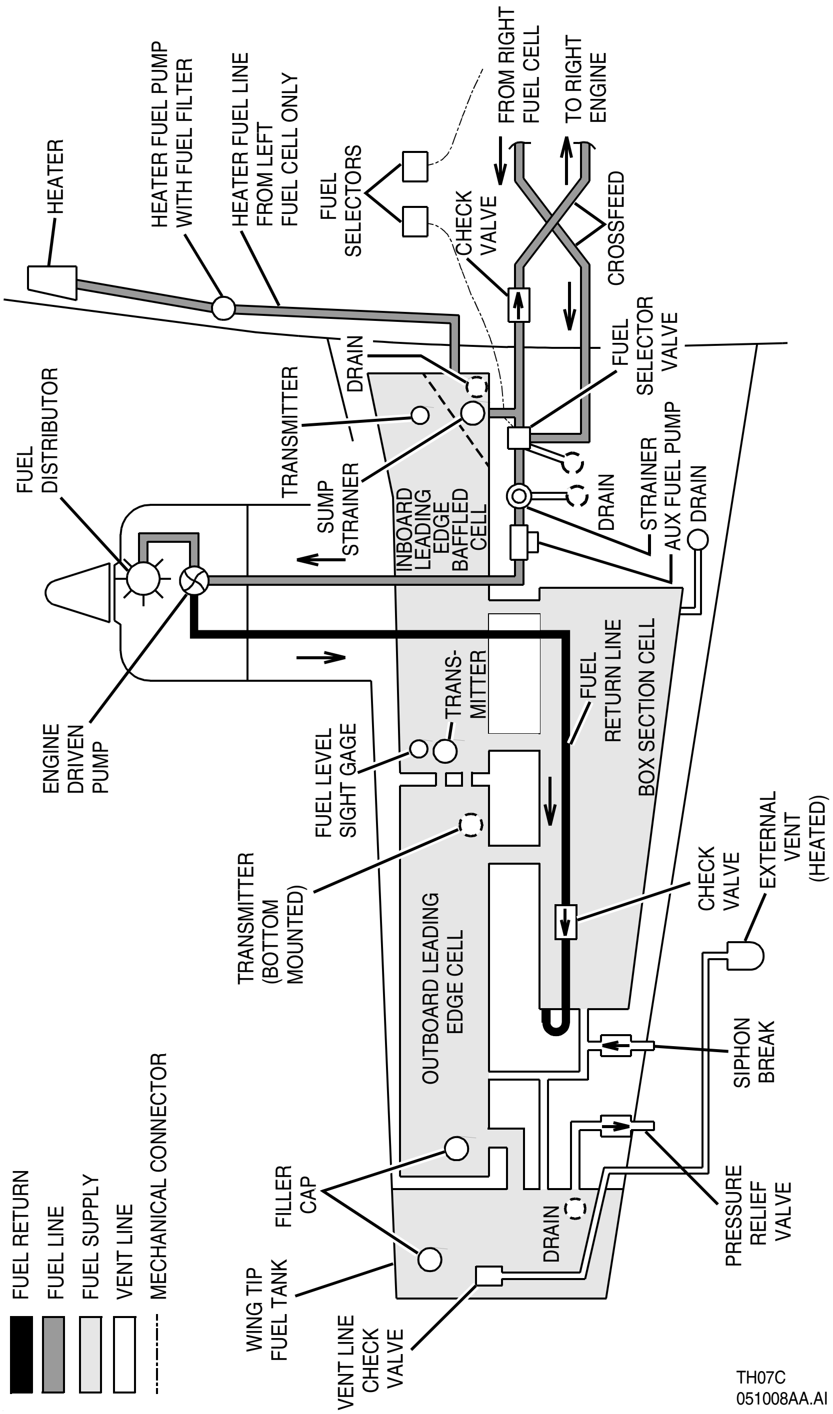
NOTE

The 200 gallon capacity fuel system will not register fuel remaining in the wet wing tip tanks. Thus, each fuel quantity display will indicate FULL until the fuel quantity remaining in the respective wing is approximately 75 gallons. As the remaining fuel is used, each display will begin to decrease, and will indicate EMPTY when all usable fuel has been depleted.

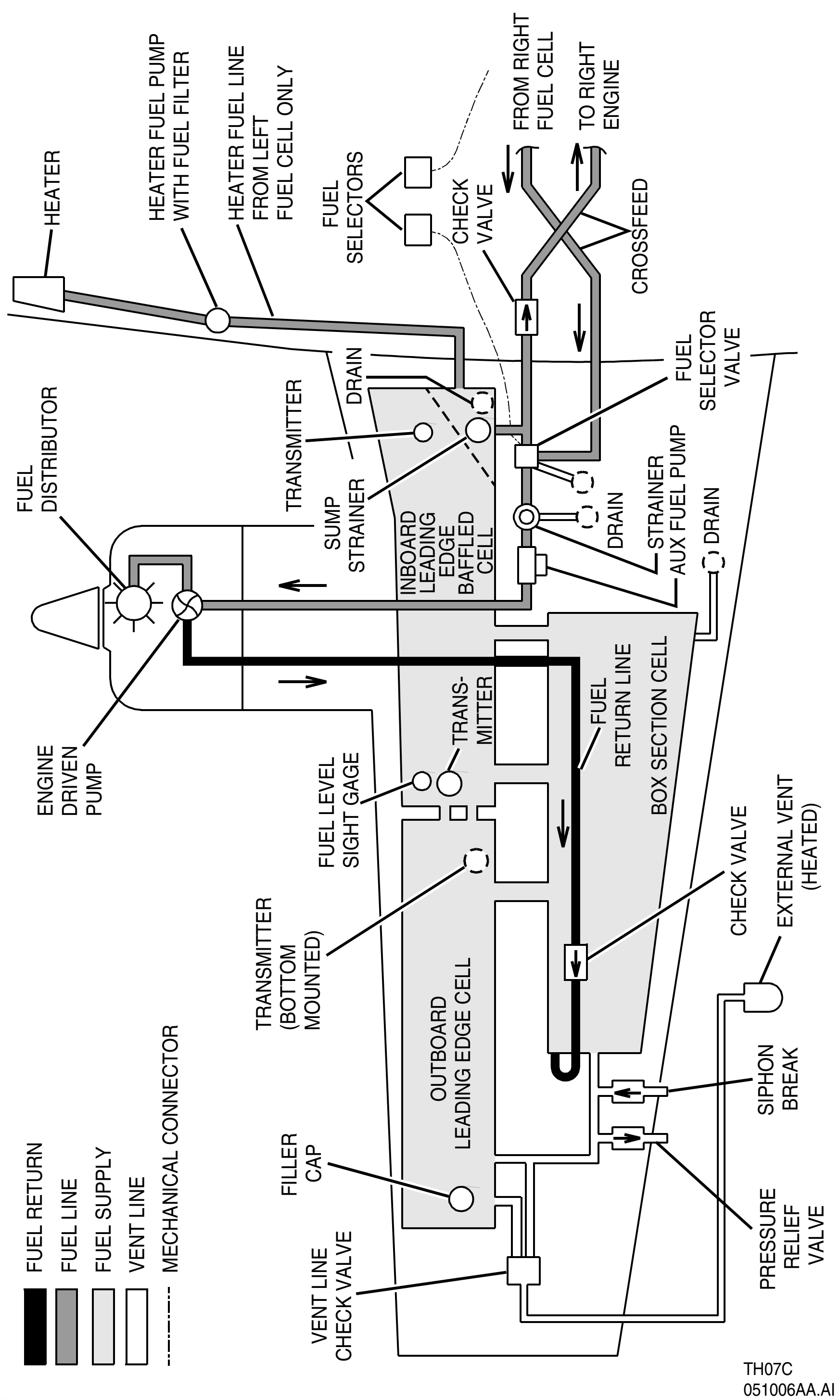
FUEL FLOW INDICATION

The fuel flow displays on the MFD are controlled electrically by the GEAs and indicate fuel flow to each engine respectively, in gallons per hour. A turbine meter installed in the fuel line rotates in proportion to the fuel flow. The speed of rotation is converted to an electrical signal which is then interpreted by the left and right GEA units. The green band indicates the normal operating range while the red radial bands indicates the maximum allowable fuel flow.

A placard on the instrument panel notes the need for manual leaning. During a climb a cyan climb fuel flow marker will be displayed for each fuel flow to indicate the required climb fuel flow when either a maximum continuous power climb or a cruise climb power is set. The GEA units monitor RPM, MAP and pressure altitude in order to correctly position the marker. When transiting from MCP to cruise climb power, the RPM must be reduced to 2490 RPM or lower, then reset to 2500 RPM in order to activate the cruise climb schedule.



STANDARD 200 GALLON CAPACITY (194 GALLONS USABLE) FUEL SYSTEM



OPTIONAL 172 GALLON CAPACITY (166 GALLONS USABLE) FUEL SYSTEM

FUEL CROSSFEED (ONE-ENGINE-INOPERATIVE ONLY)

The fuel lines for the engines are interconnected by crossfeed lines. During normal operation each engine uses its own fuel pumps to draw fuel from its respective wing fuel system. However, on emergency crossfeed operations either engine can consume the available fuel from the opposite side.

WARNING

Position selectors in detents only. There is no fuel flow to the engines between detents (indicated by red arcs). Visually confirm fuel selector position.

The fuel crossfeed system is provided for use during emergency conditions. The system cannot transfer fuel from one wing system to the other. The procedure for using the crossfeed system is described in Section 3, EMERGENCY PROCEDURES.

ENGINE DRIVEN FUEL PUMPS

The IO-550-C engines are equipped with engine driven fuel pumps that require manual leaning.

FUEL BOOST PUMPS

The fuel boost pumps are dual-speed, dual-pressure, electrically-driven, vane-type pumps. HI pressure, LO pressure or OFF is selected with each fuel boost pump switch on the pilot's subpanel. The LO position may be used to supply a low boost to the fuel flow during all flight conditions when required. The pumps are used to perform the following functions:

LO POSITION

1. Minor vapor purging
2. Increasing fuel flow
3. Crossfeeding fuel for One-Engine-Inoperative Operation
4. In-Flight air starts

HI POSITION

1. Normal start, priming
2. Extreme vapor purging
3. Provide fuel pressure in the event of engine-driven fuel pump failure

FUEL OFF-LOADING

A visual fuel level sight gage in each wing leading edge, outboard of the engine nacelle, can be used for partial filling or off-loading of fuel. This gage is to be used only when it reads within the calibrated areas with the airplane parked on level ground.

FUEL REQUIRED FOR FLIGHT

Flight planning and fuel loading is facilitated by the use of fuel quantity indicators that have been calibrated to indicate the usable fuel supply. It is the pilot’s responsibility to ascertain that the fuel quantity indicators are functioning and maintaining a reasonable degree of accuracy, and be certain of ample fuel for a flight. A minimum of 13 gallons of fuel is required in each wing system before takeoff.

ELECTRICAL SYSTEM

POWER SOURCES

Refer to the Electrical Schematic Diagram and Left and Right Avionics / Electrical Equipment Bus Connection Tables.

The airplane electrical system is a 28-vdc (nominal) system with the negative lead of each power source grounded to the main airplane structure. DC electrical power is provided by the following sources.

Left and Right Batteries - Two 24-volt, 13 amp-hour, sealed lead acid batteries are located under the floor of the nose baggage compartment; the left battery on the left side and the right battery on the right side. The batteries are controlled by switches located on the pilot's left subpanel placarded L BAT and R BAT. Each battery is capable of supplying power to the entire electrical system if the alternators are inoperative and the Bus Tie Relay is closed.

Left and Right Alternators - A 100-amp, 28.5-volt, gear-driven alternator is located on each engine in front of the right forward cylinder. The alternators are controlled by switches on the pilot's left subpanel placarded L ALT and R ALT. Each alternator is capable of supplying power to the entire electrical system if the opposite alternator is inoperative and the Bus Tie Relay is closed. Each alternator will generate 100 amps at 2300 RPM and above. Each alternator is controlled by a solid-state voltage regulator which regulates the voltage between 27.5 to 29.0 volts and will automatically turn the alternator off if an over-voltage condition should occur.

Standby Power for the Standby Attitude Indicator - A sealed lead acid battery is attached to the back of the standby attitude indicator. If power is lost to the right bus, (or to the L CB PANEL BUS powered by the Right Bus) this battery will power the standby attitude indicator for a minimum of one hour if the battery is fully charged.

PROTECTIVE DEVICES

The electrical system is protected by current limiters, circuit breakers, and circuit-breaker-type switches. A row of re-settable circuit breakers is located below the right subpanel. This panel contains the majority of the avionics circuit breakers and thus is referred to as the Avionics Circuit Breaker Panel. Another group of re-settable circuit breakers is located on the left side of the cockpit. These are arranged in three rows and consist primarily of circuit breakers for airplane systems. This panel is referred to as the Left Circuit Breaker Panel. Circuit-breaker-type switches are located on the pilot's instrument sub-panel. A hot battery bus is powered by the Right Battery. Protection devices for equipment powered by this bus are not available to the pilot. Current limiters are installed throughout the system to connect buses together and provide a quick response to short circuits. Current limiters are not re-settable and are not available to the pilot.

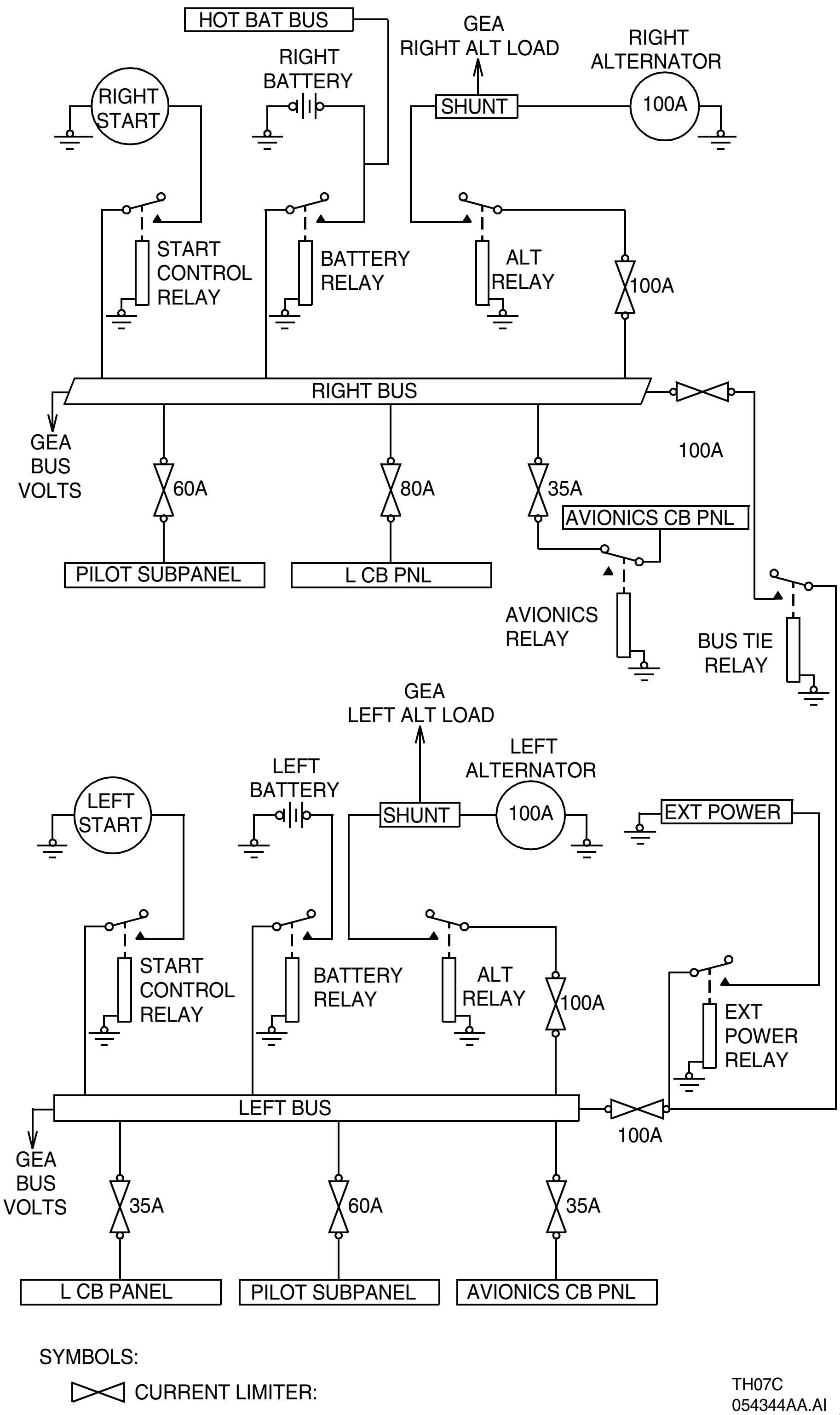
DISTRIBUTION

The airplane electrical system consists of two, normally independent, electrical systems. The left system consists of the left battery and left alternator which power the LEFT BUS and associated smaller buses. The right system consists of the right battery and right alternator which power the RIGHT BUS and associated smaller buses. In general, if an airplane system has a left and right component, the left component will be powered by the left electrical system (LEFT BUS) and the right component will be powered by the right electrical system (RIGHT BUS). The LEFT and RIGHT Bus each power three smaller buses through current limiters as shown in the schematic diagram. These three smaller buses are entitled AVIONICS CB PNL, L CB PANEL, and PILOT SUBPANEL on the Electrical Schematic Diagram. The bus titles denote the location in the cockpit where the associated protection device is located; the Avionics Circuit Breaker Panel, the Left Circuit Breaker Panel, and the circuit-breaker-type switches located on the Pilot's Instrument Subpanel. The LEFT and RIGHT AVIONICS / ELECTRICAL EQUIPMENT BUS CONNECTION tables show the location of each piece of electrically powered equipment in relation to the two electrical systems (LEFT BUS or RIGHT BUS). In addition to the above noted buses, a Hot Battery Bus (HOT BAT BUS) is powered by the Right Battery. This bus provides power to the courtesy lights, ELT transmit light, and the clock. Circuit protection devices for these items are not available to the pilot.

The Left and Right electrical systems may be manually tied together through the Bus Tie Relay if either alternator should become inoperative or during ground operations when an external power source is used. The Bus Tie Relay is closed by placing either alternator switch to the BUS TIE position. For example, in the event of a left alternator failure, power from the right alternator may be applied to the left bus through the Bus

Tie Relay by placing the left alternator switch to the BUS TIE position. When the Bus Tie Relay is closed, the white [BUSES TIED] advisory alert will be displayed. Other characteristics of the Bus Tie system include the following:

1. With both alternators inoperative, and one or both batteries selected on, placing either alternator switch to the BUS TIE position will close the Bus Tie relay. If both batteries are on, the left and right bus voltage will be the average of the two battery voltages.
2. The Bus Tie relay is automatically closed when the External Power relay is closed and external power is applied to the airplane.



ELECTRICAL SCHEMATIC DIAGRAM

LEFT AVIONICS / ELECTRICAL EQUIPMENT BUS CONNECTION

The following table shows the equipment that is powered by the LEFT BUS, organized by system. Refer to the Electrical Schematic Diagram.

LEFT BUS (L BUS)			
System	**Avionics Circuit Breaker Panel**	**Left Circuit Breaker Panel**	**Pilot's Subpanel Circuit Breaker Switches**
Avionics	ADC		
	AHRS		
	COMM 1		
	INTEG AVION 1		
	L ENG / AFR SENSOR		
	PFD		
	PFD FAN		
	XPNDR		
Engine		START RELAY LEFT	
		FUEL BOOST PUMP LEFT	
Environmental		AIR COND (opt)	
		AIR COND BLOWER (opt)	
		VENT AIR BLOWER	
Landing Gear		LDG GR POS LTS	

LEFT AVIONICS / ELECTRICAL EQUIPMENT BUS CONNECTION (Continued)

LEFT BUS (L BUS)			
System	**Avionics Circuit Breaker Panel**	**Left Circuit Breaker Panel**	**Pilot's Subpanel Circuit Breaker Switches**
Lights		CABIN LIGHTS	BCN
			ICE
			LDG
			FLOOD
			STROBE
Icing			FUEL VENT
			PITOT HEAT L
			PROP
			STALL WARN HEAT

RIGHT AVIONICS / ELECTRICAL EQUIPMENT BUS CONNECTION

The following table shows the equipment that is powered by the RIGHT BUS, organized by system. Refer to the Electrical Schematic Diagram.

RIGHT BUS (R BUS)

System	Avionics Circuit Breaker Panel*	Left Circuit Breaker Panel	Pilot's Subpanel Circuit Breaker Switches
Avionics	AP SERVOS	AVIONICS MASTER	
	AUDIO MKR	CLOCK	
	AVIONICS FAN	R ENG AFR SNSR	
	COMM 2	STBY HORIZ	
	DATA LINK		
	DME (opt)		
	INTEG AVION 2		
	MFD		
	RADAR		
	STORM SCOPE (opt)		
	TRAFFIC ALERT (opt)		
Electrical		UTIL PWR	

* items in this column are controlled by the avionics master switch.

RIGHT AVIONICS / ELECTRICAL EQUIPMENT BUS CONNECTION (Continued)

RIGHT BUS (R BUS)			
System	**Avionics Circuit Breaker Panel**	**Left Circuit Breaker Panel**	**Pilot's Subpanel Circuit Breaker Switches**
Engine		HOUR METER	
		PROP SYNC	
		START RELAY RIGHT	
Environmental		CABIN HEATER	
Flight Controls		FLAP RELAY	
		FLAP MOTOR	
Fuel		FUEL BOOST PUMP RIGHT	
Landing Gear		LANDING GEAR RELAY	
		LANDING GEAR MOTOR	
Lights			PANEL
			NAV
			LDG
			TAXI
Warning		ANNUN LIGHTS	
		LDG GR WARN	
		STALL WARN	
Icing		SURFACE DEICE	WSHLD

MONITORING THE ELECTRICAL SYSTEM

The status of the electrical system can be monitored using the following displays and alerts. The percent load being delivered by the Left Alternator and the Right Alternator (ALT LOAD L and ALT LOAD R) is displayed on the default Engine page of the Engine Indication System (EIS). This page is normally positioned along the left side of the MFD. Numerical values for alternator loads (ALT LOAD L and ALT LOAD R) and bus voltages (BUS VOLTS L and BUS VOLTS R) are available by pressing the ENGINE softkey, then the SYSTEM softkey, on the MFD to access the ENGINE SYSTEM page. In the event the MFD is not operational, the engine default page will be positioned along the left side of the PFD. The Engine System page may also be selected on the PFD in a manner identical to that used on the MFD.

Failure of the alternators/regulators and use of the Bus Tie switches are annunciated by the G1000 Alerting System as shown in the following table.

ELECTRICAL ALERTS AND MESSAGES

Condition	Type of Alert	Annunciator Display-Brief Text	Alert Display-Descriptive Text
Left Alternator Inoperative	Warning (red)	L ALT INOP	Left alternator offline
Right Alternator Inoperative	Warning (red)	R ALT INOP	Right alternator offline
Left & Right Alternator Inoperative	Warning (red)	L-R ALT INOP	Right and Left alternators offline
*Left or Right Alternator Load High	Caution (amber)	ALT LOAD	Left or Right Alternator load exceeds 100 amps
Left Voltage Regulator Inoperative	Caution (amber)	LBUS VOLT HI	Left bus voltage greater than 30 VDC
Right Voltage Regulator Inoperative	Caution (amber)	RBUS VOLT HI	Right bus voltage greater than 30 VDC
Left Bus Voltage Low	Caution (amber)	LBUS VOLT LO	Left bus voltage less than 24 VDC. Suppressed below 500 RPM
Right Bus Voltage Low	Caution (amber)	RBUS VOLT LO	Right bus voltage less than 24 VDC. Suppressed below 500 RPM
Left and Right Buses Tied	Advisory (white)	BUSES TIED	Right Bus is tied to Left Bus

*Software Version 0857.05 or 0857.06

STARTERS

Starters are relay-controlled and are actuated by rotary type, momentary-on switches incorporated in the magneto/start switches located on the pilot’s subpanel. To energize the starter circuit, hold the magneto/start switch in the START position.

Whenever electrical power is being supplied to either the left or right starter, the G1000 alerting system provides a yellow [L START ENGD] or [R START ENGD] caution alert.

EXTERNAL POWER

An external power receptacle is located in the outboard side of the left nacelle to facilitate connecting a 28-vdc external power unit to the airplane. The power unit should be capable of delivering at least 300 amperes for starting. Make certain that the battery switches are ON, all avionics and electrical switches OFF, and the batteries are in the system before connecting an external power unit. This protects the electronic voltage regulators and associated electrical equipment from voltage transients (power fluctuations). If polarity is reversed, a diode in the coil circuit will prevent contactor operation.

The Bus Tie relay closes automatically when the external power is on line to apply external power to the left and right buses.

LIGHTING SYSTEM

INTERIOR LIGHTING

Instrument Panel lighting is controlled by two switches on the pilot's subpanel placarded FLOOD LIGHTS and PANEL LIGHTS, and four rheostats located on the right subpanel placarded FLIGHT INST, INST FLOOD, STANDBY INST, AND SUBPANEL LIGHTING. Once the rheostats are set to the desired level, cockpit lighting is immediately available merely by turning on one or both of the switches.

When the FLOOD LIGHTS switch is turned on, the INST FLOOD rheostat may be used to adjust the intensity of the LED flood lights located on the underside of the glareshield. When the PANEL LIGHTS switch is turned on the other three rheostats may be used to control the illumination of the following items

FLIGHT INST rheostat - Adjusts the lighting intensity of the PFD and MFD and the electro luminescent panels associated with the PFD, MFD, audio panel and clock light.

STANDBY INST rheostat - Adjusts the lighting intensity of the following items:

Rudder Trim Post Light

Elevator Trim Post Light

Aileron Trim Post Light

Cowl Flaps Post Light

Prop Deice Ammeter

Standby Airspeed Indicator

Standby Altimeter

Standby Attitude Indicator

SUBPANEL LIGHTING rheostat - Adjusts the lighting intensity of the electroluminescent subpanels and circuit breaker panels.

The map, compass and OAT indicator lights are controlled by a push-on, push-off switch located on the pilot's control wheel. Cabin reading lights are located above each seat and are operated by a push-on, push-off switch adjacent to each light.

The three cabin reading lights on the right side of the ceiling are wired to operate as courtesy lights. A step light located above the step on the right fuselage and these courtesy lights will illuminate any time the utility door or cabin door is opened. To limit battery drain, the step light and courtesy lights are connected to a timer which will extinguish the lights approximately

15 minutes after the door is opened. To reset the timer for the step light and courtesy lights, both doors must be closed and latched. The lights will illuminate when either door or both doors are opened.

EXTERIOR LIGHTING

The switches for the navigation lights and landing lights plus the switches for the anticollision lights, nose gear taxi light, and wing ice light are grouped on the pilot's subpanel. The landing lights in the leading edge of each wing tip or on the front lower section of each engine cowling are operated by separate switches. For longer lamp service life, use the landing lights only when necessary. Avoid prolonged operation during ground maneuvering which could cause overheating. The nose gear taxi light should be used during ground operation.

NOTE

Particularly at night, reflections from anti-collision lights on clouds, dense haze or dust can produce optical illusions and intense vertigo. Such lights, when installed, should be turned off before entering an overcast; their use may not be advisable under instrument or limited VFR conditions.

ENVIRONMENTAL SYSTEM

The environmental system consists of heating and ventilating systems and their associated controls. An optional cooling system is also available.

CABIN HEATING

A 50,000 BTU combustion heater, located in the nose gear wheel well, supplies heated air to the cabin. Ram air enters through intakes located on each side of the nose cone, or through a single intake located on the left side of the nose cone if a radar is installed. After the air passes through the heater, it is distributed to five cabin outlets. Outlets are located above the pilot's and copilot's rudder pedals, at the rear of the copilot's chair, and at the rear of the No. 4 passenger chair position. A fifth outlet provides heated air for windshield defrosting. Fuel for the heater is obtained from the left fuel tank. Fuel consumption is approximately 1 GPH.

The heater is controlled by a HEATER and a BLOWER switch located on the pilot's subpanel, a CABIN VENT AIR control located on the pilot's left sidewall, a CABIN HEAT control knob located below the pilot's left subpanel, and a landing gear position switch.

HEATER switch - If sufficient air flow is present, this switch turns the heater on by activating the heater fuel pump, combustion air blower, igniter, and heater blower. The heater blower will automatically turn off when the landing gear is retracted and automatically turn back on when the landing gear is extended.

BLOWER switch - This switch also turns the heater blower on. It may be used independent of heater operation to increase air circulation during ground operations. If the heater blower is activated by this switch, it will automatically turn off when the landing gear is retracted and automatically turn back on when the landing gear is extended. If the heater is to be shut down during ground operations, the blower should be left on for approximately 2 minutes after turning the HEATER switch off to prevent over-temping the heater and activating the over-temperature switch.

CABIN VENT AIR control - This lever-type control adjusts the iris valve located in the forward portion of the heater. Pushing the control forward will increase the opening of the valve while pulling the control aft will decrease the opening of the valve. If the lever control is pulled aft more than half way, the resulting air flow will be insufficient for heater operation and the heater will automatically turn off.

CABIN HEAT control knob - This control adjusts the thermostat sensor located in the heater duct. Pulling the knob out increases the thermostat setting to a maximum temperature of approximately 180°F. When the duct temperature reaches the thermostat setting, fuel is cut off to the heater.

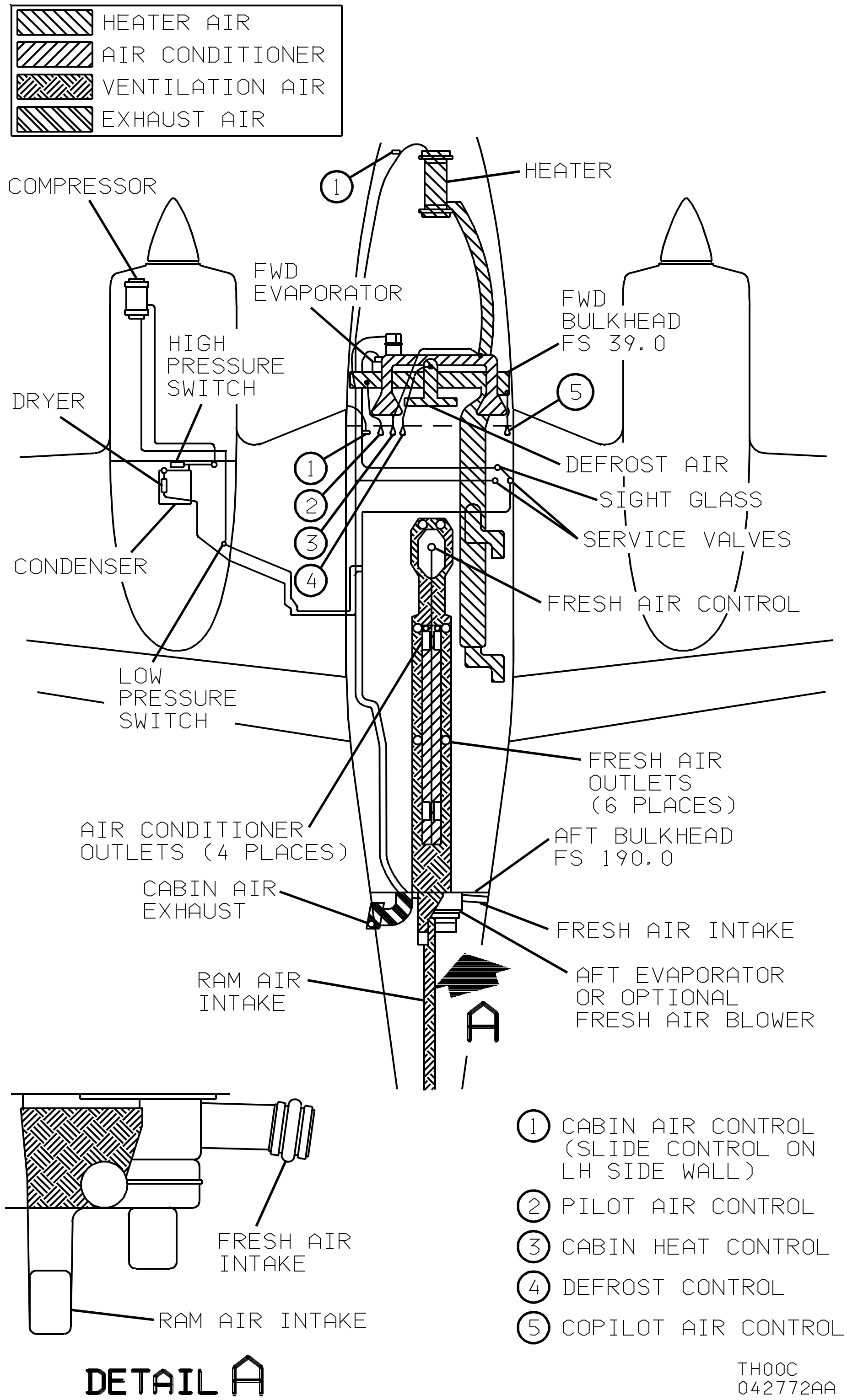
The heater system is protected by the following items:

1. An over-temperature switch located on the aft end of the heater which is accessible from the nose gear wheel well. This switch will turn the heater system off if the Heater Burner Can reaches 300°F. The switch is manually resettable from the nose gear wheel well.
2. An air pressure switch which removes power from the ignition system and the heater fuel pump if the heater blower or combustion air blower fails.

The distribution of the heated air is controlled by the following controls:

1. Pilot Air control knob - This knob is located below the pilot's subpanel. Pulling the knob out increases the airflow at the pilot's feet.
2. Copilot Air control knob - This knob is located below the copilot's subpanel. Pulling the knob out increases the airflow at the copilot's feet.
3. Defrost control knob - This knob is located below the pilot's subpanel. Pulling the knob out increases the airflow to the defrost system.

The heater outlets located behind the copilot's chair and the No. 4 passenger chair are not directly controllable. To increase the air flow from these outlets, push in the controls for the Pilot's Air, Copilot's Air, and Defrost.



ENVIRONMENTAL SCHEMATIC

CABIN VENTILATION

In flight, to provide unheated air for the same cabin outlets used for heating, push the CABIN AIR and CABIN HEAT controls forward.

For ventilation during ground operation, push the CABIN AIR control forward and turn ON the BLOWER switch located on the pilot's subpanel. An optional fresh air blower located in the aft fuselage provides additional ventilation through the overhead outlets during ground operations. The blower becomes inoperative when the landing gear is retracted.

INDIVIDUAL OVERHEAD FRESH AIR OUTLETS

Fresh ram air from the intake on the left side of the dorsal fairing is ducted to individual outlets above each seat, including the optional fifth and sixth seats. A master control in the overhead panel just aft of the front air outlets enables the pilot to adjust the amount of ram air available to all outlets. The volume of air at each outlet can be regulated by rotating the outlet. Each outlet can be positioned to direct the flow of air as desired.

EXHAUST VENTS

Only one exhaust vent (a fixed exhaust vent located in the aft cabin) is installed.

PITOT AND STATIC SYSTEMS

PITOT SYSTEM

The pitot system provides a source of impact air for operation of the ADC and Standby Airspeed Indicator. The pitot mast is located immediately to the left of the nose gear doors.

PITOT HEAT

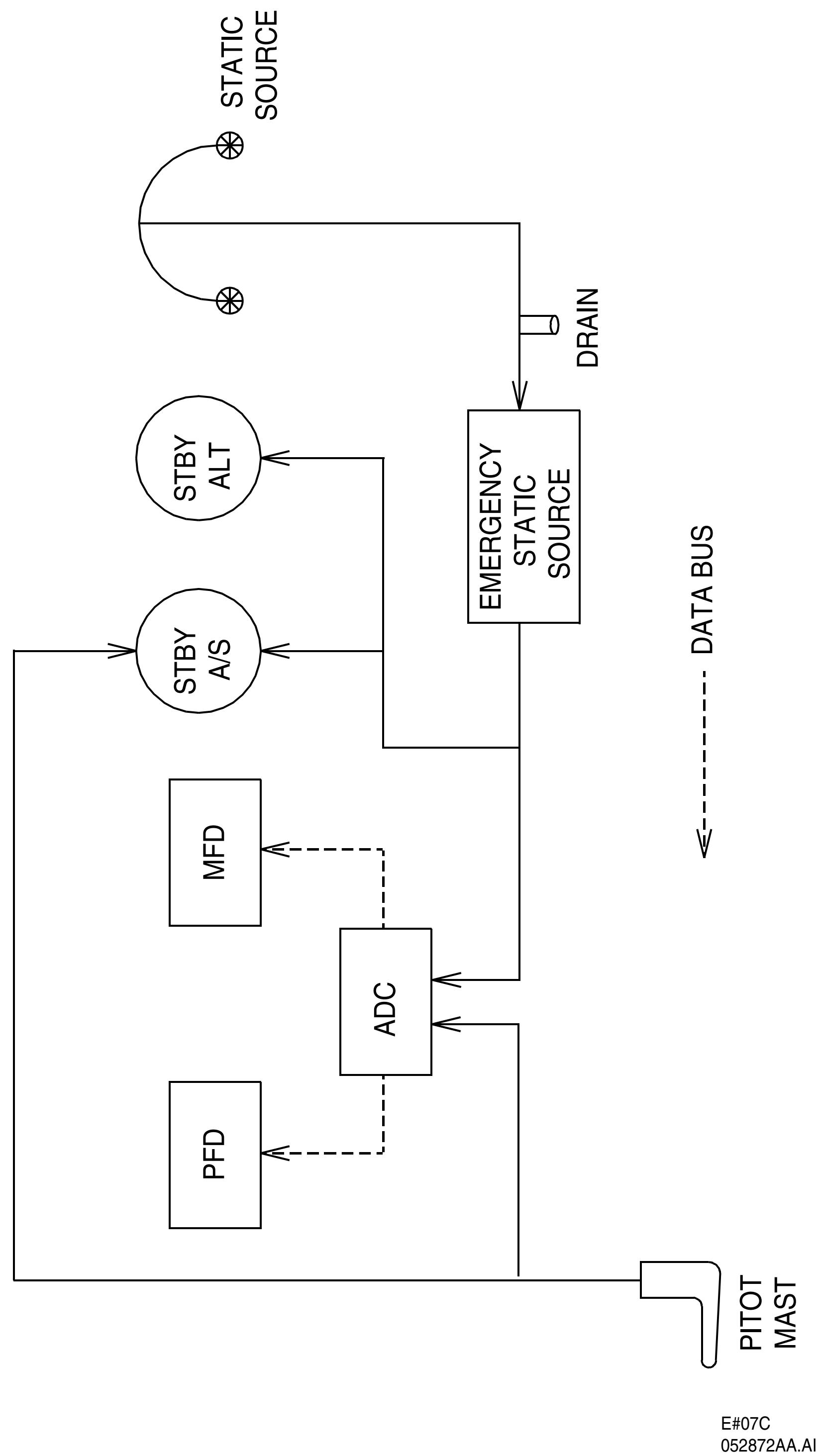
The pitot mast contains an electrical heater element. The PITOT HEAT switch is located on the left subpanel and should be ON when flying in visible moisture. It is not advisable to operate the pitot heat on the ground except for testing or for short intervals of time to remove ice or snow.

NORMAL STATIC AIR SYSTEM

The normal static system provides a source of static air to the ADC, standby airspeed indicator, and standby altimeter for operation through a flush static fitting on each side of the airplane fuselage.

EMERGENCY STATIC AIR SYSTEM

The emergency static air system is installed to provide air to the ADC, standby airspeed indicator, and standby altimeter for operation should the static ports become blocked. The emergency air source control is located on the left forward sidewall under the instrument panel. To select the emergency static air source move the lever to the ON EMERGENCY position. To select the normal static air position move the lever to the OFF NORMAL position. With the lever in the ON EMERGENCY position the system can be drained during preflight checks. Refer to Section 3A, ABNORMAL PROCEDURES, for procedures describing how and when to use this system.



PITOT AND STATIC SYSTEM SCHEMATIC

STALL WARNING

An electronic stall warning horn forward of the instrument panel sounds a warning signal while there is time for the pilot to correct the attitude. The signal is triggered by a sensing vane on the leading edge of the left wing and is effective in all flight attitudes and at all weights and airspeeds. Irregular and intermittent at first, the warning signal will become steady as the airplane approaches a complete stall.

NOTE

The stall warning horn is inoperative when the batteries and alternator switches are turned off. Airplane certification requires the stall warning system to be on during flight except in emergency conditions as stated in Section 3, EMERGENCY PROCEDURES.

A switch on the left subpanel placarded STALL WARN HEAT controls electrical power to the stall warning heater elements.

ICE PROTECTION SYSTEMS

SURFACE DEICE SYSTEM

Deice boots cemented to the leading edges of the wings, horizontal tail surfaces and vertical tail surface are operated by engine-driven pump pressure. Compressed air, after passing through the pressure regulators, goes to the distributor manifold. When the deice system is not in operation, the distributor valve applies vacuum to the boots to deflate and hold the boots flat against the surface. Then, when the deice system is operated, the distributor valve changes from vacuum to pressure and the boots inflate. After the cycle is completed, the valve returns to vacuum hold-down.

A three-position, spring loaded switch, with a center OFF position, a down MAN (manual inflate) position, and an up SURFACE AUTO position, controls the system. When the switch is in the auto position, the deice boots inflate for a period of approximately 12 seconds, then deflate automatically and return to the vacuum hold-down position. The switch must be tripped for each complete cycle. The MAN (manual) position will inflate the boots only as long as the switch is manually engaged. When the switch is released, the boots deflate.

Deice boots are intended to remove ice after it has accumulated, rather than prevent its formation. If the rate of ice accumulation is slow, best results are obtained by leaving the deice system off until 1/2 to 1 inch of ice accumulates. Bridging can occur if boots are actuated too early or too frequently.

CAUTION

Operation of the surface deice system in ambient temperatures below -40°C can cause permanent damage to the deice boots.

The wing ice light, used to check for ice accumulation during night operation, is located on the outboard side of the left nacelle. The light switch is on the pilot's subpanel.

ELECTROTHERMAL HEATED WINDSHIELD SEGMENT

The pilot's electrically heated windshield segment is controlled by a switch located on the pilot's subpanel. Windshield heat is designed for continuous in-flight use and should be applied prior to encountering icing conditions. This system is also beneficial as an aid in preventing frost and fogging due to rapid descents from higher altitudes into warm, moist air.

Operation of the windshield heat will cause the standby compass to become erratic; therefore, windshield heat should be turned off for a period of 15 seconds to allow a stable reading of the standby compass.

CAUTION

Ground use of windshield heat is limited to 10 minutes.

ELECTROTHERMAL PROPELLER DEICE

Propeller ice removal is accomplished by the electrically heated deice boots bonded to each propeller blade. The system uses the airplane's electrical power to heat portions of the deice boots in a sequence controlled by a timer. The system is controlled by an ON-OFF circuit breaker switch on the pilot's subpanel. When the system is turned on, the ammeter will register 14 to 18 amperes. The system can be operated continuously in flight; it will function automatically until the switch is turned off. Propeller imbalance can be relieved by varying RPM. Increase RPM briefly, then return to the desired setting. Repeat if necessary.

CAUTION

Do not operate the system with the engines inoperative.

PITOT HEAT

A heating element is installed in the pitot mast. The heating element is controlled by a switch located on the pilot's subpanel. The switch is placarded PITOT HEAT and should remain off during ground operations, except for testing or for short intervals of time to remove ice or snow from the mast.

STALL WARNING ANTI-ICE

The mounting pad and the stall warning vane are equipped with heating elements that are activated anytime the switch on the pilot's subpanel, placarded STALL WARN HEAT is turned on.

HEATED FUEL VENTS

The fuel system vents, one located on the underside of each wing outboard of the nacelle, are provided with heating elements controlled by the FUEL VENT switch on the pilot's subpanel.

ENGINE BREAK-IN INFORMATION

MIL-C-6529 Type II Multiviscosity 20W-50 Corrosion-Preventative Oil is installed in the engine at the factory. It is recommended that this oil be removed and the oil filter changed at 20 hours of engine operation or no later than 25 hours. If additional oil is needed during the first 25 hours of operation, use an approved straight mineral oil per MIL-L-6082. If oil consumption has not stabilized by this time, the engine should be drained and refilled with MIL-L-6082 Mineral Oil. This oil should be used until oil consumption stabilizes; usually a total of approximately 50 hours. After oil consumption has stabilized, MIL-L-22851 Ashless Dispersant Oil should be used. Oils must meet the requirements of the latest revision of Teledyne Continental Motors Corporation Specification MHS-24B or current applicable Teledyne Continental Service Bulletin. Refer to Section 8, HANDLING, SERVICING and MAINTENANCE, for a list of approved oils.

CAUTION

Do not exceed 25 hours of operation or 6 months, whichever occurs first, with factory break-in oil (MIL-C-6529, Type II, Multiviscosity, 20W-50 Corrosion-preventative). When changing to MIL-L-22851 Ashless Dispersant oil, change the oil and filter using the procedures outlined in Section 8, HANDLING, SERVICING and MAINTENANCE.

Failure to remove the corrosion-preventative oil and replace the oil filter within the time interval specified may cause varnish deposits to form on the pistons and cylinder walls and deteriorate the filter element.

Drain and replace the engine oil as recommended in Section 8, HANDLING, SERVICING and MAINTENANCE. If operating conditions are unusually dusty and dirty, more frequent oil changes may be necessary. Oil changes are more critical during break-in period than at any other time.

Use full throttle for every takeoff and maintain until at least 400 feet AGL, then reduce power as necessary for cruise climb. Maintain the highest power recommended for cruise operation during the break-in period (50 to 75 hrs) and interrupt cruise power every 30 minutes or so by smoothly advancing to takeoff power settings for about 30 seconds.

Avoid long power-off descents and altitudes above 8,000 feet during the break-in period. Maintain sufficient power during descent to permit cylinder head temperatures to remain in the green arc.

Minimize ground operation time, especially during warm weather. During the break-in period, avoid idling in excess of 15 minutes, especially in high ambient temperatures.

AVIONICS

GENERAL

The G1000 Integrated Avionics System is a fully integrated flight, engine, communication, navigation, autopilot and surveillance instrumentation system. The system consists of a Primary Flight Display (PFD), Multi-Function Display (MFD), and audio panel (GMA) that make up the instrument panel. Line Replaceable Units (LRUs) that are included in the above displays and controls include the following.

- A single Air Data Computer (ADC)
- A single Attitude and Heading Reference System (AHRS)
- Two Engine/Airframe Processing Units (GEA) Left/Right
- Two Integrated Avionics Units (GIA) containing dual VHF communications transceivers, dual VOR/ILS receivers, and dual GPS receivers.
- A single Transponder
- A single Magnetometer
- A Flight Director/Autopilot System that is integral to the GIA and the autopilot servo units.

PRIMARY FLIGHT DISPLAY (PFD)

The Primary Flight Display (PFD) is a 10.4 inch Liquid Crystal Display (LCD) referred to by Garmin as a Garmin Display Unit (GDU) 1040. It displays airspeed, attitude, altitude, and heading information in a traditional format. A vertical speed display is located to the right of the altitude display. A crew alerting window and annunciation window are available for display. Slip information is shown as a trapezoid under the bank pointer. One width of the trapezoid is equal to a one ball width slip. Rate of turn information is shown on the scale above the compass rose. Full scale deflection is equal to a standard rate turn.

The PFD incorporates controls for communications, navigation, altimeter control, and Flight Management System functions. Trend vectors are shown on the airspeed and altimeter displays as a magenta line which predicts the airspeed or altitude 6 seconds in the future assuming the current rate of change is maintained. The turn rate indicator also functions as a trend indicator on the compass scale. The PFD can be displayed in a composite format for emergency use by pressing the DISPLAY BACKUP button on the audio panel. In the composite mode, the full crew alerting function is retained, but no map functions are available. When L BAT is turned on or external power is supplied to the airplane, a reduced subset of the G1000 system will power up including the PFD operating in composite mode. This will allow the pilot to monitor engine and electrical status prior to and during engine start. The PFD is powered by Left Bus and is protected by a circuit breaker, placarded PFD, located on the avionics circuit breaker panel. See the Garmin G1000 Primary Flight Display Pilot's Guide for more detailed information.

MULTIFUNCTION DISPLAY (MFD)

The Multi-Function Display (MFD) is a 10.4 inch Liquid Crystal Display (LCD) referred to by Garmin as a Garmin Display Unit (GDU) 1043/1045. It displays engine data, maps, terrain, traffic and topography displays, and flight planning and progress information. It also controls and displays weather data link information, lighting strike information, and audio entertainment features. The display unit is identical to the PFD and contains the same controls plus the addition of autopilot controls. Discrete engine sensor information is processed by the Garmin Engine/Airframe (GEA 1 and 2) sub-system. When an engine sensor indicates a value outside the normal operating range, the legend on the MFD will turn yellow for caution range, and red for the warning range. The legend will also flash when the warning range is activated. If the pilot is on a page other than the primary engine indication page when an engine parameter is exceeded, the primary engine page will automatically pop up to allow the viewing of the parameter that has been exceeded. The MFD is powered by the Right Bus through the Avionics Master relay and is protected by a circuit breaker, placarded MFD, located on the Avionics Circuit Breaker Panel. See the Garmin G1000 Multi Function Display Pilot's Guide for more detailed information.

MASTER AUDIO PANEL (GMA)

The audio panel is a Garmin GMA 1347 and provides pilot and copilot microphone selection of communication radios and audio selection for all communication and navigation receiver radios. The audio panel has volume controls for both pilot and copilot. There are controls for speaker on/off selection and interphone mode selection. If power is lost to the audio panel, the pilot's headset and microphone are connected directly to COMM 1. An internal clearance recorder can play back the last 2 1/2 minutes of received COMM audio. A marker beacon receiver is also contained within the audio panel with visual information provided on the PFD. The red button at the bottom of the audio panel is used to manually select the reversionary mode for the PFD and MFD displays. The GMA is powered by the Right Bus through the Avionics Master relay and is protected by the 5-amp AUDIO MKR circuit breaker located on the Avionics Circuit Breaker Panel. See the Garmin G1000 Audio Panel Pilot's Guide for more detailed information.

INTEGRATED AVIONICS UNITS (GIA)

Two Garmin Integrated Avionics Units (GIA 63/63W) are installed. Both GIAs provide interfaces to all Line Replaceable Units (LRUs) in the G1000 system. Each GIA contains VHF COMM, VHF NAV, glideslope, and GPS functions. GIA 1 provides autopilot mode control and servo control and monitoring. GIA 2 provides servo control and monitoring. The No. 1 GIA is powered by the Left Bus. The COMM portion is protected by the 5-amp COMM 1 circuit breaker and the other portions are protected by the 5-amp INTEG AVION 1 circuit breaker. The No. 2 GIA is powered by the Right Bus through the Avionics

Master relay. The COMM portion is protected by the 5-amp COMM 2 circuit breaker and the other portions are protected by the 5-amp INTEG AVION 2 circuit breaker. All four circuit breakers are located on the Avionics Circuit Breaker Panel.

AIR DATA COMPUTER (ADC)

The Garmin Air Data Computer (GDC 74A) is connected to the pitot and static air system and a Outside Air Temperature (OAT) probe which is located on the bottom of the left wing. The ADC provides OAT, airspeed, altitude, and vertical speed for pilot displays and Flight Management System (FMS) functions. The ADC is powered by the Left Bus and is protected by the 5-amp ADC circuit breaker located on the Avionics Circuit Breaker Panel. See pitot and static system description in this section for more detailed information.

MAGNETOMETER (GMU)

The Garmin Magnetometer Unit (GMU 44) senses the Earth's magnetic field and provides this information to the AHRS for processing to determine the airplane’s magnetic heading. The GMU 44 is located in the left wing tip area and is powered by the AHRS.

ATTITUDE AND HEADING REFERENCE SYSTEM (AHRS)

The Garmin Attitude and Heading Reference System (GRS 77) provides pitch, roll, heading, and angular rate information for pilot display and for FMS calculations. The AHRS is powered by the Left Bus and protected by a 5-amp circuit breaker located on the Avionics Circuit Breaker Panel. See the Garmin G1000 pilot’s guide, Section 2, System Overview, for more information.

ENGINE/AIRFRAME INTERFACE UNITS (LEFT AND RIGHT GEA)

Two Garmin Engine/Airframe Interface Units (Left and Right GEA 71) provides inputs and outputs for engine and airframe sensors and systems. Left and Right GEA has inputs for the following signals:

Manifold Absolute Pressure (MAP)

Engines RPM

Fuel Flow

Six Cylinder Head Temperature (CHT) probes

Six Exhaust Gas Temperature (EGT) probes

Oil Temperature

Oil Pressure

Left Alternator Load

Right Alternator Load

Left Bus Voltage

Right Bus Voltage

Fuel Quantity Left Tank

Fuel Quantity Right Tank

Starter Engaged

Utility Door Switch (Left GEA 71)

Air Conditioning Condenser position (Left GEA 71)

This information is used to display Engine and System information on the left side of the MFD and alerts in the annunciation window of the PFD.

TRANSPONDER (GTX)

The Garmin Transponder (GTX 33) is a solid-state transponder that replies to Mode A (4096 codes), Mode C and Mode S interrogations. It is capable of responding with transponder capability and airplane Flight ID to ground station interrogation to support elementary surveillance. If the airplane is not equipped with the optional Skywatch system or it is not operational, the GTX 33 will work with the Traffic Information Service (TIS). Where TIS is available, the GTX 33 will display all responding ATCRBS Mode A and Mode C transponder equipped airplane within seven nautical miles from 3000 feet below to 3500 feet above the airplane. The TIS system only operates while in the ground-based service area. It will not display airplane without an operating transponder. Transponder codes and mode selection are accessed by the XPDR softkey at the bottom of the PFD. Squawk codes can be entered using the PFD FMS knob (software version 0857.05 or 0857.06). The GTX 33 is powered by the Left Bus and protected by a 5-amp circuit breaker located on the Avionics Circuit Breaker Panel.

AIRBORNE WEATHER RADAR (GWX)

The Garmin Airborne Weather Radar (GWX 68) provides weather radar information for display on the MFD. Data received from the GWX 68 is routed through the XM Weather/ Audio Data Link System (GDL 69A) to the MFD via High Speed Data Bus (Ethernet). The GWX 68 is mounted in the nose of the airplane and receives power from the avionics bus. The weather radar is protected by a 5-amp circuit breaker located on the avionics circuit breaker panel.

ENGINE INDICATING SYSTEM

Engine information is available in a vertical arrangement along the left side of the MFD. In reversionary mode, this information will also be generated along the left side of the PFD.

ENGINE DISPLAY

The engine display page is the default display and shows left and right manifold pressure, engine RPM with prop sync, fuel flow, cylinder head temperature, oil temperature, oil pressure, alternator load, and fuel tank quantity.

The left and right manifold pressure is the absolute pressure in the engines manifold and is calibrated in inches of mercury. A circular scale with a pointer provides overall manifold indication with numeric value just below. A manifold pressure sensor located on each induction manifold is wired to the left and right GEA units for display information. By observing the manifold pressure and adjusting the propeller and throttle controls, the power output of each engine can be adjusted. To avoid excessive cylinder pressures during cruise operations, observe the maximum recommended RPM and manifold pressure limits as indicated on the Manifold Pressure vs RPM graph in Section 5, PERFORMANCE.

The left and right circular scale with a pointer provides overall engine speed in revolutions per minute (RPM), with numeric value just below. A transducer attached to each engine sends electrical signals to the left and right GEA units for display information.

Fuel flow is indicated on a linear scale with a numeric readout in gallons per hour above and the scale left and right. A turbine rotor installed in each fuel line rotates in proportion to the fuel flow. The speed of rotation is converted to an electrical signal which is input to the left and right GEA units for display information.

Cylinder head temperature is indicated on a linear scale with a left and right indicator. The hottest of the six cylinders for each engine is displayed and identified by the numeric value inside the pointer. All six cylinder heads for each engine have temperature probes that are wired to the left and right GEA units. These can be displayed by accessing the LEAN engine page.

Oil temperature is indicated on a linear scale and is sensed as it enters each engine from the oil cooler. The sensors are wired to the left and right GEA for display. Numeric temperature value is displayed on the SYSTEM engine page.

Oil pressure is sensed at the back of each engine off a port below the oil coolers and wired to the left and right GEA for display. The display is liner, with a numeric pressure value available on the SYSTEM engine page.

The ALT LOAD and BUS VOLTS displays are described in the electrical systems description and the FUEL QTY GAL display is described in the fuel systems description. See the Garmin G1000 Engine Indication System Pilot's guide for more detailed information.

ALERTING SYSTEM

The G1000 provides an Annunciation window and an Alerts window on the PFD to inform the pilots of Warning Alerts, Cautions Alerts, Advisory Alerts, and Messages that may occur during the operation of the airplane. Both windows are also available on the MFD to provide the same notifications when the MFD is operating in the reversionary mode. The available alerts and selected messages are shown in the table below. When an alert occurs, three things occur simultaneously.

1. The ALERTS softkey will assume a new label and color depending on the level of alert. The softkey label will change to a red WARNING label for warning alerts, a yellow CAUTION label for caution alerts, and a white ADVISORY label for advisory alerts. The label will also assume a flashing mode.

2. An aural tone will be provided for Warning Alerts and Caution Alerts. The tone for Warning Alerts will continue to pulse until the pilot presses the WARNING softkey to acknowledge the Alert. (Note: The [GEAR UP] Warning Alert has no tone since the airplane gear warning system provides the aural alert.) The tone will sound only once for a Caution Alert and does not need to be acknowledged. A tone is not provided for an Advisory Alert.
3. An annunciation with the same color as the alerts label is displayed in the Annunciation Window as shown in the table below.

The pilot action in response to an alert is to press the Alerts Softkey to cancel the aural tone associated with a Warning Alert, and to cancel the flashing mode of the softkey. When an alert is acknowledged, the annunciation is moved to the top portion of the Annunciation Window and is separated from subsequent annunciations that may occur by a white line. If more than one annunciation is displayed, they are arranged in order of priority, with the highest priority at the top of the list. Thus, they would be arranged from top to bottom in the order of red, yellow, and white.

If the Alerts Softkey is pressed again, the Alerts Window will be displayed. This window will display the annunciation along with a descriptive text that elaborates on the meaning of the annunciation. The Alerts Window arranges the alerts and messages in order of priority, as explained for the Annunciation Window. If there are more alerts/messages in the Alerts Window than can be displayed at one time, hidden alerts/messages may be accessed by using the large FMS knob to scroll through the list.

The G1000 alerting system provides numerous messages relating solely to the status of the G1000. These messages may be viewed only in the Alerts Window. When a new message is active, the Alert's Softkey label will change to ADVISORY and flash in a manner identical to Message Alert. The ADVISORY softkey is then pressed once to acknowledge the message, and then pressed a second time to display the message in the Alerts Window.

Alerts and messages will be retained in the respective windows until the fault is cleared. They will then automatically be moved. See the Garmin G1000 Annunciations and Alerts Pilot's Guide for more detailed information.

AIRPLANE ALERTS AND MESSAGES

Type of Alert/ Messages	Annunciation Window	Alerts Window Descriptive Text	Alerts Softkey	Tone
*Warning Alert	CHT HI	L or R CHT is greater than 238° C	WARNING	Repeating
*Warning Alert	FUEL FLOW HI	L or R fuel flow is greater than 27.4 gph	WARNING	Repeating.
*Warning Alert	FUEL QTY LO	L or R fuel qty is at zero	WARNING	Repeating
Warning Alert	GEAR UP	Gear Up	WARNING	**Cont.
Warning Alert	L-R ALT INOP	Left and Right alternator offline	WARNING	Repeating
Warning Alert	L ALT INOP	Left alternator offline	WARNING	Repeating
Warning Alert	R ALT INOP	Right alternator offline	WARNING	Repeating
*Warning Alert	OIL TEMP HI	L or R oil temp is greater than 116° C	WARNING	Repeating
*Warning Alert	OIL PRESS HI	L or R oil press is greater than 100 psi	WARNING	Repeating
*Warning Alert	OIL PRESS LO	L or R oil press is less than 10 psi	WARNING	Repeating
Caution Alert	AFT DOOR	Aft door not latched	CAUTION	Single
*Caution Alert	ALT LOAD	L or R alternator load exceeds 100 amps	CAUTION	Single
*Caution Alert	FUEL QTY LO	L or R fuel qty is less than or equal to 13 gal	CAUTION	Single

AIRPLANE ALERTS AND MESSAGES (Continued)

Type of Alert/ Messages	Annunciation Window	Alerts Window Descriptive Text	Alerts Softkey	Tone
Caution Alert	L AIR PUMP	Press Low - Ops in icing conditions not approved	CAUTION	Single
Caution Alert	R AIR PUMP	Press Low - Ops in icing conditions not approved	CAUTION	Single
Caution Alert	L START ENGD	Left starter relay has power applied	CAUTION	Single
Caution Alert	R START ENGD	Right starter relay has power applied	CAUTION	Single
Caution Alert	LBUS VOLT HI	Left Bus voltage greater than 30 VDC	CAUTION	Single
Caution Alert	LBUS VOLT LO	Left Bus voltage Less than 24 VDC	CAUTION	Single
Caution Alert	RBUS VOLT HI	Right Bus voltage greater than 30 VDC	CAUTION	Single
Caution Alert	RBUS VOLT LO	Right Bus voltage Less than 24 VDC	CAUTION	Single
*Caution Alert	OIL PRESS LO	L or R oil press is between 30 and 10 psi	CAUTION	Single
Message	AVIONICS FAN	Cooling fan for remote avionics is inoperative	ADVISORY	None
Advisory Alert	BUSES TIED	Left and Right Buses are tied	ADVISORY	None
Message	MFD FAN FAIL	Cooling fan for the MFD is inoperative	ADVISORY	None
Message	PFD FAN FAIL	Cooling fan for the PFD is inoperative	ADVISORY	None

* Software Version 0857.05 or 0857.06

** Into G1000 Audio from an electronic warning horn.

AUTOPILOT

GFC 700 AUTOMATIC FLIGHT CONTROL SYSTEM (AFCS)

COMPONENTS

The GFC 700 AFCS consists of the following components:

1. The following mode control keys on the MFD:
   a. AP (Autopilot engage/disengage)
   b. YD (Yaw Damp engage/disengage)
   c. FD (Flight Director On/Off)
   d. HDG (Heading Mode On/Off)
   e. NAV (Nav Mode On/Off)
   f. APR (Approach Mode On/Off)
   g. ALT (Altitude Hold Mode On/Off)
   h. VNV (Vertical Navigation Mode Selects/Deselects) (If Installed)
   i. VS (Vertical Speed Mode On/Off)
   j. FLC (Flight Level Change Mode On/Off)
   k. NOSE UP and NOSE DN (vertical mode reference change)
2. A two-segment pitch trim switch located on the left side of the pilot's control wheel.
3. A red autopilot-disconnect and pitch-trim-interrupt switch (AP DISC/TRIM INTER) located on the left side of the pilot's control wheel. Pressing this switch also acknowledges a manual or automatic autopilot disconnect by canceling the tone and flashing AP annunciator.
4. A Control Wheel Steering switch (CWS) located on the left side of the pilot's control wheel.
5. A Go-Around switch located on the left side of the throttle.

6. Servos with autopilot processing logic in the pitch, pitch trim and roll control systems. A servo with independent processing logic for the Yaw Damper function. The servos are powered by the Right Bus through the Avionics Master relay and are protected by a 5-amp AP SERVOS circuit breaker located on the Avionics Circuit Breaker Panel. (The pitch trim servo is used for automatic pitch trim when the autopilot is engaged and for manual electric pitch trim operation when the autopilot is disengaged.)
7. Servo mounts and brackets
8. Flight Director processing logic is contained in the two integrated Avionics Units, GIA 63/63W No. 1 and No. 2. The GIAs are protected by the 5-amp INTEG AVION 1 and INTEG AVION 2 circuit breakers located on the Avionics circuit breaker panel. Both GIAs are required to be operational for the AFCS to operate.
9. The AFCS also utilizes the PFD/MFD mounted altitude preselect knob (ALT), heading select knob (HDG), and course select knob (CRS) associated with the G1000 system.

PFD DISPLAYS

1. A Flight Director command bar is displayed on the artificial horizon when the Flight Director is active.
2. The status of the autopilot, yaw damper, and flight director modes are displayed on the PFD in an AFCS Status Bar which is displayed just above the Attitude Indicator. In general, green indicates an active flight director mode and white indicates an armed mode. When a mode is directly selected by the pilot, no flashing of the mode will occur. When normal automatic mode changes occur, the new mode will flash in green for ten seconds. If a mode becomes unavailable for whatever reason, the mode will flash in yellow for ten seconds and then be replaced by the new active mode in green.

3. An AFCS System Status Field is displayed above and to the left of the attitude indicator and is used to annunciate the status of the preflight self-test, failures of the AFCS, and failures of the electric pitch trim system. Upon initial system power-up and verification of required sensor inputs, the autopilot, flight director, and pitch trim systems undergo a preflight self-test as follows. When the AHRS system is aligned, the red [AFCS] in the system status field extinguishes and is replaced with a white [PFT] indicating that the AFCS Preflight Test is in progress. At the end of a successful self-test, the white [PFT] extinguishes and the autopilot disconnect tone sounds. Successful completion of the preflight test is required for the autopilot, flight director and pitch trim systems to be operational. If the Preflight Test fails, a red [PFT] is displayed in the system status field. If a failure occurs after the preflight test has been successfully passed, a red [AFCS] will be displayed in the field. If a failure of the electric pitch trim system occurs, a red [PTRM] will be displayed in the field.
4. OVERSPEED PROTECTION [MAXSPD] - If the indicated airspeed or the airspeed trend vector reaches approximately 210 KIAS, the flight director will enter the overspeed protection mode and increase the airplane pitch to slow the airplane down. When the overspeed protection is activated, a flashing yellow [MAXSPD] will be displayed at the top of the airspeed display. Once the airspeed has been reduced to approximately 205 KIAS the overspeed protection will be cancelled. If the flight director pitch reference (PIT or VS) has not been corrected, the flight director will resume its original pitch setting and another overspeed will likely occur.

AUTOPILOT DISCONNECTS

Normal autopilot disconnects are annunciated with a yellow flashing [AP] in the AFCS Status Bar accompanied by a two second autopilot disconnect tone. Normal disconnects are those manually initiated by the pilot using the AP DISC switch, the manual trim switch, the AP key or the Go-Around switch. Abnormal (automatic) disconnects will be accompanied by a red flashing [AP] in the AFSC Status Bar and a continuous autopilot disconnect tone. The disconnect tone and red flashing [AP] can normally be cancelled by pressing the AP DISC switch or the left side of the pitch trim switch. A few failures, such as loss of power to the servos or turning the Avionics Switch off, will also render the AP DISC switch inoperative. In such cases the left side of the pitch trim switch will still cancel the disconnect tone and flashing annunciator. The following conditions will cause the autopilot and, in the first six cases, the yaw damp to disengage.

1. AFCS electrical power failure, including pulling the AP SERVOS circuit breaker and turning the Avionics Master switch off.
2. An internal Autopilot System Failure
3. An AHRS malfunction
4. Failure of the Air Data Computer
5. Failure of the PFD
6. Depressing the red AP DISC switch on the pilot's control wheel.
7. Actuating the left side of the electric pitch trim switch on the pilot's control wheel.
8. Pressing the AP Mode control key on the MFD
9. Pressing the GA switch on the throttle.

DESCRIPTION OF AFCS KEYS LOCATED ON THE MFD

The following is a brief description of the Autopilot and Flight Director Mode Control Keys.

AP (Autopilot) - Engages and disengages the autopilot and yaw damper. The flight director will be activated upon engagement but will not be cancelled upon disengagement. When the autopilot is engaged the green [AP], [YD], [ROLL], [PIT] and white [ALT] will illuminate in the AFCS Status Bar.

YD (Yaw Damper) - Engages and disengages the yaw damper. If the autopilot and yaw damper are engaged, turning the YD off will not disengage the autopilot. When the yaw damper is engaged the green [YD] will illuminate in the AFCS Status Bar.

FD (Flight Director) - Engages and disengages the Flight Director if the autopilot is not engaged. When the flight director is engaged the green, [ROLL], [PIT] and white [ALT] will illuminate in the AFCS Status Bar.

HDG (Heading Mode) - Engages and disengages the Heading Mode. The Flight Director will maintain the heading selected with the Heading (HDG) knob. When the Heading mode is selected the green [HDG] will illuminate in the AFCS Status Bar.

NAV (Navigation Mode) - Engages and disengages the Nav Mode. The Navigation mode is used to track the following Nav courses:

1. Enroute VOR or GPS
2. GPS non-precision approaches (Tracking accuracy will be identical to the APR Mode.)
3. LOC only approaches
4. BC approaches

When the Navigation mode is selected, the [VOR], [GPS], [BC], or [LOC] will illuminate in the AFCS Status Bar. The annunciator displayed will depend on the navigation source selected. The color of the annunciator will be white until the selected course is captured, then it will turn green and flash for 10 seconds before becoming steady.

APR (Approach Mode) - Engages and disengages the Approach Mode. The Approach mode is used to track the following types of approaches:

1. ILS approaches [LOC] and [GS]
2. GPS non-precision approaches (Tracking accuracy will be identical to the NAV Mode.) [GPS]
3. VOR non-precision approaches [VAPP]

WAAS:
(Software Version 0857.05 or 0857.06)

4. LPV approach with lateral and vertical guidance [GPS] and [GP]
5. LNAV/VNAV approach with lateral and vertical guidance [GPS] and [GP]

When the Approach mode is selected, the [LOC], [GS], [GPS], [VAPP] or [GP] will illuminate in the AFCS Status Bar. The color of the annunciator will be white until the selected course or glideslope is captured, then it will turn green and flash for 10 seconds before becoming steady.

ALT (Altitude Hold Mode) - Engages and disengages the Altitude Hold Mode. The Altitude Hold mode is used to maintain a selected altitude. Once engaged, the altitude will be maintained regardless of changes in the Altitude Selector (using the ALT knob), or changes in the Baro setting. When the Altitude Hold mode is selected the green [ALT] and the current altitude [XXXXX$_{FT}$] are displayed in the AFCS Status Bar.

VNV (Vertical Navigation Mode) (If Installed) - Selects or deselects the Vertical Navigation mode. The Vertical Navigation mode is used for vertical guidance during the enroute and terminal phase of flight. When VNV is selected, vertical path tracking is armed in preparation for descent capture. White [VPTH] is annunciated in addition to previously armed modes. Within five minutes prior to descent path interception, the selected altitude must be set below the current airplane altitude. One minute prior to the top-of-descent (TOD), the message “TOD within 1 minute” displays in the PFD Navigation Status Box accompanied by the “Vertical Track” voice message. VNV indications (target altitude, vertical deviation speed required) appear on the PFD in magenta. When the vertical profile is captured, green [VPTH] becomes active and white [ALTS] or [ALTV] is armed as appropriate.

VS (Vertical Speed Mode) - Engages and disengages the Vertical Speed Mode. The Vertical Speed mode is used to maintain a desired vertical speed. The vertical speed existing at the time of activation is maintained until adjusted. The vertical speed may be adjusted using:

1. The CWS button
2. The NOSE UP and NOSE DN keys (Each press of the NOSE UP key increases the selected vertical speed by 100 fpm. Each press of the NOSE DN key decreases the vertical speed by 100 fpm.)

When the Vertical Speed mode is selected, the green [VS] and the current vertical speed [XXXX$_{FPM}$] are displayed in the

AFCS Status Bar. In addition, the selected [VS] is displayed in a box above (for a climb) or below (for a descent) the vertical speed display and a reference bug is displayed on the left side of the Vertical Speed Display.

FLC (Flight Level Change Mode) - Engages and disengages the Flight Level Change mode. The Flight Level Change mode is used to change altitude in conjunction with a desired airspeed. The airspeed existing at the time of activation is maintained until adjusted. The airspeed may be adjusted using:

1. The CWS button
2. The NOSE UP and NOSE DN keys (Each press of the NOSE UP key decreases the selected airspeed by 1 knot. Each press of the NOSE DN key increases the airspeed by 1 knot.)

When the Flight Level Change mode is selected, the green [FLC] and the current airspeed [XXX_{KT}] are displayed in the AFCS Status Bar. In addition, the selected airspeed is displayed in a box above the airspeed indicator and a reference bug is displayed on the right side of the airspeed Display.

NOSE UP / NOSE DN Keys - Used to adjust the pitch in the pitch mode [PIT], the VS in he vertical speed mode [VS], and the airspeed in the Flight Level Change mode [FLC]. Each press of a key results in the following changes:

1. Pitch attitude - 0.5° pitch change
2. Vertical Speed - 100 fpm change
3. Flight Level Change - 1 knot change

OTHER CONTROLS ASSOCIATED WITH THE AFCS

GO-AROUND - A Go-Around switch is located on the left side of the throttle. Pressing the switch initiates the following actions:

1. Engages the Flight Director in a wings-level, 7° nose up pitch attitude.

2. Disengages the autopilot.
3. Cancels all armed modes including Altitude Hold.
4. Cycles the flight plan to Missed Approach (software version 0857.05 or 0857.06).

The autopilot may be re-engaged after GO AROUND is selected.

The GO AROUND Mode can be cancelled using one of the following methods:

1. Select another roll mode such as HDG or NAV.
2. Adjust the pitch attitude using the CWS.
3. Adjust the pitch using the NOSE UP / NOSE DN keys.

CONTROL WHEEL STEERING (CWS) - Pressing the CWS switch on the pilot's control wheel disengages the control surface servos without disengaging the autopilot as long as the switch is depressed. The servos are re-engaged when the switch is released and the system will synchronize to the existing airspeed, vertical speed, pitch angle or roll angle depending upon the mode selected. If the autopilot and flight director have not previously been engaged, pressing the CWS button will activate the flight director in the pitch and roll hold modes. When the CWS mode is active, a white [CWS] replaces the green [AP] in the AFCS status bar.

MANUAL ELECTRIC PITCH TRIM - When the autopilot is not engaged, the electric pitch trim system may be operated with the split trim switch located on the left side of the pilot's control wheel. The switches must be moved together in order to activate the trim system. If either side is independently activated for more than 3 seconds, a red [PTRM] is displayed in the AFCS System Status Field. The annunciator will extinguish shortly after the switch is released. The red [PTRM] will also illuminate when a failure of the pitch trim system occurs. If the autopilot is engaged when this occurs, it will remain engaged. See ELECTRIC PITCH TRIM FAILURE in Section 3.

Refer to Section 2, LIMITATIONS, Section 3, EMERGENCY PROCEDURES, Section 3A, ABNORMAL PROCEDURES, and Section 4, NORMAL PROCEDURES, and the GARMIN Cockpit Reference Guide, Garmin P/N 190-00526-00 and 190-00526-01 or later revision, for additional information on the AFCS.

STANDBY INSTRUMENTS

MID-CONTINENT INSTRUMENT 4300-205 ELECTRIC STANDBY ATTITUDE INDICATOR

The standby attitude indicator is located on the right side of the instrument panel and is normally powered by the Right Bus through a 3-amp circuit breaker, placarded STBY HORIZ, located on the pilot's circuit breaker panel. If power is completely lost from the Right Bus, power is supplied from a standby power source, an integral standby battery, for approximately one hour*. If power from the Right Bus gradually decreases, power is supplied from the standby battery when Right Bus voltage reaches 10 volts. The standby attitude indicator is usable through 360° of pitch and roll.

The standby attitude indicator includes the following items.

1. A mechanical red gyro warning flag, which is displayed when the gyro motor is not receiving sufficient power to operate.
2. A Pull-To-Cage Knob. This knob will not lock the gyro. After allowing the gyro to spin up for approximately one minute, pulling the knob out will erect the gyro.
3. An amber standby power LED that illuminates in one of several ways to indicate that the attitude indicator is operating from its standby battery.
4. A STBY PWR Button. This is essentially an ON-OFF switch for the indicator but functions in several different ways.
   a. If the indicator has not previously been powered by the Right Bus, pressing the button once will power the indicator using its standby battery. The only indication

that the indicator is operating from the standby battery is the absence of the warning flag. Pressing the button again will turn the standby power off, causing the warning flag to be displayed.

b. If the indicator is being powered by the Right Bus and subsequently loses power from that bus, the amber standby power LED will flash for one minute. If the button is pressed once during that one minute, the flashing standby power LED will be cancelled and the standby battery is latched on, providing power for approximately one hour.

c. The button may be used to activate the battery test mode while power is being supplied by Bus 1. See the procedure below.

5. A red and green Test LED used to check the standby battery status.
6. A standby power source, in the form of a sealed lead acid battery, attached to the back of the indicator. The battery will power the indicator for a minimum of one hour*, if fully charged, when power is lost from Bus 1 and the pilot subsequently latches it on by pressing the STBY PWR button. This battery must be removed and checked once a year and replaced every 3 years.
7. Emergency LED lighting provided when the indicator is operating from standby battery. This lighting is not adjustable.

* Actual operation time of the standby battery may vary considerably depending on temperature, charge status, and battery condition. Temperatures below 32°F will temporarily degrade battery capacity. Internal chemistry will slowly degrade battery capacity over several years of operation even when correctly maintained. A poorly maintained battery will suffer accelerated degradation. Extended storage in a discharges state and overcharging will permanently damage a battery. Complete charging is required to bring the battery up to full capacity if it has been unused for more than four months or partially discharged.

STANDBY AIRSPEED INDICATOR

A standby mechanical airspeed indicator is mounted on the right side of the instrument panel. The indicator is connected to the airplane's pitot and static systems along with the Air Data Computer. The airspeed indicator remains operational in the event of complete electrical failure and will also operate with the alternate static source. Lighting is provided by the Right Bus and is controlled by the STANDBY INST rheostat located on the right subpanel.

STANDBY ALTIMETER

A standby mechanical altimeter is located on the right side of the instrument panel. It is connected to the airplane's normal and alternate static systems along with the ADC and is independent of the airplane's electrical system except for lighting. Lighting is provided by the Right Bus and is controlled by the STANDBY INST rheostat located on the right subpanel.

STANDBY COMPASS (MAGNETIC COMPASS)

The standby compass is a self contained non-stabilized compass that will provide magnetic heading should the electric heading reference fail from the Attitude and Heading Reference System (AHRS) or become unavailable from a loss of electric power. A compass correction card mounted below the compass provides “steer to” heading for each thirty degrees of heading. The magnetic compass is compensated and correction values are determined with all avionics equipment operating and the engines running. The Magnetic compass is erratic when the heated windshield is in operation. The compass has a light powered by the Right Bus through the CLOCK circuit breaker. The light is turned on and off by a switch on the right side of the pilot‘s control wheel labeled MAP OAT COMP.

SKYWATCH 497 TRAFFIC ADVISORY SYSTEM (if installed)

The L-3 Communications SKYWATCH system consists of a remote mounted processor and a top mounted directional antenna. It monitors the airspace around the airplane and indicates where to look for nearby transponder-equipped airplanes. After receiving replies to its Mode C interrogations, the SKYWATCH system computes the responding airplane's range, bearing, relative altitude and closure rate -- predicting potential traffic conflicts within an 11 nautical mile range. Aural traffic alerts are annunciated through the airplane audio system and visual targets are displayed on the MFD. It tracks up to 30 intruder airplane simultaneously and displays eight of the most threatening.

The system is on anytime the Avionics Master Switch is on and the TRAFFIC ADVISORY circuit breaker is in. The system can be placed in the STANDBY or OPERATE mode from the MFD. Selection of monitored airspace ABOVE/BELOW/NORMAL/ UNRESTRICTED is also performed from the MFD.

For additional details refer to the L-3 Communications Pilot's Guide for the SKYWATCH Traffic Advisory System Model SKY497 P/N 009-10801-001.

GARMIN TERRAIN AWARENESS AND WARNING SYSTEM (TAWS)

(TH-2138, TH-2141 and after and prior airplanes in compliance with Service Bulletin 34-3774.)

The Garmin TAWS is a Class B system as defined by TSO-C151b and provides the following functions.

1. Forward Looking Terrain Avoidance (FLTA) alerts which include:
    a. Reduced Required Terrain (RTC) and Obstacle (ROC) clearance cautions and warnings
    b. Imminent Terrain (ITI) and Obstacle (IOI) Impact cautions and warnings
2. Premature Descent Alerts (PDA)
3. The following basic Ground Proximity Warning System (GPWS) functions:
    a. Excessive Descent Rate (EDR) Alert
    b. Negative Climb Rate (NCR) After Takeoff Alert
    c. “Five-Hundred” Aural Alert

The TAWS functions (FLTA and PDA) may be inhibited by selecting the TAWS page of the MAP Group, pressing the MENU key, then selecting “Inhibit TAWS”. The GPWS functions listed in item 3 above cannot be inhibited.

SYSTEM ANNUNCIATORS

The following system status annunciators are displayed to the left of the Altitude Preselect window on the PFD, when appropriate.

ANNUNCIATOR	COLOR	DESCRIPTION
TAWS FAIL	Red	The TAWS system has experienced a failure such as a missing or failed data base.
TAWS INHIB	White	The TAWS system has been inhibited.
TAWS N/A	White	The TAWS system is not available, such as flying outside the area of coverage or loss of GPS signal.
TAWS TEST	White	The TAWS is in the test mode.

MINIMUM TERRAIN AND OBSTACLE CLEARANCE REQUIREMENTS

The airplane's flight path must remain outside of the Minimum Terrain and Obstacle Clearance requirements in order to prevent a TAWS caution or warning alert. These clearance requirements will vary depending on the distance from the destination airport or runway, plus other factors such as altitude, and will decrease as the airplane nears the destination. The reduction in the clearance requirements allows for the normal loss of altitude that occurs as the airplane arrives at the destination. This prevents nuisance cautions and warnings that may otherwise be received. All alerts are automatically inhibited when the airplane is below 200 feet AGL and within 0.5 nm of the runway, or is below 125 feet AGL and within 1 nm of the runway. The following table shows how the minimum terrain/ obstacle clearance requirements change as the airplane approaches or departs the destination airport.

DISTANCE FROM DESTINATION	MINIMUM CLEARANCE REQUIREMENTS	
	LEVEL FLIGHT	DESCENDING
>15 nm	700 ft	500 ft
> 5 to 15 nm	350 ft	300 ft
5 nm or less	150 ft	100 ft
On departure	100 ft	100 ft

If the airplane is landing at an airport that is not contained in the G1000 airport data base, the minimum Clearance requirements in the above table will be valid; however, nuisance alerts may be received.

RTC AND ROC CAUTIONS AND WARNINGS

If the airplane flight path is above the surrounding terrain and/or obstacles, but is projected by the TAWS to violate minimum clearance requirements within 60 seconds, voice caution alerts and annunciators will be provided as shown in the table below.

REASON	PFD & MFD TAWS PAGE* ANNUNCIATOR (YELLOW)	MFD MAP PAGE POP-UP ANNUNCIATOR (YELLOW)	VOICE CAUTION ALERT
Violation of Required Terrain Clearance (RTC) Requirements	TERRAIN	CAUTION - TERRAIN	"Caution Terrain, Caution Terrain"
Violation of Required Obstacle Clearance (ROC) Requirements	TERRAIN	CAUTION - OBSTACLE	"Caution Obstacle, Caution Obstacle"

* In addition, potential impact point(s) are depicted by yellow Xs on the TAWS page.

If the RTC and ROC cautions are not cancelled by taking corrective action, the TAWS will provide voice warning alerts and annunciators as shown in the following table when it predicts that the airplane flight path will violate the minimum clearance requirements within 30 seconds.

REASON	PFD & MFD TAWS PAGE* ANNUNCIATOR (RED)	MFD POP-UP ANNUNCIATOR (RED)	VOICE CAUTION ALERT
Violation of Required Terrain Clearance (RTC) Requirements	PULL UP	TERRAIN - PULL UP	“Terrain Ahead Terrain Ahead”
Violation of Required Obstacle Clearance (ROC) Requirements	PULL UP	OBSTACLE - PULL UP	“Obstacle Ahead, Obstacle Ahead”

* In addition, potential impact point(s) are depicted by red Xs on the TAWS page.

ITI AND IOI CAUTIONS AND WARNINGS

If the airplane flight path is below the surrounding terrain and/or obstacles, and is projected by the TAWS system to impact the terrain or obstacle within 60 seconds, voice caution alerts and annunciators will be provided as shown in the table below.

REASON	PFD & MFD TAWS PAGE* ANNUNCIATOR (YELLOW)	MFD POP-UP ANNUNCIATOR (YELLOW)	VOICE CAUTION ALERT
Imminent Terrain Impact (ITI)	TERRAIN	TERRAIN AHEAD	“Terrain Ahead Terrain Ahead”
Imminent Obstacle Impact (IOI)	TERRAIN	OBSTACLE AHEAD	“Obstacle Ahead, Obstacle Ahead”

* In addition, potential impact point(s) are depicted by yellow Xs on the TAWS page.

If the ITI and IOI cautions are not cancelled by taking corrective action, the TAWS will provide voice warning alerts and annunciators shown in the following table when it predicts that the airplane flight path will impact the terrain or obstacle within 30 seconds.

REASON	PFD & MFD TAWS PAGE* ANNUNCIATOR (RED)	MFD POP-UP ANNUNCIATOR (RED)	VOICE CAUTION ALERT
Imminent Terrain Impact (ITI)	PULL UP	TERRAIN - PULL UP	“Terrain Ahead, Pull Up; Terrain Ahead, Pull Up”
Imminent Obstacle Impact (IOI)	PULL UP	OBSTACLE - PULL UP	“Obstacle Ahead, Pull Up; Obstacle Ahead, Pull Up”

* In addition, potential impact point(s) are depicted by red Xs on the TAWS page.

PDA (PREMATURE DESCENT ALERT) [TOO LOW, TERRAIN]

A voice caution alert and annunciators are provided if the airplane is too low for the type of approach being flown. Annunciators are provided on the PFD and the MFD TAWS page, and on the MFD Map page as a pop-up alert if the TAWS page is not selected. The alert boundaries and the cause for the alert are shown in the following table.

TYPE OF APPROACH	ALERT BOUNDARY		CAUSE FOR THE ALERT
	BEGINNING	END	
Visual Approach (No approach Loaded)	Airplane is 15 nm from the destination airport.	0.5 nm from the runway threshold OR when within 1 nm and at 125’ AGL or below	Airplane descends below established threshold.
Non-Precision Approach	FAF is active and Airplane is 15 nm from the destination airport.	0.5 nm from the runway threshold OR when within 1 nm and at 125’ AGL or below	Airplane descends below established threshold.
ILS Approach	FAF is active and Airplane is 15 nm from the destination airport.	0.5 nm from the runway threshold OR when within 1 nm and at 125’ AGL or below	Airplane descends 0.7° or more below the glideslope.

A PDA voice caution alert and annunciators will be provided as shown in the table below.

PFD & MFD TAWS PAGE ANNUNCIATOR (YELLOW)	MFD POP-UP ANNUNCIATOR (YELLOW)	VOICE ALERT
TERRAIN	TOO LOW - TERRAIN	“Too Low Terrain”

EXCESSIVE DESCENT RATE (EDR) ALERT

The EDR alert is active when the airplane is 5,000 feet or less above the terrain. If the rate-of-descent of the airplane exceeds a predetermined value for the existing altitude, a voice caution alert and annunciators will be provided as shown in the table below.

PFD & MFD TAWS PAGE ANNUNCIATOR (YELLOW)	MFD POP-UP ANNUNCIATOR (YELLOW)	VOICE ALERT
TERRAIN	SINK RATE	“Sink Rate”

If corrective action is not taken to correct the excessive descent rate, or the descent rate increases, the system will provide a voice warning alert and annunciators as shown in the table below.

PFD & MFD TAWS PAGE ANNUNCIATOR (RED)	MFD POP-UP ANNUNCIATOR (RED)	VOICE ALERT
PULL UP	PULL-UP	“Pull Up”

NEGATIVE CLIMB RATE (NCR) AFTER TAKEOFF ALERT

The NCR alert is active only during the takeoff phase of flight and is designed to alert the pilot that the airplane is loosing altitude. If the system detects an altitude loss in excess of the predetermined allowable limits, the following voice alert and annunciators are provided. The alert and annunciators are functional regardless of gear position.

PFD & MFD TAWS PAGE ANNUNCIATOR (YELLOW)	MFD POP-UP ANNUNCIATOR (YELLOW)	VOICE ALERT
TERRAIN	DON'T SINK	"Don't Sink"

The NCR alert feature is cancelled when one or more of the following conditions are met:

1. The height above the terrain exceeds 700 feet.
2. The distance from the departure airport exceeds 2 nm.
3. The heading is 110° or more from the takeoff heading.

"FIVE-HUNDRED" VOICE ALERT

This alert is provided during a descent when the airplane reaches 500 feet above the terrain. There are no associated annunciators. The alert is enabled during the climb when the airplane's altitude exceeds 675 feet AGL and is disabled after the alert is provided at 500 feet AGL during a descent.

GEOMETRIC ALTITUDE DISPLAY

This is the airplanes altitude above Mean Sea Level and is calculated by the TAWS-B system using GPS altitude obtained from the Garmin GPS system. It is displayed in the upper right corner of the MFD and labeled GPS ALT. The displayed geometric altitude will often differ from the altitude displayed on the airplane altimeter. Although small differences between the displayed geometric altitude value and the indicated value on the pilot's altimeter are normal (e.g. ± 100 feet), large differences are not. Since this is a calculated value, which may differ from the indicated value on the altimeter, and the national airspace structure is based on barometric altitude, it is not permitted to be used for navigation. See Section 2, LIMITATIONS. If a significant difference is noted between the altitude displayed on the PFD and the standby altimeter, the geometric altitude may be useful as a third altitude source to resolve the discrepancy.

See the Garmin G1000 Pilot's Guide for the Beechcraft 58/G58 for additional information.

STORMSCOPE (if installed)

The BF Goodrich WX-500 system consists of a remote mounted processor and externally mounted antenna. This system passively detects electrical discharges associated with thunderstorm activity within 200 nm of the airplane. It is powered by the Right Bus through the Avionics Master rely and is protected by a 3-amp circuit breaker, placarded STORM SCOPE, located on the Avionics Circuit Breaker Panel. The WX-500 stormscope displays lightning information directly on the MFD, either on a dedicated page or overlaid on the moving map. The WX-500 stormscope operates in the Strike and Cell mode and is controlled through the MFD panel.

Momentary forward activation of the AUD/STRM switch, located on the pilot’s control wheel, will clear lightning strike and cell data from the MFD.

For details on operation refer to BF Goodrich WX-500 Operator’s Manual, P/N 009-11501-001.

DISTANCE MEASURING EQUIPMENT (if installed)

The Honeywell Bendix/King Distance Measuring Equipment (DME) system consists of a remote mounted KN 63 transmitter/receiver and a bottom mounted antenna. Channel selection is coupled to the selected NAV frequency. Selection of NAV1, NAV2 or HOLD is made by accessing the tuning window with the DME softkey on the PFD. DME information is displayed in the DME information window to the lower left of the HSI display. The DME information window can be selected on or off by pressing the PFD softkey on the PFD followed by the DME softkey. Audio identification of the station is made by selection of DME audio using the switch located on the master audio panel. The DME is powered by Bus 1 through the Avionics Master relay and is protected by a 3-amp circuit breaker located on the avionics circuit breaker panel.

EMERGENCY LOCATOR TRANSMITTER

The Emergency Locator Transmitter (ELT) System is designed to meet the requirements of TSO-C91a and/or TSO-C126. The system consists of the ELT transmitter, located in the aft fuselage area, an antenna mounted on the aft fuselage, and a remote switch with a red transmit light, usually located on the right side of the instrument panel. Neither the remote switch, nor the switch on the ELT transmitter, can be positioned to prevent the automatic activation of the ELT transmitter. The system is independent from other airplane systems except for the transmit light which is hot-wired to the airplane battery.

The ELT will automatically activate during a crash. This activation is independent of the remote switch setting or availability of airplane power. The remote switch is installed to perform the following functions:

- Test the ELT
- Deactivate the ELT if it has been inadvertently activated by the “G” switch.
- Activate the ELT in an in-flight emergency if an off-airport landing is anticipated.
- Activate the ELT after an off-airport landing, if the impact did not automatically activate it.

ELT testing consists of turning the unit on and then resetting it using the following procedures.

- Tests should be conducted between the times of on-the-hour until 5 minutes after the hour.
- Notify any nearby control towers.
- Provide power to an airplane radio and tune it to 121.5 Mhz.
- Place the ELT remote switch to ON. Wait for at least 3 sweeping tones on the airplane radio, which will take about 1 second, then return the switch to ARM.
- The test is successful if the sweeping tones are heard and the transmit light next to the switch blinks immediately. If there is a delay in the illumination of the transmit light, the system is not working properly.

If the ELT should be inadvertently activated by the “G” switch, the transmit light next to the switch will blink. The ELT can be deactivated by momentarily placing the remote switch ON and then back to ARM.

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HANDLING, SERV & MAINT

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SUBJECT *PAGE*

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INTRODUCTION TO SERVICING

The purpose of this section is to outline the requirements for maintaining the Model G58 in a condition equal to that of its original manufacture. This information sets the time intervals at which the airplane should be taken to a Hawker Beechcraft Corporation authorized outlet for periodic servicing or preventive maintenance.

The Title 14 Code of Federal Regulations place the responsibility for the maintenance of this airplane on the owner and operator, who must ensure that all maintenance is done by qualified mechanics in conformity with all airworthiness requirements established for this airplane.

All limits, procedures, safety practices, time limits, servicing and maintenance requirements contained in this handbook are considered mandatory.

Authorized Hawker Beechcraft Corporation outlets can provide recommended modification, service, and operating procedures issued by both FAA and Hawker Beechcraft Corporation, which are designed to get maximum utility and safety from the airplane.

If a question arises concerning the care of the Model G58, it is important that the airplane serial number be included in any correspondence. The serial number appears on the manufacturer's identification plate attached on the right just beneath the horizontal stabilizer.

PUBLICATIONS

The following publications for the Model G58 are available through Hawker Beechcraft Corporation authorized outlets.

1. Pilot's Operating Handbook and FAA Approved Airplane Flight Manual
2. Shop Manual
3. Parts Catalog
4. Service Bulletins
5. Various Inspection Forms
6. Electrical Wiring Diagram Manual
7. Avionics Wiring Diagram Manuals

The following information will be provided, at no charge, to the registered owner and/or operator of this airplane:

1. Reissues and revisions of the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual.
2. Original issues and revisions of FAA Approved Airplane Flight Manual Supplements.
3. Original issues and revisions of Hawker Beechcraft Corporation Service Bulletins.

The above publications will be provided only to the owner and/or operator at the address listed on the FAA Aircraft Registration Branch List or the Hawker Beechcraft Corporation Domestic/International Owner's Notification Service List. Further, the owner and/or operator will receive only those publications pertaining to the registered airplane serial number. For detailed information on how to obtain "Revision Service" applicable to this handbook or other Hawker Beechcraft Corporation Service Publications, consult any Hawker Beechcraft Corporation Authorized Outlet or refer to the latest revision of Hawker Beechcraft Corporation Service Bulletin No. 2001.

AIRPLANE INSPECTION PERIODS

1. FAA Required Annual Inspection.
2. FAA Required 100-Hour Inspection (for airplanes operated for hire).
3. Hawker Beechcraft Corporation Recommended Inspection Guide.
4. Continuing Care Inspection Guide.
5. See "Recommended Servicing Schedule" and "Overhaul or Replacement Schedule" in this section for further inspection schedules.

NOTE

In event of any gear or flap extension at speeds above the respective normal extension speeds, inspect gear retract rods, gear doors and flaps, for damage or distortion before the next flight.

PREVENTATIVE MAINTENANCE THAT MAY BE ACCOMPLISHED BY A CERTIFICATED PILOT

1. A certificated pilot may perform limited maintenance. Refer to 14 CFR Part 43 for the items which may be accomplished.

NOTE

To ensure proper procedures are followed, obtain a Beech Baron Shop Manual before performing preventative maintenance.

2. All other maintenance must be performed by licensed personnel.

NOTE

Pilots operating airplanes of other than U.S. Registry should refer to the regulations of the registering authority for information concerning preventative maintenance that may be performed by pilots.

ALTERATIONS OR REPAIRS TO THE AIRPLANE

The FAA should be contacted prior to any alterations on the airplane to ensure that the airworthiness of the airplane is not violated.

NOTE

Alterations and repairs to the airplane must be made by properly licensed personnel.

WARNING

Use only genuine Hawker Beechcraft Corporation or Hawker Beechcraft Corporation approved parts obtained from Hawker Beechcraft Corporation approved sources, in connection with the maintenance and repair of Beechcraft airplanes.

Genuine Hawker Beechcraft Corporation parts are produced and inspected under rigorous procedures to ensure airworthiness and suitability for use in Beechcraft airplane applications. Parts purchased from sources other than Hawker Beechcraft Corporation, even though outwardly identical in appearance, may not have had the required tests and inspections performed, may be different in fabrication techniques and materials, and may be dangerous when installed in an airplane.

Salvaged airplane parts, reworked parts obtained from non-Hawker Beechcraft Corporation approved sources, or parts, components, or structural assemblies, the service history of which is unknown or cannot be authenticated, may have been subjected to unacceptable stresses or temperatures or have other hidden damage, not discernible through routine visual or usual nondestructive testing techniques. This may render the part, component or structural assembly, even though originally manufactured by Hawker Beechcraft Corporation, unsuitable and unsafe for airplane use.

Hawker Beechcraft Corporation expressly disclaims any responsibility for malfunctions, failures, damage or injury caused by use of non-Hawker Beechcraft Corporation approved parts.

GROUND HANDLING

The three-view drawing in Section 1, GENERAL, shows the minimum hangar clearances for a standard airplane. Allowances must be made for any special radio antennas.

CAUTION

To ensure adequate propeller clearance, always observe recommended shock strut servicing procedures and tire inflation pressures.

TOWING

One person can move the airplane on a smooth and level surface using the hand tow bar furnished with the loose tools and equipment. Attach the tow bar to the tow pin on the nose gear lower torque knee. It is recommended to have someone in the airplane to operate the brakes.

CAUTION

Do not exert force on the propellers, control surfaces, or horizontal stabilizer. When towing with a tug, limit turns to prevent damage to the nose gear. Do not attempt to tow airplane backward by the tail tiedown ring. Do not tow when the main gear is obstructed by mud or snow. Also ensure the rudder lock is removed.

Care should be used when removing the tow bar to prevent damage to the lubrication fittings on the landing gear.

PARKING

The parking brake control is located just left of the elevator tab wheel on the pilot's subpanel. To set the parking brakes, pull control out and depress each toe pedal until firm. Push the control in to release the brakes.

CAUTION

Excessive pedal pressure may prevent releasing of the parking brake.

The parking brake should be left off and wheel chocks installed if the airplane is to remain unattended. Changes in ambient temperature can cause the parking brake to release or to exert excessive pressures.

TIE-DOWN

It is advisable to nose the airplane into the wind. Three tie-down lugs are provided; one on the lower side of each wing and a third at the rear of the fuselage.

1. Install the control locks.
2. Chock the main wheels, fore and aft.
3. Using nylon line or chain of sufficient strength, secure the airplane at the three points provided. DO NOT OVERTIGHTEN; if the line at the rear of the fuselage is excessively tight, the nose may rise and produce lift due to the angle of attack of the wings.
4. Release the parking brake.

If high winds are anticipated, a vertical tail post should be installed at the rear tie-down lug, and a tie-down line attached to the nose gear.

MAIN WHEEL JACKING

Individual main wheels may be jacked by placing a floor jack under the jacking point located under each axle.

CAUTION

Prior to jacking the airplane, ensure that an unbalanced fuel condition does not exist. Fuel should be distributed evenly in both wings to prevent an unbalanced condition which could cause the airplane to be unstable while on jacks.

1. Check the shock strut for proper inflation to prevent damage to the landing gear door by the jack adapter and to facilitate installation of the adapter.

NOTE

Persons should not be in or on the airplane while it is on a main wheel jack.

2. Insert the main wheel jack adapter into the main wheel axle.
3. A scissors-type jack is recommended for raising and lowering the wheel.
4. When lowering the wheel, exercise care to prevent compression of the shock strut, which would force the landing gear door against the jack adapter.

PROLONGED OUT OF SERVICE CARE

STORAGE

The storage procedures listed are intended to protect the airplane from deterioration while it is not in use. The primary objectives of these measures are to prevent corrosion and damage from exposure to the elements.

Flyable Storage (7 to 30 days) has been considered here. For more extended storage periods, consult the Beech Baron Shop Manual and Continental Service Bulletin M81-3 or later issue.

FLYABLE STORAGE (7 TO 30 DAYS)

MOORING

Place the airplane in a hangar. If the airplane cannot be placed in a hangar, tie down securely at the three tie-down points provided on the airplane. Do not use hemp or manila rope. It is recommended a tail support be used to lightly compress the nose strut and reduce the angle of attack of the wings.

ENGINE PREPARATION FOR STORAGE

Engines in airplanes that are flown only occasionally tend to exhibit cylinder wall corrosion much more than engines that are flown frequently.

Run engines at least five minutes at 1200 to 1500 rpm with oil and cylinder head temperatures in the normal operating range.

Check for correct oil level and add oil if necessary to bring level to full mark.

DURING FLYABLE STORAGE

WARNING

> Before rotation of propeller blades, ascertain magneto/start switches are OFF, throttles are in the CLOSED position, and mixture controls are in the CUT OFF position. Always stand in the clear while turning the propellers.

Each seven days during flyable storage, the propellers should be rotated by hand. After rotating the engine six revolutions, stop the propeller 60° to 120° from the position they were in.

If at the end of 30 days, the airplane has not been removed from storage, the engines should be started and run. The preferred method is to fly the airplane for 30 minutes, and up to, but not exceeding normal oil and cylinder head temperatures.

FUEL CELLS

Fill to capacity to minimize fuel vapor and protect cell inner liners.

FLIGHT CONTROL SURFACES

Lock with internal locks.

GROUNDING

Static ground airplane securely and effectively.

PITOT TUBE

Install cover.

WINDSHIELD AND WINDOWS

Close all windows and window vents. It is recommended that covers be installed over windshield and windows.

PREPARATION FOR SERVICE

Remove all covers and tape, clean the airplane and give it a thorough inspection, particularly landing gear, wheel wells, flaps, control surfaces, and all openings.

Preflight the airplane.

EXTERNAL POWER

An external power receptacle is located on the outboard side of the left nacelle and accepts a standard AN-type plug. The airplane has a negative ground system. Exercise care when utilizing any external power source to avoid reversed polarity. An external power unit (APU) should be capable of delivering at least 300 amperes for starting. Serviceable batteries must be installed in the airplane. Starting with external power when the battery is dead is not recommended. The battery manufacturer warns against this, also, the battery will not recharge sufficiently for use if an emergency arises.

Before connecting any external power source, turn the Battery switch ON, and all Avionic/Electrical switches OFF to avoid damage due to electrical surges. If the external power source does not have a standard AN-type plug, check for polarity (negative ground) and connect the positive lead from the external power source to the center and aft external power receptacle posts. Connect the negative lead to the most forward external power receptacle post.

NOTE

If polarity is reversed, a diode in the coil circuit will prevent contactor operation.

CHECKING ELECTRICAL EQUIPMENT

Connect an auxiliary power unit as outlined above. Ensure that the current is stabilized prior to making any electrical or avionic equipment check.

CAUTION

If the auxiliary power unit has poor voltage regulation or produces voltage transients, the airplane electrical equipment connected to the unit may be damaged.

SERVICING

FUEL SYSTEM

FUEL CELLS

See the *Baron Maintenance Manual* for recommended fuel grades.

The standard 200 gallon capacity fuel system has a fuel filler cap in each wing box section and each wet wing tip and in each outboard wing leading edge. The optional 172 gallon capacity system has a filler cap in each outboard wing leading edge. Refer to Section 2, LIMITATIONS for the usable fuel in each system.

NOTE

To obtain the maximum capacity of the fuel system when the wet wing tips are installed, fill the fuel system from the wet wing tip tank filler caps.

CAUTION

Caution must be taken when the wet wing tip tanks are filled with fuel. DO NOT open the outboard wing leading edge filler cap, as fuel will exit from that opening. If this occurs, wash the fuel from the wing surface to prevent possible paint damage.

Ground the airplane with a static line before refueling and secure the filler caps immediately after filling. Before letting the airplane stand for several days, it is a good practice to fill the wing fuel system to ensure that the cell inner liners do not dry out and crack, allowing fuel to diffuse through the cell walls. Also, less moisture condensation will occur when fuel cells are full. If the cells are to be drained before storage, a coating of light engine oil should be sprayed or flushed onto the inner liners of the cells as a preservative.

NOTE

The 200 gallon fuel system should be filled from the wing leading edge filler cap when airplane must stand for several days. Check and fill to capacity at wet wing tip filler cap before flight if required for the mission.

The fuel fillers are equipped with spring-loaded anti-syphon valves which may restrict large fuel nozzles. Push the valve plate down carefully to fully insert filler nozzle.

FUEL DRAINS

Open each of the snap-type fuel drains daily to purge any water from the system. The two sump drains extend through the bottom of each wing. The fuel strainer in each wheel well is provided with a drain extending through the wheel well skin. Two additional flush-type fuel drains are located at the midpoint, inboard lower surface of the wet wing tip fuel system (if installed). These tank drains should be purged daily with the drain wrench provided in the loose tools and accessories.

FUEL STRAINERS

To preclude the possibility of contaminated fuel, always cap any disconnected fuel lines or fittings. The fuel strainer in each wheel well should be inspected and cleaned with solvent at regular intervals. The frequency of inspection and cleaning will depend upon service conditions, fuel handling cleanliness, and local sand and dust conditions. At each 100-hour inspection, the strainer plug should be removed from the fuel injection control valve and the fuel injection control valve screen washed in fresh cleaning solvent. After the strainer plug has been reinstalled and safetied, the installation should be checked for leakage. A leading edge sump strainer, accessible through an access door on the bottom of the wing, should be cleaned periodically.

OIL SYSTEM

The engines are equipped with a wet sump, pressure type oil system. Each engine sump has a capacity of 12 quarts. The oil system may be serviced through access doors in the engine cowling. A calibrated dipstick attached to the filler cap indicates the oil level. Due to the canted position of the engines, the dipsticks are calibrated for either right or left engines and are not interchangeable.

The oil and oil filter should be changed every 100 hours under normal operating conditions. The oil drain is accessible through the cowl flap opening. The engines should be warmed to operating temperature to assure complete draining of the oil.

The engine manufacture specifies Ashless Dispersant Oils only. However, for the first 20 hours, MIL-C-6529, Type II Multi viscosity 20W-50 Corrosion-Preventive Oil is used. It is recommended that this oil be removed and the oil filter changed at 20 hours of engine operation (not to exceed 25 hours). If oil consumption has not stabilized at this point, MIL-L-6082 Mineral Oil may be used.

After the break-in period, when oil consumption has stabilized, MIL-L-22851 Ashless Dispersant Oil should be used. Oils must meet the latest revision of Teledyne Continental Motors Corporation Specification MHS-24B or current applicable Teledyne Continental Service Bulletin. Refer to APPROVED ENGINE OILS in this section for a list of approved oils.

CAUTION

Do not exceed 25 hours of operation with factory break-in oil (MIL-C-6529, Type II, Multi viscosity, 20W-50 Corrosion-preventative). When changing to MIL-L-22851 Ashless Dispersant oil, change the oil and oil filter as previously described.

Failure to remove the corrosion-preventative oil and replace the oil filter within the time interval specified may cause varnish deposits to form on the pistons and cylinder walls and deteriorate the filter element.

Ambient Air Temperature	Single Viscosity Grade Oil	Multiviscosity Grade Oil
Below 5°C	SAE 30 (Max.)	15W-50,20W-50
Above 5°C	SAE 50 (Min.)	15W-50,20W-50, 25W-60

SVC0425

When operating temperatures overlap indicated ranges, use the lighter grade of oil.

BATTERIES

The batteries are installed in dedicated compartments below the nose floor boards. Hinged battery access panels permit easy access. The batteries are lead acid non-spillable valve regulated design rated at 24 VDC and 13.6 ampere-hour.

Refer to the *Baron Maintenance Manual* for battery maintenance service instructions.

TIRES

An inflation pressure of 52 to 56 psi should be maintained on the 6.50 x 8 main wheel tires. The 5.00 x 5 nose wheel tire should be inflated to 55-60 psi. Maintaining recommended tire inflation will minimize tread wear and aid in preventing tire failure caused from running over sharp stones and ruts. When inflating tires, visually inspect them for cracks and breaks, or evidence of internal damage.

CAUTION

Hawker Beechcraft Corporation cannot recommend the use of recapped tires. Recapped tires have a tendency to swell as a result of the increased temperature generated during takeoff. Increased tire size can jeopardize proper function of the landing gear retract system, with the possibility of damage to the landing gear doors and retract mechanism.

NOTE

While Hawker Beechcraft Corporation cannot recommend the use of recapped tires, tires retreaded by an FAA-approved repair station with a specialized service-limited rating in accordance with the latest revision of TSO-C62 may be used.

SHOCK STRUTS

CAUTION

DO NOT taxi with a flat shock strut.

The shock struts are filled with dry air or nitrogen and hydraulic fluid. The same procedure is used for servicing both the main and the nose gear shock struts. To service a strut, proceed as follows:

1. Jack the airplane, remove the air valve cap, depress the valve core, and allow the strut to fully deflate.

WARNING

Do not unscrew the air valve assembly until all air pressure has been released or it may be blown off with considerable force, causing injury to personnel or damage to equipment.

2. Carefully remove the air valve assembly.
3. Compress the strut and fill through the air valve assembly hole with hydraulic fluid (approximately one pint) until the fluid overflows.
4. Cycle the strut from full extension to compressed and refill. Repeat until no more fluid can be added to the strut in the compressed position.

NOTE

Cycling of the shock strut is necessary to expel any trapped air within the strut housing.

5. Install the air valve assembly.
6. With the airplane resting on the ground and the fuel cells full, inflate the nose gear strut until 3-1/2 to 3-3/4 inches of the piston are exposed and inflate the main gear struts until 3 inches of the piston are exposed. Rock the airplane gently to prevent possible binding of the piston in the barrel while inflating.

NOTE

It is recommended that the nose strut inflation dimension and the tire inflation pressures be carefully adhered to. Properly inflated tires and struts reduce the possibility of ground damage occurring to the propellers. Exercise caution when taxiing over rough surfaces.

7. The shock strut piston must be clean. Remove foreign material from the exposed piston with a soft cloth moistened with hydraulic fluid.

CAUTION

If a compressed air bottle containing air under extremely high pressure is used, exercise care to avoid over-inflating the shock strut.

WARNING

NEVER FILL SHOCK STRUTS WITH OXYGEN.

SHIMMY DAMPER

The shimmy damper has a reservoir of fluid carried in the piston rod. Two coil springs installed in the piston rod keep fluid in the shimmy damper under pressure. As fluid is lost through leakage it is automatically replenished from the reservoir until the reservoir supply is exhausted.

To check the fluid in the shimmy damper, insert a wire approximately 1/32 inch in diameter through the hole in the disc at the aft end of the piston rod until it touches the bottom of the hole in the floating piston. Mark the wire, remove it, and measure the depth of the insertion. When the shimmy damper is full, insertion depth is 2-3/16 inches; when empty, 3-1/16 inches.

NOTE

The measuring wire should be inserted in the hole in the floating piston rather than against the piston face, to give a more accurate reading. To determine if the wire is inserted in the hole in the floating piston, insert the wire several times, noting insertion depth each time. When the wire is inserted in the hole, the depth will be about 1/4-inch greater than when it rests against the piston face.

When the shimmy damper is found empty or nearly empty, it should be refilled. See Beech Baron Shop Manual.

BRAKES

The brake hydraulic fluid reservoir is accessible through the nose baggage compartment. A dipstick is attached to the reservoir cap. Refer to the *Baron Maintenance Manual* for hydraulic fluid specification.

The brakes require no adjustments since the pistons move to compensate for lining wear. The brake linings should be replaced before the metal back plate is exposed through the abrasive surface. The minimum allowable thickness for the abrasive surface is .010 inch. The brake disc should be replaced when its thickness measures .330 inch.

INDUCTION AIR FILTERS

The filters should be inspected for foreign matter at least once during each 50-hour operating period. In adverse climatic conditions, or if the airplane is stored, preflight inspection is recommended.

To Remove and Clean the Filter:

1. Remove the access plate in the top of the engine cowling.
2. Remove the filter and clean as noted by the manufacturer's instructions.
3. Reinstall the filter and the plate.

PROPELLERS

The daily preflight inspection should include a careful examination of the propeller blades for nicks and scratches.

Propeller operation, servicing, and maintenance instructions are contained in the propeller owner's manual furnished with the airplane.

WARNING

When servicing a propeller, always make certain that the ignition switch is off and that the engine has cooled completely. WHEN MOVING A PROPELLER, STAND IN THE CLEAR; THERE IS ALWAYS SOME DANGER OF A CYLINDER FIRING WHEN A PROPELLER IS MOVED.

MINOR MAINTENANCE

RUBBER SEALS

To prevent sticking of the rubber seals around the windows, doors, and engine cowling, the seals should be coated with Oakite 6 compound. The compound is non injurious to paint and can be removed by employing normal cleaning methods.

HEATING AND VENTILATING SYSTEM

The heater fuel pump filter in the nose wheel well should be removed and cleaned after each 100 hours of airplane operation. Remove the filter by turning the base of the pump counterclockwise. Wash the filter in fresh cleaning solvent (see the *Baron Maintenance Manual*) and dry with compressed air.

The iris valve at the heater blower inlet should be lubricated occasionally with molybdenum disulfide (see *the 55/58/G58 Baron Shop Manual*). The valve should never be lubricated with oil or any liquid lubricant which would collect dust.

Do not reset the overheat circuit breaker until a thorough inspection of the system has determined the cause and the malfunction has been corrected.

ALTERNATORS

Since the alternator and electronic voltage regulator are designed for use on only one polarity system, the following precautionary measures must be observed when working on the charging circuit, or serious damage to the electrical equipment will result:

1. When installing a battery, make certain that the ground polarity of the battery and the ground polarity of the alternator are the same.
2. When utilizing an external power source, ensure polarity of the external power source and polarity of the airplane electrical system is maintained (Negative to Negative; Positive to Positive).

3. Do not operate an alternator on an open circuit. Be sure all circuit connections are secure.
4. Do not short across or ground any of the terminals on the alternator or electronic voltage regulator.
5. Do not attempt to polarize an alternator.
6. Do not charge batteries while installed in the airplane. Refer to the *Baron Maintenance Manual* for battery removal and charging procedures.

MAGNETOS

Ordinarily, the magnetos will require only occasional adjustment, lubrication, and breaker point replacement. This work should be done by a Hawker Beechcraft Corporation Authorized Outlet.

WARNING

To be safe, treat the magnetos as hot whenever a switch lead is disconnected at any point; they do not have an internal automatic grounding device. Otherwise, all spark plug leads should be disconnected or the cable outlet plate on the rear of the magneto should be removed.

CLEANING

EXTERIOR PAINTED SURFACES

CAUTION

Polyester urethane finishes undergo a curing process for a period of 30 days after application. Wash uncured painted surfaces with a mild non-detergent soap (MILD detergents can be used on urethane finishes) and cold or lukewarm water only. Use soft cloths, keeping them free of dirt and grime. Any rubbing of the surface should be done gently and held to a minimum to avoid damaging the paint film. Rinse thoroughly with clear water. Stubborn oil or soot deposits may be removed with automotive tar removers.

Prior to cleaning, cover the wheels, making certain the brake discs are covered. Attach the pitot covers securely, and plug or mask off all other openings. Be particularly careful to mask off all static air buttons before washing or waxing. Use special care to avoid removing lubricant from lubricated areas.

Hand washing may be accomplished by flushing away loose dirt with clean water, then washing with a mild soap and water, using soft cleaning cloths or a chamois. Avoid harsh, abrasive, or alkaline soaps or detergents which could cause corrosion or scratches. Thorough clear-water rinsing prevents buildup of cleaning agent residue, which can dull the paint’s appearance. To remove oily residue or exhaust soot, use a cloth dampened with an automotive tar remover. Wax or polish the affected area if necessary.

WARNING

Do not expose control surface trim tab hinge lines and their pushrod systems to the direct stream or spray of high-pressure, soap and water washing equipment. Fluid dispensed at high pressure could remove the protective lubricant, allowing moisture from heavy or prolonged rain to collect at hinge lines, and then to freeze at low temperatures. After high pressure or hand washing, and at each periodic inspection, lubricate trim tab hinge lines and trim tab pushrod end fittings (Brayco 300 per Federal Specification VV-L-800 preferred). See the *Baron Maintenance Manual.*

When using high-pressure washing equipment, keep the spray or stream clear of wheel bearings, propeller hub bearings, etc., and openings such as pitot tubes, static air buttons, and battery and avionic equipment cooling ducts, which should be securely covered or masked off. Avoid directing high-pressure sprays toward the fuselage, wings, and empennage from the rear, where moisture and chemicals might more easily enter the structure, causing corrosion damage to structural members and moving parts.

CAUTION

When cleaning landing gear areas with solvent, especially if high-pressure equipment is used, exercise care to avoid washing away grease from landing gear components. After washing the landing gear areas with solvent, lubricate all lubrication points, or premature wear may result.

During the curing period, do not make prolonged flights in heavy rain or sleet, and avoid all operating conditions which might cause abrasion or premature finish deterioration.

CAUTION

Do not apply wax, polish, rubbing compound or abrasive cleaner to any uncured painted surface. Use of such items can permanently damage the surface finish. Also, waxes and polishes seal the paint from the air and prevent curing.

Waxing of polyester urethane finishes, although not required, is permitted; however, never use abrasive cleaner-type waxes, polishes, or rubbing compounds, as these products cause eventual deterioration of the characteristic urethane gloss.

For waxing, select a high quality automotive or aircraft waxing product. Do not use a wax containing silicones, as silicone polishes are difficult to remove from surfaces. A buildup of wax on any exterior paint finish will yellow with age; therefore, wax should be removed periodically. Generally, aliphatic naphtha (see the *Baron Maintenance Manual*) is adequate and safe for this purpose.

NOTE

Before returning the airplane to service, remove all maskings and coverings, and relubricate as necessary.

LANDING GEAR

After operation on salty or muddy runways, wash the main gear and nose landing gears with low-pressure water and a mild detergent as soon as practical. Rinse with clear water and blow dry with low-pressure air immediately after rinsing. Relubricate as necessary.

WINDSHIELD AND WINDOWS

The windshield and plastic windows should be kept clean and waxed. To prevent scratches, wash the windows carefully with plenty of soap and water, using the palm of the hand to dislodge dirt and mud. Flood the surface with clean water to rinse away dirt and soap. After rinsing, dry the windows with a clean, moist chamois. Rubbing the surface of the plastic with a dry cloth should be avoided, as it builds up an electrostatic charge on the surface which attracts dust particles.

Remove any oil or grease with a cloth moistened with kerosene, then wash the surface with soap and water. Never use gasoline, benzine, alcohol, acetone, carbon tetrachloride, fire-extinguisher agent, anti-ice fluid, lacquer thinner, or glass cleaner. These materials will soften the plastic and may cause it to craze.

After a thorough cleaning, waxed the surface with a good grade of commercial wax that does not have an acrylic base. The wax will fill in minor scratches and help prevent further scratching. Apply a thin, even coat of wax and bring it to a high polish by rubbing lightly with a clean, dry, soft flannel cloth. Do not use a power buffer; the heat generated by the buffing pad may soften the plastic.

SURFACE DEICE BOOTS

The surfaces of the deice boots should be checked for indication of engine oil after servicing and at the end of each flight. Any oil spots that are found should be removed with a non-detergent soap and water solution. Care should be exercised during cleaning. Avoid scrubbing the surface of the boots as this will tend to remove the special graphite surfacing. The deice boots are made of soft, flexible stock which may be damaged if gasoline hoses are dragged over the surface of the boots or if ladders and platforms are rested against them.

ENGINE

Clean the engine with a neutral solvent. Spray or brush the fluid over the engine, then wash off with water and allow to dry.

CAUTION

Do not use solutions which may attack rubber or plastic. Protect engine switches, controls and seals; fluid applied at high pressure can unseat seals, resulting in contamination of the sealed systems.

INTERIOR

To remove dust and loose dirt from the upholstery, headliner, and carpet, clean the interior regularly with a vacuum cleaner.

Blot up any spilled liquid promptly with cleansing tissue or rags. Do not pat the spot; press the blotting material firmly and hold it for several seconds. Continue blotting until no more liquid is taken up. Scrape off sticky materials with a dull knife, then spot clean the area.

Oily spots may be cleaned with household spot removers, used sparingly. Before using any solvent, read the instructions on the container and test it on an obscure place on the fabric to be cleaned. Never saturate the fabric with a volatile solvent; it may damage the padding and backing materials.

Soiled upholstery and carpet may be cleaned with a foam-type detergent, used according to the manufacturer's instructions. To minimize wetting the fabric, keep the foam as dry as possible and remove it with a vacuum cleaner.

The plastic trim, instrument panels, and control knobs need only be wiped with a damp cloth. Oil and grease on the control wheel and control knobs can be removed with a cloth moistened with isopropyl alcohol. Volatile solvents, such as mentioned in the article on care of plastic windows should never be used since they soften and craze the plastic.

CONSUMABLE MATERIALS

For a complete list of Consumable Materials refer to the *Baron Maintenance Manual.*

APPROVED ENGINE OILS

COMPANY	BRAND NAME
BP Oil Corporation	BP Aero Oil
Castrol Ltd (Australia)	Castrolaero AD Oil
Continental Oil Co.	Conoco Aero S
Delta Petroleum Co.	Delta Avoil
Exxon Company, USA	Exxon Aviation Oil EE
Gulf Oil Corporation	Gulfpride Aviation AD
Mobil Oil Co.	Mobil Aero
Penzoil Company	Penzoil Aircraft Engine Oil
Philips Petroleum Co.	Philips 66 Aviation Oil Type A X/C Aviation Multiviscosity SAE 20W50 X/C Aviation Multiviscosity SAE 20W60
Quaker State Oil and Ref.	Quaker State AD Aviation Engine Oil
Red Ram Ltd (Canada)	Red Ram X/C Aviation Oil 20W50
Shell Oil Co.	Aeroshell Oil W SAE 15W50
	Aeroshell Oil W
Sinclair Refining Co.	Sinclair Avoil
Texaco, Inc.	Texaco Aircraft Engine Oil Premium AD
Union Oil of California	Union Aircraft Engine Oil HD

This chart lists all oils which were certified as meeting the requirements of Teledyne Continental Motors Corporation Specification MHS-24 at the time this handbook was published. Any other oil which conforms to this specification may be used.

LAMP REPLACEMENT GUIDE

Anticollision Light, Flashing	34-0226010-91 (Whelen)
Cabin Light	303
Close Focus Reading Light	303
Compass Light	327
Flap Position Indicator Light	327
Ice Light	A-7079B-24
Landing Gear Position Light	327
Landing Light	4596
Map Light	WL41069R
Navigational Light, Tail w/Strobe	34-0428070-64 (Whelen)
Navigation Light, Wing	A7512-24 (Grimes)
Nose Baggage Light	307
Reading Light	303
Step Light	1495
Tab Position Indicator Light	334
Taxi Light	4596

SUPPLEMENTS

NOTE

The supplemental data contained in this section is for equipment that was delivered on the airplane including standard optional equipment that was available, whether it was installed or not. Airplane Flight Manual Supplements for equipment for which the supplier obtained a Supplemental Type Certificate were included as loose equipment with the airplane at the time of delivery. These and other Airplane Flight Manual Supplements for other equipment that was installed after the airplane was delivered new for the factory should be placed in this section.

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LOG OF SUPPLEMENTS

Model G58 Baron

Pilot's Operating Handbook
and
FAA Approved Airplane Flight Manual

P/N 58-590000-67

March, 2017

FAA Supplement must be in the airplane for all flight operations when subject equipment is installed.

PART NUMBER	SUBJECT	REV NO.	DATE
36-590002-77	Airplanes Registered in Brazil	1	Jul, 2008
36-590002-89	Mode S Enhanced Surveillance Transponder (For Airplanes Which Have Mode S Enhanced Surveillance Transponder Installed at the Factory)		Apr, 2009
58-590000-73	Air Conditioning System	1	Jan, 2007
58-590000-77	Airplanes Operating on the Argentine Register (Non-FAA Approved)		Dec, 2007
58-590000-85	Airplanes Registered in Canada		Sep, 2010
58-590000-0091	Airplanes Equipped with AC Systems LLC Air Conditioning System		Mar, 2017

PART NUMBER	SUBJECT	REV NO.	DATE
58-590001-9	Airplanes with Kit 58-3400-0001, Garmin G1000 Air-frame System Software Version 0508.13		Oct, 2008
190-01180-01	G1000 Avionics Upgrade with Synthetic Vision per STC SA01584WI-D	2	May 29, 2012
190-02128-03	Garmin G1000 NXi Integrated Avionics System and GFC 700 AFCS	1	Dec 20, 2016
2033-AFMS-S2	G58 Baron Millennium Concepts, Inc. interior upgrade per STC SA01671WI	IR	Feb 3, 2012
361601	Exterior LED Lighting Suite per STC SA02387AK	IR	Mar 8, 2012
HPBE58-2	Hartzell 3-Bladed Propellers per STC SA5533NM	A	Apr, 2005
AFMS 20002-1	Hartzell 3-Bladed Propellers per STC SA10551SC		July, 2006
CD50000K33 AFMS	Combustion Heater per STC SA02816CH		Mar 18, 2010
FTA-010-6	A/C Systems LLC Air Conditioning System per STC SA03065CH-D	IR	Apr 23, 2012

NOTE: Supplements are provided in a supplement pack that includes all supplements for a particular flight manual. All applicable supplements must be inserted in the manual. Supplements not applicable to an airplane, due to airworthiness authority certification requirements or equipment configuration, may be omitted from the manual.

Flight Manual Supplement Packs are available on the web at http://pubs.beechcraft.com.

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Hawker Beechcraft Corporation

LOG OF REVISIONS

Model G36 and G58

Pilot's Operating Handbook and FAA Approved Airplane Flight Manual Supplement

for Airplanes Registered in Brazil

REV NO.	PAGE NO(S).	DESCRIPTION	DATE OF REV
0	1 thru 6	Original Issue	Apr, 2006
1	1 thru 6	Revised "GPS Limitations" and Reformatted	Jul, 2008

CONTENTS

SECTION 1 - GENERAL

This document is to be attached to the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual for Airplanes registered in Brazil.

The information in this supplement supersedes or adds to the basic Pilot's Operating Handbook and FAA Approved Flight Manual only as set forth within this document. Users of the handbook are advised to always refer to the supplement for possibly superseding information and placarding applicable to operation of the airplane.

SECTION 2 - LIMITATIONS

AVIONICS

GARMIN G1000 INTEGRATED AVIONICS SYSTEM

GPS NAVIGATION

GPS LIMITATIONS

1. GPS is not approved as primary means of IFR navigation. Other navigation equipment appropriate to the intended route must be available and operable as required by the Regulamentos Brasileiros de Homologacão Aeronáutica's (RBHA) applicable to the specific type of operation or route (i.e., VOR, DME, ADF, etc.).
2. If "RAIM" message is displayed in the enroute phase of flight, continue to navigate using the GPS equipment or revert to an alternate means of navigation other than GPS appropriate to the route and phase of flight. When continuing to use GPS navigation, position must be verified every 15 minutes using other IFR approved navigation systems.
3. If "RAIM" message is displayed in the terminal area or non-precision approach phases of flight, GPS based navigation should be reverted to another IFR approved navigation system.
4. GPS SID's and STAR's IFR navigation is limited to current published procedures and to those that are retrievable from the current FMS/GPS database.
5. GPS SID's, STAR's and non-precision approaches IFR navigation must be performed with auto-pilot or flight director engaged.
6. GPS approaches must be performed with the MFD or INSET GPS waypoints map available to the pilot.

7. For non-precision approaches GPS IFR navigation, the pilot must review the complete transition-approach comparing the waypoints and altitudes provided by the GPS with those on the published procedure prior to activation, to ensure that the correct procedure and transition are selected.
8. The WAAS System will operate only in areas with appropriate satellite coverage (Satellite Based Augmentation System - SBAS) and integrated Wide-Area Reference Stations (WRS).

SECTION 3 - EMERGENCY PROCEDURES

No Change.

SECTION 3A - ABNORMAL PROCEDURES

No Change.

SECTION 4 - NORMAL PROCEDURES

No Change.

SECTION 5 - PERFORMANCE

No Change.

SECTION 6 - WEIGHT AND BALANCE/EQUIPMENT LIST

No Change.

SECTION 7 - SYSTEMS DESCRIPTION

No Change.

SECTION 8 - HANDLING, SERVICING, AND MAINTENANCE

No Change.

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Hawker Beechcraft Corporation

LOG OF REVISIONS

Model G36 Bonanza®
(E-3630, E-3636 and After)

Model G58 Baron®
(TH-2125 and After)

Pilot's Operating Handbook
and
FAA Approved Airplane Flight Manual Supplement

for the

Mode S Enhanced Surveillance Transponder

(For Airplanes Which Have Mode S Enhanced Surveillance Transponder Installed at the Factory)

REV NO.	PAGE NO(S).	DESCRIPTION	DATE OF REV
0	1 thru 6	Original Issue	Apr, 2009

CONTENTS

SECTION 1 – GENERAL

The information in this supplement is FAA approved material and must be attached to the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual when the airplane is operated with Mode S Enhanced Surveillance Transponder in accordance with Hawker Beechcraft Corporation approved data.

SECTION 2 – LIMITATIONS

AVIONICS LIMITS

MODE S ENHANCED SURVEILLANCE TRANSPONDER

The installed Mode S system satisfies the data requirements of the International Civil Aviation Organization (ICAO) Doc. 7030/4, Regional Supplementary Procedures for SSR Mode S Enhanced Surveillance in designated European airspace.

The capability to transmit data parameters is designated in the table below.

Parameter	Available
Magnetic Heading	Yes
Indicated Airspeed	Yes
Mach No	Yes
Vertical Rate	Yes
Roll Angle	Yes
True Airspeed	Yes
True Track Angle	Yes
Groundspeed	Yes
Selected Altitude	Yes
Barometric Pressure Setting	Yes

SECTION 3 – EMERGENCY PROCEDURES

No change.

SECTION 3A – ABNORMAL PROCEDURES

No change.

SECTION 4 – NORMAL PROCEDURES

No change.

SECTION 5 – PERFORMANCE

No change.

SECTION 6 – WEIGHT AND BALANCE/EQUIPMENT LIST

No change.

SECTION 7 – SYSTEMS DESCRIPTION

No change.

SECTION 8 – HANDLING, SERVICING AND MAINTENANCE

No change.

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Raytheon Aircraft Company

Beechcraft

Model G58

Pilot's Operating Handbook
and
FAA Approved Airplane Flight Manual
Supplement

for the
Air Conditioning System

This Supplement is Applicable to the Following Manual(s):
58-590000-67

Airplane Serial Number:______________________________

Airplane Registration Number:________________________

FAA Approved by: David J Bernstorf

David Bernstorf
Raytheon Aircraft Company
DOA-230339-CE

Raytheon Aircraft Company

LOG OF REVISIONS

Model G58

Pilot's Operating Handbook
and
FAA Approved Airplane Flight Manual
Supplement

for the
Air Conditioning System

REV NO.	PAGE NO(S).	DESCRIPTION	DATE OF REV
0	1 thru 6	Original Issue	Nov, 2005
1	1 thru 6	Revised HPBE58-2 reference	Jan, 2007

CONTENTS

SECTION 1 - GENERAL

This document is to be attached to the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual when the airplane is equipped with the Air Conditioning System which has been installed in accordance with Raytheon Aircraft Company-approved data.

The information in this supplement supersedes or adds to the basic Pilot's Operating Handbook and FAA Approved Flight Manual only as set forth within this document. Users of the handbook are advised to always refer to the supplement for possibly superseding information and placarding applicable to operation of the airplane.

SECTION 2 - LIMITATIONS

The Air Conditioning System must be off during takeoff.

PROPELLERS (approved with air conditioning)

Refer to Supplement HPBE58-2 in Section 9, SUPPLEMENTS

SECTION 3 - EMERGENCY PROCEDURES

The Air Conditioning system must be OFF during the following conditions:

Engine fire on the ground

Engine Fire in flight

Engine failure after lift-off and in flight

Air Start procedures

Air conditioning system malfunctioning

SECTION 3A - ABNORMAL PROCEDURES

AIR CONDITIONING SYSTEM MALFUNCTIONING

NOTE

If air conditioning system circuit breaker trips, do not reset until cause of malfunction has been determined and corrected.

ONE ENGINE INOPERATIVE

WARNING

Climb performance with one engine inoperative is degraded when air conditioning system is operating. The system must be OFF In event of engine failure.

SECTION 4- NORMAL PROCEDURES

STARTING

Air Conditioner may be on as desired after engine start for cabin cooling before takeoff.

BEFORE TAKEOFF

Air Conditioning System must be turned off before takeoff. After landing gear is retracted and airplane is clear of all obstacles, air conditioning system may be turned on as desired.

SHUTDOWN

Turn off air conditioner before engine shutdown.

SECTION 5 - PERFORMANCE

CRUISE PERFORMANCE

With air conditioner operating, range and airspeed will decrease approximately 3% due to extension of air conditioner air scoop to mid-position. This should be taken into consideration during flight planning.

SECTION 6 - WEIGHT AND BALANCE/EQUIPMENT LIST

No Change

SECTION 7 - SYSTEMS DESCRIPTION

COOLING

The refrigerant R-134a air conditioning system has a capacity of 14,000 BTU's per hour and consists of forward and aft evaporator modules, compressor in the left engine section, and nacelle door to induce prop blast and ram air for condenser cooling.

Controls consist of a two position switch placarded A/C-OFF and a three position evaporator blower switch placarded HI-LO-OFF. Both switches are located adjacent to each other on the pilot's subpanel. The evaporator blowers may be turned on independent of the air conditioning system to provide cabin air circulation when the air conditioner is turned off.

When the air conditioning system is on (while in flight), the nacelle scoop door opens to the mid-position. If the system is on while on the ground, with engines operating, the nacelle scoop door will open fully and the condenser blower will operate to assist air flow through the condenser during ground operation. The blower goes off when the system is off. After the air passes through the condenser, it is ducted overboard through the opening in the aft nacelle.

One evaporator is mounted on the left and aft cabin bulkhead and distributes air to the overhead cabin air outlets. The evaporator is located in the nose baggage compartment and distributes air to the pilot and copilot outlets.

SECTION 8 - HANDLING, SERVICING, AND MAINTENANCE

Check air conditioner evaporator module filter, forward of closure bulkhead, every 100 hours; replace filter, if required.

Model G58 Baron

(Serials TH-2125 and After)

Pilot's Operating Handbook and FAA Approved Airplane Flight Manual Supplement for Airplanes Operating on the Argentine Register

This FMS was assigned the DNA number 316, which was accepted by the DCA/DNA by means of a letter of acceptance dated October 18, 2007.

Airplane Serial Number:_________________________

Airplane Registration Number:____________________

Issued: December, 2007
P/N 58-590000-77

LOG OF REVISIONS

Model G58 Baron

(Serials TH-2125 and After)

Pilot's Operating Handbook
and
FAA Approved Airplane Flight Manual
Supplement

for

Airplanes Operating on the Argentine Register

REV NO.	PAGE NO(S).	DESCRIPTION	DATE OF REV
0	1 thru 4	Original Issue	December, 2007

CONTENTS

SECTION 1 - GENERAL

No Change

SECTION 2 - LIMITATIONS

GLOBAL POSITIONING SYSTEM (GPS)

If the GPS is installed:

Pilot is not authorized to use the Global Positioning System (GPS) for precision approach and landing.

KINDS OF OPERATION LIMITS

The necessary equipment for the different kinds of operations must comply with the applicable regulations for Argentina.

SECTION 3 - EMERGENCY PROCEDURES

No Change

SECTION 3A - ABNORMAL PROCEDURES

No Change

SECTION 4 - NORMAL PROCEDURES

No Change

SECTION 5 - PERFORMANCE

No Change

SECTION 6 - WEIGHT AND BALANCE/EQUIPMENT LIST

No Change

SECTION 7 - SYSTEMS DESCRIPTION

EMERGENCY LOCATOR TRANSMITTER (ELT)

The Emergency Locator Transmitter (ELT) must comply with RAAC 91.207.

SECTION 8 - HANDLING, SERVICING AND MAINTENANCE

No Change

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LOG OF REVISIONS

Model G58 Baron®

(TH-2125 and After)

Pilot's Operating Handbook
and
TCCA Approved Airplane Flight Manual
Supplement

for

Airplanes Registered in Canada

REV NO.	PAGE NO(S).	DESCRIPTION	DATE OF REV
0	1 thru 4	Original Issue	Sept, 2010

CONTENTS

SECTION 1 - GENERAL

This document is to be attached to the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual for Airplanes Registered in Canada.

The information in this supplement supersedes or adds to the basic Pilot's Operating Handbook and FAA Approved Flight Manual only as set forth within this document. Users of the handbook are advised to always refer to the supplement for possibly superseding information and placarding applicable to operation of the airplane.

SECTION 2 - LIMITATIONS

AVIONICS

GARMIN G1000 INTEGRATED AVIONICS SYSTEM

Barometric VNAV guidance during approach including the approach transition, final approach segment, and the missed approach procedure is not temperature compensated. Unless a temperature limitation is reflected on the approach chart, operating at uncompensated minimum IFR altitudes will not provide expected terrain and obstacle clearance for temperatures below ISA.

SECTION 3 - EMERGENCY PROCEDURES

No change.

SECTION 3A - ABNORMAL PROCEDURES

No change.

SECTION 4 - NORMAL PROCEDURES

No change.

SECTION 5 - PERFORMANCE

No change.

SECTION 6 - WT & BAL/EQUIP LIST

No change.

SECTION 7 - SYSTEMS DESCRIPTION

No change.

SECTION 8 - HANDLING, SERV & MAINT

No change.

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LOG OF REVISIONS

Model G58 Baron®

(TH-2478 and After)

Pilot's Operating Handbook
and
Manufacturer Approved Airplane
Flight Manual Supplement

for

Airplanes Equipped with A/C Systems LLC Air Conditioning System

REV NO.	PAGE NO(S).	DESCRIPTION	DATE OF REV
0	1 thru 24	Original Issue	Mar, 2017

CONTENTS

SECTION 1 - GENERAL

The information in this supplement is FAA-approved material and must be attached to the Pilot’s Operating Handbook and FAA Approved Airplane Flight Manual when the airplane is equipped with the Automatic Climate Control System.

The Automatic Climate Control System, incorporating an A/C Systems LLC Air Conditioning System, is designed to cool and heat the airplane cabin to desired temperature settings during all phases of flight operations. The system may be used during any phase of the flight (except a right engine failure), offering a choice of fully automatic or mode override.

SECTION 2 - LIMITATIONS

No Change.

SECTION 3 - EMERGENCY PROCEDURES

ONE-ENGINE-INOPERATIVE PROCEDURES

RIGHT ENGINE FAILURE

After securing and feathering the right engine: The "Air Conditioning Compressor OFF" mode on the Automatic Climate Control should be selected by pressing the compressor switch button until the adjacent indicator light goes out.

1. Air Conditioning Compressor Mode . . . . OFF

NOTE

This procedure ensures absolute maximum power is available for single engine operation.

ENGINE FIRE

IN FLIGHT

1. Climate Control System . . . . OFF

SYSTEM EMERGENCIES

ELECTRICAL SMOKE OR FIRE

1. Climate Control System . . . . OFF

SUSPECTED REFRIGERANT LEAK IN CABIN

The "Air Conditioning Compressor OFF" mode on the Automatic Climate Control should be selected by pressing the compressor switch button until the adjacent indicator light goes out.

1. Air Conditioning Compressor Mode . . . . OFF

SECTION 3A - ABNORMAL PROCEDURES

No Change.

SECTION 4 – NORMAL PROCEDURES

BEFORE TAXI

1. Climate Control System . . . . SELECT MODE AS DESIRED (refer to Section 7)

NORMAL TAKEOFF

1. Climate Control System . . . . SELECT MODE AS DESIRED (refer to Section 7)

NOTE

For takeoff with the "Air Conditioning Compressor ON" mode in operation, increase the Ground Roll distance as published in the POH/AFM for the applicable conditions by 4% and the corresponding Total Distance over a 50ft obstacle by 5%. If this incremental distance is not available, select the "Compressor OFF" mode during the takeoff portion of the flight by pressing the compressor switch button until the adjacent indicator light is out. This selection is designed to ensure safe operation throughout the approved flight envelope – actual performance will vary depending upon ambient conditions.

SHORT FIELD TAKEOFF

1. Climate Control System . . . . SELECT MODE AS DESIRED (refer to Section 7)

NOTE

For takeoff with the “Air Conditioning Compressor ON” mode in operation, increase the Ground Roll distance as published in the POH/AFM for the applicable conditions by 4% and the corresponding Total Distance over a 50ft obstacle by 5%. If this incremental distance is not available, select the “Compressor OFF” mode during the takeoff portion of the flight by pressing the compressor switch button until the adjacent indicator light is out. This selection is designed to ensure safe operation throughout the approved flight envelope – actual performance will vary depending upon ambient conditions.

If runway conditions are short, soft, or grass and if pressure altitude, temperature, or humidity is high, it is recommended that the Automatic Climate Control System is switched to the “Air Conditioning Compressor OFF” mode during the takeoff portion of the flight by pressing the compressor switch button until the adjacent indicator light goes out.

CLIMB

NOTE

For climb performance with the "Air Conditioning Compressor ON" mode in operation, decrease the rate-of-climb as published in the POH/AFM for the applicable conditions by 40 fpm. This selection is designed to ensure safe operation throughout the approved flight envelope – actual performance will vary depending upon ambient conditions.

If absolute maximum climb performance is desired, the Climate Control System should be switched to the "Air Conditioning Compressor OFF" mode by pressing the compressor switch button until the adjacent indicator light goes out.

BALKED LANDING

NOTE

For climb performance with the “Air Conditioning Compressor ON” mode in operation, decrease the rate-of-climb as published in the POH/AFM for the applicable conditions by 40 fpm. This selection is designed to ensure safe operation throughout the approved flight envelope – actual performance will vary depending upon ambient conditions.

If absolute maximum climb performance is desired, the Climate Control System should be switched to the “Air Conditioning Compressor OFF” mode by pressing the compressor switch button until the adjacent indicator light goes out.

SECTION 5 - PERFORMANCE

The pilot is responsible for computation of Weight & Balance conditions, density altitude, wind conditions, and runway conditions prior to departure.

The performance degradations shown below are to be applied to the existing charts in the basic POH/AFM when the Automatic Climate Control System is On and the system is in the “Air Conditioning Compressor ON” mode. Performance is unchanged when the system is in the “Air Conditioning Compressor OFF” mode.

TAKEOFF WEIGHT TO ACHIEVE POSITIVE ONE-ENGINE INOPERATIVE CLIMB AT LIFT-OFF

To determine the maximum takeoff weight which will achieve a positive one-engine inoperative rate of climb at liftoff, with the climate control system in operation and the “Air Conditioning Compressor ON” mode active, increase the pressure altitude by 750 feet. For example, if the field pressure altitude is 1,000 feet, use the maximum takeoff weight that corresponds to a pressure altitude of 1,750 feet.

TAKE-OFF DISTANCE

For takeoff with the climate control system in operation and the “Air Conditioning Compressor ON mode active, increase the Ground Roll distance, as published in the POH/AFM for the applicable conditions by 4% and the corresponding Total Distance over a 50ft obstacle by 5%. If this incremental distance is not available, select the “Air Conditioning Compressor OFF” mode during the takeoff portion of the flight by pressing the compressor switch button until the adjacent indicator light is out.

ACCELERATE – GO DISTANCE

For takeoff with the climate control system in operation and the "Air Conditioning Compressor ON mode active, increase the Accelerate – Go Distance as published in the POH/AFM for the applicable conditions by increasing the pressure altitude by 750 feet. For example, if the field pressure altitude is 1,000 feet, use the Accelerate – Go Distance that corresponds to a pressure altitude of 1,750 feet." If this incremental distance is not available, select the "Air Conditioning Compressor OFF" mode during the takeoff portion of the flight by pressing the compressor switch button until the adjacent indicator light is out.

CLIMB – TWO ENGINE CLIMB – BALKED LANDING

For climb performance with the climate control system in operation and the "Air Conditioning Compressor ON mode active, decrease the rate-of-climb as published in the POH/AFM for the applicable conditions by 40 fpm. If absolute maximum climb performance is desired, the "Air Conditioning Compressor ON" mode should be switched to the "Air Conditioning Compressor OFF" mode by pressing the compressor switch button until the adjacent indicator light goes out.

NOTE

The Climate Control System can display OAT. This display is advisory only and may differ from other OAT indications displayed in the cockpit.

NOTE

If the Automatic Climate Control System is not operating properly, all or any of the above factors may change. It is the pilot's responsibility to monitor fuel burn, time in flight and time to destination during all flight operations and make appropriate decisions to maintain a safe flight.

SECTION 6 - WT AND BAL/EQUIP LIST

The pilot should reference current weight and balance data in the POH/AFM and compute proper airplane weight and balance information prior to each flight.

SECTION 7 - SYSTEMS DESCRIPTIONS

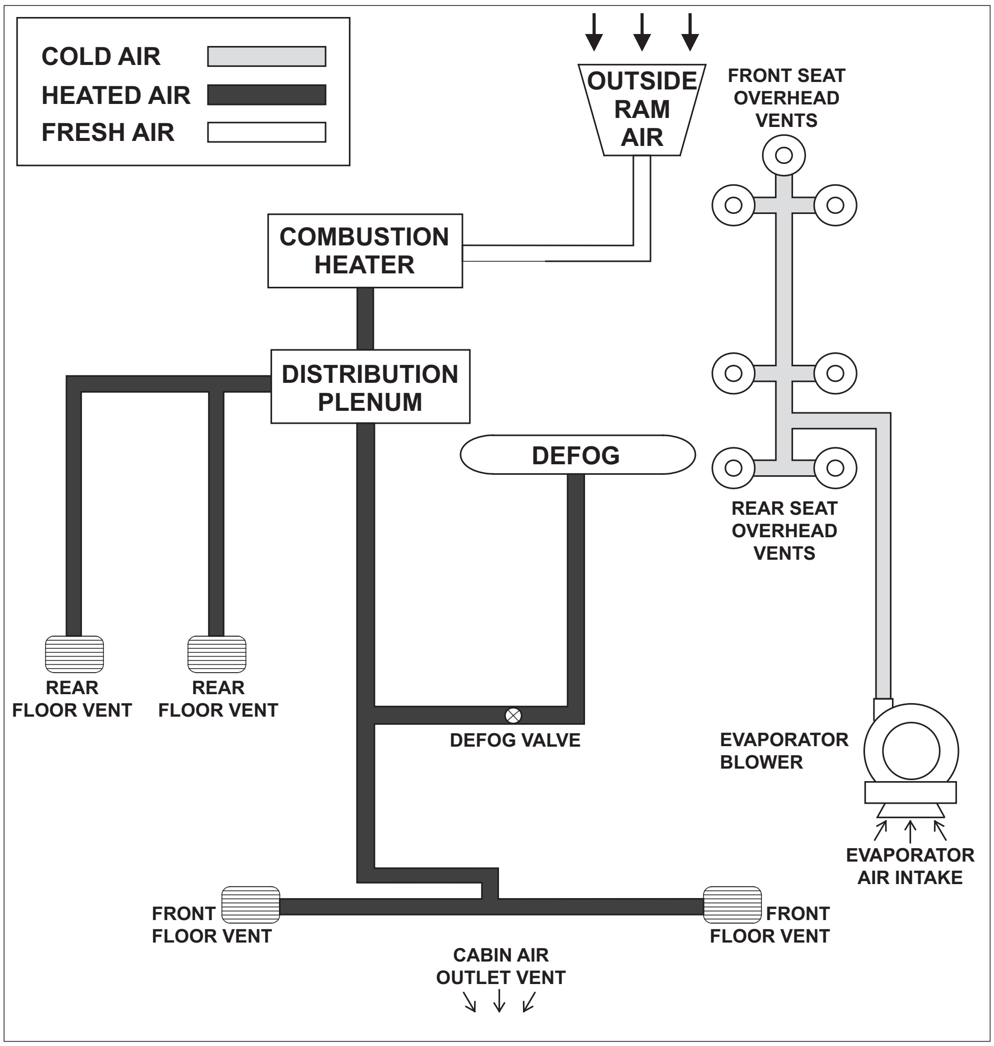
The A/C Systems LLC Air Conditioning portion of the Automatic Climate Control System operates on a closed vapor loop concept. The heating portion operates in the same fashion as the non-climate controlled airplane though it is controlled automatically or manually overridden with the Automatic Climate Control System. The components are designed to operate in extreme ranges of altitude and temperature.

ENVIRONMENTAL CONTROL SYSTEM

AUTOMATIC CLIMATE CONTROL SYSTEM

The electronic Automatic Climate Control System is fully automatic and is designed to maintain the desired temperature inside the airplane. The temperature and volume of the air coming from the vents as well as the fan speed (of the air conditioning blower) and air distribution change automatically.

Electric fan forced air, directed through the condenser coil, located in the empennage, cools the hot, high pressure R-134a refrigerant. The condenser intake air is taken from two louvered panels on the left-hand side of the airplane. Condenser exhaust air exits through a louvered opening, located on the right-hand side of the airplane.



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ENVIRONMENTAL CONTROL SYSTEM AIRFLOW

The Air Conditioning System performs the following functions:

1. Cools cabin air temperature.
2. Establishes the humidity level of the cabin at a comfortable level.
3. Helps prevent fogging of windows.
4. Reduces dust and pollen particles from the cabin air.

OPERATION

Control of the refrigeration temperature cycle is done with an electronic controlled thermostatic cycling sensor. The sensor monitors evaporator temperature and cycles the engine driven compressor to regulate the evaporator coil temperature and to prevent the coil from “freezing up”.

During operation during warm cabin temperatures the Automatic Climate Control System operates in the air conditioning mode, supplying cooled, dehumidified air to the ceiling console vents. When the system switches to “heating” operation during cool cabin temperatures, heated, outside air will be delivered to the front and rear floor vents and the windshield based on temperature conditions and the mode of operation settings. Additionally, recirculated cabin air will be delivered to the ceiling console vents, at a low blower setting, during the “heating” mode operation. The blower speed of the air being delivered to the ceiling console vents during “heating” mode operation is not user selectable.

In the rare occurrence of a refrigeration “overpressure” condition, a high/low pressure trinary safety switch, located on the receiver/dryer, will disengage the compressor to allow pressures to return to a safe level. This same switch senses a low pressure condition in the system and disengages the compressor to prevent damage. The trinary safety switch automatically resets once refrigerant pressures have returned to a safe level.

The Automatic Climate Control System can be left on in any mode at the time of airplane shut-down and will resume the previously selected temperature and mode when reactivated. The system will be active once airplane voltage is above a predetermined threshold.

For safety purposes the Automatic Climate Control System will deactivate if the airplane voltage falls below a predetermined threshold.

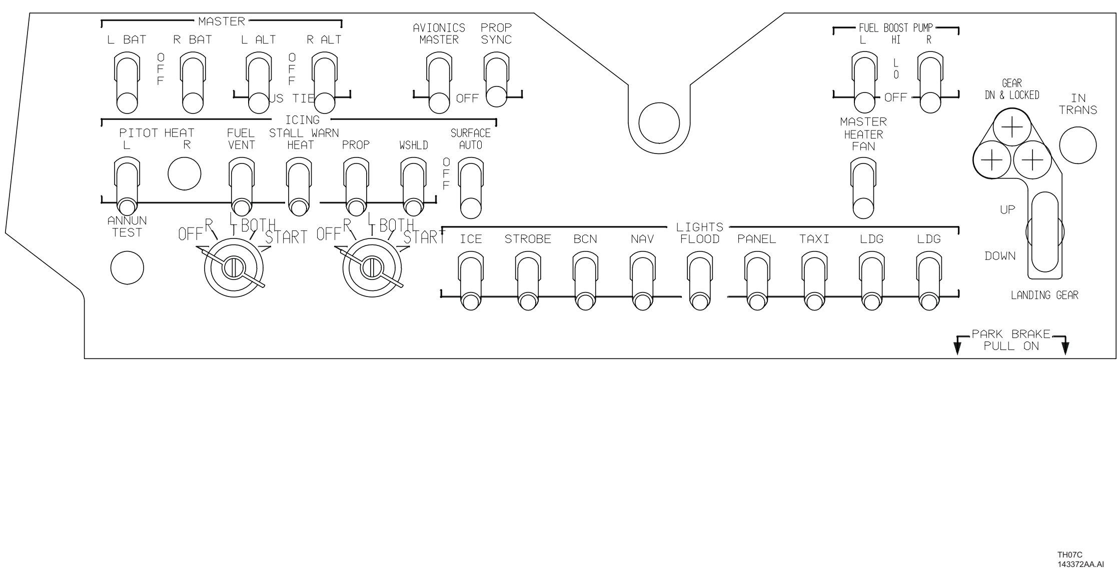
In the event that the Air Conditioning portion of the Automatic Climate Control System does not seem to be functioning correctly, the Automatic Climate Control System should be switched to the Compressor OFF mode by pressing the compressor switch button until the adjacent indicator light is out. An air conditioning performance evaluation should be performed by an authorized service center to determine and correct the problem prior to resuming the use of the air conditioning portion of the Automatic Climate Control System.

The Heating System performs the following functions:

1. Warms cabin air temperature.
2. Helps prevent fogging of windows.
3. Provides for defog air.

Control of the heating system temperature cycle is done by controlling the mechanical thermostat which regulates the operation of the combustion heater located in the nose of the airplane. The thermostat senses the heater duct temperature and cycles the combustion heater to regulate that temperature. During combustion heater operation and heater cool down, the heater/fresh air valve in the nose of the airplane is automatically opened by the climate control system. The valve is closed during other modes of operation.

When the heater mode is shut down either by the automatic climate control system (automatically or manually changing to the cooling mode), the pilot during airplane operation or due to the shut down of the airplane after a flight, a heater timer module and a heater control module will operate the heater/fresh air blower automatically for approximately 2 minutes to cool the combustion heater. This 2-minute cool down function operates even with the airplane battery and alternator master switches turned off. The 2-minute cool down function can be interrupted by turning the Master Heater Fan Switch to the “OFF” position. The Master Heater Fan Switch is located on the left-hand subpanel. The Master Heater Fan Switch should normally remain in the “ON” position at all times even when the airplane is shut down and the Master Battery and Alternator Switches are turned off. Note that during flight operations when the landing gear is retracted, heater operation and heater cooling is provided by ram air instead of the heater/fresh air blower. This applies to the heater 2 minute cool down period if that is required during flight: the automatic heater/fresh air valve remains open for 2 minutes to cool the combustion heater using ram air.



MASTER HEATER FAN SWITCH

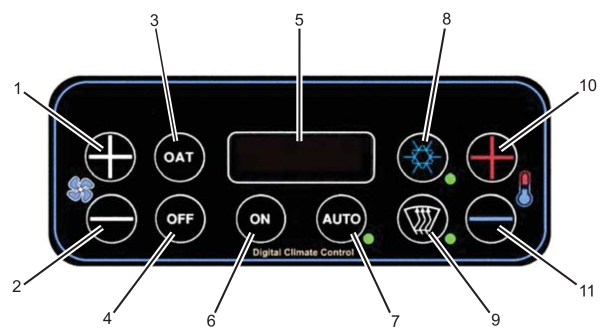
AIR CONDITIONING CONTROLS

The system is operated by control buttons. A small LED indicator light will illuminate next to the “CONDITIONING”, “-DEFOG” and “AUTO” buttons to indicate which of those operating modes has been selected. The selected temperature is displayed in the control panel. The temperature can be displayed in either Fahrenheit (°F) or Centigrade (°C) by depressing the temperature (+) and (-) buttons simultaneously.

The following settings can be selected as needed: AUTO, DEFOG and Air Conditioning Compressor Mode On or Off (manual control).

AUTO - ALL-SEASON STANDARD SETTING

Air temperature, air delivery and air distribution are regulated automatically to achieve and maintain the desired interior temperature as quickly as possible. The system automatically compensates for any variations in outside temperature. In cold outside temperatures, recirculated cabin air will be delivered to the ceiling console vents at a low blower setting and the combustion heater will provide heated air flow from the front and rear floor vents along with a small amount from the windshield defog duct. In warmer outside temperatures, cooled air will flow from the vents on the ceiling console. A panel light adjacent to the “AUTO” button indicates when this mode is active.



INDEX	DISPLAY	DESCRIPTION
1	RAISE FAN SPEED (+)	RAISES FAN SPEED IN 10% INCREMENTS WHEN AIR CONDITIONING IS IN OPERATION.
2	LOWER FAN SPEED (-)	LOWERS FAN SPEED IN 10% INCREMENTS. POSSIBLE IN MODES OTHER THAN DEFOG AND HEAT.
3	**OAT** TEMP	DISPLAYS OUTSIDE AIR TEMPERATURE FOR 5 SECONDS.
4	ACCS **OFF**	TURNS CLIMATE CONTROL SYSTEM OFF.
5	TEMP DISPLAY	TEMPERATURE DISPLAY CAN BE SWITCHED FROM °C TO °F AND °F TO °C BY PRESSING AND HOLDING TEMPERATURE “+” AND “-” BUTTONS SIMULTANEOUSLY.
6	ACCS **ON**	TURNS CLIMATE CONTROL SYSTEM ON. RESUMES PRESENT MODE AND TEMPERATURE.
7	**AUTO** MODE	AUTOMATIC MODE - ALL FUNCTIONS CONTROLLED AUTOMATICALLY. ALL PREVIOUSLY SELECTED MANUAL SETTINGS ARE CANCELLED.
8	COMPRESSOR SWITCH	TURNS COMPRESSOR MODE ON OR OFF. PRESS BUTTON TO TOGGLE COMPRESSOR SELECTION MODE ON AND OFF. THE COMPRESSOR MODE IS ON WHEN THE ADJACENT ANNUNCIATOR LIGHT IS ILLUMINATED. NOTE THAT THE LIGHT ONLY INDICATES THAT THE COMPRESSOR IS AVAILABLE FOR USE, IF REQUIRED BY THE CLIMATE CONTROL SYSTEM, NOT THAT THE COMPRESSOR IS ACTUALLY ON.
9	DEFOG SWITCH	DEFOG MODE - BLOWER RUNS AT MAXIMUM SPEED AND CANNOT BE REGULATED. MAXIMUM DEFOG AIR IS DIRECTED TO WINDSHIELD. PRESS BUTTON TO TOGGLE DEFOG MODE ON AND OFF.
10	RAISE CABIN TEMP (+)	RAISES CABIN TEMPERATURE IN 1° INCREMENTS.
11	LOWER CABIN TEMP (-)	LOWERS CABIN TEMPERATURE IN 1° INCREMENTS.

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DEFOGGING THE WINDSHIELD

Press the defog switch button to defog the windshield. Maximum defog air is directed towards the windshield. A panel light adjacent to the defog switch button indicates when this mode is active. Press the defog switch button again to cancel the defog mode.

AIR CONDITIONING COMPRESSOR MODE ON/OFF

When maximum airplane performance is desired, the compressor can be switched off. When the compressor mode is turned off, the climate control system no longer provides full climate control. If the cabin becomes too warm, press the compressor switch button again to reactivate the compressor mode, allowing cabin cooling and dehumidification. When the annunciator light adjacent to the compressor switch button is illuminated, it indicates that the "compressor" mode is active and that the compressor is available for use, if required by the climate control system. This annunciator light does not indicate that the compressor is actually on, only that the mode is active. Pressing the compressor switch button alternately will "toggle" the compressor mode selection ON and OFF.

NOTE

If absolute maximum airplane performance is desired, the Automatic Climate Control System should be switched to the "Air Conditioning Compressor OFF" mode by pressing the compressor switch button until the adjacent indicator light is out.

TEMPERATURE SETTING (+) OR (-)

The desired interior temperature can be preset within a range from 55°F (13°C) to 95°F (35°C). Within the setting range between 60°F (16°C) and 90°F (32°C), the temperature will be automatically adjusted. Temperature settings above 90°F

(32°C) or below 60°F (16°C) will result in maximum heating or cooling respectively. The settings selected prior to the shut-down of the airplane or climate control system will be restored upon restart.

NOTE

The temperature can be displayed in either Fahrenheit (°F) or Centigrade (°C) by depressing the temperature (+) and (-) buttons simultaneously.

FAN (+) OR (-)

The automatically selected fan speed (volume of air delivery) can be reduced or increased manually by operating these buttons. This mode overrides the automatic fan speed control feature. Incremental fan speeds up or down in 11 steps are available. The digital display indicates the fan speed as a percentage, or “HI” when the maximum fan speed is reached or “LO” when the minimum fan speed is reached. The digital display returns to the normal mode of interior temperature selection 5 seconds after either fan speed button is released. The selected fan speed is maintained until it is changed or the “AUTO” button is depressed.

CABIN AIR CIRCULATION

If cabin air circulation is desired, the compressor mode can be selected OFF by pressing the compressor switch button until the adjacent annunciator light is out, and selecting a low enough temperature setting so that the fan that provides air to the overhead vents is activated. Manual fan speed can be selected by pressing the FAN (+) or (-) buttons until the desired fan speed is obtained. The digital display indicates the fan speed as a percentage, or “HI” when the maximum fan speed is reached or “LO” when the minimum fan speed is reached. The digital display returns to the normal mode of interior temperature selection 5 seconds after either fan speed button is released.This mode allows the evaporator fan to pick up fresh air, as it is drawn through the cabin, and distribute it to the overhead vents.

To restore automatic climate control operation, press the compressor switch button until the adjacent annunciator light is on, select the desired cabin temperature and press the AUTO button until the adjacent annunciator light is on.

OAT- OUTSIDE AIR TEMPERATURE

When depressed, the outside air temperature is displayed as measured by the outside air temperature sensor. The outside air temperature will be displayed for 5 seconds then return to the normal mode of interior temperature selection.

WARNING

The outside temperature display is not to be considered an indicator for possible icing conditions. Ice formation can occur at indicated temperatures above freezing and in a multitude of conditions. Refer to the POH/AFM for information regarding flight into icing conditions.

NOTE

The Climate Control System can display OAT. This display is advisory only and may differ from other OAT indications displayed in the cockpit.

OFF

When the OFF button is depressed, the entire climate control system is switched off. In this mode of operation, the heater/ fresh air valve in the nose of the airplane is automatically closed by the climate control system once the heater cool down cycle is complete. Note that the automatic closing of the heater/fresh air valve only takes place while the airplane battery master switches are turned on.

ON

This switches ON the climate control system. The LED numeric display will show the current interior temperature and mode selections. The settings selected when the climate control system was shut down will be restored when ON is selected.

GENERAL HINTS FOR ELECTRONIC CLIMATE CONTROL SYSTEM OPERATION

- When the air conditioning is operating, the interior temperatures and humidity will be reduced. This helps to reduce the possibility of windshield and side window fog up.
- For the quickest cooling of a hot cabin, leave cabin doors open for a few minutes prior to startup of the airplane to allow the hot air to escape.
- When it is very hot and humid, condensed water can drip from the evaporator drain tube onto the surface beneath the airplane for an extended period of time. This is normal and does not indicate a leak or malfunction.
- The condenser should be checked periodically for cleanliness. If clogged with dirt or debris, the condenser should be cleaned with compressed air.
- If it is suspected that the air conditioning system has been damaged through outside influences (i.e. by debris, “FOD”); the system should be checked immediately by an authorized Service Center.
- If there is a defect in the refrigerant circuit of the air conditioner, a safety switch switches the air conditioning compressor off temporarily or completely. In this case, contact the authorized Service Center.

- Repairs or maintenance to the air conditioning system require trained personnel and special tools. If there should be any malfunction in the system, contact the authorized Service Center.

SECTION 8 - HANDLING, SERV AND MAINT

No Change.

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LOG OF REVISIONS

Model G58 Baron

Pilot's Operating Handbook
and
FAA Approved Airplane Flight Manual
Supplement

for
Airplanes with Kit 58-3400-0001,
Garmin G1000 Airframe System Software
Version 0508.13

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0	1 thru 10	Original Issue	Oct, 2008

CONTENTS

SECTION 1 - GENERAL

This document is to be attached to the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual when the airplane is equipped with the Garmin G1000 Airframe System Software Version 0508.13 installed in accordance with Hawker Beechcraft Corporation Service Bulletin 34-3925 (Kit 58-3400-0001).

The information in this supplement supersedes or adds to the basic Pilot's Operating Handbook and FAA Approved Airplane Flight Manual only as set forth within this document. Users of the handbook are advised to always refer to the supplement for possibly superseding information and placarding applicable to the operation of the airplane.

SECTION 2 - LIMITATIONS

AVIONICS

The appropriate Garmin G1000 Cockpit Reference Guide for the Beechcraft Baron G58 must be immediately available to the flight crew.

AIRFRAME SYSTEM SOFTWARE VERSION	COCKPIT REFERENCE GUIDE P/N
0508.13	190-00526-01 Revision B or Later

The airplane must use these or subsequent FAA approved software versions.

SYSTEM	ABBREVIATION	SOFTWARE VERSION
Primary Flight Display	PFD1	8.10
Multifunction Display	MFD1	8.10
Audio Control Panel & Marker Beacon System	GMA1	3.03
Attitude and Heading Reference System (AHRS)	GRS1	2.11
Air Data Computer (ADC)	GDC1	3.01
Integrated Avionics Unit	GIA1, GIA2	5.42
Engine/Airframe Unit (L/R)	GEA1, GEA2	2.07
Global Positioning System	GPS1, GPS2	3.03

SYSTEM	ABBREVIATION	SOFTWARE VERSION
Autopilot	GSA PTCH CTL, GSA PTCH MON, GSA PTCH TRIM C, GSA PTCH TRIM M, GSA ROLL CTL, GSA ROLL MON, GSA YAW CTL, GSA YAW MON	2.13
Data Link	GDL 69	3.20.00
Mode S Transponder	GTX1	4.06
Airborne Weather Radar	GWX	2.10

SECTION 3 - EMERGENCY PROCEDURES

No Change.

SECTION 3A - ABNORMAL PROCEDURES

No Change.

SECTION 4 - NORMAL PROCEDURES

AVIONICS

AUTOPILOT/FLIGHT DIRECTOR

APPROACH PROCEDURES

GPS Approach [GPS]
(Software Version 0508.13)

1. CDI Key . . . . .SELECTED GPS
2. Approach . . . . VERIFY ACTIVATED
3. NAV or APR Key . . . . PRESS
[GPS] Displayed
4. Airspeed . . . . .ESTABLISH

5. PFD . . . . VERIFY [GPS APR] MODE WITHIN 2 NM OF FAF

Go Around [GA] & [GA] (With an Active Approach Loaded) (Software Version 0508.13)

1. Go Around Button on Throttle . . . . PRESS
2. Throttles and Propellers . . . . FULL FORWARD
3. Flaps . . . . .UP
4. Landing Gear . . . . .UP
5. Missed Approach . . . . .EXECUTE
6. CDI Key (if required) . . . . PRESS TO SELECT GPS
7. ALT Knob (if required). . . . . SET ALTITUDE

At 400 feet minimum:

8. AP Key . . . . PRESS TO ENGAGE AUTOPILOT
9. CWS .PRESS TO CNX GA MODE & ADJUST PITCH
10. HDG or NAV Key . . . . PRESS

SECTION 5 - PERFORMANCE

No Change.

SECTION 6 - WEIGHT AND BALANCE/EQUIPMENT LIST

No Change.

SECTION 7 - SYSTEMS DESCRIPTION

MONITORING THE ELECTRICAL SYSTEM

The status of the electrical system can be monitored using the following displays and alerts:

ELECTRICAL ALERTS AND MESSAGES

Condition	Type of Alert	Annunciator Display-Brief Text	Alert Display-Descriptive Text
Left Alternator Inoperative	Warning (red)	L ALT INOP	Left alternator offline
Right Alternator Inoperative	Warning (red)	R ALT INOP	Right alternator offline
Left & Right Alternator Inoperative	Warning (red)	L-R ALT INOP	Right and Left alternators offline
Left or Right Alternator Load High	Caution (amber)	ALT LOAD	Left or Right Alternator load exceeds 100 amps
Left Voltage Regulator Inoperative	Caution (amber)	LBUS VOLT HI	Left bus voltage greater than 30 VDC
Right Voltage Regulator Inoperative	Caution (amber)	RBUS VOLT HI	Right bus voltage greater than 30 VDC
Left Bus Voltage Low	Caution (amber)	LBUS VOLT LO	Left bus voltage less than 24 VDC Suppressed below 500 RPM
Right Bus Voltage Low	Caution (amber)	RBUS VOLT LO	Right bus voltage less than 24 VDC Suppressed load below 500 RPM
Left and Right Buses Tied	Advisory (white)	BUSES TIED	Right Bus is tied to Left Bus

GENERAL

TRANSPONDER (GTX)

The Garmin Transponder (GTX 33) is a solid-state transponder that replies to Mode A (4096 codes), Mode C and Mode S interrogations. It is capable of responding with transponder capability and airplane Flight ID to ground station interrogation to support elementary surveillance. If the airplane is not equipped with the optional Skywatch system or it is not operational, the GTX 33 will work with the Traffic Information Service (TIS). Where TIS is available, the GTX 33 will display all responding ATCRBS Mode A and Mode C transponder equipped airplanes within seven nautical miles from 3000 feet below to 3500 feet above the airplane. The TIS system only operates while in the ground-based service area. Transponder codes and mode selection are accessed by the XPDR softkey at the bottom of the PFD. Squawk codes can also be entered using the PFD FMS knob.

ENGINE INDICATING SYSTEM

ALERTING SYSTEM

Alerts and messages are summarized in the following table. See the Garmin G1000 Pilot's Guide for more detailed information.

AIRPLANE ALERTS AND MESSAGES

Type of Alert / Messages	Annunciation Window	Alerts Window Descriptive Text	Alerts Softkey	Tone
Warning Alert	CHT HI	L or R CHT is greater than 238° C	WARNING	Repeating
Warning Alert	FUEL FLOW HI	L or R fuel flow is greater than 27.4 gph	WARNING	Repeating
Warning Alert	FUEL QTY LO	L or R fuel qty is at zero	WARNING	Repeating
Warning Alert	GEAR UP	Gear Up	WARNING	*Cont.
Warning Alert	L-R ALT INOP	Left and Right alternator offline	WARNING	Repeating
Warning Alert	L ALT INOP	Left alternator offline	WARNING	Repeating
Warning Alert	R ALT INOP	Right alternator offline	WARNING	Repeating
Warning Alert	OIL TEMP HI	L or R oil temp is greater than 116° C	WARNING	Repeating
Warning Alert	OIL PRESS HI	L or R oil press is greater than 100 psi	WARNING	Repeating
Warning Alert	OIL PRESS LO	L or R oil press is less than 10 psi	WARNING	Repeating
Caution Alert	AFT DOOR	Aft door not latched	CAUTION	Single
Caution Alert	ALT LOAD	L or R alternator load exceeds 100 amps	CAUTION	Single
Caution Alert	FUEL QTY LO	L or R fuel qty is less than or equal to 13 gal	CAUTION	Single
Caution Alert	L AIR PUMP	Press Low - Ops in icing conditions not approved	CAUTION	Single
Caution Alert	R AIR PUMP	Press Low - Ops in icing conditions not approved	CAUTION	Single
Caution Alert	L START ENGD	Left starter relay has power applied	CAUTION	Single
Caution Alert	R START ENGD	Right starter relay has power applied	CAUTION	Single
Caution Alert	LBUS VOLT HI	Left Bus voltage greater than 30 VDC	CAUTION	Single
Caution Alert	LBUS VOLT LO	Left Bus voltage Less than 24 VDC	CAUTION	Single
Caution Alert	RBUS VOLT HI	Right Bus voltage greater than 30 VDC	CAUTION	Single
Caution Alert	RBUS VOLT LO	Right Bus voltage Less than 24 V	CAUTION	Single

AIRPLANE ALERTS AND MESSAGES

Type of Alert / Messages	Annunciation Window	Alerts Window Descriptive Text	Alerts Softkey	Tone
Caution Alert	OIL PRESS LO	L or R oil press is between 30 and 10 psi	CAUTION	Single
Message	AVIONICS FAN	Cooling fan for remote avionics is inoperative	ADVISORY	None
Advisory Alert	BUSES TIED	Left and Right Buses are tied	ADVISORY	None
Message	MFD FAN FAIL	Cooling fan for the MFD is inoperative	ADVISORY	None
Message	PFD FAN FAIL	Cooling fan for the PFD is inoperative	ADVISORY	None

* Into G1000 Audio from an electronic warning horn.

AUTOPILOT

GFC 700 AUTOMATIC FLIGHT CONTROL SYSTEM (AFCS)

OTHER CONTROLS ASSOCIATED WITH THE AFCS

GO-AROUND - A Go-Around switch is located on the left side of the throttle. Pressing the switch initiates the following actions:

1. Engages the Flight Director in a wings-level, 7° nose up pitch attitude.
2. Disengages the autopilot.
3. Cancels all armed modes including Altitude Hold.
4. Cycles the flight plan to Missed Approach.

The autopilot may be re-engaged after GO AROUND is selected.

SECTION 8 - HANDLING, SERVICING AND MAINTENANCE

No Change.

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Rev. 2

LOG OF REVISIONS

FAA Approved Airplane Flight Manual Supplement
G1000 Integrated Avionics
on
Hawker Beechcraft G58

REV NO.	PAGE NO(S).	DESCRIPTION	DATE OF REV
1	All	Initial Release	6/4/10
2	All	Add S/W version 0857.09	See Cover

CONTENTS

SECTION 1 – GENERAL

This document is to be attached to the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual Part Number 58-590000-67 when the airplane is equipped with the Garmin G1000 Airframe System Software Version 0857.08 or 0857.09.

The information in this supplement supersedes or adds to the basic Pilot's Operating Handbook and FAA Approved Airplane Flight Manual only as set forth within this document. Users of the handbook are advised to always refer to the supplement for possibly superseding information and placarding applicable to the operation of the airplane.

G1000 GNSS (GPS/SBAS) Navigation system Equipment approvals

The Garmin G1000 Integrated Avionics GNSS navigation system installed in this aircraft is a GPS system with a Satellite Based Augmentation System (SBAS) comprised of two TSO-C145a Class 3 approved Garmin GIA 63Ws, TSO-C146a Class 3 approved Garmin GDU 104X Display Units, GARMIN GA36 and GA37 antennas, and GPS software version 3.2 or later approved version. The G1000 GNSS navigation system in this aircraft is installed in accordance with AC 20-138A.

The Garmin G1000 Integrated Avionics GNSS navigation system as installed in this aircraft complies with the requirements of AC 20-138A and is approved for navigation using GPS and SBAS (within the coverage of a Satellite Based Augmentation System complying with ICAO Annex 10) for IFR en route, terminal area, and non-precision approach operations (including those approaches titled "GPS", "or GPS", and "RNAV (GPS)" approaches). The G1000 Integrated Avionics GNSS navigation system installed in this aircraft is approved for approach procedures with vertical guidance including "LPV" and "LNAV/VNAV", within the U.S. National Airspace System.

The Garmin G1000 Integrated Avionics GNSS navigation system as installed in this aircraft complies with the equipment requirements of AC 90-105 and meets the equipment performance and functional requirements to conduct RNP terminal departure and arrival procedures and RNP approach procedures without RF (radius to fix) legs. Part 91 subpart K, 121, 125, 129, and 135 operators require operational approval from the FAA.

The Garmin G1000 Integrated Avionics GNSS navigation system as installed in this aircraft complies with the equipment requirements of AC 90-100A for RNAV 2 and RNAV 1 operations. In accordance with AC 90-100A, Part 91 operators (except subpart K) following the aircraft and training guidance in AC 90-100A are authorized to fly RNAV 2 and RNAV 1 procedures. Part 91 subpart K, 121, 125, 129, and 135 operators require operational approval from the FAA.

The Garmin G1000 Integrated Avionics GNSS navigation system as installed in this aircraft has been found to comply with the requirements for primary means of Class II navigation in oceanic and remote navigation (RNP-10) without time limitations in accordance with AC 20-138A and FAA Order 8400.12A. The G1000 can be used without reliance on other long-range navigation systems. This does not constitute an operational approval.

The Garmin G1000 Integrated Avionics GNSS navigation system as installed in this aircraft has been found to comply with the navigation requirements for primary means of Class II navigation in oceanic and remote navigation (RNP-4) in accordance with AC 20-138A and FAA Order 8400.33. The G1000 can be used without reliance on other long-range navigation systems. Additional equipment may be required to obtain operational approval to utilize RNP-4 performance. This does not constitute an operational approval.

The Garmin G1000 Integrated Avionics GNSS navigation system as installed in this aircraft complies with the accuracy, integrity, and continuity of function, and contains the minimum system functions required for PRNAV operations in accordance with JAA Administrative & Guidance Material Section One: General Part 3: Temporary Guidance Leaflets, Leaflet No 10 (JAA TGL-10 Rev 1). The GNSS navigation system has two ETSO-145 / TSO-C145a Class 3 approved Garmin GIA 63Ws, and ETSO-146 / TSO-C146a Class 3 approved Garmin GDU 104X Display Units. The G1000 Integrated Avionics GNSS navigation system as installed in this aircraft complies with the equipment requirements for PRNAV and BRNAV operations in accordance with AC 90-96A and JAA TGL-10 Rev 1. This does not constitute an operational approval.

Garmin International holds an FAA Type 2 Letter of Acceptance (LOA) in accordance with AC 20-153 for database Integrity, quality, and database management practices for the Navigation database.

Pilots and operators can view the LOA status at www.Garmin.com > Aviation Databases > Type 2 LOA Status.

Navigation information is referenced to WGS-84 reference system.

AVIONICS

When in flight, the appropriate Garmin G1000 Cockpit Reference Guide for the Beechcraft Bonanza G58 must be immediately available to the flight crew.

AIRFRAME SYSTEM SOFTWARE VERSION	COCKPIT REFERENCE GUIDE P/N
0857.08	190-00526-02 Revision A or Later
0857.09	190-00526-03 Revision A or Later

G1000 GNSS (GPS/SBAS) NAVIGATION SYSTEM LIMITATIONS

The pilot must confirm at system initialization that the Navigation database is current.

Navigation database is expected to be current for the duration of the flight. If the AIRAC cycle will change during flight, the pilot must ensure the accuracy of navigation data, including suitability of navigation facilities used to define the routes and procedures for flight. If an amended chart affecting navigation data is published for the procedure, the database must not be used to conduct the procedure.

GPS/SBAS based IFR enroute, oceanic, and terminal navigation is prohibited unless the pilot verifies and uses a valid, compatible, and current Navigation database or verifies each waypoint for accuracy by reference to current approved data.

Discrepancies that invalidate a procedure must be reported to Garmin International. The affected procedure is prohibited from being flown using data from the Navigation database until a new Navigation database is installed in the aircraft and verified that the discrepancy has been corrected. Contact information to report Navigation database discrepancies can be found at www.Garmin.com>Support>Contact Garmin Support>Aviation. Pilots and operators can view navigation data base alerts at www.Garmin.com > In the Air> NavData Alerts.

When operating under instrument flight rules requiring an alternate airport, the required alternate airport must not be flight planned based on an RNAV (GPS) LP/LPV or LNAV/VNAV approach. The alternate airport must be flight planned based upon an LNAV approach or available ground-based approach which the aircraft is equipped to fly.

For flight planning purposes, in areas where SBAS coverage is not available, the pilot must check RAIM availability. Within the United States, RAIM availability can be determined using the Garmin WFDE Prediction program, part number 006-A0154-01 (010-G1000-00) or later approved version with GARMIN GA36 and GA37 antennas selected, or the FAA's en route and terminal RAIM prediction website: www.raimprediction.net, or by contacting a Flight Service Station. Within Europe, RAIM availability can be determined using the Garmin WFDE Prediction program or Europe's AUGER GPS RAIM Prediction Tool at http://augur.ecacnav.com/augur/app/home. For other areas, use the G1000 WFDE Prediction program. This requirement is not necessary if SBAS coverage is confirmed to be available along the entire route of flight. The route planning and WFDE prediction program may be downloaded from the GARMIN G1000 website on the internet. For information on using the WFDE Prediction Program, refer to GARMIN WAAS FDE Prediction Program, part number 190-00643-01, 'WFDE Prediction Program Instructions'.

For flight planning purposes, operations within the U.S. National Airspace System on RNP and RNAV procedures when SBAS signals are not available, the availability of GPS integrity RAIM shall be confirmed for the intended route of flight. In the event of a predicted continuous loss of RAIM of more than five minutes for any part of the intended route of flight, the flight must be delayed, canceled, or re-routed on a track where RAIM requirements can be met or a ground based navigation system can be used.

For flight planning purposes for operations within European B-RNAV and P-RNAV airspace, if more than one satellite is scheduled to be out of service, then the availability of GPS integrity RAIM shall be confirmed for the intended flight (route and time). In the event of a predicted continuous loss of RAIM of more than five minutes for any part of the intended flight, the flight must be delayed, canceled, or re-routed on a track where RAIM requirements can be met or a ground based navigation system can be used.

For flight planning purposes, operations where the route requires Class II navigation the aircraft's operator or pilot-in-command must use the Garmin WFDE Prediction program to demonstrate that there are no predicted outages on the specified route that would prevent the G1000 from providing primary means of Class II navigation in oceanic and remote areas of operation that requires (RNP-10 or RNP-4) capability. If the Garmin WFDE Prediction program indicates fault exclusion (FDE) is unavailable for more than 34 minutes in accordance with FAA Order 8400.12B for RNP-10 requirements, or 25 minutes in accordance with FAA Order 8400.33 for RNP-4 requirements, then the operation must be rescheduled when FDE is available.

Both GIA 63W GPS navigation receivers must be operating and providing GPS navigation guidance to the PFD and MFD for operations requiring RNP-4 and RNP-10 performance. This must be verified by referring to the MFD AUX-GPS STATUS page to determine the state of GPS1 and GPS2.

North Atlantic (NAT) Minimum Navigational Performance Specifications (MNPS) Airspace operations per AC 91-49 and AC 120-33 require both GPS/SBAS receivers to be operating and receiving usable signals except for routes requiring only one Long Range Navigation sensor. Operator's mandatory crosschecking procedures must include referring to the MFD AUX-GPS STATUS page to determine the state of GPS1 and GPS2.

Whenever possible, RNP and RNAV routes including Standard Instrument Departures (SIDs) and Obstacle Departure Procedures (ODPs), Standard Terminal Arrival (STAR), and enroute RNAV "Q" and RNAV "T" routes should be loaded into the flight plan from the database in their entirety, rather than loading route waypoints from the database into the flight plan individually. Selecting and inserting individual named fixes from the database is permitted, provided all fixes along the published route to be flown are inserted. Manual entry of waypoints using latitude/longitude or place/bearing is prohibited.

"GPS", "or GPS", and "RNAV (GPS)" instrument approaches using the G1000 System are prohibited unless the pilot verifies and uses the current Navigation database. GPS based instrument approaches must be flown in accordance with an approved instrument approach procedure that is loaded from the Navigation database.

Not all published Instrument Approach Procedures (IAP) are in the Navigation database. Pilots planning on flying an RNAV instrument approach must ensure that the Navigation database contains the planned RNAV Instrument Approach Procedure and that approach procedure must be loaded from the Navigation database into the FMS flight plan by its name.

IFR non-precision approach approval using the GPS/SBAS sensor is limited to published approaches within the U.S. National Airspace System. Approaches to airports in other airspace are not approved unless authorized by the appropriate governing authority.

The navigation equipment required to join and fly an instrument approach procedure is indicated by the title of the procedure and notes on the IAP chart. Use of the GARMIN G1000 GPS/SBAS receivers to provide navigation guidance during the final approach segment of an ILS, LOC, LOC-BC, LDA, SDF, MLS or any other type of approach not approved for "or GPS" navigation is prohibited. When using the G1000 VOR/LOC/GS receivers to fly the final approach segment, VOR/LOC/GS navigation data is must be selected and presented on the CDI of the pilot flying.

Navigation information is referenced to WGS-84 reference system, and should only be used where the Aeronautical Information Publication (including electronic data and aeronautical charts) conform to WGS-84 or equivalent.

Do not use SafeTaxi or Chartview functions as the basis for ground maneuvering. SafeTaxi and Chartview functions do not comply with the requirements of AC 20-159 and are not qualified to be used as an airport moving map display (AMMD). SafeTaxi and Chartview are to be used by the flight crew to orient themselves on the airport surface to improve pilot situational awareness during ground operations.

TIS AND GTS 820 TAS SYSTEMS

Use of the MAP - TRAFFIC MAP to maneuver the airplane for traffic avoidance without outside visual reference is prohibited. The Traffic Information System (TIS) and GTS820 (TAS) systems are intended as an aid for the pilot to visually locate traffic. It is the responsibility of the pilot to see and maneuver the airplane to avoid other traffic.

SYNTHETIC VISION

Use of the Synthetic Vision system display elements alone for aircraft control without reference to the G1000 primary flight instruments or the aircraft standby instruments is prohibited.

Use of the Synthetic Vision system alone for navigation, or obstacle or terrain avoidance is prohibited.

Use of the Synthetic Vision system traffic display alone to avoid other aircraft is prohibited.

SECTION 3 – EMERGENCY PROCEDURES

No Change

SECTION 3A – ABNORMAL PROCEDURES

SVS Displays information inconsistent with G1000 primary flight instrumentation.

On the PFD:

1. PFD key.. press
2. SYN VIS key.. press
3. SYN TERR key... press
4. SVS is removed from both PFD displays ....Verify

Use G1000 primary displays for navigation and aircraft control.

G1000 operation in display backup mode is required

Select display backup mode on the G1000 system.

NOTE:

When display backup mode is selected, the MFD will initially present a non-SVS (blue sky over solid brown ground) display. SVS will be presented on the backup display within 20 seconds if it was enabled on the PFD when display backup was selected.

SECTION 4 – NORMAL PROCEDURES

For normal operating procedures, refer to the appropriate Cockpit Reference Guide, the Baron G58 AFM, 58-590000-67, or the Garmin G1000 Pilots Guide for the Beechcraft G58, 190-00629-03, Rev A or later.

SECTION 5 – PERFORMANCE

No Change

SECTION 6 – WEIGHT AND BALANCE/EQUIPMENT LIST

No Change

SECTION 7 – SYSTEMS DESCRIPTION

For systems descriptions, refer to the Baron G58 AFM, 58-590000-67, or the Garmin G1000 Pilots Guide for the Beechcraft G58, 190-00629-03, Rev A or later.

SECTION 8 – HANDLING, SERVICING AND MAINTENANCE

No Change

GARMIN Ltd. or its subsidiaries
c/o GARMIN International, Inc.
1200 E. 151st Street
Olathe, Kansas 66062 U.S.A.

FAA Approved AIRPLANE FLIGHT MANUAL SUPPLEMENT

G1000 NXi Integrated Avionics System and GFC 700 AFCS for Textron Aviation G36 Bonanza and G58 Baron Aircraft

Dwg. Number: 190-02128-03 Rev. 1

This Supplement is Applicable to the Following Manuals:

58-590000-67
36-590002-71

This Supplement must be attached to the FAA Approved Pilot's Operating Handbook and Airplane Flight Manual when the GARMIN G1000 NXi Integrated Avionics System is installed in accordance with STC SA01830WI. The information contained herein supplements the information of the FAA Approved Airplane Flight Manual. For Limitations, Procedures, Performance information not contained in this Supplement, consult the FAA Approved Airplane Flight Manual and the basic Pilot's Operating Manual.

Airplane Serial Number: ______________________

Airplane Registration Number: ______________________

FAA Approved By: ______________________

Robert G. Murray
ODA STC Unit Administrator
GARMIN International, Inc.
ODA-240087-CE

Date: 12/20/2016

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GARMIN International, Inc.

Log of Revisions

FAA Approved AIRPLANE FLIGHT MANUAL SUPPLEMENT

G1000 NXi Integrated Avionics System and GFC 700 AFCS for Textron Aviation G36 Bonanza and G58 Baron Aircraft

REV NO.	PAGE NO(S)	DESCRIPTION	DATE OF APPROVAL	FAA APPROVED
1	ALL	Original Issue	See Cover	See Cover

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Table of Contents

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GENERAL

The information in this supplement is FAA-approved material and must be attached to the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual (POH/AFM) when the airplane has been modified by installation of the GARMIN G1000 NXi Integrated Avionics System and GFC 700 Digital Automatic Flight Guidance System in accordance with GARMIN International, Inc. approved data, STC SA01830WI.

The information in this supplement supersedes or adds to the basic Pilot's Operating Handbook and FAA Approved Airplane Flight Manual only as set forth below. Users of the manual are advised to always refer to the supplement for possibly superseding information and placarding applicable to operation of the airplane.

The GARMIN G1000 NXi system installed in this aircraft provides a fully integrated Display, Communications, Navigation and Flight Control System. Functions provided by the G1000 NXi system include: Primary Flight Information, Powerplant Monitoring, Navigation, Communication, Traffic Surveillance, TAWS Class B, SurfaceWatch, Weather Avoidance, and a two-axis automatic flight control / flight director system.

Use of this supplement requires the installation of Garmin G1000 NXi hardware and system software version 2805.00, or later, in the aircraft. Pilots are advised to carefully review the contents of this revision before operating the airplane.

The installed ADS-B OUT system has been shown to meet the equipment performance requirements of 14 CFR 91.227.

USE OF THE AFMS

The following definitions apply to WARNINGS, CAUTIONS and NOTES found throughout the AFMS:

WARNING

OPERATING PROCEDURES, TECHNIQUES, ETC., WHICH COULD RESULT IN PERSONAL INJURY OR LOSS OF LIFE IF NOT CAREFULLY FOLLOWED.

CAUTION

OPERATING PROCEDURES, TECHNIQUES, ETC., WHICH COULD RESULT IN DAMAGE TO EQUIPMENT IF NOT CAREFULLY FOLLOWED.

NOTE

Operating procedures, techniques, etc., which is considered essential to emphasize.

SYMBOLS, ABBREVIATIONS AND TERMINOLOGY

The following glossary is applicable within the airplane flight manual supplement

AC	Advisory Circular
ADC	Air Data Computer
ADF	Automatic Direction Finder
ADS-B	Automatic Dependent Surveillance - Broadcast
AFCS	Automatic Flight Control System
AFM	Airplane Flight Manual
AFMS	Airplane Flight Manual Supplement
AHRS	Attitude and Heading Reference System
ALT	Altitude, or AFCS altitude hold mode, or ALT button on the GDU.
AMMD	Airport Moving Map Display
AP	Autopilot
ATC	Air Traffic Control
AUX	Auxiliary
BARO	Barometric Setting
BC	Back Course
CDI	Course Deviation Indicator
COM	Communication radio
CRG	Cockpit Reference Guide
CWS	Control Wheel Steering
DME	Distance Measuring Equipment
DR	Dead Reckoning
EIS	Engine Indication System
FD	Flight Director

FIS-B	Flight Information Service-Broadcast
FLC	AFCS Flight Level Change mode, or FLC button on the GDU.
FLTA	Forward Looking Terrain Awareness
FMS	Flight Management System
FPL	Flight Plan
GA	Go-around or Garmin Antenna
GDU	Garmin Display Unit
GEA	Garmin Engine/Airframe Unit
GFC	Garmin Flight Control
GNSS	Global Navigation Satellite System
GP	GPS Glide Path
GPS	Global Positioning System
GPWS	Ground Proximity Warning System
GS	Glide Slope
HDG	AFCS heading mode or the HDG button on the GDU.
HSI	Horizontal Situation Indicator
IFR	Instrument Flight Rules
ILS	Instrument Landing System
INH	Inhibit
LNAV	Lateral Navigation
LNAV + V	Lateral Navigation with Advisory Vertical Guidance
LNAV/VNAV	Lateral Navigation / Vertical Navigation
LOC	Localizer
LOI	Loss of Integrity (GPS)
LP	Localizer Performance
LPV	Localizer Performance with Vertical Guidance
MAXSPD	Maximum Speed, AFCS Overspeed Protection mode

MFD	Multi Function Display
MSL	Mean Sea Level
NAV	Navigation, or AFCS navigation mode, or NAV button on the GDU.
NEXRAD	Next Generation Radar (XM/FIS-B Weather Product)
NM	Nautical Mile
OAT	Outside Air Temperature
ODA	Organization Designation Authorization
OPT	Option
PDA	Premature Descent Alert
PFD	Primary Flight Display
PFT	Pre-Flight Test
PIT	AFCS Pitch Mode
POH	Pilot’s Operating Handbook
PROC	Procedure Button on the GDU
PTCH	Pitch
ROL	AFCS roll mode
SBAS	Satellite Based Augmentation System
STC	Supplemental Type Certificate
SVT	Synthetic Vision Technology
TAWS	Terrain Awareness and Warning System
TWY	Taxiway
VAPP	AFCS VOR Approach Mode
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
VNAV	Vertical Navigation
VNV	Vertical Navigation Button on the GDU
VOR	VHF Omni-directional Range

VPTH	Vertical Path
VS	Vertical Speed
WAAS	Wide Area Augmentation System
WFDE	WAAS Fault Detection/Exclusion
WGS-84	World Geodetic System – 1984
XM LTNG	XM Satellite System Lighting

LIMITATIONS

INTRODUCTION

This AFMS is applicable to the specific system software version listed below. The system software version number is displayed in the upper-right side of the MFD power-up page and on the AUX – System Status page.

Aircraft	System Software Version
G36 Bonanza	2780.00
G58 Baron	2788.00

COCKPIT REFERENCE GUIDE

The following Cockpit Reference Guides (CRG) must be immediately available to the pilot during all phases of flight:

Aircraft	Garmin Document
G36 Bonanza	190-02180-00, Garmin G1000 NXi Cockpit Reference Guide, A36/G36 Series
G58 Baron	190-02182-00, Garmin G1000 NXi Cockpit Reference Guide, Beechcraft 58/G58 Series

G1000 NXI LIMITATIONS

GROUND MANEUVERING

Do not use SafeTaxi, FliteCharts, ChartView, or SurfaceWatch functions as the basis for ground maneuvering. These functions do not comply with the requirements of AC 20-159 and are not qualified to be used as an airport moving map display (AMMD). These functions are to be used by the flight crew to orient themselves on the airport surface to improve pilot situational awareness during ground operations.

IFR/VFR CHARTS

Do not use the IFR/VFR CHARTS page for pilotage navigation. The IFR/VFR CHARTS are intended only to improve pilot situational awareness.

DATA LINK WEATHER (XM, OR FIS-B WEATHER)

Use of the NEXRAD, XM LTNG data on the MAP – NAVIGATION MAP, MAP – WEATHER DATA LINK (XM) and MAP – WEATHER DATA LINK (FIS-B) pages for hazardous weather, e.g., thunderstorm penetration, is prohibited. Datalink weather information displayed by the G1000 NXi system is limited to supplemental use only. XM, or FIS-B weather data is not a source of official weather information and is intended only as an aid to enhance situational awareness of hazardous weather.

FMS FLIGHT PLAN

Do not delete the arrival airport or runway waypoint within a loaded arrival procedure. Arrival procedures loaded into the G1000 NXi FMS must be associated with the destination airport.

EMERGENCY PROCEDURES

SURFACEWATCH WARNING (IF EQUIPPED)

TAXIWAY TAKEOFF

(Red TWY TAKEOFF Annunciator Is Displayed and Aural “Taxiway” Message)

1. **Takeoff .... ABORT**
2. **Throttle Control .... IDLE**
3. **Brakes .... APPLY**
4. Aircraft Position and Runway Assignment .... CONFIRM

If Aircraft Position and Runway Assignment are Correct:

5. SurfaceWatch Alerts .... OFF
    - From the MFD AUX – System Setup page
    - Set SurfaceWatch Alerts: OFF

NOTE

SurfaceWatch Alerts should be turned ON as soon as practical after takeoff to restore functionality for remainder of flight.

TAXIWAY LANDING

(Red TWY LANDING Annunciator Is Displayed and Aural “Taxiway” Message)

1. **BALKED LANDING Procedure..EXECUTE**
2. Aircraft Position and Runway Assignment........................... CONFIRM

If Aircraft Position and Runway Assignment are Correct:

3. SurfaceWatch Alerts ....OFF
   - From the MFD AUX – System Setup page
   - Set SurfaceWatch Alerts: OFF

NOTE

SurfaceWatch Alerts should be turned ON as soon as practical after landing to restore functionality for ground operations.

RUNWAY TOO SHORT DURING TAKEOFF

(Red RWY TOO SHORT Annunciator Is Displayed and Aural “Runway Too Short” Message)

1. **Takeoff .... ABORT**
2. **Throttle Control...IDLE**
3. **Brakes ....APPLY**
4. Aircraft Position and Runway Assignment............................... Confirm
5. Ensure correct origin, runway, and required takeoff distance have been entered into the G1000 system.
   - From the FPL – SurfaceWatch Setup page

RUNWAY TOO SHORT DURING LANDING

(Red RWY TOO SHORT Annunciator Is Displayed and Aural “Runway Too Short” Message)

1. **BALKED LANDING Procedure.. EXECUTE**
2. Aircraft Position and Runway Assignment........................... CONFIRM
3. Ensure correct destination, runway, and required landing distance have been entered into the G1000 NXi system:
   - From the FPL – SurfaceWatch Setup page

ABNORMAL PROCEDURES

SURFACEWATCH CAUTION MESSAGES (IF EQUIPPED)

CHECK RUNWAY DURING TAKEOFF

(Amber CHECK RUNWAY annunciator displayed on PFD and aural “CHECK RUNWAY”)

This caution alert is issued when the aircraft is taking off from a runway different than that entered in the FPL – SurfaceWatch Setup Page on the MFD.

1. Aircraft Position/Runway Assignment .... CONFIRM

If Aircraft Position and Runway Assignment are Correct:

2. Takeoff .... CONTINUE AS DESIRED

If Aircraft Position and Runway Assignment are Not Correct or Cannot be Determined:

3. Takeoff ....ABORT
4. Throttle Control … ....…IDLE (pull full out)
5. Brakes …………………… .... …………APPLY
6. Enter correct origin, runway, and required takeoff distance into the G1000 NXi system:
   - From the FPL – SurfaceWatch Setup Page on the MFD.

CHECK RUNWAY DURING LANDING

(Amber CHECK RUNWAY annunciator displayed on PFD and aural "CHECK RUNWAY")

This caution alert is issued when the aircraft is landing on a runway different than that entered on the MFD FPL – SurfaceWatch Setup Page.

1. Aircraft Position/Runway Assignment .... CONFIRM

   If Aircraft Position and Runway Assignment are Correct:

2. Approach and Landing .... CONTINUE AS DESIRED

   If Aircraft Position and Runway Assignment are Not Correct or Cannot be Determined:

3. BALKED LANDING Procedure .... EXECUTE
4. Enter correct destination, runway, and required landing distance into the G1000 NXi system:
   - From the FPL – SurfaceWatch Setup Page on the MFD.

SURFACEWATCH SYSTEM MESSAGES (IF EQUIPPED)

SURFACEWATCH INHIBITED

During certain flight operations, there may be a desire by the crew to inhibit the SurfaceWatch system, although it is considered abnormal to do so. Use the following procedures to inhibit the SurfaceWatch system:

1. MFD AUX – System Setup Page ....VIEW
2. SurfaceWatch Alerts .... SELECT
3. SurfaceWatch Alerts ....SELECT OFF

NOTE

After inhibiting SurfaceWatch, the following will post as an alert on the PFD, in the Alerts window:

“SURFACEWATCH INHIBITED SurfaceWatch Inhibited.”

SurfaceWatch Alerts will remain inhibited until manually un-inhibited by the pilot, or a power-cycle of the system. After a shutdown of the G1000 NXi system, SurfaceWatch will return to its normal state of operation and will not be inhibited.

SURFACEWATCH FAIL

If any of the required inputs for SurfaceWatch operation are failed, invalid, or unavailable (such as GPS position), SurfaceWatch will be inoperative until the required parameters are restored. If SurfaceWatch has failed, the following will post as a message on the PFD, in the Alerts window:

> “SURFACEWATCH FAIL One or more inputs invalid.”

SurfaceWatch will automatically return to its normal state of operation without crew action once the required inputs are restored.

NO SURFACEWATCH RUNWAY POSITION DATA

There are certain runways at various worldwide airports that do not have valid position data for the SurfaceWatch system to use. If such a runway is entered into the system for either takeoff or landing via the FPL – SurfaceWatch Setup Page on the MFD, the following will post as a message on the PFD, in the alerts window:

> “NO RUNWAY POSITION DATA Inhibit SurfaceWatch. No runway position data.”

SurfaceWatch should then be inhibited according to the SURFACEWATCH INHIBIT procedures outlined above. Failure to do so will result in nuisance TWY TAKEOFF or TWY LANDING warnings as applicable. After performing the takeoff or landing with SurfaceWatch inhibited, the system should be un-inhibited as soon as practical so that functionality will be restored for the remainder of the flight.

NORMAL PROCEDURES

BEFORE TAXI

The following procedures replace the autopilot preflight test in the BEFORE TAXI section of the NORMAL PROCEDURES in the Airplane Flight Manual, Step 4 for the G58 Baron and Step 5 for the G36 Bonanza:

Autopilot Preflight Test .... COMPLETE

a. Red AFCS Message ....ILLUMINATED WHILE AHRS ALIGNS
b. Red AFCS Message .... EXTINGUISHED
c. White PFT Message... ILLUMINATED (~ 5 seconds)
d. White PFT Message.. EXTINGUISHED
e. Autopilot Disconnect Tone ....SOUNDS

NOTE

If the autopilot disconnect tone is not heard after the white PFT message extinguishes, verify the aural alert can be heard after reengaging and disconnecting the autopilot.

f. Autopilot ....ENGAGE
g. AP DISC/TRIM INTER Button...PRESS
h. Autopilot Disconnect Tone ....SOUNDS

PERFORMANCE

No Change. Refer to Pilot's Operating Handbook and FAA Approved Airplane Flight Manual or appropriate supplement.

WEIGHT AND BALANCE/EQUIPMENT LIST

No Change. Refer to Pilot's Operating Handbook and FAA Approved Airplane Flight Manual or appropriate supplement.

AIRPLANE AND SYSTEMS DESCRIPTIONS

STANDARD AVIONICS

HANDLING, SERVICE, AND MAINTENANCE

No Change. Refer to Pilot's Operating Handbook and FAA Approved Airplane Flight Manual or appropriate supplement.

OTHER PROCEDURES

ADS-B OUT

The installed ADS-B OUT system has been shown to meet the equipment performance requirements of 14 CFR 91.227.

The ADS-B OUT system should be operational during all phases of flight, including airport surface movement operations.

The ADS-B OUT system is operational when the transponder is in the ON or ALT mode. This will be indicated in the transponder window in the lower right corner of the PFD.

If the G1000 NXi system is unable to transmit ADS-B OUT messages, the following message will post on the PFD in the alerts window:

XPDR1 ADS-B NO POS – Transponder: ADS-B is not transmitting position.

If the above message is received, verify valid GPS position is available.

1. MFD AUX – GPS Status Page...........................VERIFY GPS Position

PRESSURE ALTITUDE BROADCAST INHIBIT

While conducting operations within airspace that requires ADS-B Out transmissions, operate the transponder in ALT mode unless requested otherwise by ATC. If ATC requests the inhibit of pressure altitude transmissions, select the transponder to ON mode:

1. XPDR Softkey on PFD...PRESS
2. ON Softkey ....PRESS

MILLENNIUM
CONCEPTS, INC.

9050 W. Monroe Circle
Wichita, Kansas 67209
United States of America
PH: (316) 821-9300
FAX: (316) 821-9384

Name: Millennium Concepts, Inc.

Address: 9050 W. Monroe Circle, Wichita, KS 67209

Supplement No.: 2033-AFMS-S2

FAA-APPROVED

AIRPLANE FLIGHT MANUAL SUPPLEMENT FOR HAWKER BEECHCRAFT MODEL G58 BARON INTERIOR

Reg. No. ______________________________

Ser. No. ______________________________

This supplement must be attached to the FAA-approved Airplane Flight Manual P/N 58-690000-67 when the Millennium Interior Upgrade is installed in accordance with the Supplemental Type Certificate No. SA01671WI. The information contained in this document supplements or supersedes the basic manual only in those areas listed. For limitations, procedures, performance, and loading information not contained in this supplement, consult the basic Airplane Flight Manual.

FAA-Approved JM Baker

for Margaret Kline, Manager
Aircraft Certification Office
Federal Aviation Administration
Wichita, Kansas

Date 2/3/2012

LIST OF EFFECTIVE PAGES

Page	Revision / Status	Date
1 thru 15	Revision IR	3 February 2012

LOG OF REVISIONS

Revision	Pages Affected	Description	FAA Approval	Date of Revision
IR	All	Initial Release	DM Bal	02/03/12

TABLE OF CONTENTS

INTRODUCTION

This supplement must be attached to the FAA Approved Airplane Flight Manual when the Millennium Interior Upgrade has been installed in the airplane. The information in this document supplements or supersedes the basic manual only in those areas listed. For limitations, procedures, performance, and loading information not contained in this supplement, consult the basic Airplane Flight Manual.

Sections 1 through 8 provide supplemental information to the Pilot Operating Handbook and the FAA approved Airplane Flight Manual.

SECTION 1 - GENERAL

INTRODUCTION

NO CHANGE.

SECTION 2 - LIMITATIONS

SEATING

Do not take off or land with the seat back of an occupied pilot's or copilot's seat in the full back position. The seat back of all other occupied seats must be in the most upright position for takeoffs and landings. Occupied aft facing seats must have the headrests extended to fully support the occupant's head.

PLACARDS/MARKINGS

Placards/markings are required to remind the flight crew and occupants of operating limitations and safety device limitations. The following illustrations depict placards/ markings pertinent to operations and safety of flight.

The placards listed below are required in lieu of or in addition to those stated in the basic POH, as applicable.

On Left Side Panel:

Placard part number 2033-1100351-055, Strobe Lights, is installed in lieu of factory placard part number TH00C 020329AA.AI. The content of the placard is unchanged.

On Left Windshield Post if Electrothermal Heated Windshield Segment is Installed:

Placard part number 2033-1100351-075, Magnetic Compass, is installed in lieu of factory placard part number C95TH02C0147 C. The content of the placard is unchanged.

On Upper Left Side Panel in Cockpit, Airplanes Approved for Flight in Icing Conditions:

AIRSPEED LIMITATIONS (IAS)	OPERATIONAL LIMITATIONS
MAX LDG GEAR EXTENDED (NORMAL) - - - 152 KTS MAX FLAPS EXTENDED (15˚ DOWN) - - - - - 152 KTS MAX FLAPS EXTENDED (NORMAL) - - - - - - 122 KTS MAX DESIGN MANEUVER SPEED - - - - - - - 156 KTS MIN CONTROL SPEED SINGLE ENGINE - - - 84 KTS NEVER EXCEED SPEED - - - - - - - - - - - - - - 223 KTS MAX STRUCTURAL CRUISE SPEED - - - - - 195 KTS	THIS AIRPLANE MUST BE OPERATED AS A NORMAL CATEGORY AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF PLACARDS, MARKINGS, AND MANUALS. MAX. TAKEOFF WEIGHT IS 5500 LBS. MAX. LANDING WEIGHT IS 5400 LBS. THIS AIRPLANE IS APPROVED FOR VFR, IFR, DAY AND NIGHT OPERATION. THIS AIRPLANE IS APPROVED FOR FLIGHT IN ICING CONDITIONS. NO ACROBATIC MANEUVERS INCLUDING SPINS APPROVED.

2033-1100351-065 Speed Limits & Operational Limitations G58
Installed in lieu of factory placard number: TH00C 020330AA.AI and C95TH02C0149 C

On Upper Left Side Panel in Cockpit, Airplanes Not Approved for Flight in Icing Conditions:

AIRSPEED LIMITATIONS (IAS)	OPERATIONAL LIMITATIONS
MAX LDG GEAR EXTENDED (NORMAL) - - - 152 KTS MAX FLAPS EXTENDED (15˚ DOWN) - - - - - 152 KTS MAX FLAPS EXTENDED (NORMAL) - - - - - - 122 KTS MAX DESIGN MANEUVER SPEED - - - - - - - 156 KTS MIN CONTROL SPEED SINGLE ENGINE - - - 84 KTS NEVER EXCEED SPEED - - - - - - - - - - - - - - 223 KTS MAX STRUCTURAL CRUISE SPEED - - - - - 195 KTS	THIS AIRPLANE MUST BE OPERATED AS A NORMAL CATEGORY AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF PLACARDS, MARKINGS, AND MANUALS. MAX. TAKEOFF WEIGHT IS 5500 LBS. MAX. LANDING WEIGHT IS 5400 LBS. THIS AIRPLANE IS NOT APPROVED FOR FLIGHT IN ICING CONDITIONS OR ACROBATIC MANEUVERS, INCLUDING SPINS.

2033-1100351-089 Speed Limits & Operational Limitations G58 (not approved for FIKI)
Installed in lieu of factory placard number: TH00C 020330AA.AI and C95TH02C0151 C

On Inboard Side of Seat Backs for 3rd & 4th Seats:

Placard part number 2033-1100351-067, Backrest Handle Operation, is installed in lieu of factory placard part number C94CE02CI963. The content of the placard is unchanged.

Adjacent to Cockpit and Cabin Door Handles:

ROTATE HANDLE TO
FULL LOCKED POSITION

ROTATE HANDLE TO
OPEN

2033-1100351-079 Cabin Door Handle Operation
Installed in lieu of factory placard number: C94CE02CI958

Adjacent to Openable Cabin Window Handles:

Placard part number 2033-1100351-061, Emergency Exit Mechanism Operation, is installed in lieu of factory placard part number C94CE02CI978. The content of the placard is unchanged.

On Face of Emergency Exit Latch Cover:

Placard part number 2033-1100351-063, Emergency Exit, is installed in lieu of factory placard part number C94CE02CI954. The content of the placard is unchanged.

On Aft Bulkhead:

BAGGAGE COMPARTMENTS

LOAD IN ACCORDANCE WITH
WEIGHT AND BALANCE DATA

MAXIMUM STRUCTURAL CAPACITY
MAIN COMPARTMENT – 400 POUNDS
AFT COMPARTMENT – 120 POUNDS
(INCLUDES COAT HANGER BAR WEIGHT)
COAT HANGER BAR – 10 POUNDS

2033-1100351-045 Aft Baggage Bulkhead
Installed in lieu of factory placard number: C95TH02C0160 or C95TH02C0161

On Aft Bulkhead (When Utility Door Removal Kit is Installed):

WHEN UTILITY DOORS ARE REMOVED
THE FOLLOWING RESTRICTIONS APPLY
TO CABIN AREA

1. NO SMOKING
2. ALL LOOSE OBJECTS MUST BE SECURED
3. PERSONNEL NOT SECURED IN SEATS BY SAFETY BELTS MUST WEAR PARACHUTES

2033-1100351-087 Aft Baggage Bulkhead (Utility Door Removal Kit)
Installed in lieu of factory placard number: C95TH02C0161

In addition the following placards are required:

On Table Surround (if Table is Installed):

TABLE LID MUST BE CLOSED DURING TAXI, TAKE OFF AND LANDING

2033-1100351-007 Table Lid Closure

On Underside of Table Leaf, Visible When Table is Folded (If Table is Installed):

TABLE MUST BE STOWED DURING TAXI, TAKE OFF AND LANDING

2033-1100351-039 Table Leaf Stowage

On LH Window Panel near Footman Loops:

CARGO RETENTION NET MUST BE SECURED WHEN BAGGAGE
AND OTHER LOOSE ITEMS ARE CARRIED IN THIS AREA.

2033-1100351-069 Cargo Retention

On Lower Bulkhead Above Return Air Vent:

DO NOT BLOCK RETURN AIR DUCT

2033-1100351-071 Return Air Duct

On LH Window Panel in Cockpit and RH Cabin Window Panel (Adjacent to Row 2 Seat):

STOW CENTER ARMREST (DOWN) DURING
TAXI, TAKE OFF AND LANDING

2033-1100351-073 Armrest Position

On Vertical Face of Quadrant Cover:

CLOSED

C F
O L
W A
L P
S

OPEN

2033-1100351-043 Cowl/ Flaps

On Forward Cargo Door, Above Stowage Pocket:

MAXIMUM STOWAGE CAPACITY 3 LB

2033-1100351-047-XXX Main Cabin Door Stowage Pocket Weight Limit
“XXX” denotes color code

On Aft Face of Cup Holder, Located in the Cockpit Quadrant Cover Drawer:

L
A
T
C
H
↓

2033-1100351-077 Quadrant Cover Drawer Latch

On Quadrant Cover Pull Out Drawer, Between Cup Holders:

STOW DURING TAXI,
TAKE-OFF AND
LANDING
↑

2033-1100351-081 Power Quadrant Cupholder

On Armrest (At Forward End of Both Vertical Surfaces):

RELEASE UNDERNEATH

2033-1100351-083 Armrest Release

SECTION 3 – EMERGENCY PROCEDURES

NO CHANGE.

SECTION 3A – ABNORMAL PROCEDURES

NO CHANGE.

SECTION 4 – NORMAL PROCEDURES

The following checks must be added to the normal procedures in the basic Model G58 FAA Approved Airplane Flight Manual.

BEFORE ENGINE STARTING

1. Seats....................POSITION FOR TAKE-OFF
   a. Seat Backs....................UPRIGHT
   b. Rear Facing Seat Headrests....................RAISE
   c. Seat Center Armrests....................DOWN
   d. Cabin Table (If Installed)....................STOW
   e. Cockpit Cup Holder Drawer....................STOW

BEFORE LANDING

1. Seats....................POSITION FOR LANDING
   a. Seat Backs....................UPRIGHT
   b. Rear Facing Seat Headrests....................RAISE
   c. Seat Center Armrests....................DOWN
   d. Cabin Table (If Installed)....................STOW
   e. Cockpit Cup Holder Drawer....................STOW

SECTION 5 – PERFORMANCE

NO CHANGE.

SECTION 6 – WEIGHT AND BALANCE / EQUIPMENT LIST

The airplane weighing procedures remain as specified in the basic manual.

WARNING

It is the responsibility of the pilot to ensure that the airplane is loaded properly. Operation outside of prescribed weight and balance limitations could result in an accident and serious or fatal injury.

On PAYLOAD LOCATIONS diagram, revise flag note 4 and add flag note 5 as follows:

4 Maximum Baggage Weight is 120 pounds (includes coat hanger bar weight)

5 Maximum Coat Hanger Bar weight is 10 pounds.

EQUIPMENT LIST

The following equipment must be listed to the aircraft serial number specific equipment list:

For interiors with the club seat arrangement:

Equipment Description	Weight (lb)	Arm (in)
Club Seating Arrangement		
Third Aft Facing Seat, LHS	26.7	107.6
Fourth Aft Facing Seat, RHS	24.6	106.7
Fifth Forward Facing Seat, includes Seat Belt, LHS	16.0	156.7
Sixth Forward Facing Seat, includes Seat Belt, RHS	16.0	156.7

For interiors with the forward facing seat arrangement:

Equipment Description	Weight (lb)	Arm (in)
Forward Facing Seating Arrangement		
Third Forward Facing Seat, LHS	24.6	118.8
Fourth Forward Facing Seat, RHS	26.7	117.9
Fifth Forward Facing Seat, includes Seat Belt, LHS	16.0	156.7
Sixth Forward Facing Seat, includes Seat Belt, RHS	16.0	156.7

SECTION 7 – SYSTEMS DESCRIPTION

SEATING ARRANGEMENTS

Replace the information in Section SEATING ARRANGEMENTS as shown.

The Model G58 is a six-place airplane. The standard configuration consists of club seating in the cabin, with the 3rd and 4th seats facing aft and the 5th and 6th seat facing forward.

An optional cabin seating arrangement is available which allows the 3rd and 4th seats to be arranged in a forward-facing position. The club arrangement offers a stowable table in the cabin between the middle and aft seat rows. In the club arrangement, the presence of the table and surrounding lower side wall panel prohibit the 3rd and 4th seats from being rearranged to face forward. To change the configuration from the club arrangement to the forward facing seating arrangement an alternate lower side wall panel must be installed at the LH and RH cabin sidewalls. For the middle row seats, the aft facing LH seat is the same part number as the forward facing RH seat (and vice versa).

PEDESTAL

Replace the information in Section PEDESTAL as shown.

The pedestal is located below the center portion of the instrument subpanel. The upper portion of the pedestal houses the throttle (black), propeller (blue), and mixture (red) control levers. The elevator trim tab control is located on the left side of the pedestal. The rudder and aileron trim tab controls are mounted on the front of the pedestal along with the cowl flap control.

Underneath the trim tab controls and the cowl flap control is a cup holder drawer. It is released by a latch underneath the left hand side of the drawer and latches automatically when pushed forward into the stowed position.

SEATS, SEAT BELTS, AND SHOULDER HARNESSES

Replace the information in Section SEATS as shown.

SEATS

The front two seats are adjustable as follows:

Forward and aft – Pull up on the release handle located below the forward left side of the seat and slide the seat to the desired position.

Vertical adjustment – Push the button located below the forward outboard side of the seat, lean forward and shift weight forward to raise the seat. Use the assist handle located at the forward end of the center headliner to aid in adjustment. The seat will tilt up and forward and can be adjusted to an intermediate position by releasing the button. To lower the seat, push the button and lean backward or push with the upper torso against the backrest of the seat.

Seat backrests – Use the silver lever located at the aft inboard side of the seat to vary the inclination of the seat backrest to one of four preset positions. Lean forward to release pressure on the seat backrest. Lift the lever up, and then allow the seat backrest to recline to the desired position. The seat backrest of the 3rd and 4th seats may have to be folded aft to allow the front seats to reach the full aft position. To bring the backrest upright, pull the backrest to the upright position as desired. The mechanism will automatically lock, as it is pulled upright.

Headrest – Pull up or push down the headrest to position it in the desired position. Notches in the headrest tubes provide fixed, indexed positions.

Armrest – The armrest is deployed by pulling it up from the stowed (down) position to the fully deployed (up) position. It will automatically lock when it reaches the fully deployed position. To stow the armrest pull the release lever underneath the front end of the armrest to release the locking mechanism. For the pilot seat, the release lever is behind the mic clip.

Lumbar Adjustment – The lumbar support can be adjusted by the rotary knob on the inboard side of the backrest.

The middle two seats (3rd and 4th seat) are adjustable as follows:

Forward and aft – Pull up on the release handle located below the forward left side of the seat and slide the seat to the desired position.

Seat backrests – Use the silver lever located at the aft inboard side of the seat to vary the inclination of the seat backrest to one of four preset positions. Lean forward to release pressure on the seat backrest. Lift the lever up, and then allow the seat backrest to recline to the desired position. To bring the backrest upright, pull the backrest to the upright position as desired. The mechanism will automatically lock, as it is pulled upright.

To fold over the seat backrest use the red lever located at the bottom inboard side of the seat backrest. Lift the lever up and rotate the backrest towards the seat bottom. To reverse the fold over position, pull the backrest to the upright position until it automatically locks.

Headrest – Pull up or push down the headrest to position it in the desired position. Notches in the headrest tubes provide fixed, indexed positions. When the club seating arrangement is utilized, the aft facing seats must have the headrests raised to fully support the occupant's head during take-off and landing.

Armrest – The armrest is deployed by pulling it up from the stowed (down) position to the fully deployed (up) position. It will automatically lock when it reaches the fully deployed position. To stow the armrest pull the release lever underneath the front end of the armrest to release the locking mechanism.

Lumbar Adjustment – The lumbar support can be adjusted by the rotary knob on the inboard side of the backrest.

The aft two seats (5th and 6th seat) are adjustable as follows:

Seat backrests – Use the silver lever located at the aft outboard side of the seat to vary the inclination of the seat backrest to one of four preset positions. Lean forward to release pressure on the seat backrest. Lift the lever up, and then allow the seat backrest to recline to the desired position. To bring the backrest upright, pull the lower portion of the backrest forward to the upright position as desired. The mechanism will automatically lock, as it is pulled upright.

Headrest – Pull up or push down the headrest to position it in the desired position. Notches in the headrest tubes provide fixed, indexed positions.

SEAT BELTS

NO CHANGE.

SHOULDER HARNESSES

NO CHANGE.

LIGHTING SYSTEM

INTERIOR LIGHTING

The following paragraph shall be added to the end of section INTERIOR LIGHTING. Otherwise there are no further changes to the system description for INTERIOR LIGHTING in the basic manual.

Accent lights are provided on the ceiling panel in the baggage compartment near the aft bulkhead, at the bottom of the main left side lower panel in between the middle and aft seat rows, and on the left and right side of the pedestal in the pilot and co-pilot foot wells. In the case of the club arrangement with the side table, there are additional accent lights in the bottom of the cup holders located forward and aft of the side table. The accent lights are designed to be on when the aircraft is powered on.

Add the following section as shown.

CABIN SIDE TABLE

The club arrangement provides a cabin side wall table between the middle and aft seat rows, which can be stowed inside the interior side wall panel when not in use. To deploy the table, lift up the table lid and pull out table leaf. Rotate the table inboard to the horizontal position. Rotate the outer leaf 180 degrees to the deployed position. The table lid may be closed to rest on the table leaf.

To stow the table, open table lid, fold the outer leaf onto the inner leaf and lift the table leaf to the near vertical position. In this position the table will start to drop into the interior panel. Allow the table to descend into the interior panel to the stowed position. A damper in the table mechanism controls the rate of downward motion. Close table lid.

SECTION 8 – HANDLING, SERVICING AND MAINTENANCE

NO CHANGE.

One Sky Aviation
3665 Aircraft Drive
Anchorage AK 99502

POH Supplement
03/08/2012
Doc. No. 361601, Rev IR

Bonanza Models A36, G36, A36TC, B36TC, F33A, F33C

Baron Models 58, 58A, G58, B55, E55

Pilot's Operating Handbook Supplement

For STC SA02387AK
Exterior LED Lighting Suite

Airplane Serial number:______________________________

Airplane Registration Number: ________________________

One Sky Aviation
3665 Aircraft Drive
Anchorage AK 99502

Bonanza LED Exterior Lighting

The switches for all of the exterior lights are located on the left subpanel. The LED exterior lights consist of a Landing Light in the fuselage nose, a Taxi Light attached to the nose landing gear strut, Ground Awareness Beacon Lighting on the vertical stabilizer and combined Navigation (Forward & Tail) & Anti-Collision (Strobe) lighting on each wing tip. A Step Light is installed on the right side fuselage.

Baron Exterior LED Lighting

The switches for all of the exterior lights are located on the left subpanel. The LED exterior lights consist of Landing Lights in the left & right engine nacelles, a Taxi Light attached to the nose landing gear strut, Ground Awareness Beacon Lighting on the vertical stabilizer and combined Navigation (Forward & Tail) & Anti-Collision (Strobe) lighting on each wing tip. A Step Light is installed on the right side fuselage. A Wing Ice Inspection Light is installed on the left engine nacelle.

Bonanza & Baron LED Anti-Collision Lighting Update

The FAA certified LED Anti-Collision Lighting is located on the end of each wingtip and is controlled by the STROBE switch. The wingtip Anti-Collision Lighting is required for night flight.

Bonanza & Baron LED Beacon Lighting Update

The upper LED Ground Awareness Beacon Light does not rotate, is only certified for ground operations and is controlled by the BEACON switch. It is acceptable to fly with the ground Beacon Light illuminated and flashing. The lower Beacon light is no longer present and the aircraft opening is closed with a patch.

Bonanza & Baron LED Navigation Lighting Update

The LED Forward Navigation Lighting is located on the end of each wingtip and is controlled by the NAV switch. The LED Tail Navigation lighting is located on the end of each wingtip and is controlled by the NAV switch. The Tail Navigation Light in the tail cone is no longer present and the opening is closed with a patch.

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HPBE58-2
SEPTEMBER 3, 1998
REVISION A, APRIL 6, 2005
FAA APPROVED
AIRPLANE FLIGHT MANUAL SUPPLEMENT
FOR THE
RAYTHEON 58, 58A, G58 BARON

Serial Number: ______________________________

Registration Number: ____________________________

<u>General</u>

This supplement must be attached to the FAA Approved Airplane Flight Manual when the airplane is modified by the installation of the Hartzell PHC-J3YF-2UF/FC7663(K) – 2R propellers, and C-3567-1 (P) or C-3567-4(P) spinners in accordance with STC SA5533NM.

The information contained herein supplements or supersedes the basic manual only in those areas listed herein. For limitations, procedures, and performance information not contained in this supplement, consult the Airplane Flight Manual.

FAA Approved For: Joseph Gmiess for 16 MAY 2005
Manager, Systems & Flight Test Branch ACE-117C
Chicago Aircraft Certification Office
Federal Aviation Administration

LOG OF REVISIONS

Revision Number	Revised Pages	Description of Revision	Date
A	All	Added G58 Model	4/6/05

NOTE: All changes are indicated by a black vertical line along the left margin.

FAA Approved Charles L. Smalley

Date 16 MAY 2005

FAA APPROVED
AIRPLANE FLIGHT MANUAL SUPPLEMENT
FOR THE
RAYTHEON 58, 58A, G58 BARON

Limitations

Propeller:	Hartzell PHC-J3YF-2UF/FC7663(K)-2R
Pitch:	Feather: 82.0 ± 0.5 degrees Start lock: 18.5 ± 1.5 degrees Low: 13.0 ± 0.2 degrees Measured at 30 inch station Maximum Diameter: 76 inches Minimum Diameter: 74 inches
Kinds of Operation Limits:	Approval for flight in icing conditions is unchanged when STC SA5533NM and BFG propeller de-ice kits are installed per installation instructions HPBE58-1 or HPBE58-1A. If propeller de-ice equipment is not installed, flight into icing conditions is prohibited.

Emergency Procedures

No change.

FAA Approved ______________________

Date 16 MAY 2005

FAA APPROVED
AIRPLANE FLIGHT MANUAL SUPPLEMENT
FOR THE
RAYTHEON 58, 58A, G58 BARON

Normal Procedures

Electro thermal Propeller De-ice:

Propeller de-ice switch – ON
Propeller rpm – Maximum (2700)

Noise: This modification did not increase the noise level and was not considered an acoustical change as defined in paragraph 21.93(b) of the Federal Aviation Regulations.

Performance

No change.

Weight and Balance/Equipment List

Weight and balance information is contained in STC Installation Instructions HPB58-1 or HPB58-1A, and the Aircraft Equipment List.

Systems Description

Constant speed, full feathering, 3 blade propeller with an aluminum hub and aluminum blades. A full description may be found in Hartzell Manual 115N.

Handling, Service and Maintenance

Refer to Hartzell Manual 115N. Recommended time-between-overhaul may be found in Hartzell Service Letter 61( ) or Hartzell Manual 113B.

FAA Approved ______________________

Date 1 6 MAY 2005

HARTZELL

FAA APPROVED
AIRPLANE FLIGHT MANUAL SUPPLEMENT
AFMS 20002-1

RAYTHEON AIRCRAFT COMPANY
BEECHCRAFT BARON
58, 58A, AND G58 AIRPLANES
(SERIALS TH-1389, TH-1396 AND AFTER)

MODIFIED IN ACCORDANCE WITH
STC SA10551SC

INSTALLATION OF HARTZELL
MODEL PHC-J3YF-2UF/FC7391D(K) PROPELLERS

Model No. ____________________
Registration No. ____________________
Serial. No. ____________________

This supplement must be attached to the appropriate FAA Approved Airplane Flight Manual when the aircraft is modified in accordance with **STC SA10551SC**. The information contained herein supplements or supersedes the Airplane Flight Manual only in those areas listed herein. For limitations, procedures and performance information not contained in this supplement, consult the basic Airplane Flight Manual.

FAA APPROVED

S. Frances Cox, Manager
Special Certification Office, ASW-190
Federal Aviation Administration
Fort Worth, Texas 76193-0190

Original Issue Date: JUL 06 2006

JUN 20 2006

LOG OF REVISIONS

REV	DESCRIPTION	PAGES AFFECTED	FAA APPROVED BY	DATE
IR	Initial Release	All	See Cover	See Cover

JUN 20 2006

SECTION I
GENERAL

This Airplane Flight Manual Supplement (AFMS) presents changes associated with the installation of two Hartzell 3-bladed PHC-J3YF-2UF/FC7391D(K) propellers in accordance with Hartzell Propeller, Inc. STC SA10551SC for Raytheon Aircraft (Beechcraft) Baron 58, 58A and G58 airplanes equipped with Teledyne Continental Motors IO-550-C engines.

IMPORTANT NOTICE

This supplement to the Airplane Flight Manual should be read carefully by the owner and/or operator in order to become familiar with the operation of the airplane. It contains limitations, operating procedures, performance information, and systems descriptions that are essential information for the pilot to properly operate Model 58, 58A, and G58 aircraft that have been modified in accordance with STC SA10551SC. As specified, this supplement must accompany the basic Airplane Flight Manual and be available to the pilot at any time during flight. If a section has not been provided in this document, then refer to the basic Airplane Flight Manual.

REVISING THIS FLIGHT MANUAL SUPPLEMENT

Each time this supplement is revised or reissued, a new Log of Revisions page is provided along with the pages containing corresponding data or changes. In the footer of each page is shown the approval date and revision letter (when applicable). When updating this supplement to a later FAA Approved revision level, remove the Log of Revision page and the pages to be replaced and insert the new Log of Revision page and revised pages. That portion of text or an illustration, which has been revised by the addition of, or change in, information is denoted by a solid revision bar located adjacent to the area of change, and placed along the outside margin of a page. Revision bars show only information changed within latest revision.

JUN 20 2006

SECTION I
GENERAL
(Continued)

DESCRIPTIVE DATA

PROPELLER MANUFACTURER
Hartzell Propeller Inc. (Piqua, Ohio)

NUMBER OF BLADES
Three

PROPELLER TYPE
Constant-speed, variable-pitch, three-blade propeller using a PHC-J3YF-2UF hub with FC7391D(K) blades.

PITCH SETTINGS (Measured at 30 inch blade station)
Low .... $12.8^{o} \pm 0.2^{o}$
High .... $18.5^{o} \pm 1.0^{o}$
Feathered .... $80.0^{o} \pm 0.5^{o}$

PROPELLER DIAMETER
Max .... 75 inches
Min .... 73 inches

JUN 20 2006

SECTION 2
LIMITATIONS

This Section presents additional and/or superseding operating limitations necessary for the safe operation of the airplane as modified per the Supplemental Type Certificate. These limitations are approved by the Federal Aviation Administration and must be observed and followed at all times when operating this aircraft.

POWERPLANT LIMITATIONS

PROPELLER MANUFACTURER

Hartzell Propeller Inc. (Piqua, Ohio)

NUMBER OF BLADES

Three

PROPELLER TYPE

Constant-speed, variable-pitch, three-blade propeller using a PHC-J3YF-2UF hub with FC7391D(K) blades.

PITCH SETTINGS (Measured at 30 inch blade station)

Low .... $12.8^o \pm 0.2^o$
High .... $18.5^o \pm 1.0^o$
Feathered .... $80.0^o \pm 0.5^o$

PROPELLER DIAMETER

Max .... 75 inches
Min .... 73 inches

JUN 20 2006

SECTION 2
LIMITATIONS
(Continued)

KINDS OF OPERATIONS

Approval for flight in icing conditions is unchanged from the basic AFM limitations with the installation of the PHC-J3YF-2UF hub with FC7391DK blades and the propeller's electrothermal de-ice system.

If propeller's electrothermal de-ice system is not installed, flight into known icing conditions is prohibited.

ICING LIMITATIONS

Propeller Electrothermal De-Ice System (if installed):

Do not operate this system when propellers are static.

SECTION 3
EMERGENCY PROCEDURES

NO CHANGE.

SECTION 4
NORMAL PROCEDURES

NOISE CHARACTERISTICS

This modification is considered to have "no acoustical change".

JUN 20 2006

SECTION 5
PERFORMANCE

Even though performance may be improved, the performance data published in the basic Airplane Flight Manual should be used for planning purposes.

No re-determination of performance has been made for this aircraft. To ensure required fuel reserves will be maintained during any flight, the pilot must monitor fuel consumption and fuel quantity.

SECTION 6
WEIGHT AND BALANCE

For current empty weight and c.g., see revised weight and balance record.

SECTION 7
SYSTEMS DESCRIPTION

PROPELLERS

This aircraft is now equipped with two Hartzell, constant speed, variable pitch, three blade, aluminum hub, aluminum blade, model PHC-J3YF-2UF/FC7391D(K) propellers. Note: the (K) in the propeller blade designates that the propeller is equipped with electro-thermal deice. Maximum diameter allowed is 75 inches. Minimum diameter allowed is 73 inches.

The pitch settings are (when measured at the 30 inch station)

Low .... $12.8^{o} \pm 0.2^{o}$
High .... $18.5^{o} \pm 1.0^{o}$
Feathered.. $80.0^{o} \pm 0.5^{o}$

JUN 20 2006

SECTION 7
SYSTEMS DESCRIPTION
(Continued)

ICE PROTECTION SYSTEMS (If originally installed)

Each propeller has been equipped with new electrothermal de-ice boots. Depending upon the original system, the de-ice brush blocks and de-ice timer may have been replaced. In all cases, the functionality and operation of the propeller de-ice system is unchanged.

SECTION 8
HANDLING, SERVICE AND MAINTENANCE

Refer to Hartzell Propeller Owner's Manual 115N and Hartzell Instructions for Continued Airworthiness Doc. No. 20002-30.

JUN 20 2006

FAA-APPROVED
AIRPLANE FLIGHT MANUAL SUPPLEMENT
For

Aircraft Make: Hawker Beechcraft Aircraft Model: G58

Registration No. ______________ Aircraft S/N: ________________

With

C&D Associates, Inc. TSO-C20 Approved Combustion Heater Kit P/N: CD50000K33

This supplement must be attached to the FAA Approved Aircraft Flight Manual dated __/__/__ when the C&D Associates TSO-C20 Combustion Heater has been installed in accordance with STC # SA02816CH, with installation instructions IN50000K33 Rev. none, Dated 03/17/09. The information contained in this document supplements or supersedes the basic manual only in those areas listed. For limitations, procedures, performance, and loading information not contained in this supplement, consult the basic Airplane Flight Manual.

FAA-Approved Mark W Anderson Date: MAR 18 2010

for Charles Smalley, Manager
Chicago Aircraft Certification Office

C&D ASSOCIATES, INC.

C&D Associates, Inc.
302 Post Rd.
Buchanan, MI 49107
www.aircraftheater.com

FAA-APPROVED
AIRPLANE FLIGHT MANUAL SUPPLEMENT
For

Aircraft Make: Hawker Beechcraft   Aircraft Model: G58

Registration No. ____________ Aircraft S/N: ______________

With

C&D Associates, Inc. TSO-C20 Approved Combustion Heater Kit P/N: CD50000K33

LOG OF REVISIONS

Rev. No.	Description	Pages Revised	Approved By	Date
New -				3/17/09
A	Reworded para I &V.b.ii	pages 3, 4		6/16/09
B	Reworded para 5.c.	page 4		3/18/10

C&D ASSOCIATES, INC.

MAR 18 2010

C&D Associates, Inc.
302 Post Rd.
Buchanan, MI 49107
www.aircraftheater.com

FAA-APPROVED
AIRPLANE FLIGHT MANUAL SUPPLEMENT
For

Aircraft Make: Hawker Beechcraft Aircraft Model: G58

Registration No. ____________ Aircraft S/N: ______________

With
C&D Associates, Inc. TSO-C20 Approved Combustion Heater Kit P/N: CD50000K33

I. OPERATING LIMITATIONS:
CAUTION: Heater must be off during engine starts to reduce the possibility of heater electronic device damage. The heater is generally controlled by a control switch offering "OFF", "FAN", or "HEAT" and temperature by a thermostat control.

II. PROCEDURES:

a. NORMAL OPERATING PROCEDURES:
   i. Heater start up: Open heat ducts as needed to allow heat distribution. Follow the original equipment methods of control. Place the heater control switch from off to heat position.
   ii. Heater shut down: Prior to heater shutdown, operate heater in low temperature or fan position for approximately two (2) minutes for cooling, and then turn to off position.

b. EMERGENCY PROCEDURES: In the event of heater malfunction such as overheating, smoke or fumes, disable heater by turning heater off. Disengage the heater circuit breaker as soon as practical. Notify a qualified service technician for servicing.

III. PERFORMANCE: This device will not change aircraft performance.

IV. LOADING INFORMATION:

a. Check weight and balance.
b. Fuel consumption should be considered as this heater may use up to ½ gal (3 lbs) of fuel per hour in the most extreme conditions of operation.
c. Heater electrical requirements may reach 16-18 amps at start up. Heater draws 9-11 amps during operation. In the event of aircraft electrical problem, the heater should be shut off. (Refer to emergency procedure II. b.)

V. GEN**ERAL INFORMATION:**

a. The new C&D heater has a 2000 hr TBO with a 4-yr/2000-hr pro-rated warranty. C&D Associates, Inc. combustion heater uses the aircraft fuel to provide heat as needed.
b. Heater construction is of stainless steel. Combustion takes place in a welded gas tight chamber called the combustion tube that has been specially coated with Durakoat to minimize the corrosive effect of the fuel air burn.
   i. Combustion inlet air and carbon monoxide gases created from the burn remains separate from the heated cabin ventilation air. The burnt gases are ducted outside of the aircraft through the exhaust pipe, which extends out of the aircraft skin.

FAA Approved Date: MAR 18 2010

C&D ASSOCIATES, INC.

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302 Post Rd.
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FAA-APPROVED
AIRPLANE FLIGHT MANUAL SUPPLEMENT
For

Aircraft Make: Hawker Beechcraft Aircraft Model: G58

Registration No. ____________ Aircraft S/N: ______________

C&D Associates, Inc. TSO-C20 FAA/PMA Approved Combustion Heater Kit P/N: CD50000K33

ii. Fresh or recirculated air taken from the ventilation air inlet is forced over the exterior of the welded combustion tube allowing heat transfer (thermal conductivity) to the forced ventilation air. This heated forced air then flows through the aircraft heat ducts into the cabin area. As the ventilation air is supplied by a blower and or ram air, the outside of the heater's sealed combustion chamber is of higher pressure than the inside of the combustion chamber. A vacuum created by the exhaust pipe extending out of the aircraft skin into the slip stream assures that CO carbon monoxide levels are non-existent in the ventilation-heated air distributed in the cabin even in the event of a leak.

c. SAFETY FEATURES: In the unlikely event the fuel solenoid sticks open allowing fuel to continue flowing, a mechanical overheat switch is located on the heater. This overheat switch will deactivate electrical power, if the temperature exceeds 350° F, shutting off the ignition fuel solenoid and fuel pump/remote shut-off located at the fuel source. A combustion air switch, in series with the overheat switch, disengages the electrical system in the event of inadequate air to the burner chamber.

FAA Approved Date: MAR 18 2010

C&D Associates, Inc.
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www.aircraftheater.com

A/C Systems LLC
138 Sherron Drive
Dickson, TN 37055

Document No. FTA-010-6

FAA APPROVED

AIRPLANE FLIGHT MANUAL SUPPLEMENT FOR BEECHCRAFT BARON G58, 58A, 58, E55A, E55, D55A, AND D55 WITH A/C SYSTEMS LLC AIR CONDITIONING SYSTEM

Model No.____________________

Reg. No.____________________

S/N____________________

This Supplement must be attached to the FAA approved Airplane Flight Manual. The information contained herein supplements or supersedes the basic Flight Manual only in those areas listed, when the aircraft is modified in accordance with STC number **SA03065CH-D** for installation of the A/C Systems LLC Air Conditioning System. The information contained in this document supplements or supersedes the basic Airplane Flight Manual only in those areas listed herein. For Limitations, Procedures, and Performance and loading information not contained in this Supplement, consult the basic Airplane Flight Manual and/or the Pilot's Operating Handbook.

FAA APPROVED: Tim Winiesdorffer

Tim Winiesdorffer
ODA Administrator
Standard Aero
Springfield, IL
ODA-100079-CE

DATE: April 23, 2012

REVISED: ____________________

A/C SYSTEMS LLC

DICKSON, TN

REVISION LOG

REV NO.	PAGES AFFECTED	DESCRIPTION OF REVISIONS	REVISED BY	DATE
IR	ALL	Initial Release of AFMS		04/23/2012

The revised portions of the affected pages are indicated by vertical black lines in the right margin.

SECTION 1 – GENERAL

The Automatic Climate Control System, incorporating an A/C Systems LLC Air Conditioning System, is designed to cool and heat the aircraft cabin to desired temperature settings during all phases of flight operations. The system may be used during any phase of the flight (except a right engine failure), offering a choice of fully automatic or mode override.

SECTION 2 – LIMITATIONS

No change to this section.

SECTION 3 – EMERGENCY PROCEDURES

ENGINE FIRE
IN FLIGHT

"OFF" on the Automatic Climate Control should be selected.

Climate Control System . . . . OFF

ELECTRICAL SMOKE OR FIRE
"OFF" on the Automatic Climate Control should be selected.

Climate Control System . . . . OFF

RIGHT ENGINE FAILURE
After securing and feathering the right engine:

The "Air Conditioning *Compressor* OFF" mode on the Automatic Climate Control should be selected by pressing the button until the adjacent indicator light goes out.

Air Conditioning Compressor Mode . . . . . . OFF

NOTE
This procedure ensures absolute maximum power is available for single engine operation.

LEFT ENGINE FAILURE
No change to this procedure.

SUSPECTED REFRIGERANT LEAK IN CABIN
The "Air Conditioning *Compressor* OFF" mode on the Automatic Climate Control should be selected by pressing the button until the adjacent indicator light goes out.

Air Conditioning Compressor Mode . . . . . . OFF
Cabin Vents. . . . . OPEN

SECTION 4 – NORMAL PROCEDURES

BEFORE TAXI

Climate Control System . . . . . . Select Mode as desired (Refer to Section 7)

NORMAL TAKEOFF

Climate Control System . . . . . . Select Mode as desired (Refer to Section 7)

NOTE

For takeoff with the "Air Conditioning *Compressor* ON" mode in operation, increase the Ground Roll distance as published in the POH for the applicable conditions by 4% and the corresponding Total Distance over a 50ft obstacle by 5%. If this incremental distance is not available, select the "*Compressor* OFF" mode during the takeoff portion of the flight by pressing the button until the adjacent indicator light is out. This selection is designed to ensure safe operation throughout the approved flight envelope – actual performance will vary depending upon ambient conditions.

SHORT FIELD TAKEOFF

Climate Control System . . . . . . Select Mode as desired (Refer to Section 7)

NOTE

For takeoff with the "Air Conditioning *Compressor* ON" mode in operation, increase the Ground Roll distance as published in the POH for the applicable conditions by 4% and the corresponding Total Distance over a 50ft obstacle by 5%. If this incremental distance is not available, select the "*Compressor* OFF" mode during the takeoff portion of the flight by pressing the button until the adjacent indicator light is out. This selection is designed to ensure safe operation throughout the approved flight envelope – actual performance will vary depending upon ambient conditions.

NOTE

If runway conditions are short, soft, or grass and if pressure altitude, temperature, or humidity is high, it is recommended that the Automatic Climate Control System is switched to the "Air Conditioning *Compressor* OFF" mode during the takeoff portion of the flight by pressing the button until the adjacent indicator light goes out.

NORMAL CLIMB (CRUISE)

No change to this procedure.

NOTE

For climb performance with the "Air Conditioning *Compressor* ON" mode in operation, decrease the rate-of-climb as published in the POH for the applicable conditions by 40 fpm. This selection is designed to ensure safe operation throughout the approved flight envelope – actual performance will vary depending upon ambient conditions.

SECTION 4 – NORMAL PROCEDURES (continued)

MAXIMUM PERFORMANCE CLIMB
No change to this procedure.

NOTE
For climb performance with the "Air Conditioning *Compressor* ON" mode in operation, decrease the rate-of-climb as published in the POH for the applicable conditions by 40 fpm. This selection is designed to ensure safe operation throughout the approved flight envelope – actual performance will vary depending upon ambient conditions.

NOTE
If absolute maximum climb performance is desired, the Climate Control System should be switched to the "Air Conditioning *Compressor* OFF" mode by pressing the button until the adjacent indicator light goes out.

NORMAL LANDING
No change to this procedure.

SHORT FIELD LANDING
No change to this procedure.

BALKED LANDING
No change to this procedure.

NOTE
For climb performance with the "Air Conditioning *Compressor* ON" mode in operation, decrease the rate-of-climb as published in the POH for the applicable conditions by 40 fpm. This selection is designed to ensure safe operation throughout the approved flight envelope – actual performance will vary depending upon ambient conditions.

NOTE
If absolute maximum climb performance is desired, the Climate Control System should be switched to the "Air Conditioning *Compressor* OFF" mode by pressing the button until the adjacent indicator light goes out.

SECTION 5 – PERFORMANCE

The pilot is responsible for computation of Weight & Balance conditions, density altitude, wind conditions, and runway conditions prior to departure.

The performance degradations shown below are to be applied to the existing charts in the basic POH when the Automatic Climate Control System is On and the system is in the "Air Conditioning *Compressor* ON" mode. Performance is unchanged when the system is in the "Air Conditioning *Compressor* OFF" mode.

TAKEOFF WEIGHT
TO ACHIEVE POSITIVE ONE-ENGINE INOPERATIVE CLIMB AT LIFT-OFF

To determine the maximum takeoff weight which will achieve a positive one-engine inoperative rate of climb at liftoff, with the climate control system in operation and the "Air Conditioning *Compressor* ON" mode active, increase the pressure altitude by 750 feet. For example, if the field pressure altitude is 1,000 feet, use the maximum takeoff weight that corresponds to a pressure altitude of 1,750 feet.

TAKE-OFF DISTANCE

For takeoff with the climate control system in operation and the "Air Conditioning *Compressor* ON mode active, increase the Ground Roll distance, as published in the POH for the applicable conditions, by 4% and the corresponding Total Distance over a 50ft obstacle by 5%. If this incremental distance is not available, select the "Air Conditioning *Compressor* OFF" mode during the takeoff portion of the flight by pressing the button until the adjacent indicator light is out.

ACCELERATE – GO DISTANCE

For takeoff with the climate control system in operation and the "Air Conditioning *Compressor* ON mode active**,** increase the Accelerate – Go Distance as published in the POH for the applicable conditions by increasing the pressure altitude by 750 feet. For example, if the field pressure altitude is 1,000 feet, use the Accelerate – Go Distance that corresponds to a pressure altitude of 1,750 feet." If this incremental distance is not available, select the "Air Conditioning *Compressor* OFF" mode during the takeoff portion of the flight by pressing the button until the adjacent indicator light is out.

CLIMB – TWO ENGINE
CLIMB – BALKED LANDING

For climb performance with the climate control system in operation and the "Air Conditioning *Compressor* ON mode active, decrease the rate-of-climb as published in the POH for the applicable conditions by 40 fpm. If absolute maximum climb performance is desired, the "Air Conditioning *Compressor* ON" mode should be switched to the "Air Conditioning *Compressor* OFF" mode by pressing the button until the adjacent indicator light goes out.

NOTE

The Climate Control System can display OAT. This display is advisory only and may differ from other OAT indications displayed in the cockpit.

NOTE

If the Automatic Climate Control System is not operating properly, all or any of the above factors may change. It is the pilot's responsibility to monitor fuel burn, time in flight and time to destination during all flight operations and make appropriate decisions to maintain a safe flight.

SECTION 6 – WEIGHT & BALANCE/EQUIPMENT LIST

The pilot should reference current weight and balance data in basic POH/AFM and compute proper aircraft weight and balance information prior to each flight.

SECTION 7 –SYSTEMS DESCRIPTION

The A/C Systems LLC Air Conditioning portion of the Automatic Climate Control System operates on a closed vapor loop concept. The Heating portion operates in the same fashion as the non-climate controlled aircraft though it is controlled automatically or manually overridden with the Automatic Climate Control System. The components are designed to be lightweight and to operate in extreme ranges of altitude and temperature.

ENVIRONMENTAL CONTROL SYSTEM

Automatic Climate Control System - The electronic Automatic Climate Control System is fully automatic and is designed to maintain the desired temperature inside the aircraft. The temperature and volume of the air coming from the vents as well as the fan speed (of the air conditioning blower) and air distribution change automatically.

Electric fan, forced air, directed through the condenser coil, located in the empennage, cools the hot, high pressure A/C Systems LLC refrigerant. The condenser intake air is taken from two louvered ducts on the left-hand side of the aircraft, under the horizontal stabilizer. Condenser exhaust air exits through a louver located on the right-hand side of the empennage.

The **Air Conditioning System** performs the following functions:

1. Cools cabin air temperature.
2. Establishes the humidity level of the cabin at a comfortable level.
3. Helps prevent fogging of windows.
4. Reduces dust and pollen particles from the cabin air.

Control of the refrigeration temperature cycle is done with an electronic controlled thermostatic cycling switch. The switch senses evaporator temperature and cycles the engine driven compressor to regulate the evaporator coil temperature and to prevent the coil from "freezing up".

During operation during warm cabin temperatures the Automatic Climate Control System operates in the air conditioning mode, supplying cooled, dehumidified air to the ceiling console vents and the flood ducts above the rear seats. When the system switches to "heating" operation during cool cabin temperatures, heated, outside air will be delivered to the front and rear floor vents and the windshield based on temperature conditions and the mode of operation settings.

NOTE

All outside air vents must be closed for maximum cooling.

In the rare occurrence of a refrigeration "overpressure" condition, a high/low pressure Trinary safety switch, located on the receiver/dryer, will disengage the compressor to allow pressures to return to a safe level. This same switch senses a low pressure condition in the system and disengages the compressor to prevent damage. The Trinary safety switch automatically resets once refrigerant pressures have returned to a safe level.

The Automatic Climate Control System can be left on in any mode at the time of aircraft shut-down and will resume the previously selected temperature and mode when reactivated. The system will be active once both electrical buses are on and the voltage annunciator lights are extinguished.

For safety purposes the Automatic Climate Control System will deactivate if the bus voltage falls below a predetermined threshold.

In the event that the Air Conditioning portion of the Automatic Climate Control System does not seem to be functioning correctly, the Automatic Climate Control System should be switched to the "Air Conditioning *Compressor* OFF" mode by pressing the button until the adjacent indicator light is out. An air conditioning performance evaluation should be performed by an authorized Service Center to determine and correct the problem prior to resuming the use of the air conditioning portion of the Automatic Climate Control System.

SECTION 7 –SYSTEMS DESCRIPTION (continued)

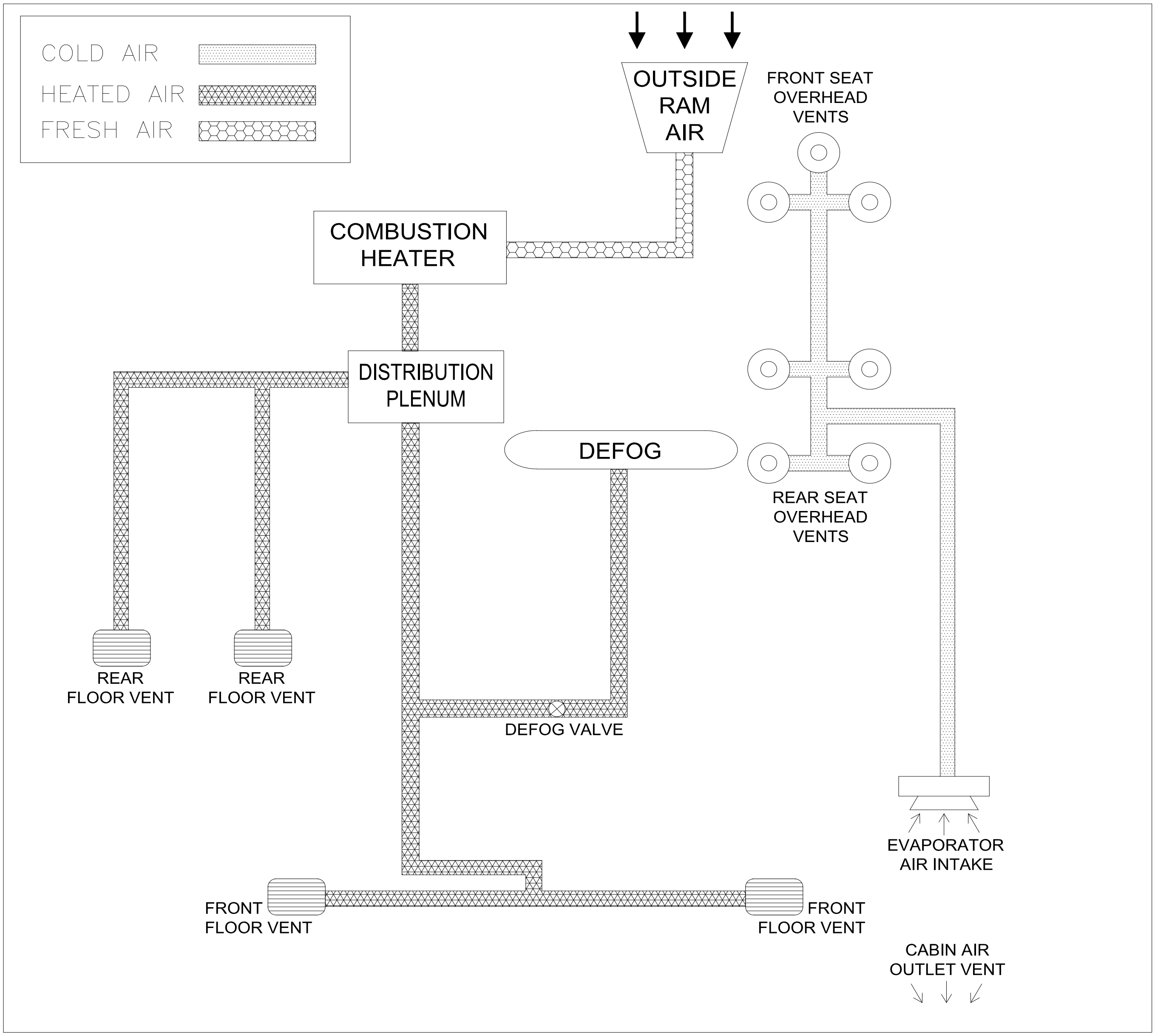


Figure 1

ENVIRONMENTAL CONTROL SYSTEM AIRFLOW DIAGRAM

SECTION 7 –SYSTEMS DESCRIPTION (continued)

The **Heating System** performs the following functions:

1. Warms cabin air temperature.
2. Helps prevent fogging of windows.
3. Provides for defog air.

Control of the heating system temperature cycle is done by controlling the mechanical thermostat which regulates the operation of the combustion heater located in the nose of the aircraft. The thermostat senses the heater duct temperature and cycles the combustion heater to regulate that temperature. During combustion heater operation and cool down, the heater/fresh air valve in the nose of the aircraft is automatically opened by the climate control system. The valve is closed during other modes of operation.

When the heater mode is shut down either by the automatic climate control system (automatically or manually changing to the cooling mode), the pilot during aircraft operation or due to the shut down of the aircraft after a flight, a heater timer module and a heater control module will operate the heater/fresh air blower automatically for approximately 2 minutes to cool the combustion heater. This 2 minute cool down function operates even with the aircraft battery and alternator master switches turned off. The 2 minute cool down function can be interrupted by turning the Master Heater Fan Switch to the "*OFF*" position. The Master Heater Fan Switch is located on the left-hand sub-panel as shown in Figure 2, below. The *Master Heater Fan Switch* should *normally* remain in the "*ON*" position *at all times* even when the aircraft is shut down and the Master Battery and Alternator Switches are turned off. Note that during flight operations when the landing gear is retracted, heater operation and heater cooling is provided by ram air instead of the heater/fresh air blower. This applies to the heater 2 minute cool down period if that is required during flight: the automatic heater/fresh air valve remains open for 2 minutes to cool the combustion heater using ram air.

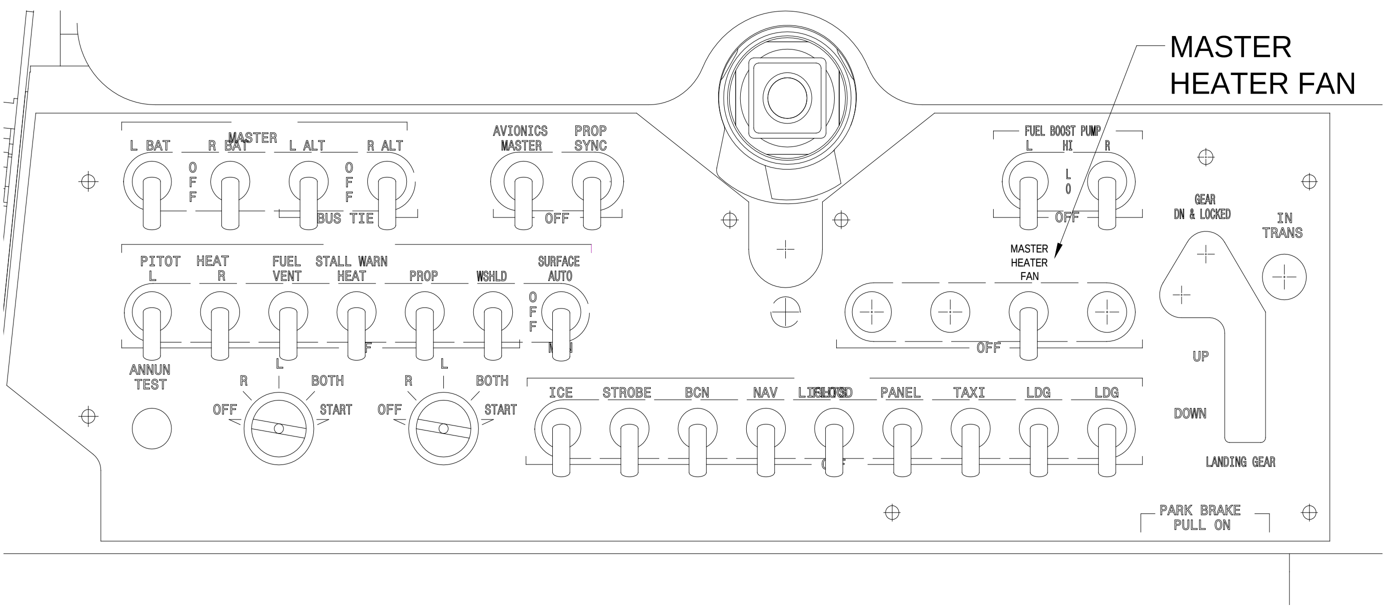


Figure 2

MASTER HEATER FAN SWITCH

NOTE
All outside air vents must be closed for maximum heating.

SECTION 7 –SYSTEMS DESCRIPTION (continued)

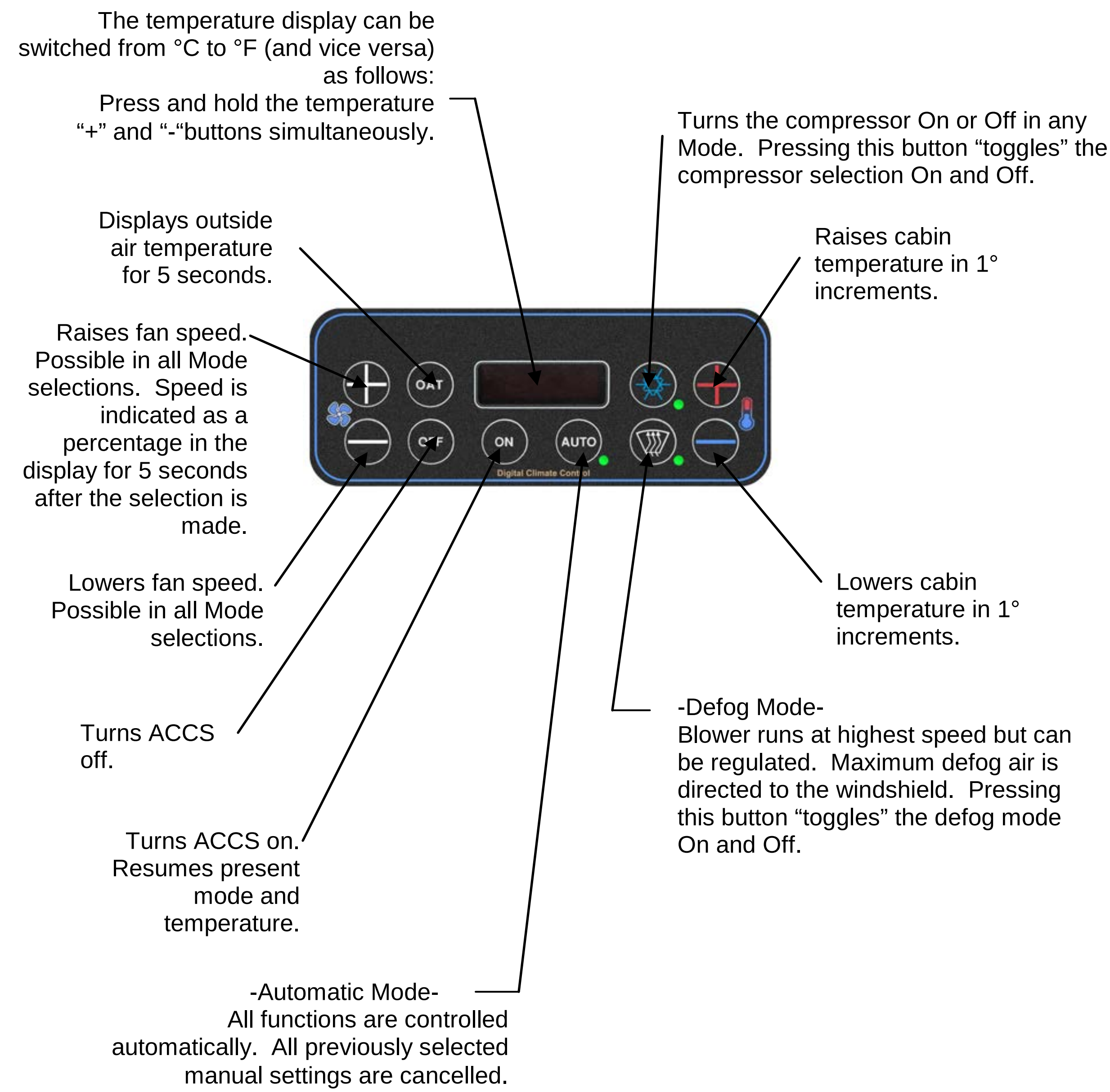


Figure 3

AIR CONDITIONING CONTROLS

The system is operated by control buttons. A small LED indicator light will glow next to the " -AIR CONDITIONING", " -DEFOG" and "AUTO" buttons to indicate which of those operating modes has been selected. The selected temperature is displayed in the control panel. The temperature can be displayed in either Fahrenheit (°F) or Centigrade (°C) by depressing the temperature (+) and (-) buttons simultaneously.

SECTION 7 –SYSTEMS DESCRIPTION (continued)

Figure 4

CONTROL HEAD

The following settings can be selected as needed: "AUTO", " -DEFOG" AND " -Air Conditioning Compressor Mode On or Off (manual control)".

AUTO-All Season Standard Setting
Air temperature, air delivery and air distribution are regulated automatically to achieve and maintain the desired interior temperature as quickly as possible. The system automatically compensates for any variations in outside temperature. In cold outside temperatures, the combustion heater will provide heated air flow from the front and rear floor vents along with a small amount from the windshield defog duct. In warmer outside temperatures, cooled air will flow from the vents on the ceiling console. A panel light adjacent to the "AUTO" button indicates when this mode is active.

NOTE
All outside air vents must be closed for maximum cooling.

Defogging the Windshield
Use this setting to defog the windshield. Maximum defog air is directed towards the windshield. A panel light adjacent to the button indicates when this mode is active. Press the button again to cancel the defog mode.

Air Conditioning Compressor Mode on/off
When maximum aircraft performance is desired the air conditioning *compressor* mode can be switched off. In this case the system no longer provides full climate control. If the cabin becomes too warm, press the switch again to turn the he air conditioning compressor mode On. Turning the air conditioning compressor mode On provides cabin cooling and dehumidification. A panel light adjacent to the button indicates when the "air conditioning *compressor* ON" mode is active. Pressing the button alternately will "toggle" the air conditioning *compressor* mode to either On or Off.

NOTE
If absolute maximum aircraft performance is desired, the Automatic Climate Control System should be switched to the "Air Conditioning *Compressor* OFF" mode by pressing the button until the adjacent indicator light is out.

Temperature Setting (+) or (-)
The desired interior temperature can be preset within a range from 55°F (13°C) to 95°F (35°C). Within the setting range between 60°F (16°C) and 90°F (32°C), the temperature will be automatically adjusted. Temperature settings above 90°F (32°C) or below 60°F (16°C) will result in maximum heating or cooling respectively. The settings selected prior to the shutdown of the aircraft or climate control system will be restored upon restart.

SECTION 7 –SYSTEMS DESCRIPTION (continued)

NOTE

The temperature can be displayed in either Fahrenheit (°F) or Centigrade (°C) by depressing the temperature (+) and (-) buttons simultaneously.

FAN (+) or (-)
During air conditioning operation, the automatically selected fan speed (volume of air delivery) can be reduced or increased manually by operating these buttons. This mode overrides the automatic fan speed control feature. Incremental fan speeds up or down in 11 steps are available. The digital display indicates the fan speed as a percentage or "HI" when the maximum fan speed is reached or "LO" when the minimum fan speed is reached. The digital display returns to the normal mode of interior temperature selection 5 seconds after either fan speed button is depressed. The selected fan speed is maintained until it is changed or the "AUTO" button is depressed.

During heating operation the heater/fresh air blower operates at maximum speed while the landing gear is extended. When the landing gear is retracted, ram air is used to provide heater/fresh airflow and the heater/fresh air blower is turned off.

OAT- Outside Air Temperature
When depressed, the outside air temperature is displayed as measured by the outside air temperature sensor. The outside air temperature will be displayed for 5 seconds then return to the normal mode of interior temperature selection.

WARNING

The outside temperature display is not to be considered an indicator for possible icing conditions. Ice formation can occur at indicated temperatures above freezing and in a multitude of conditions. Refer to the Pilots Operating Handbook for information regarding flight into icing conditions.

NOTE

The Climate Control System can display OAT. This display is advisory only and may differ from other OAT indications displayed in the cockpit.

OFF
When the OFF button is depressed, the entire climate control system is switched off. In this mode of operation the heater/ECS mixing valve closes the hot air supply from the engine heat exchanger. This mode does NOT need to be selected prior to aircraft shutdown.

ON
This switches on the climate control system. The LED numeric display will show the current interior temperature and mode selections.

General hints for electronic climate control system operation

- ➔ When the air conditioning is operating, the interior temperatures and humidity will be reduced. This helps to reduce the possibility of windshield and side window fog up.
- ➔ For the quickest cooling of a hot cabin, leave cabin doors open for a few minutes prior to startup to allow the hot air to escape.
- ➔ When it is very hot and humid, a significant amount of condensed water can drip from the evaporator drain tube onto the surface beneath the aircraft for an extended period of time. This is normal and does not indicate a leak.
- ➔ For maximum performance during air conditioning or heating modes of operation, ensure that the fresh air vents are closed.
- ➔ The condenser should be checked periodically for cleanliness. If clogged with dirt or debris, the condenser should be cleaned with compressed air.
- ➔ If it is suspected that the air conditioning system has been damaged through outside influences (i.e. by debris, "FOD"); the system should be checked immediately by an authorized Service Center.
- ➔ If there is a defect in the refrigerant circuit of the air conditioner, a safety switch switches the air conditioning compressor off temporarily or completely. In this case, contact the authorized Service Center.
- ➔ Repairs or maintenance to the air conditioning system require trained personnel and special tools. If there should be any malfunction in the system, contact the authorized Service Center.

SECTION 8 –HANDLING, SERVICE & MAINTENANCE

No change to this section.

SECTION 9 – SUPPLEMENTS

Add A/C Systems LLC Air Conditioning System Aircraft Flight Manual Supplement to SECTION 9 when the system is installed.

Beechcraft Corporation

LOG OF SUPPLEMENTS

Model G58 Baron

Non-FAA Approved
Airplane Flight Manual Supplements
for the

Pilot's Operating Handbook
and
FAA Approved Airplane Flight Manual

P/N 58-590000-67

December, 2014

Supplement must be in the airplane for all flight operations when subject equipment is installed.

PART NUMBER	SUBJECT	REV NO.	DATE
58-590000-0089	Low Speed Endurance		Decem-ber, 2014

NOTE: Supplements are provided in a supplement pack that includes all supplements for a particular flight manual. All applicable supplements must be inserted in the manual. Supplements not applicable to an airplane, due to airworthiness authority certification requirements or equipment configuration, may be omitted from the manual.

Flight Manual Supplement Packs are available on the web at http://pubs.beechcraft.com.

Beechcraft

Model G58 Baron®

(TH-2125 and After)

Pilot's Operating Handbook and Manufacturer Approved Airplane Flight Manual Supplement

for

Low Speed Endurance

This Supplement is Applicable to the Following Manual(s):
58-590000-67

Airplane Serial Number:___________________________

Airplane Registration Number:_____________________

Issued: December, 2014
P/N 58-590000-0089

Beechcraft Corporation

LOG OF REVISIONS

Model G58 Baron®
(TH-2125 and After)

Pilot's Operating Handbook
and
Manufacturer Approved Airplane
Flight Manual Supplement

for
Low Speed Endurance

REV NO.	PAGE NO(S).	DESCRIPTION	DATE OF REV
0	1 thru 12	Original Issue	December, 2014

CONTENTS

SECTION 1 – GENERAL

The information in this supplement is Manufacturer approved material and must be attached to the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual when the airplane is operated during low speed endurance in accordance with Beechcraft Corporation approved data.

SECTION 2 – LIMITATIONS

No change.

SECTION 3 – EMERGENCY PROCEDURES

No change.

SECTION 3A – ABNORMAL PROCEDURES

No change.

SECTION 4 – NORMAL PROCEDURES

No change.

SECTION 5 - PERFORMANCE

CRUISE PERFORMANCE

The performance data in this supplement includes manifold pressure down to 16 inches Hg.

Range and Endurance performance data is calculated over a range of power settings from 16 to 25 in. Hg.

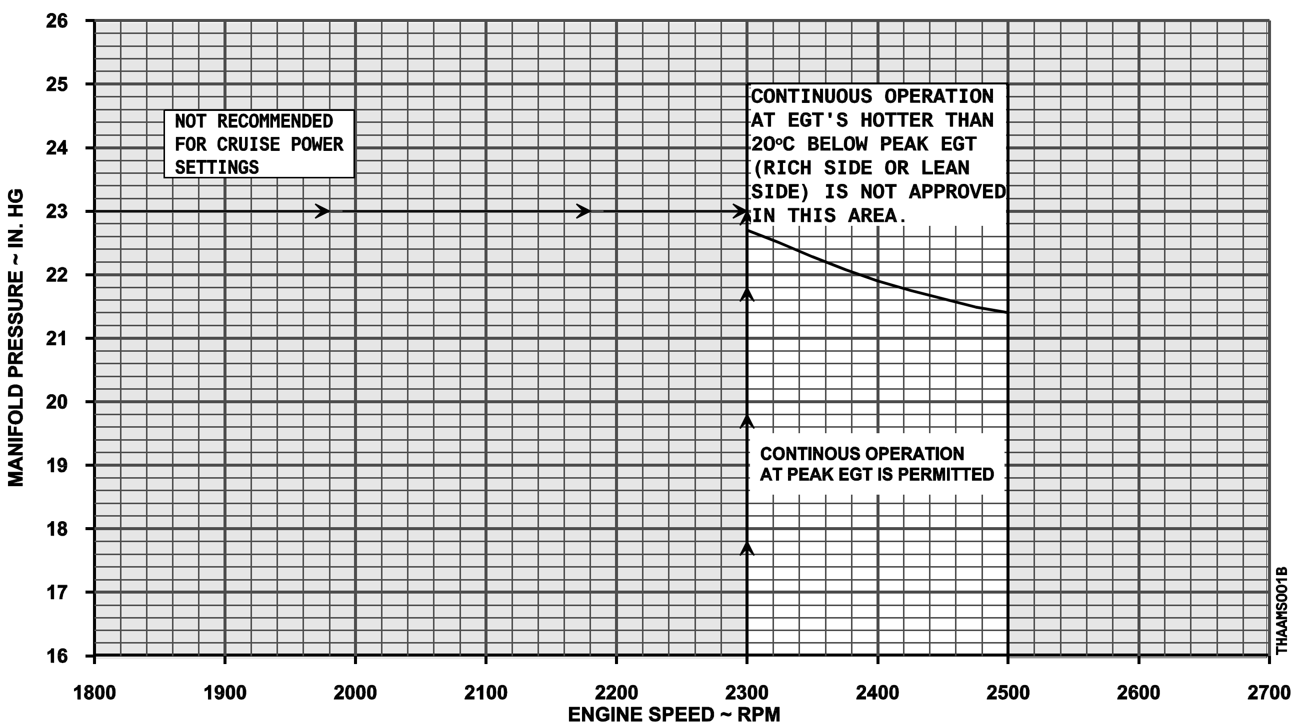
All performance data provided in this supplement is calculated using a propeller setting of 2300 RPM and a fuel mixture setting of 20°C lean of peak EGT.

NOTE

Reserve fuel calculation provided in this supplement assumes 45 minutes at 2300 RPM and a power setting of 16 in. Hg.

MANIFOLD PRESSURE vs RPM

EXAMPLE:
ENGINE SPEED.........2300 RPM
MANIFOLD PRESSURE....23 IN. HG
MIXTURE SETTING......20°C LEAN OF PEAK EGT
WITHIN RECOMMENDED LIMITS



MISSION LOITER POWER SETTINGS

20°C LEAN

OF PEAK EGT

16.0 IN. HG @ 2300 RPM

5200 LB

	PRESS. ALT	OAT		MAN. PRESS.	FUEL FLOW /ENGINE		AIR-SPEED	
	FEET	°C	°F	IN. HG	PPH	GPH	KIAS	KTAS
ISA - 20° C (ISA - 36° F)	SL	-4	25	16	37	6.2	118	114
	2,000	-8	18	16	39	6.5	123	123
	4,000	-11	12	16	41	6.9	127	130
	6,000	-15	5	16	43	7.2	130	138
	8,000	-19	-2	16	46	7.6	133	144
	10,000	-23	-9	16	47	7.9	134	150
	12,000	-27	-17	16	49	8.2	136	156
	14,000	-30	-22	16	51	8.5	136	162
	16,000	-34	-29	16	53	8.8	136	168
STANDARD DAY (ISA)	SL	16	61	16	36	6.0	111	111
	2,000	12	54	16	38	6.4	117	121
	4,000	9	48	16	40	6.7	122	129
	6,000	5	41	16	42	7.0	125	137
	8,000	1	34	16	44	7.4	127	143
	10,000	-3	27	16	46	7.7	129	150
	12,000	-7	19	16	48	8.0	130	156
	14,000	-10	14	16	49	8.2	130	161
	16,000	-14	7	16	51	8.5	131	167
ISA + 20° C (ISA + 36° F)	SL	36	97	16	35	5.9	103	107
	2,000	32	90	16	37	6.2	110	118
	4,000	29	84	16	39	6.5	115	127
	6,000	25	77	16	41	6.8	119	135
	8,000	21	70	16	43	7.1	121	142
	10,000	17	63	16	45	7.4	123	148
	12,000	13	55	16	46	7.7	124	154
	14,000	10	50	16	48	8.0	124	160
	16,000	6	43	16	49	8.2	124	165

THAACR002B

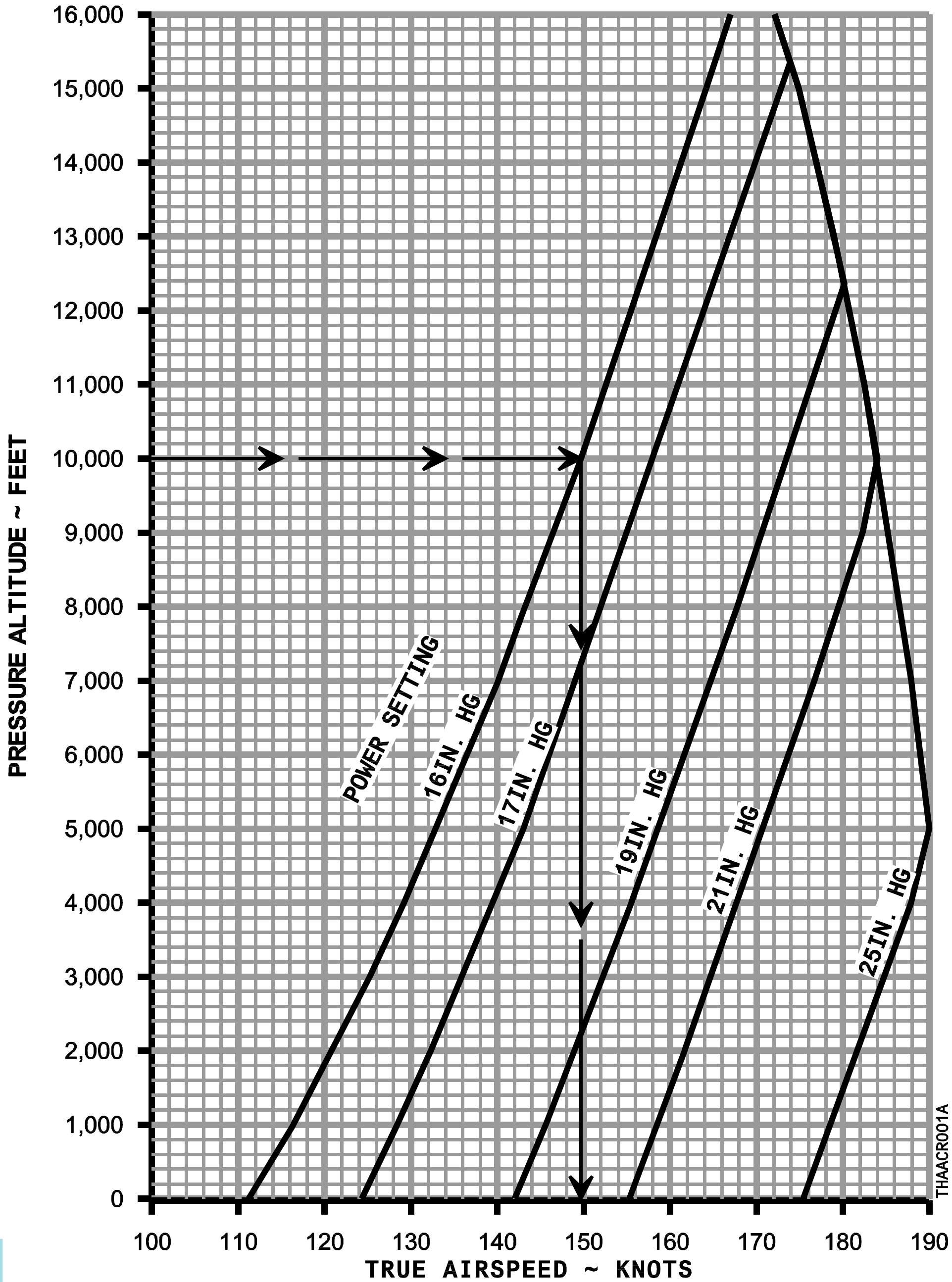
NOTE: Fuel flows are to be used for flight planning only and will vary from airplane to airplane. Lean using the EGT.

CRUISE SPEEDS

20°C LEAN OF PEAK EGT

ASSOCIATED CONDITIONS:
AVERAGE CRUISE WT....... 5200 LB
PROPELLER SETTING........2300 RPM
TEMPERATURE............. STD DAY(ISA)

EXAMPLE:
PRESSURE ALTITUDE... 10,000 FT
POWER SETTING....... 16 IN. HG
TRUE AIRSPEED....... 150 KTS



RANGE PROFILE

STANDARD DAY (ISA)

ASSOCIATED CONDITIONS:

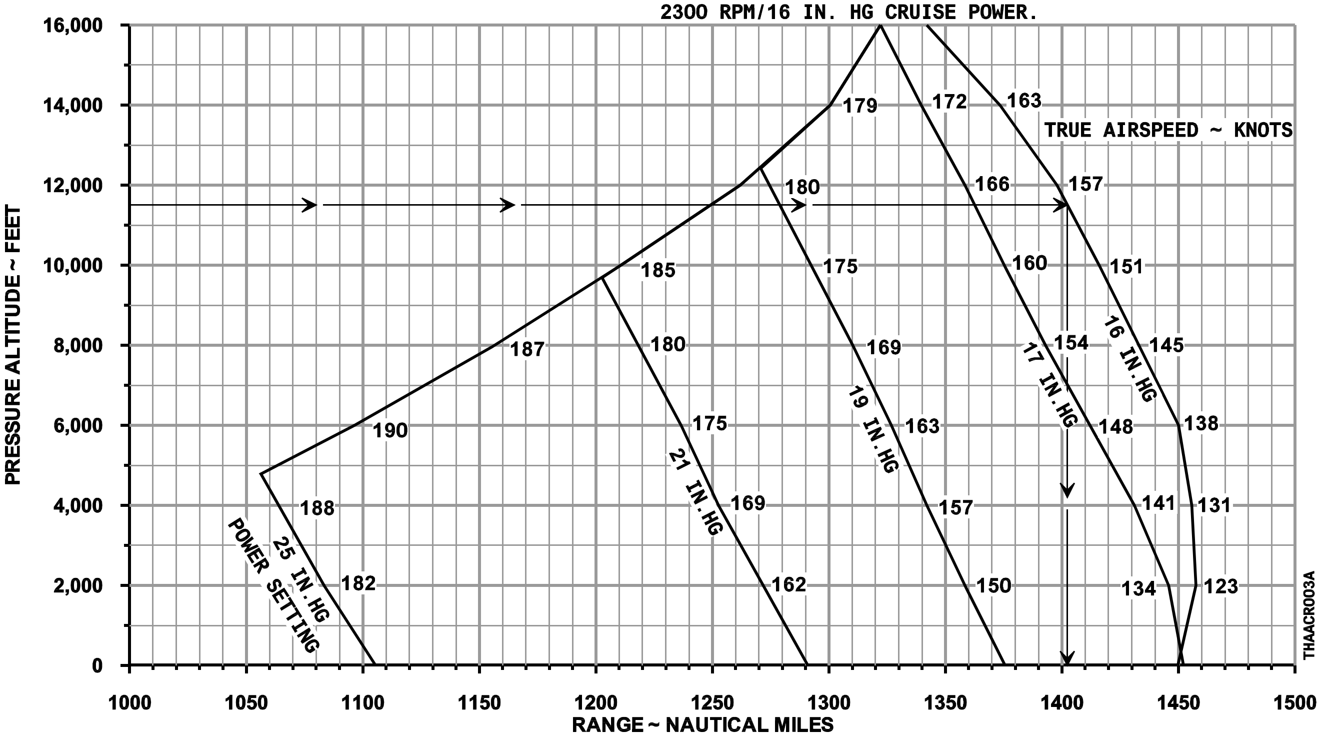
WEIGHT................5524 LB BEFORE ENGINE START
FUEL..................AVIATION GASOLINE
FUEL DENSITY..........6.0 LB/GAL
INITIAL FUEL LOADING..166 U.S. GAL (996 LB)
TAKE-OFF ALTITUDE.....SL, ZERO WIND
PROPELLER SETTING.....2300 RPM

20°C LEAN OF PEAK EGT

EXAMPLE:

CRUISE ALTITUDE..... 11,500 FT
POWER SETTING....... 16 IN. HG
RANGE............... 1,402 NM

NOTE: RANGE ALLOWS FOR TAXI AND RUNUP, INCLUDES CRUISE CLIMB AND DESCENT; AND ALLOWS FOR 45 MINUTES RESERVE FUEL AT 2300 RPM/16 IN. HG CRUISE POWER.



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ENDURANCE PROFILE

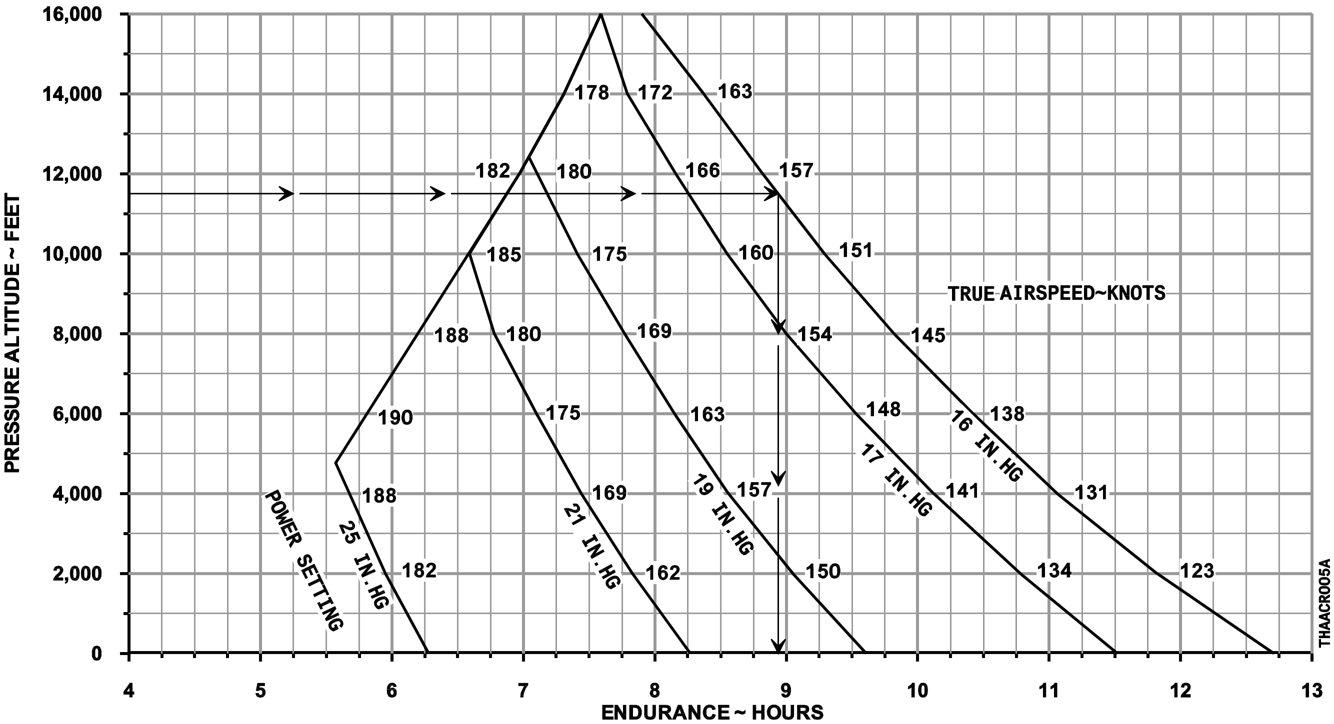
STANDARD DAY (ISA)

20°C LEAN OF PEAK EGT

ASSOCIATED CONDITIONS:
WEIGHT.................5524 LB BEFORE ENGINE START
FUEL...................AVIATION GASOLINE
FUEL DENSITY...........6.00 LB/GAL
INITIAL FUEL LOADING...166 U.S. GAL (996 LB)
TAKE-OFF ALTITUDE......SL, ZERO WIND
PROPELLER SETTING......2300 RPM

EXAMPLE:
CRUISE ALTITUDE..... 11,500 FT
POWER SETTING....... 16 IN. HG
ENDURANCE........... 8.94 HR

NOTE: ENDURANCE ALLOWS FOR TAXI, RUNUP, INCLUDES CRUISE CLIMB AND DESCENT; AND ALLOWS FOR 45 MINUTES RESERVE FUEL AT 2300 RPM/16 IN. HG CRUISE POWER.



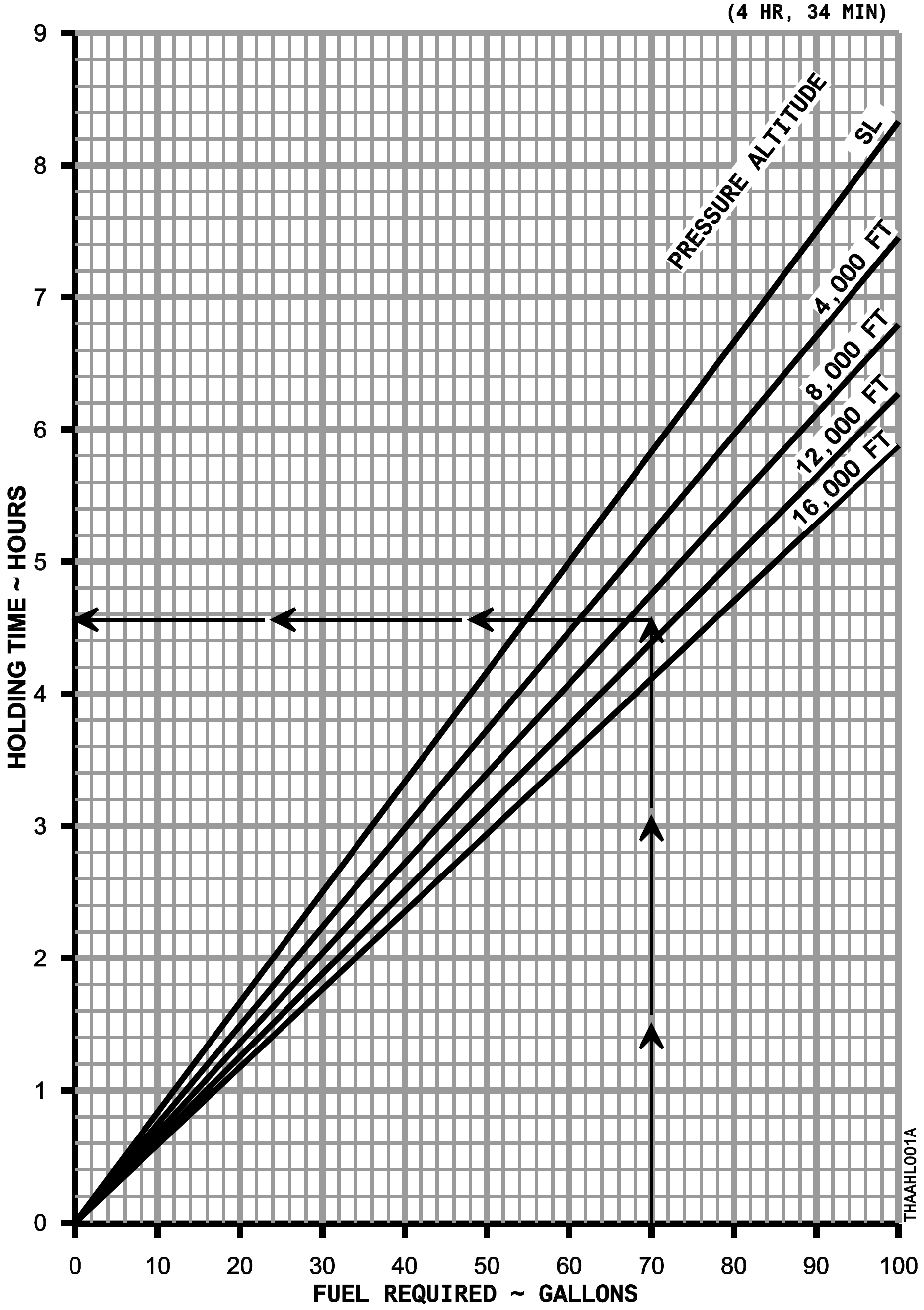
Issued: December, 2014
P/N 58-590000-0089

HOLDING TIME

20°C LEAN OF PEAK EGT

ASSOCIATED CONDITIONS:
AVERAGE CRUISE WT...5200 LB
POWER SETTING.......16 IN.HG/2300 RPM
TEMPERATURE.........STD DAY (ISA)

EXAMPLE:
FUEL AVAILABLE FOR
HOLDING............. 70 GAL
PRESSURE ALTITUDE.... 10,000 FT
HOLDING TIME......... 4.56 HR
(4 HR, 34 MIN)



Issued: December, 2014
P/N 58-590000-0089

SECTION 6 – WEIGHT AND BALANCE/EQUIPMENT LIST

No change.

SECTION 7 – SYSTEMS DESCRIPTION

No change.

SECTION 8 – HANDLING, SERVICING AND MAINTENANCE

No change.

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SECTION X

SAFETY INFORMATION

TABLE OF CONTENTS

SECTION X

SAFETY INFORMATION

TABLE OF CONTENTS (Continued)

INTRODUCTION

Beech Aircraft Corporation has developed this special summary publication of safety information to refresh pilots' and owners' knowledge of safety related subjects. Topics in this publication are dealt with in more detail in FAA Advisory Circulars and other publications pertaining to the subject of safe flying.

The skilled pilot recognizes that safety consciousness is an integral - and never-ending - part of his or her job. Be thoroughly familiar with your airplane. Know its limitations and your own. Maintain your currency, or fly with a qualified instructor until you are current and proficient. Practice emergency procedures at safe altitudes and airspeeds, preferably with a qualified instructor pilot, until the required action can be accomplished without reference to the manual. Periodically review this Safety Information as part of your recurrency training regimen.

BEECHCRAFT airplanes are designed and built to provide you with many years of safe and efficient transportation. By maintaining your BEECHCRAFT properly and flying it prudently you will realize its full potential.

. . . . Beech Aircraft Corporation

WARNING

Because your airplane is a high performance, high speed transportation vehicle, designed for operation in a three-dimensional environment, special safety precautions must be observed to reduce the risk of fatal or serious injuries to the pilot(s) and occupant(s).

It is mandatory that you fully understand the contents of this publication and the other operating and maintenance manuals which accompany the airplane; that FAA requirements for ratings, certifications and review be scrupulously complied with; and that you allow only persons who are properly licensed and rated, and thoroughly familiar with the contents of the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual to operate the airplane.

IMPROPER OPERATION OR MAINTENANCE OF AN AIRPLANE, NO MATTER HOW WELL BUILT INITIALLY, CAN RESULT IN CONSIDERABLE DAMAGE OR TOTAL DESTRUCTION OF THE AIRPLANE, ALONG WITH SERIOUS OR FATAL INJURIES TO ALL OCCUPANTS.

GENERAL

As a pilot, you are responsible to yourself and to those who fly with you, to other pilots and their passengers and to people on the ground, to fly wisely and safely.

The following material in this Safety Information publication covers several subjects in limited detail. Here are some condensed Do's and Don'ts.

DO'S

Be thoroughly familiar with your airplane, know its limitations and your own.

Be current in your airplane, or fly with a qualified instructor until you are current. Practice until you are proficient.

Preplan all aspects of your flight - including a proper weather briefing and adequate fuel reserves.

Use services available - weather briefing, inflight weather and Flight Service Station.

Carefully preflight your airplane.

Use the approved checklist.

Have more than enough fuel for takeoff, plus the trip, and an adequate reserve.

Be sure your weight loading and C.G. are within limits.

Use seatbelts and shoulder harnesses at all times.

Be sure all loose articles and baggage are secured.

Check freedom and proper direction of operation of all controls during preflight.

Maintain the prescribed airspeeds in takeoff, climb, descent, and landing.

Avoid wake turbulence (Vortices).

Preplan fuel and fuel tank management before the actual flight. Utilize auxiliary tanks only in level cruise flight. Take off and land on the fullest main tank, NEVER use auxiliary fuel tanks for take off or landing.

Practice emergency procedures at safe altitudes and airspeeds, preferably with a qualified instructor pilot, until the required action is instinctive.

Keep your airplane in good mechanical condition.

Stay informed and alert; fly in a sensible manner.

DON'TS

Don't take off with frost, ice or snow on the airplane.

Don't take off with less than minimum recommended fuel, plus adequate reserves, and don't run the tank dry before switching.

Don't fly in a reckless, show-off, or careless manner.

Don't fly into thunderstorms or severe weather.

Don't fly in possible icing conditions unless the airplane is approved, properly equipped, and all required equipment is operational for flight in icing conditions.

Don't fly close to mountainous terrain.

Don't apply controls abruptly or with high forces that could exceed design loads of the airplane.

Don't fly into weather conditions that are beyond your ratings or current proficiency.

Don't fly when physically or mentally exhausted or below par.

Don't trust to luck.

SOURCES OF INFORMATION

There is a wealth of information available to the pilot created for the sole purpose of making your flying safer, easier and more efficient. Take advantage of this knowledge and be prepared for an emergency in the event that one should occur.

PILOT'S OPERATING HANDBOOK AND FAA APPROVED AIRPLANE FLIGHT MANUAL

You must be thoroughly familiar with the contents of your operating manuals, placards, and check lists to ensure safe utilization of your airplane. When the airplane was manufactured, it was equipped with one or more of the following: placards, Owner's Manual, FAA Flight Manual, Approved Airplane Flight Manual Supplements, Pilot's Operating Handbook and FAA Approved Airplane Flight Manual. Beech has revised and reissued many of the early manuals for certain models of airplanes in GAMA Standard Format as Pilot's Operating Handbooks and FAA Approved Airplane Flight Manuals. For simplicity and convenience, all official manuals in various models are referred to as the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual. If the airplane has changed ownership, the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual may have been misplaced or may not be current. Replacement handbooks may be obtained from any BEECHCRAFT Authorized Outlet.

BEECHCRAFT SERVICE PUBLICATIONS

Beech Aircraft Corporation publishes a wide variety of manuals, service letters, service instructions, service bulletins, safety communiques and other publications for the various models of BEECHCRAFT airplanes. Information on how to obtain publications relating to your airplane is contained in BEECHCRAFT Service Bulletin number 2001, entitled "General - BEECHCRAFT Service Publications - What is Available and How to Obtain It."

Beech Aircraft Corporation automatically mails original issues and revisions of BEECHCRAFT Service Bulletins (Mandatory, Recommended and Optional), FAA Approved Airplane Flight Manual Supplements, reissues and revisions of FAA Approved Airplane Flight Manuals, Flight Handbooks, Owners Manuals, Pilot's Operating Manuals and Pilot's Operating Handbooks, and original issues and revisions of BEECHCRAFT Safety Communiques to BEECHCRAFT Owner addresses as listed by the FAA Aircraft Registration Branch List and the BEECHCRAFT International Owner Notification Service List. While this information is distributed by Beech Aircraft Corporation, Beech can not make changes in the name or address furnished by the FAA. The owner must contact the FAA regarding any changes to name or address. Their address is: FAA Aircraft Registration Branch (AAC250) P.O. Box 25082, Oklahoma City, OK 73125, Phone (405) 680-2131.

It is the responsibility of the FAA owner of record to ensure that any mailings from Beech are forwarded to the proper persons. Often the FAA registered owner is a bank or financing company or an individual not in possession of the airplane. Also, when an airplane is sold, there is a lag in processing the change in registration with the FAA. If you are a new owner, contact your BEECHCRAFT Authorized Outlet and ensure your manuals are up to date.

Beech Aircraft Corporation provides a subscription service which provides for direct factory mailing of BEECHCRAFT publications applicable to a specific serial number airplane. Details concerning the fees and ordering information for this owner subscription service are contained in Service Bulletin number 2001.

For owners who choose not to apply for a Publications Revision Subscription Service, Beech provides a free Owner

Notification Service by which owners are notified by post card of BEECHCRAFT manual reissues, revisions and supplements which are being issued applicable to the airplane owned. On receipt of such notification, the owner may obtain the publication through a BEECHCRAFT Authorized Outlet. This notification service is available when requested by the owner. This request may be made by using the owner notification request card furnished with the loose equipment of each airplane at the time of delivery, or by a letter requesting this service, referencing the specific airplane serial number owned. Write to :

Supervisor, Special Services
Dept. 52
Beech Aircraft Corporation
P.O. Box 85
Wichita, Kansas 67201-0085

From time to time Beech Aircraft Corporation issues BEECHCRAFT Safety Communiques dealing with the safe operation of a specific series of airplanes, or airplanes in general. It is recommended that each owner/operator maintain a current file of these publications. Back issues of BEECHCRAFT Safety Communiques may be obtained without charge by sending a request, including airplane model and serial number, to the Supervisor, Special Services, at the address listed above.

Airworthiness Directives (AD's) are not issued by the manufacturer. They are issued and available from the FAA.

FEDERAL AVIATION REGULATIONS

FAR Part 91, General Operating and Flight Rules, is a document of law governing operation of airplanes and the owner's and pilot's responsibilities. Some of the subjects covered are:

Responsibilities and authority of the pilot-in-command

Certificates required
Liquor and Drugs
Flight plans
Preflight action
Fuel requirements
Flight Rules

Maintenance, preventive maintenance, alterations, inspection and maintenance records

You, as a pilot, have responsibilities under government regulations. The regulations are designed for your protection and the protection of your passengers and the public. Compliance is mandatory.

AIRWORTHINESS DIRECTIVES

FAR Part 39 specifies that no person may operate a product to which an Airworthiness Directive issued by the FAA applies, except in accordance with the requirements of that Airworthiness Directive.

AIRMAN'S INFORMATION MANUAL

The Airman's Information Manual (AIM) is designed to provide airmen with basic flight information and ATC procedures for use in the national airspace system of the United States. It also contains items of interest to pilots concerning health and medical facts, factors affecting flight safety, a pilot/controller glossary of terms in the Air Traffic Control system, information on safety, and accident/hazard reporting. It is revised at six-month intervals and can be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

This document contains a wealth of pilot information. Among the subjects are:

Controlled Airspace

Emergency Procedures
Services Available to Pilots
Weather and Icing
Radio Phraseology and Technique
Mountain Flying
Airport Operations
Wake Turbulence - Vortices
Clearances and Separations
Medical Facts for Pilots
Preflight
Bird Hazards
Departures - IFR
Good Operating Practices
Enroute - IFR
Airport Location Directory
Arrival - IFR

All pilots must be thoroughly familiar with and use the information in the AIM.

ADVISORY INFORMATION

NOTAMS (Notices to Airmen) are documents that have information of a time-critical nature that would affect a pilot's decision to make a flight; for example, an airport closed, terminal radar out of service, or enroute navigational aids out of service.

FAA ADVISORY CIRCULARS

The FAA issues Advisory Circulars to inform the aviation public in a systematic way of nonregulatory material of interest. Advisory Circulars contain a wealth of information with which the prudent pilot should be familiar. A complete list of current FAA Advisory Circulars is published in AC 00-2, which lists Advisory Circulars that are for sale, as well as those distributed free of charge by the FAA, and provides ordering information. Many Advisory Circulars which are for sale can be purchased locally in aviation bookstores or at FBO's. These documents are subject to periodic revision. Be certain the Advisory Circular you are using is the latest revision available. Some of the Advisory Circulars of interest to pilots are:

***00-6**	Aviation Weather
00-24	Thunderstorms
00-30	Rules of Thumb for Avoiding or Minimizing Encounters with Clear Air Turbulence
***00-45**	Aviation Weather Services
00-46	Aviation Safety Reporting Program
20-5	Plane Sense
20-32	Carbon Monoxide (CO) Contamination in Aircraft - Detection and Prevention
20-35	Tie-Down Sense
20-43	Aircraft Fuel Control
20-105	Engine-Power Loss Accident Prevention
20-113	Pilot Precautions and Procedures to be Taken in Preventing Aircraft Reciprocating Engine Induction System and Fuel System Icing Problems
20-125	Water in Aviation Fuels
21-4	Special Flight Permits for Operation of Overweight Aircraft
43-9	Maintenance Records: General Aviation Aircraft

43-12	Preventive Maintenance
60-4	Pilot's Spatial Disorientation
60-6	Airplane Flight Manuals (AFM), Approved Manual Materials, Markings and Placards - Airplanes
60-12	Availability of Industry-Developed Guidelines for the Conduct of the Biennial Flight Review
60-13	The Accident Prevention Counselor Program
*61-9	Pilot Transition Courses for Complex Single-Engine and Light Twin-Engine Airplanes
*61-21	Flight Training Handbook
*61-23	Pilot's Handbook of Aeronautical Knowledge
*61-27	Instrument Flying Handbook
61-67	Hazards Associated with Spins in Airplanes Prohibited from Intentional Spinning.
61-84	Role of Preflight Preparation
*67-2	Medical Handbook for Pilots
90-23	Aircraft Wake Turbulence
90-42	Traffic Advisory Practices at Nontower Airports
90-48	Pilot's Role in Collision Avoidance
90-66	Recommended Standard Traffic Patterns for Airplane Operations at Uncontrolled Airports

90-85	Severe Weather Avoidance Plan (SWAP)
91-6	Water, Slush and Snow on the Runway
91-13	Cold Weather Operation of Aircraft
*91-23	Pilot's Weight and Balance Handbook
91-26	Maintenance and Handling of Air Driven Gyroscopic Instruments
91-33	Use of Alternate Grades of Aviation Gasoline for Grade 80/.87
91-35	Noise, Hearing Damage, and Fatigue in General Aviation Pilots
91-43	Unreliable Airspeed Indications
91-44	Operational and Maintenance Practices for Emergency Locator Transmitters and Receivers
91-46	Gyroscopic Instruments - Good Operating Practices
91-50	Importance of Transponder Operations and Altitude Reporting
91-51	Airplane Deice and Anti-ice Systems
91-59	Inspection and Care of General Aviation Aircraft Exhaust Systems
91-65	Use of Shoulder Harness in Passenger Seats
103-4	Hazards Associated with Sublimation of Solid Carbon Dioxide (Dry Ice) Aboard Aircraft
135-9	FAR Part 135 Icing Limitations

210-5A Military Flying Activities

* For Sale

FAA GENERAL AVIATION NEWS

FAA General Aviation News is published by the FAA in the interest of flight safety. The magazine is designed to promote safety in the air by calling the attention of general aviation airmen to current technical, regulatory and procedural matters affecting the safe operation of airplanes. FAA General Aviation News is sold on subscription by the Superintendent of Documents, Government Printing Office, Washington D.C., 20402.

FAA ACCIDENT PREVENTION PROGRAM

The FAA assigns accident prevention specialists to each Flight Standards and General Aviation District Office to organize accident prevention program activities. In addition, there are over 3,000 volunteer airmen serving as accident prevention counselors, sharing their technical expertise and professional knowledge with the general aviation community. The FAA conducts seminars and workshops, and distributes invaluable safety information under this program.

Usually the airport manager, the FAA Flight Service Station (FSS), or Fixed Base Operator (FBO), will have a list of accident prevention counselors and their phone numbers available. All Flight Standards and General Aviation District Offices have a list of the counselors serving the District.

Before flying over unfamiliar territory, such as mountainous terrain or desert areas, it is advisable for transient pilots to consult with local counselors. They will be familiar with the more desirable routes, the wind and weather conditions, and the service and emergency landing areas that are available along the way. They can also offer advice on the type of emergency equipment you should be carrying.

ADDITIONAL INFORMATION

The National Transportation Safety Board and the Federal Aviation Administration periodically issue, in greater detail, general aviation pamphlets concerning aviation safety. FAA Regional Offices also publish material under the FAA General Aviation Accident Prevention Program. These can be obtained at FAA Offices, Weather Stations, Flight Service Stations or Airport Facilities. Some of these are titled:

12 Golden Rules for Pilots
Weather or Not
Disorientation
Plane Sense
Weather Info Guide for Pilots
Wake Turbulence
Don't Trust to Luck, Trust to Safety
Rain, Fog, Snow
Thunderstorm - TRW
Icing
Pilot's Weather Briefing Guide
Thunderstorms Don't Flirt ... Skirt 'em
IFR-VFR - Either Way Disorientation Can Be Fatal
IFR Pilot Exam-O-Grams
VFR Pilot Exam-O-Grams
Flying Light Twins Safely
Tips on Engine Operation in Small General Aviation Aircraft
Estimating Inflight Visibility
Is the Aircraft Ready for Flight
Tips on Mountain Flying
Tips on Desert Flying
Always Leave Yourself An Out
Safety Guide for Private Aircraft Owners
Tips on How to Use the Flight Planner
Tips on the Use of Ailerons and Rudder
Some Hard Facts About Soft Landings

Propeller Operation and Care
Torque "What it Means to the Pilot"
Weight and Balance. An Important Safety Consideration for Pilots

GENERAL INFORMATION ON SPECIFIC TOPICS

MAINTENANCE

Safety of flight begins with a well maintained airplane. Make it a habit to keep your airplane and all of its equipment in airworthy condition. Keep a "squawk list" on board, and see that all discrepancies, however minor, are noted and promptly corrected.

Schedule your maintenance regularly, and have your airplane serviced by a reputable organization. Be suspicious of bargain prices for maintenance, repair and inspections.

It is the responsibility of the owner and the operator to assure that the airplane is maintained in an airworthy condition and that proper maintenance records are kept.

Use only genuine BEECHCRAFT or BEECHCRAFT approved parts obtained from BEECHCRAFT approved sources, in connection with the maintenance and repair of Beech airplanes.

Genuine BEECHCRAFT parts are produced and inspected under rigorous procedures to insure airworthiness and suitability for use in Beech airplane applications. Parts purchased from sources other than BEECHCRAFT, even though outwardly identical in appearance, may not have had the required tests and inspections performed, may be different in fabrication techniques and materials, and may be dangerous when installed in an airplane.

Salvaged airplane parts, reworked parts obtained from non-BEECHCRAFT approved sources or parts, components, or structural assemblies, the service history of which is unknown or cannot be authenticated, may have been subjected to unacceptable stresses or temperatures or have other hidden damage not discernible through routine visual or usual nondestructive testing techniques. This may render the part, component or structural assembly, even though originally manufactured by BEECHCRAFT, unsuitable and unsafe for airplane use.

BEECHCRAFT expressly disclaims any responsibility for malfunctions, failures, damage or injury caused by use of non-BEECHCRAFT parts.

Airplanes operated for Air Taxi or other than normal operation, and airplanes operated in humid tropics, or cold and damp climates, etc., may need more frequent inspections for wear, corrosion and/or lack of lubrication. In these areas, periodic inspections should be performed until the operator can set his own inspection periods based on experience.

NOTE

The required periods do not constitute a guarantee that the item will reach the period without malfunction, as the aforementioned factors cannot be controlled by the manufacturer.

Corrosion and its effects must be treated at the earliest possible opportunity. A clean, dry surface is virtually immune to corrosion. Make sure that all drain holes remain unobstructed. Protective films and sealants help to keep corrosive agents from contacting metallic surfaces. Corrosion inspections should be made most frequently under high-corrosion-risk operating conditions, such as in areas of excessive airborne salt concentrations (e.g., near the sea) and in high-humidity areas (e.g., tropical regions).

If you have purchased a used airplane, have your mechanic inspect the airplane registration records, logbooks and maintenance records carefully. An unexplained period of time for which the airplane has been out of service, or unexplained significant repairs may well indicate the airplane has been seriously damaged in a prior accident. Have your mechanics inspect a used airplane carefully. Take the time to ensure that you really know what you are buying when you buy a used airplane.

HAZARDS OF UNAPPROVED MODIFICATIONS

Many airplane modifications are approved under Supplemental Type Certificates (STC's). Before installing an STC on your airplane, check to make sure that the STC does not conflict with other STC's that have already been installed. Because approval of an STC is obtained by the individual STC holder based upon modification of the original type design, it is possible for STC's to interfere with each other when both are installed. Never install an unapproved modification of any type, however innocent the apparent modification may seem. Always obtain proper FAA approval.

Airplane owners and maintenance personnel are particularly cautioned not to make attachments to, or otherwise modify, seats from original certification without approval from the FAA Engineering and Manufacturing District Office having original certification responsibility for that make and model.

Any unapproved attachment or modification to seat structure may increase load factors and metal stress which could cause failure of seat structure at a lesser "G" force than exhibited for original certification.

Examples of unauthorized attachments found are drilling holes in seat tubing to attach fire extinguishers and drilling holes to attach approach plate book bins to seats.

FLIGHT PLANNING

FAR Part 91 requires that each pilot in command, before beginning a flight, familiarize himself with all available information concerning that flight.

Obtain a current and complete preflight briefing. This should consist of local, enroute and destination weather and enroute navaid information. Enroute terrain and obstructions, alternate airports, airport runways active, length of runways, and takeoff and landing distances for the airplane for conditions expected should be known.

The prudent pilot will review his planned enroute track and stations and make a list for quick reference. It is strongly recommended a flight plan be filed with Flight Service Stations, even though the flight may be VFR. Also, advise Flight Service Stations of changes or delays of one hour or more and remember to close the flight plan at destination.

The pilot must be completely familiar with the performance of the airplane and performance data in the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual. The resultant effect of temperature and pressure altitude must be taken into account in performance if not accounted for on the charts. An applicable FAA Approved Airplane Flight Manual must be aboard the airplane at all times and include the weight and balance forms and equipment list.

PASSENGER INFORMATION CARDS

Beech has available, for most current production airplanes, passenger information cards which contain important information on the proper use of restraint systems, oxygen masks, emergency exits and emergency bracing procedures. Passenger information cards may be obtained at any BEECHCRAFT Authorized Outlet. A pilot should not only be familiar with the information contained in the cards, but should always, prior to flight, inform the passengers of the information contained in the information cards. The pilot should orally brief the passengers on the proper use of restraint systems, doors and emergency exits, and other emergency procedures, as required by Part 91 of the FAR's.

STOWAGE OF ARTICLES

The space between the seat pan and the floor is utilized to provide space for seat displacement. If hard, solid objects are stored beneath seats, the energy absorbing feature is lost and severe spinal injuries can occur to occupants.

Prior to flight, pilots should insure that articles are not stowed beneath seats that would restrict seat pan energy absorption or penetrate the seat in event of a high vertical velocity accident.

FLIGHT OPERATIONS

GENERAL

The pilot MUST be thoroughly familiar with ALL INFORMATION published by the manufacturer concerning the airplane, and is required by law to operate the airplane in accordance with the FAA Approved Airplane Flight Manual and placards installed.

PREFLIGHT INSPECTION

In addition to maintenance inspections and preflight information required by FAR Part 91, a complete, careful preflight inspection is imperative.

Each airplane has a checklist for the preflight inspection which must be followed. USE THE CHECKLIST.

WEIGHT AND BALANCE

Maintaining center of gravity within the approved envelope throughout the planned flight is an important safety consideration.

The airplane must be loaded so as not to exceed the weight and center of gravity (C.G.) limitations. Airplanes that are loaded above the maximum takeoff or landing weight limitations will have an overall lower level of performance compared to that shown in the Performance section of the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual. If loaded above maximum takeoff weight, takeoff distance and the landing distance will be longer than that shown in the Performance section; the stalling speed will be higher, rate of climb, the cruising speed, and the range of the airplane at any level of fuel will all be lower than shown in the Performance section.

If an airplane is loaded so that the C.G. is forward of the forward limit it will require additional control movements for maneuvering the airplane with correspondingly higher control forces. The pilot may have difficulty during takeoff and landing because of the elevator control limits.

If an airplane is loaded aft of the aft C.G. limitation, the pilot will experience a lower level of stability. Airplane characteristics that indicate a lower stability level are; lower control forces, difficulty in trimming the airplane, lower control forces for maneuvering with attendant danger of structural overload, decayed stall characteristics, and a lower level of lateral-directional damping.

Ensure that all cargo and baggage is properly secured before takeoff. A sudden shift in balance at rotation can cause controllability problems.

AUTOPILOTS AND ELECTRIC TRIM SYSTEMS

Because there are several different models of autopilots and electric trim systems installed in Beech airplanes and different installations and switch positions are possible from airplane to airplane, it is essential that every owner/operator review his Airplane Flight Manual (AFM) Supplements and ensure that the supplements properly describe the autopilot and trim installations on his specific airplane. Each pilot, prior to flight, must be fully aware of the proper procedures for operation, and particularly disengagement, for the system as installed.

In addition to ensuring compliance with the autopilot manufacturer's maintenance requirements, all owners/operators should thoroughly familiarize themselves with the operation, function and procedures described in the Airplane Flight Manual Supplements. Ensure a full understanding of the methods of engagement and disengagement of the autopilot and trim systems.

Compare the descriptions and procedures contained in the Supplements to the actual installation in the airplane to ensure that the supplement accurately describes your installation. Test that all buttons, switches and circuit breakers function as described in the Supplements. If they do not function as described, have the system repaired by a qualified service agency. If field service advice or assistance is necessary, contact Beech Aircraft Corporation, Customer Support Department.

As stated in all AFM Supplements for autopilot systems and trim systems installed on Beech airplanes, the preflight check must be conducted before every flight. The preflight check assures not only that the systems and all of their features are operating properly, but also that the pilot, before flight, is familiar with the proper means of engagement and disengagement of the autopilot and trim system.

Autopilot Airplane Flight Manual Supplements caution against trying to override the autopilot system during flight without disengaging the autopilot because the autopilot will continue to trim the airplane and oppose the pilot's actions. This could result in a severely out of trim condition. This is a basic feature of all autopilots with electric trim follow-up.

Do not try to manually override the autopilot during flight.

IN CASE OF EMERGENCY, YOU CAN OVERPOWER THE AUTOPILOT TO CORRECT THE ATTITUDE, BUT THE AUTOPILOT AND ELECTRIC TRIM MUST THEN IMMEDIATELY BE DISENGAGED.

It is often difficult to distinguish an autopilot malfunction from an electric trim system malfunction. The safest course is to deactivate both. Do not re-engage either system until after you have safely landed. Then have the systems checked by a qualified service facility prior to further flight.

Depending upon the installation on your airplane, the following additional methods may be available to disengage the autopilot or electric trim in the event that the autopilot or electric trim does not disengage utilizing the disengage methods specified in the Supplements.

CAUTION

Transient control forces may occur when the autopilot is disengaged.

1. Turn off the autopilot master switch, if installed.
2. Pull the autopilot and trim circuit breaker(s) or turn off the autopilot switch breaker, if installed.
3. Turn off the RADIO MASTER SWITCH, if installed, and

if the autopilot system and the trim system are wired through this switch.

CAUTION

Radios, including VHF COMM are also disconnected when the radio master switch is off.

4. Turn off the ELECTRIC MASTER SWITCH.

WARNING

Most electrically powered systems will be inoperative. Consult the AFM for further information.

5. Push the GA switch on throttle grip, if installed (depending upon the autopilot system).
6. Push TEST EACH FLT switch on the autopilot controller, if installed.

NOTE

After the autopilot is positively disengaged, it may be necessary to restore other electrical functions. Be sure when the master switches are turned on that the autopilot does not re-engage.

The above ways may or may not be available on your autopilot. It is essential that you read your airplane's AFM

SUPPLEMENT for your autopilot system and check each function and operation on your system.

The engagement of the autopilot must be done in accordance with the instructions and procedures contained in the AFM SUPPLEMENT.

Particular attention must be paid to the autopilot settings prior to engagement. If you attempt to engage the autopilot when the airplane is out of trim, a large attitude change may occur.

IT IS ESSENTIAL THAT THE PROCEDURES SET FORTH IN THE APPROVED AFM SUPPLEMENTS FOR YOUR SPECIFIC INSTALLATION BE FOLLOWED BEFORE ENGAGING THE AUTOPILOT.

FLUTTER

Flutter is a phenomenon that can occur when an aerodynamic surface begins vibrating. The energy to sustain the vibration is derived from airflow over the surface. The amplitude of the vibration can (1) decrease, if airspeed is reduced; (2) remain constant, if airspeed is held constant and no failures occur; or (3) increase to the point of self-destruction, especially if airspeed is high and/or is allowed to increase. Flutter can lead to an in-flight break up of the airplane. Airplanes are designed so that flutter will not occur in the normal operating envelope of the airplane as long as the airplane is properly maintained. In the case of any airplane, decreasing the damping and stiffness of the structure or increasing the trailing edge weight of control surfaces will tend to cause flutter. If a combination of those factors is sufficient, flutter can occur within the normal operating envelope.

Owners and operators of airplanes have the primary responsibility for maintaining their airplanes. To fulfill that responsibility, it is imperative that all airplanes receive a thorough preflight inspection. Improper tension on the control cables or any other loose condition in the flight control system can also cause or contribute to flutter. Pilots should pay particular attention to control surface attachment hardware including tab pushrod attachment during preflight inspection. Looseness of fixed surfaces or movement of control surfaces other than in the normal direction of travel should be rectified before flight. Further, owners should take their airplanes to mechanics who have access to current technical publications and prior experience in properly maintaining that make and model of airplane. The owner should make certain that control cable tension inspections are performed as outlined in the applicable Beech Inspection Guide. Worn control surface attachment hardware must be replaced. Any repainting or repair of a moveable control surface will require a verification of the control surface balance before the airplane is returned to service. Control surface drain holes must be open to prevent freezing of accumulated moisture, which could create an increased trailing-edge-heavy control surface and flutter.

If an excessive vibration, particularly in the control column and rudder pedals, is encountered in flight, this may be the onset of flutter and the procedure to follow is:

1. IMMEDIATELY REDUCE AIRSPEED (lower the landing gear, if necessary).
2. RESTRAIN THE CONTROLS OF THE AIRPLANE UNTIL THE VIBRATION CEASES.
3. FLY AT THE REDUCED AIRSPEED AND LAND AT THE NEAREST SUITABLE AIRPORT.
4. HAVE THE AIRPLANE INSPECTED FOR AIRFRAME DAMAGE, CONTROL SURFACE ATTACHING HARDWARE CONDITION/SECURITY, TRIM TAB FREE PLAY, PROPER CONTROL CABLE TENSION, AND CONTROL SURFACE BALANCE BY ANOTHER MECHANIC WHO IS FULLY QUALIFIED.

TURBULENT WEATHER

A complete and current weather briefing is a requirement for a safe trip.

Updating of weather information en route is also essential. The wise pilot knows that weather conditions can change quickly, and treats weather forecasting as professional advice, rather than an absolute fact. He obtains all the advice he can, but stays alert to any sign or report of changing conditions.

Plan the flight to avoid areas of reported severe turbulence. It is not always possible to detect individual storm areas or find the in-between clear areas.

The National Weather Service classifies turbulence as follows:

Class of Turbulence	Effect
Extreme	Airplane is violently tossed about and is practically impossible to control. May cause structural damage.
Severe	Airplane may be momentarily out of control. Occupants are thrown violently against the belts and back into the seat. Unsecured objects are tossed about.
Moderate	Occupants require seat belts and occasionally are thrown against the belt. Unsecured objects move about.

Light — Occupants may be required to use seat belts, but objects in the airplane remain at rest.

Thunderstorms, squall lines and violent turbulence should be regarded as extremely dangerous and must be avoided. Hail and tornadic wind velocities can be encountered in thunderstorms that can destroy any airplane, just as tornadoes destroy nearly everything in their path on the ground.

Thunderstorms also pose the possibility of a lightning strike on an airplane. Any structure or equipment which shows evidence of a lightning strike, or of being subjected to a high current flow due to a strike, or is a suspected part of a lightning strike path through the airplane should be thoroughly inspected and any damage repaired prior to additional flight.

A roll cloud ahead of a squall line or thunderstorm is visible evidence of extreme turbulence; however, the absence of a roll cloud should not be interpreted as denoting that severe turbulence is not present.

Even though flight in severe turbulence must be avoided, flight in turbulent air may be encountered unexpectedly under certain conditions.

The following recommendations should be observed for airplane operation in turbulent air:

Flying through turbulent air presents two basic problems, the answer to both of which is proper airspeed. On one hand, if you maintain an excessive airspeed, you run the risk of structural damage or failure; on the other hand, if your airspeed is too low, you may stall.

If turbulence is encountered, reduce speed to the turbulent air penetration speed, if given, or to the maneuvering speed, which is listed in the Limitations section of the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual.

These speeds give the best assurance of avoiding excessive stress loads, and at the same time provide the proper margin against inadvertent stalls due to gusts.

Beware of overcontrolling in an attempt to correct for changes in attitude; applying control pressure abruptly will build up G-forces rapidly and could cause structural damage or even failure. You should watch particularly your angle of bank, making turns as wide and shallow as possible. Be equally cautious in applying forward or back pressure to keep the airplane level. Maintain straight and level attitude in either up or down drafts. Use trim sparingly to avoid being grossly out of trim as the vertical air columns change velocity and direction. If necessary to avoid excessive airspeeds, lower the landing gear.

WIND SHEAR

Wind shears are rapid, localized changes in wind direction, which can occur vertically as well as horizontally. Wind shear can be very dangerous to all airplanes, large and small, particularly on approach to landing when airspeeds are slow.

A horizontal wind shear is a sudden change in wind direction or speed that can, for example, transform a headwind into a tailwind, producing a sudden decrease in indicated airspeed because of the inertia of the airplane. A vertical wind shear, is a sudden updraft or downdraft. Microbursts are intense, highly localized severe downdrafts.

The prediction of wind shears is far from an exact science. Monitor your airspeed carefully when flying near storms, particularly on approach. Be mentally prepared to add power and go around at the first indication that a wind shear is being encountered.

FLIGHT IN ICING CONDITIONS

Every pilot should be intimately acquainted with the FAA Approved National Weather Service definitions for ice intensity and accumulation which we have reprinted below:

Intensity	**Ice Accumulation**
Trace	Ice becomes perceptible. Rate of accumulation slightly greater than rate of sublimation. It is not hazardous even though deicing/anti-icing equipment is not utilized, unless encountered for an extended period of time (over 1 hour).
Light	The rate of accumulation may create a problem if flight is prolonged in this environment (over 1 hour). Occasional use of deicing/anti-icing equipment removes/prevents accumulation. It does not present a problem if the deicing/anti-icing equipment is used.
Moderate	The rate of accumulation is such that even short encounters become potentially hazardous and use of deicing/anti-icing equipment or diversion is necessary.
Severe	The rate of accumulation is such that deicing/anti-icing equipment fails to reduce or control the hazard. Immediate diversion is necessary.

It is no longer unusual to find deicing and anti-icing equipment on a wide range of airplane sizes and types. Since the capability of this equipment varies, it becomes the pilot's primary responsibility to understand limitations which restrict the use of his airplane in icing conditions and the conditions which may exceed the systems capacity.

Pilots and airplane owners must carefully review the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual in order to ascertain the required operable equipment needed for flight in icing conditions. In addition, they must ascertain from the same source the limits of approval or certification of their airplane for flight in icing conditions, and plan the flight accordingly, if icing conditions are known or forecast along the route.

Every owner and pilot of an airplane should understand that it is not uncommon to find airplanes equipped with less than the full complement of available systems and equipment. For example, propellers and pitot tube may be protected, but the airplane may not have wing boots or tail boots. The reverse might be true. Windshield, pitot and airfoil surfaces might be protected, but the propellers might not be. Before undertaking any flight into areas where icing conditions might be expected, inspect the airplane and review the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual to be certain that you are supported by the full complement of required IFR and deicing/anti-icing equipment.

Remember that regardless of its combination of deicing/anti-icing equipment, any airplane not fully equipped and functional for IFR flight is not properly equipped for flight in icing conditions. An airplane which is not approved or certificated for flight in icing conditions, or which does not have all critical areas protected in the required manner by fully operational anti-icing equipment must not be exposed to icing encounters of any intensity. When icing is detected, the pilot of such an airplane must make an immediate diversion by flying out of the area of visible moisture or going to an altitude where icing is not encountered.

Some models of Beech airplanes were approved for flight in certain limited icing conditions under the FAA's Bureau of Flight Standards Release No. 434. Under this release, properly equipped airplanes are approved for flight in light to moderate icing conditions only. Refer to Sections 2 and 4 of the above document for icing limitations. These airplanes are not approved for extended flight in moderate icing conditions or flights in any severe icing conditions. Flight in these conditions must be avoided.

Even airplanes fully equipped and certified for flight in the icing conditions described in Appendix C to FAR Part 25 must avoid flights into those conditions defined by the National Weather Service as "Severe". The National Weather Service definition of "Severe Icing" describes that conditions as: "the rate of accumulation is such that deicing/anti-icing equipment fails to reduce or control the hazard." No airplane equipped with any combination of deicing/anti-icing equipment can be expected to cope with such conditions. As competent pilots know, there appears to be no predictable limits for the severest weather conditions. For essentially the same reasons that airplanes, however designed or equipped for IFR flight, cannot be flown safely into conditions such as thunderstorms, tornadoes, hurricanes or other phenomena likely to produce severe turbulence, airplanes equipped for flight in icing conditions cannot be expected to cope with "Severe" icing conditions as defined by the National Weather Service. The prudent pilot must remain alert to the possibility that icing conditions may become "severe" and that his equipment will not cope with them. At the first indication that such condition may have been encountered or may lie ahead, he should immediately react by selecting the most expeditious and safe course for diversion.

Every pilot of a properly fully-equipped Beech airplane who ventures into icing conditions must maintain the minimum speed (KIAS) for operation in icing conditions, which is set forth in the Normal Procedures section, and in the Limitations section, of his Pilot's Operating Handbook and FAA Approved Airplane Flight Manual. If a minimum speed for flight in icing conditions is not specified in the manual, the following minimum indicated airspeeds must be maintained:

All Baron and Travel Air Models - 130 KIAS
All other BEECHCRAFT twin-engine models - 140 KIAS

The pilot must remain aware of the fact that if he allows his airspeed to deteriorate below this minimum speed, he will increase the angle of attack of his airplane to the point where ice may build up on the under side of the wings aft of the area protected by the boots.

The fact or extent of ice build-up in unprotected areas will not be directly observable from the cockpit. Due to distortion of the wing airfoil, increased drag and reduced lift, stalling speeds will increase as ice accumulates on the airplane. For the same reasons, stall warning devices are not accurate and cannot be relied upon in icing conditions.

Even though the pilot maintains the prescribed minimum speeds for operating in icing conditions, ice is still likely to build up on the unprotected areas (the fuselage and unprotected wing leading edge inboard of the engine nacelle). Under some atmospheric conditions, it may even build up aft of the boots despite the maintenance of the prescribed minimum speed. The effect of ice accumulation on any unprotected surface is aggravated by length of exposure to the icing conditions. Ice buildup on unprotected surfaces will increase drag, add weight, reduce lift, and generally, adversely affect the aerodynamic characteristics and performance of the airplane. It can progress to the point where the airplane is no longer capable of flying. Therefore, the pilot operating even a fully-equipped airplane in sustained icing conditions must remain sensitive to any indication, such as observed ice accumulation, loss of airspeed, the need for increased power, reduced rate of climb, or sluggish response, that ice is accumulating on unprotected surfaces and that continued flight in these conditions is extremely hazardous, regardless of the performance of the deicing/ anti-icing equipment.

Since flight in icing conditions is not an everyday occurrence, it is important that pilots maintain a proper proficiency and awareness of the operating procedures necessary for safe operation of the airplane and that the airplane is in a condition for safe operation.

Ensure moisture drains in the airplane structure are maintained open as specified in the Aircraft Maintenance Manual, so that moisture will not collect and cause freezing in the control cable area. Also, control surface tab hinges should be maintained and lubricated as specified in the Aircraft Maintenance Manual.

In icing conditions the autopilot should be disengaged at an altitude sufficient to permit the pilot to gain the feel of the airplane prior to landing. In no case should this be less than the minimum altitude specified in the Autopilot Airplane Flight Manual Supplement.

Observe the procedures set forth in your Pilot's Operating Handbook and FAA Approved Airplane Flight Manual during operation in icing conditions.

Activate your deice and anti-icing systems before entering an area of moisture where you are likely to go through a freezing level, to make sure all necessary equipment is operative.

Rapid cycling of deice boots or cycling before at least one-half inch (1/2″) of ice has accumulated (measured in the chordwise direction or forward from the leading edge), may cause the ice to grow outside the contour of the inflated boots and prevent ice removal.

For any owner or pilot whose use pattern for an airplane exposes it to icing encounters, the following references are required reading for safe flying:

- The airplane's Pilot's Operating Handbook and FAA

Approved Airplane Flight Manual, especially the sections on Normal Procedures, Emergency Procedures, Abnormal Procedures, Systems, and Safety Information.

- FAA Advisory Circulars 91-51 Airplane Deice and Anti-ice Systems
- FAA Advisory Circulars 135-9 - Icing Limitations
- Weather Flying by Robert N. Buck.

Finally, the most important ingredients to safe flight in icing conditions - regardless of the airplane or the combination of deicing/anti-icing equipment - are a complete and current weather briefing, sound pilot judgement, close attention to the rate and type of ice accumulations, and the knowledge that "severe icing" as defined by the National Weather Service is beyond the capability of modern airplanes and immediate diversion must be made. It is the inexperienced or uneducated pilot who presses on "regardless", hoping that steadily worsening conditions will improve, only to find himself flying an airplane which has become so loaded with ice that he can no longer maintain altitude. At this point he has lost most, if not all, of his safety options, including perhaps a 180 degree turn to return along the course already traveled.

The responsible and well-informed pilot recognizes the limitations of weather conditions, his airplane and its systems, and reacts promptly.

WEATHER RADAR

Airborne weather avoidance radar is, as its name implies, for avoiding severe weather--not for penetrating it. Whether to fly into an area of radar echoes depends on echo intensity and shape, spacing between the echoes, and the capabilities of you and your airplane. Remember that weather radar detects only precipitation drops. Therefore, the radar scope provides no assurance of avoiding turbulence. The radar scope also does not provide assurance of avoiding instrument weather from clouds and fog. Your scope may be clear between intense echoes; this clear area does not necessarily mean you can fly between the storms and maintain visual sighting of them.

Thunderstorms build and dissipate rapidly. Therefore, do not attempt to plan a course between echoes using ground based radar. The best use of ground radar information is to isolate general areas and coverage of echoes. You must avoid individual storms from in-flight observations either by visual sighting or by airborne radar. It is better to avoid the whole thunderstorm area than to detour around individual storms unless they are scattered.

Remember that while hail always gives a radar echo, it may fall several miles from the nearest visible cloud and hazardous turbulence may extend to as much as 20 miles from the echo edge. The intensity of the radar echo from hail varies with the size and nature of the hailstone. A hailstone with a wet surface gives a strong radar return while a dry hailstone gives a relatively weak return. Avoid intense or extreme level echoes by at least 20 miles; that is, such echoes should be separated by at least 40 miles before you fly between them. With weaker echoes you can reduce the distance by which you avoid them.

Above all, remember this: never regard any thunderstorm lightly. Even when radar observers report the echoes are of light intensity, avoiding thunderstorms is the best policy. The following are some do's and don'ts of thunderstorm avoidance:

1. Don't land or take off in the face of an approaching thunderstorm. A sudden gust front of low level turbulence could cause loss of control.
2. Don't attempt to fly under a thunderstorm even if you can see through to the other side. Turbulence and wind shear under the storm could be disastrous.

3. Don't fly without airborne radar into a cloud mass containing scattered embedded thunderstorms. Embedded thunderstorms usually can not be visually circumnavigated.
4. Don't trust visual appearance to be a reliable indicator of the turbulence inside a thunderstorm.
5. Do avoid by at least 20 miles any thunderstorm identified as severe or giving an intense radar echo. This is especially true under the anvil of a large cumulonimbus.
6. Do circumnavigate the entire area if the area has 6/10 or greater thunderstorm coverage.
7. Do remember that vivid and frequent lightning indicates the probability of a severe thunderstorm.
8. Do regard as extremely hazardous any thunderstorm with tops 35,000 feet or higher, whether the top is visually sighted or determined by radar.

If you cannot avoid penetrating a thunderstorm, the following are some do's BEFORE entering the storm:

9. Tighten your safety belt, put on your shoulder harness, and secure all loose objects.
10. Plan and hold your course to take you through the storm in minimum time.
11. To avoid the most critical icing, establish a penetration altitude below the freezing level or above the level of -15°C.
12. Verify that pitot heat is on and turn on carburetor heat or engine anti-ice. Icing can be rapid at any altitude and cause almost instantaneous power failure and/or loss of airspeed indication.

MOUNTAIN FLYING

Pilots flying in mountainous areas should inform themselves of all aspects of mountain flying, including the effects of topographic features on weather conditions. Many good articles have been published, and a synopsis of mountain flying operations is included in the FAA Airman's Information Manual, Part 1.

Avoid flight at low altitudes over mountainous terrain, particularly near the lee slopes. If the wind velocity near the level of the ridge is in excess of 25 knots and approximately perpendicular to the ridge, mountain wave conditions are likely over and near the lee slopes. If the wind velocity at the level of the ridge exceeds 50 knots, a strong mountain wave is probable with extreme up and down drafts and severe turbulence. The worst turbulence will be encountered in and below the rotor zone, which is usually 8 to 10 miles downwind from the ridge. This zone is sometimes characterized by the presence of "roll clouds" if sufficient moisture is present; altocumulus standing lenticular clouds are also visible signs that a mountain wave exists, but their presence is likewise dependent on moisture. Mountain wave turbulence can, of course, occur in dry air and the absence of such clouds should not be taken as assurance that mountain wave turbulence will not be encountered. A mountain wave downdraft may exceed the climb capability of your airplane. Avoid mountain wave downdrafts.

VFR - LOW CEILINGS

If you are not instrument rated, do not attempt "VFR on Top" or "Special VFR" flight or clearances. Being caught above a solid cloud layer when an emergency descent is required (or at destination) is an extremely hazardous position for the VFR pilot. Accepting a clearance out of airport control zones with no minimum ceiling and one-mile visibility as permitted with "Special VFR" is a foolish practice for the VFR pilot.

Avoid areas of low ceilings and restricted visibility unless you are instrument rated and proficient and have an instrument equipped airplane. Then proceed with caution and with planned alternates.

VFR AT NIGHT

When flying VFR at night, in addition to the altitude appropriate for the direction of flight, pilots should maintain a safe minimum altitude as dictated by terrain, obstacles such as TV towers, or communities in the area flown. This is especially true in mountainous terrain, where there is usually very little ground reference. Minimum clearance is 2,000 feet above the highest obstacle en route. Do not depend on your ability to see obstacles in time to miss them. Flight on dark nights over sparsely populated country can be the same as IFR, and must be avoided by inexperienced or non-IFR rated pilots.

VERTIGO - DISORIENTATION

Disorientation can occur in a variety of ways. During flight, inner ear balancing mechanisms are subjected to varied forces not normally experienced on the ground. This, combined with loss of outside visual reference, can cause vertigo. False interpretations (illusions) result, and may confuse the pilot's conception of the attitude and position of his airplane.

Under VFR conditions, the visual sense, using the horizon as a reference, can override the illusions. Under low visibility conditions (night, fog, clouds, haze, etc.) the illusions predominate. Only through awareness of these illusions, and proficiency in instrument flight procedures, can an airplane be operated safely in a low visibility environment.

Flying in fog, dense haze or dust, cloud banks, or very low visibility, with strobe lights or rotating beacons turned on can contribute to vertigo. They should be turned off in these conditions, particularly at night.

All pilot's should check the weather and use good judgment in planning flights. The VFR pilot should use extra caution in avoiding low visibility conditions.

Motion sickness often precedes or accompanies disorientation and may further jeopardize the flight.

Disorientation in low visibility conditions is not limited to VFR pilots. Although IFR pilots are trained to look at their instruments to gain an artificial visual reference as a replacement for the loss of a visual horizon, they do not always do so. This can happen when the pilot's physical condition will not permit him to concentrate on his instruments; when the pilot is not proficient in flying instrument conditions in the airplane he is flying; or, when the pilot's work load of flying by reference to his instruments is augmented by such factors as turbulence. Even an instrument rated pilot encountering instrument conditions, intentional or unintentional, should ask himself whether or not he is sufficiently alert and proficient in the airplane he is flying, to fly under low visibility conditions and in the turbulence anticipated or encountered.

If any doubt exists, the flight should not be made or it should be discontinued as soon as possible.

The result of vertigo is loss of control of the airplane. If the loss of control is sustained, it will result in an excessive speed accident. Excessive speed accidents occur in one of two manners, either as an inflight airframe separation or as a high speed ground impact; and they are fatal accidents in either case. All airplanes are subject to this form of accident.

For years, Beech Pilot's Operating Handbooks and FAA Approved Airplane Flight Manuals have contained instructions that the landing gear should be extended in any circumstance in which the pilot encounters IFR conditions which approach the limits of his capability or his ratings. Lowering the gear in IFR conditions or flight into heavy or severe turbulence, tends to stabilize the airplane, assists in maintaining proper airspeed, and will substantially reduce the possibility of reaching excessive airspeeds with catastrophic consequences, even where loss of control is experienced.

Excessive speed accidents occur at airspeeds greatly in excess of two operating limitations which are specified in the manuals: Maximum maneuvering speed and the "red line" or maximum operating speed. Such speed limits are set to protect the structure of an airplane. For example, flight controls are designed to be used to their fullest extent only below the airplane's maximum maneuvering speed. As a result, the control surfaces should never be suddenly or fully deflected above maximum maneuvering speed. Turbulence penetration should not be performed above that speed. The accidents we are discussing here occur at airspeeds greatly in excess of these limitations. No airplane should ever be flown beyond its FAA approved operating limitations.

FLIGHT OF MULTI-ENGINE AIRPLANES WITH ONE ENGINE INOPERATIVE

The major difference between flying a twin-engine and single-engine airplane is knowing how to manage the flight if one engine loses power for any reason. Safe flight with one engine inoperative requires an understanding of the basic aerodynamics involved - as well as proficiency in engine out procedures.

Loss of power from one engine affects both climb performance and controllability of twin-engine airplanes. Climb performance depends on an excess of power over that required for level flight. Loss of power from one engine obviously represents a 50% loss of horsepower but, in virtually all twin-engine airplanes, climb performance is reduced by at least 80%. A study of the charts in your Pilot's Operating

Handbook and FAA Approved Airplane Flight Manual will confirm this fact. Single-engine climb performance depends on four factors:

Airspeed	too little, or too much, will decrease climb performance
Drag	gear, flaps, cowl flaps, prop, and speed
Power	amount available in excess of that needed for level flight
Weight	passengers, baggage, and fuel load greatly affect climb performance

Loss of power on one engine creates yaw due to asymmetric thrust. Yaw forces must be balanced with the rudder. Loss of power on one engine also reduces airflow over the wing causing a roll toward the "dead" engine which must be balanced with the aileron. The net result of these forces cause the airplane to sideslip slightly toward the dead engine. This sideslip may be balanced by banking slightly (up to 5°) into the operating engine.

CAUTION

In the event of an engine failure with the main tanks less than one-quarter full, corrective action must be taken immediately to prevent large yaw angles from developing and causing stoppage of the remaining engine.

Airspeed is the key to safe single engine operations. For most twin-engine airplanes there is:

Symbol	Description
V_{MCA}	Airspeed below which directional control cannot be maintained
V_{SSE}	Airspeed below which an intentional engine cut should never be made
V_{YSE}	Airspeed that will give the best single engine rate-of-climb (or the slowest loss of altitude)
V_{XSE}	Airspeed that will give the steepest angle-of-climb with one engine out

AIR MINIMUM CONTROL SPEED (V_{MCA})

V_{MCA} is designated by the red radial on the airspeed indicator and indicates the minimum control speed, airborne at sea level. V_{MCA} is determined by FAA regulations as the minimum airspeed at which it is possible to recover directional control of the airplane within 20 degrees heading change, and thereafter maintain straight flight, with not more than 5 degrees of bank if one engine fails suddenly with:

- Takeoff power on both engines
- Rearmost allowable center of gravity
- Flaps in takeoff position
- Propeller windmilling in takeoff pitch configuration

However, sudden engine failures rarely occur with all factors listed above, and therefore, the actual V_{MCA} in any particular situation may be a little slower than the red radial on the airspeed indicator. Most airplanes with an inoperative engine will not maintain level flight at maximum power at speeds at or near V_{MCA}. Consequently, it is not advisable to fly at speeds approaching V_{MCA}, except in training situations or during flight tests. Adhering to the practice of never flying at or below the published V_{MCA} speed for your airplane does not eliminate loss of directional control as a problem in the event of an engine failure. The pilot must be prepared to use assertive control input to maintain airplane control following an engine failure.

INTENTIONAL ONE-ENGINE INOPERATIVE SPEED (V_{SSE})

V_{SSE} is specified by the airplane manufacturer and is the minimum speed at which to perform intentional engine cuts. Use of V_{SSE} is intended to reduce the accident potential from loss of control after engine cuts at or near minimum control speed. V_{MCA} demonstrations are necessary in training but should only be made at safe altitude above the terrain and with power reduction on one engine made at or above V_{SSE}.

ONE-ENGINE-INOPERATIVE BEST RATE-OF-CLIMB SPEED (V_{YSE})

V_{YSE} is designated by the blue radial on the airspeed indicator. V_{YSE} delivers the greatest gain in altitude in the shortest possible time, and is based on the following criteria:

- Critical engine inoperative, and its propeller in the minimum drag position.
- Operating engine set at not more than the maximum continuous power.
- Landing gear retracted.
- Wing flaps up.
- Cowl flaps as required for engine cooling.
- Airplanes flown at recommended bank angle (up to 5° into operating engine).

Drag caused by a windmilling propeller, extending landing gear, or flaps in the landing position, will severely degrade or destroy single engine climb performance. Since climb performance varies widely with type of airplane, weight, temperature, altitude, and airplane configuration, the climb gradient (altitude gain or loss per mile) may be marginal - or even negative - under some conditions. Study the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual for your airplane and know what performance to expect with one engine out.

ONE-ENGINE-INOPERATIVE BEST ANGLE-OF-CLIMB SPEED (V_{XSE})

V_{XSE} is used only to clear obstructions during initial climb-out as it gives the greatest altitude gain per unit of horizontal distance. It provides less engine cooling and requires more rudder control input than V_{YSE}.

SINGLE ENGINE SERVICE CEILING

The single engine service ceiling is the maximum altitude at which an airplane will climb at a rate of at least 50 feet per minute in smooth air, with one engine inoperative.

The single engine service ceiling chart should be used during flight planning to determine whether the airplane, as loaded, can maintain the Minimum En Route Altitude (MEA) if IFR, or terrain clearance if VFR, following an engine failure.

BASIC SINGLE ENGINE PROCEDURES

Know and follow, to the letter, the single-engine emergency procedures specified in your Pilot's Operating Handbook and FAA Approved Airplane Flight Manual for your specific make and model airplane. However, the basic fundamentals of all the procedures are as follows:

1. Maintain airplane control and airspeed at all times. **THIS IS CARDINAL RULE NUMBER ONE.**
2. Usually, apply maximum power to the operating engine.

However, if the engine failure occurs at a speed below V_{MCA}, during cruise or in a steep turn, you may elect to use only enough power to maintain a safe speed and altitude. If the failure occurs on final approach, use power only as necessary to complete the landing.

3. Reduce drag to an absolute minimum.
4. Secure the failed engine and related sub-systems.

The first three steps should be done promptly and from memory. The check list should then be consulted to be sure that the inoperative engine is secured properly and that the appropriate switches are placed in the correct position. The airplane must be banked about 5° into the operating engine, with the "slip/skid" ball slightly out of center toward the operating engine, to achieve rated performance.

Another note of caution: Be sure to identify the dead engine, positively, before securing it. Remember: First identify the suspected engine (i.e., "Dead foot means dead engine"), second, verify with cautious throttle movement, then secure.

ENGINE FAILURE ON TAKEOFF

If an engine fails before attaining lift-off speed or below V_{MCA}, the only proper action is to discontinue the takeoff. If the engine fails after lift-off with the landing gear still down, the takeoff should still be discontinued if touchdown and roll-out on the remaining runway is still possible.

If you do find yourself in a position of not being able to climb, it is much better to reduce the power on the good engine and land straight ahead than try to force a climb and lose control.

Your Pilot's Operating Handbook and FAA Approved Airplane Flight Manual contains charts that are used in calculating the runway length required to stop if the engine fails before reaching lift-off speed and also has charts showing the single-engine performance after lift-off.

Study your charts carefully. No airplane is capable of climbing out on one engine under all weight, pressure altitude, and temperature conditions. Know, before you take the actual runway, whether you can maintain control and climb out if you lose an engine while the gear is still down. It may be necessary to off-load some weight, or wait for more favorable temperatures.

WHEN TO FLY V_X, V_Y, V_{XSE} AND V_{YSE}

During normal two-engine operations, always fly V_Y (V_X if necessary for obstacle clearance) on initial climb out. Then, accelerate to your cruise climb airspeed, which may be V_Y plus 10 or 15 knots after you have obtained a safe altitude. Use of cruise climb airspeed will give you better engine cooling, increased inflight visibility and better fuel economy. However, at first indication of an engine failure during climb out, or while on approach, establish V_{YSE} or V_{XSE}, whichever is appropriate. (Consult your Pilot's Operating Handbook and FAA Approved Airplane Flight Manual for specifics.)

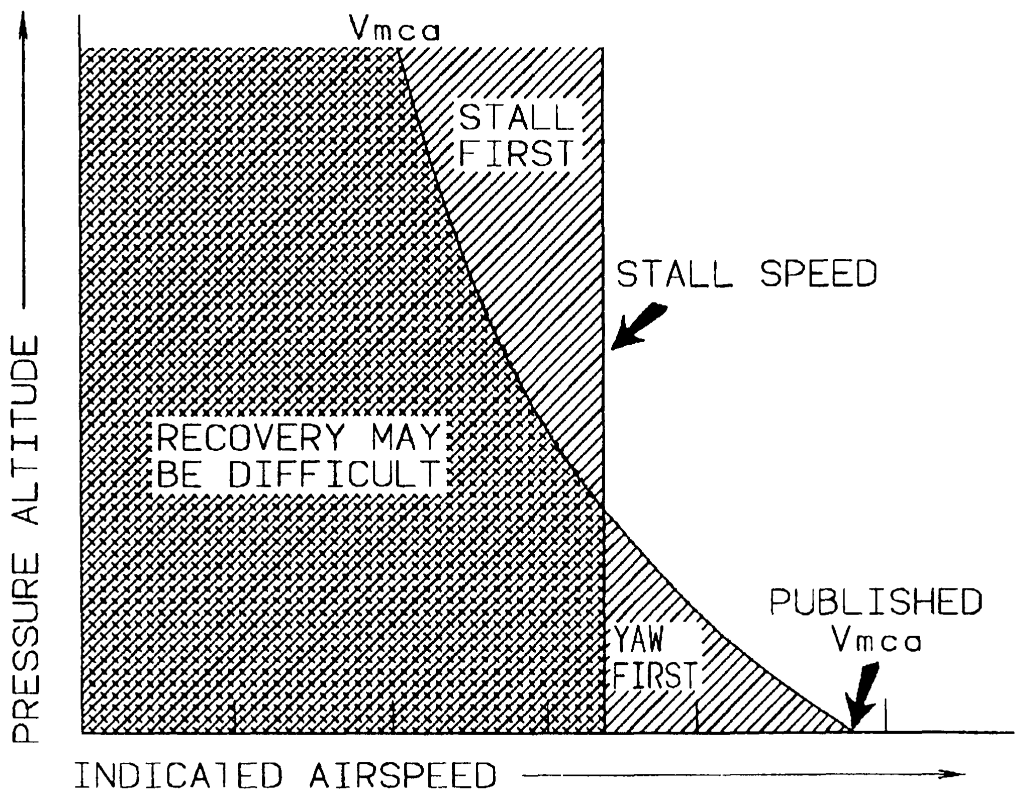
STALLS, SLOW FLIGHT AND TRAINING

The stall warning system must be kept operational at all times and must not be deactivated by interruption of circuits, circuit breakers, or fuses. Compliance with this requirement is especially important in all high performance multi-engine airplanes during engine-out practice or stall demonstrations, because the stall speed is critical in all low speed operations of high-performance airplanes.

Training should be accomplished under the supervision of a qualified instructor-pilot, with careful reference to the applicable sections of the FAA Practical Test Standards and FAA Pilot Transition Courses for Complex Single Engine and

Light Twin Engine Airplanes (AC61-9B). In particular, observe carefully the warnings in the Practical Test Standards.

The single-engine stall speed of a twin-engine airplane is generally slightly below the power off (engines idle) stall speed, for a given weight condition. Single-engine stalls should not be conducted in multi-engine airplanes by other than qualified engineering test pilots.



RELATIONSHIP BETWEEN STALL SPEED AND Vmca FOR AIRCRAFT WITH NORMALLY ASPIRATED ENGINES.

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Engine-out minimum control speed generally decreases with altitude, while the single engine stall speed remains approximately constant for normally aspirated engines. No such demonstration should be attempted when the altitude and temperature are such that the engine-out minimum control speed is known, or discovered to be, close to the stalling speed. Loss of directional or lateral control, just as a stall occurs, is potentially hazardous.

V_{SSE}, the airspeed below which an engine should not be intentionally rendered inoperative for practice purposes, was established because of the apparent practice of some pilots, instructors, and examiners, of intentionally rendering an engine inoperative at a time when the airplane is being operated at a speed close to, or below the power-idle stall speed. Unless the pilot takes immediate and proper corrective action under such circumstances, it is possible to enter an inadvertent spin.

It is recognized that flight below V_{SSE} with one engine inoperative, or simulated inoperative, may be required for conditions such as practice demonstration of V_{MCA} for multi-engine pilot certification. Refer to the procedure set forth in the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual for your airplane. This procedure calls for simulating one engine inoperative by reducing the power level (throttle) on one engine to idle while operating at an airspeed above V_{SSE}. Power on the other engine is set at maximum, then airspeed is reduced at approximately one knot per second until either V_{MCA} or stall warning is obtained. During this transition, rudder should be used to maintain directional control, and ailerons should be used to maintain a 5° bank toward the operative engine. At the first sign of either V_{MCA} or stall warning (which may be evidenced by inability to maintain longitudinal, lateral or directional control, aerodynamic stall buffet, or stall warning horn sound), recovery must be initiated immediately by reducing power to idle on operative engine and lowering the nose to regain V_{SSE}. Resume normal flight. This entire procedure should be used at a safe altitude of at least 5,000 feet above the ground in clear air only.

If stall warning is detected prior to the first sign of V_{MCA}, an engine-out minimum control speed demonstration cannot be accomplished under the existing gross weight conditions and should not be attempted.

SPINS

A major cause of fatal accidents in general aviation airplanes is a spin. Stall demonstrations and practice are a means for a pilot to acquire the skills to recognize when a stall is about to occur and to recover as soon as the first signs of a stall are evident.
If a stall does not occur - A spin cannot occur. It is important to remember however, that a stall can occur in any flight attitude, at any airspeed, if controls are misused.

Unless your airplane has been specifically certificated in the aerobatic category and specifically tested for spin recovery characteristics, it is placarded against intentional spins. The pilot of an airplane placarded against intentional spins should assume that the airplane may become uncontrollable in a spin, since its performance characteristics beyond certain limits specified in the FAA regulations may not have been tested and are unknown. This is why airplanes are placarded against intentional spins, and this is why stall avoidance is your protection against an inadvertent spin.

Pilots are taught that intentional spins are entered by deliberately inducing a yawing moment with the controls as the airplane is stalled. Inadvertent spins result from the same combination - stall plus yaw. That is why it is important to use coordinated controls and to recover at the first indication of a stall when practicing stalls.

In any twin engine airplane, fundamental aerodynamics dictate that if the airplane is allowed to become fully stalled while one engine is providing lift-producing thrust, the yawing moment which can induce a spin will be present. Consequently, it is important to immediately reduce power on the operating engine, lower the nose to reduce the angle of attack, and increase the airspeed to recover from the stall.

In any twin engine airplane, if application of stall recovery controls is delayed, a rapid rolling and yawing motion may develop, even against full aileron and rudder, resulting in the airplane becoming inverted during the onset of a spinning motion. Once the airplane has been permitted to progress beyond the stall and is allowed to reach the rapid rolling and yawing condition, the pilot must then immediately initiate the generally accepted spin recovery procedure for multi-engine airplanes, which is as follows:

Immediately move the control column full forward, apply full rudder opposite to the direction of the spin and reduce power on both engines to idle. These three actions should be done as near simultaneously as possible; then continue to hold this control position until rotation stops, then neutralize all controls and execute a smooth pullout. Ailerons should be neutral during recovery. THE LONGER THE PILOT DELAYS BEFORE TAKING CORRECTIVE ACTION, THE MORE DIFFICULT RECOVERY WILL BECOME.

Always remember that extra alertness and pilot techniques are required for slow flight maneuvers, including the practice or demonstration of stalls or V_{MCA}. In addition to the foregoing mandatory procedure, always:

- Be certain that the center of gravity of the airplane is as far forward as possible. Forward C.G. aids stall recovery, spin avoidance and spin recovery. An aft C.G. can create a tendency for a spin to stabilize, which delays recovery.
- Whenever a student pilot will be required to practice slow flight or single-engine maneuvers, be certain that the qualified instructor pilot has a full set of operable controls available. FAA regulations prohibit flight instruction without full dual controls.
- Conduct any maneuvers which could possibly result in a spin at altitudes in excess of five thousand (5,000) feet above ground level in clear air only.

- Remember that an airplane, at or near traffic pattern and approach altitudes, cannot recover from a spin, or perhaps even a stall, before impact with the ground. For twin engine airplanes, when descending to traffic altitude and during pattern entry and all other flight operations, maintain speed no lower than V_{SSE}. On final final approach maintain at least the airspeed shown in the flight manual. Should a go-around be required, do not apply more power than necessary until the airplane has accelerated to V_{SSE}. Recognize that under some conditions of weight, density altitude, and airplane configuration, a twin engine airplane cannot climb or accelerate on a single engine. Hence a single engine go-around is impossible and the airplane is committed to a landing. Plan your approach accordingly.
- Remember that if an airplane flown under instrument conditions is permitted to stall or enter a spin, the pilot, without reference to the horizon, is certain to become disoriented. He may be unable to recognize a stall, spin entry, or the spin condition and he may be unable to determine even the direction of the rotation.
- Finally, never forget that stall avoidance is your best protection against an inadvertent spin. MAINTAIN YOUR AIRSPEED.

DESCENT

In twin engine piston-powered airplanes, supercharged or normally aspirated, it is necessary to avoid prolonged descents with low power, as this produces two problems: (1) excessively cool cylinder head temperatures which cause premature engine wear, and (2) excessively rich mixtures due to idle enrichment (and altitude) which causes soot and lead deposits on the spark plugs (fouling). The second of these is the more serious consideration; the engine may not respond to the throttle when it is desired to discontinue the descent. Both problems are amenable to one solution: maintain adequate power to keep cylinder head temperatures in the "green" range during descent, and lean to best power mixture (that is, progressively enrich the mixture from cruise only slightly as altitude decreases). This procedure will lengthen the descent, of course, and requires some advance planning. If it is necessary to make a prolonged descent at or near idle, as in practicing forced landings, at least avoid the problem of fouled spark plugs by frequently advancing the throttle until the engine runs smoothly, and maintain an appropriate mixture setting with altitude. (Refer to pre-landing check list.)

VORTICES - WAKE TURBULENCE

Every airplane generates wakes of turbulence while in flight. Part of this is from the propeller or jet engine, and part from the wing tip vortices. The larger and heavier the airplane, the more pronounced and turbulent the wakes will be. Wing tip vortices from large, heavy airplanes are very severe at close range, degenerating with time, wind and distance. These are rolling in nature, from each wing tip. In tests, vortex velocities of 133 knots have been recorded. Encountering the rolling effect of wing tip vortices within two minutes after passage of large airplanes is most hazardous to light airplanes. This roll effect can exceed the maximum counter-roll obtainable in a light airplane. The turbulent areas may remain for as long as three minutes or more, depending on wind conditions, and may extend several miles behind the airplane. Plan to fly slightly above and to the windward side of other airplanes. Because of the wide variety of conditions that can be encountered, there is no set rule to follow to avoid wake turbulence in all situations. However, the Airman's Information Manual, and to a greater extent Advisory Circular 90-23, Aircraft Wake Turbulence, provide a thorough discussion of the factors you should be aware of when wake turbulence may be encountered.

TAKEOFF AND LANDING CONDITIONS

When taking off on runways covered with water or freezing slush, the landing gear should remain extended for approximately ten seconds longer than normal, allowing the wheels to spin and dissipate the freezing moisture. The landing gear should then be cycled up, then down, wait approximately five seconds and then retracted again. Caution must be exercised to insure that the entire operation is performed below Maximum Landing Gear Operating Airspeed.

Use caution when landing on runways that are covered by water or slush which cause hydroplaning (aquaplaning), a phenomenon that renders braking and steering ineffective because of the lack of sufficient surface friction. Snow and ice covered runways are also hazardous. The pilot should also be alert to the possibility of the brakes freezing.

Use caution when taking off or landing during gusty wind conditions. Also be aware of the special wind conditions caused by buildings or other obstructions located near the runway.

MEDICAL FACTS FOR PILOTS

GENERAL

When the pilot enters the airplane, he becomes an integral part of the man-machine system. He is just as essential to a successful flight as the control surfaces. To ignore the pilot in preflight planning would be as senseless as failing to inspect the integrity of the control surfaces or any other vital part of the machine. The pilot has the responsibility for determining his reliability prior to entering the airplane for flight. When piloting an airplane, an individual should be free of conditions which are harmful to alertness, ability to make correct decisions, and rapid reaction time.

FATIGUE

Fatigue generally slows reaction time and causes errors due to inattention. In addition to the most common cause of fatigue; insufficient rest and loss of sleep, the pressures of business, financial worries, and family problems can be important contributing factors. If you are tired, don't fly.

HYPOXIA

Hypoxia, in simple terms, is a lack of sufficient oxygen to keep the brain and other body tissues functioning properly. There is a wide individual variation in susceptibility to hypoxia. In addition to progressively insufficient oxygen at higher altitudes, anything interfering with the blood's ability to carry oxygen can contribute to hypoxia (anemias, carbon monoxide, and certain drugs). Also, alcohol and various drugs decrease the brain's tolerance to hypoxia.

Your body has no built-in alarm system to let you know when you are not getting enough oxygen. It is impossible to predict when or where hypoxia will occur during a given flight, or how it will manifest itself. Some of the common symptoms of hypoxia are increased breathing rate, a light-headed or dizzy sensation, tingling or warm sensation, sweating, reduced visual field, sleepiness, blue coloring of skin, fingernails, and lips, and behavior changes. A particularly dangerous feature of hypoxia is an increased sense of well-being, called euphoria. It obscures a person's ability and desire to be critical of himself, slows reaction time, and impairs thinking ability. Consequently, a hypoxic individual commonly believes things are getting progressively better while he nears total collapse.

The symptoms are slow but progressive, insidious in onset, and are most marked at altitudes starting above ten thousand feet. Night vision, however, can be impaired starting at an altitude of 5,000 feet. Persons who have recently overindulged in alcohol, who are moderate to heavy smokers, or who take certain drugs, may be more susceptible to hypoxia. Susceptibility may also vary in the same individual from day to day or even morning to evening. Use oxygen on flights above 10,000 feet and at any time when symptoms appear.

Depending upon altitude, a hypoxic individual has a limited time to make decisions and perform useful acts, even though he may remain conscious for a longer period. If pressurization equipment fails at certain altitudes the pilot and passengers have only a certain amount of time to get an oxygen mask on before they exceed their time of useful consciousness. The time of useful consciousness is approximately 3-5 minutes at 25,000 feet of altitude for the average individual and diminishes markedly as altitude increases. At 30,000 feet altitude, for example, the time of useful consciousness is approximately 1-2 minutes. Therefore, in the event of depressurization, oxygen masks should be used immediately.

Should symptoms occur that cannot definitely be identified as either hypoxia or hyperventilation, try three or four deep breaths of oxygen. The symptoms should improve markedly if the condition was hypoxia (recovery from hypoxia is rapid).

Pilots who fly to altitudes that require or may require the use of supplemental oxygen should be thoroughly familiar with the operation of the airplane oxygen systems. A preflight inspection of the system should be performed, including proper fit of the mask. The passengers should be briefed on the proper use of their oxygen system before flight.

Pilots who wear beards should be careful to ensure that their beard is carefully trimmed so that it will not interfere with proper sealing of the oxygen masks. If you wear a beard or moustache, test the fit of your oxygen mask on the ground for proper sealing. Studies conducted by the military and oxygen equipment manufacturers conclude that oxygen masks do not seal over beards or heavy facial hair.

Federal Aviation Regulations related to the use of supplemental oxygen by flight crew and passengers must be adhered to if flight to higher altitudes is to be accomplished safely. Passengers with significant circulatory or lung disease may need to use supplemental oxygen at lower altitudes than specified by these regulations.

Pilots of pressurized airplanes should receive physiological training with emphasis on hypoxia and the use of oxygen and oxygen systems. Pilots of airplanes with pressure demand oxygen systems should undergo training, experience altitude chamber decompression, and be familiar with pressure breathing before flying at high altitude. This training is available throughout the United States at nominal cost. Information regarding this training may be obtained by request from the Chief, Civil Aeromedical Institute, Attention: Aeromedical Education Branch, AAC-140, Mike Monroney Aeronautical Center, P. O. Box 25082, Oklahoma City, Oklahoma 73125

HYPERVENTILATION

Hyperventilation, or overbreathing, is a disturbance of respiration that may occur in individuals as a result of emotional tension or anxiety. Under conditions of emotional stress, fright, or pain, breathing rate may increase, causing increased lung ventilation, although the carbon dioxide output of the body cells does not increase. As a result, carbon dioxide is "washed out" of the blood. The most common symptoms of hyperventilation are: dizziness, nausea, sleepiness, and finally, unconsciousness. If the symptoms persist discontinue use of oxygen and consciously slow your breathing rate until symptoms clear, and then resume normal breathing rate. Normal breathing can be aided by talking aloud.

ALCOHOL

Common sense and scientific evidence dictate that you must not fly as a crew member while under the influence of alcohol. Alcohol, even in small amounts, produces (among other things):

- A dulling of critical judgement.
- A decreased sense of responsibility.
- Diminished skill reactions and coordination.
- Decreased speed and strength of muscular reflexes (even after one ounce of alcohol).
- Decreases in efficiency of eye movements during reading (after one ounce of alcohol).
- Increased frequency of errors (after one ounce of alcohol).
- Constriction of visual fields.
- Decreased ability to see under dim illuminations.
- Loss of efficiency of sense of touch.
- Decrease of memory and reasoning ability.
- Increased susceptibility to fatigue and decreased attention span.
- Decreased relevance of response.
- Increased self confidence with decreased insight into immediate capabilities.

Tests have shown that pilots commit major errors of judgment and procedure at blood alcohol levels substantially less than the minimum legal levels of intoxication for most states. These tests further show a continuation of impairment from alcohol up to as many as 14 hours after consumption, with no appreciable diminution of impairment. The body metabolizes ingested alcohol at a rate of about one-third of an ounce per hour. Even after the body completely destroys a moderate amount of alcohol, a pilot can still be severely impaired for many hours by hangover. The effects of alcohol on the body are magnified at altitudes, as 2 oz. of alcohol at 18,000 feet produce the same adverse effects as 6 oz. at sea level.

Federal Aviation Regulations have been amended to reflect the FAA's growing concern with the effects of alcohol impairment. FAR 91 states:

"**Alcohol or drugs.**

(a) No person may act or attempt to act as a crewmember of a civil aircraft -

(1) Within 8 hours after the consumption of any alcoholic beverage;

(2) While under the influence of alcohol;

(3) While using any drug that affects the person's faculties in any way contrary to safety; or

(4) While having .04 percent by weight or more alcohol in the blood.

(b) Except in an emergency, no pilot of a civil aircraft may allow a person who appears to be intoxicated or who demonstrates by manner or physical indications that the individual is under the influence of drugs (except a medical patient under proper care) to be carried in that aircraft."

Because of the slow destruction of alcohol by the body, a pilot may still be under influence eight hours after drinking a moderate amount of alcohol. Therefore, an excellent rule is to allow at least 12 to 24 hours between "bottle and throttle," depending on the amount of alcoholic beverage consumed.

DRUGS

Self-medication or taking medicine in any form when you are flying can be extremely hazardous. Even simple home or over-the-counter remedies and drugs such as aspirin, antihistamines, cold tablets, cough mixtures, laxatives, tranquilizers, and appetite suppressors, may seriously impair the judgment and coordination needed while flying. The safest rule is to take no medicine before or while flying, except after consultation with your Aviation Medical Examiner.

SCUBA DIVING

Flying shortly after any prolonged scuba diving could be dangerous. Under the increased pressure of the water, excess nitrogen is absorbed into your system. If sufficient time has not elapsed prior to takeoff for your system to rid itself of this excess gas, you may experience the bends at altitudes even under 10,000 feet, where most light planes fly.

CARBON MONOXIDE AND NIGHT VISION

The presence of carbon monoxide results in hypoxia which will affect night vision in the same manner and extent as hypoxia from high altitudes. Even small levels of carbon monoxide have the same effect as an altitude increase of 8,000 to 10,000 feet. Smoking several cigarettes can result in a carbon monoxide saturation sufficient to affect visual sensitivity equal to an increase of 8,000 feet altitude.

DECOMPRESSION SICKNESS

Pilots flying unpressurized airplanes at altitudes in excess of 10,000 feet should be alert for the symptoms of 'decompression sickness'. This phenomenon, while rare, can impair the pilot's ability to perform and in extreme cases, can result in the victim being rendered unconscious. Decompression sickness, also known as dysbarism and aviator's "bends", is caused by nitrogen bubble formation in body tissue as the ambient air pressure is reduced by climbing to higher altitudes. The symptoms are pain in the joints, abdominal cramps, burning sensations in the skin, visual impairment and numbness. Some of these symptoms are similar to hypoxia. The only known remedy for decompression sickness is recompression, which can only be accomplished in an unpressurized airplane by descending. The pilot should immediately descend if it is suspected that this condition exists, since the effects will only worsen with continued exposure to the reduced pressure environment at altitude and could result, if uncorrected, in complete incapacitation. The possibility of decompression sickness can be greatly reduced by pre-breathing oxygen prior to flight and by commencing oxygen breathing well below the altitudes where it is legally mandatory.

A FINAL WORD

Airplanes are truly remarkable machines. They enable us to shrink distance and time, and to expand our business and personal horizons in ways that, not too many years ago, were virtually inconceivable. For many businesses, the general aviation airplane has become the indispensable tool of efficiency.

Advances in the mechanical reliability of the airplanes we fly have been equally impressive, as attested by the steadily declining statistics of accidents attributed to mechanical causes, at a time when the airframe, systems and power plants have grown infinitely more complex. The explosion in capability of avionics systems is even more remarkable. Radar, RNAV, LORAN, sophisticated autopilots and other devices which, just a few years ago, were too large and prohibitively expensive for general aviation size airplanes, are becoming increasingly commonplace in even the smallest airplanes.

It is thus that this Safety Information is directed to the pilot, for it is in the area of the skill and proficiency of you, the pilot, that the greatest gains in safe flying are to be made over the years to come. Intimate knowledge of your airplane, its capabilities and its limitations, and disciplined adherence to the procedures for your airplane's operation, will enable you to transform potential tragedy into an interesting hangar story when - as it inevitably will - the abnormal situation is presented.

Know your airplane's limitations, and your own. Never exceed either.

Safe flying,

BEECH AIRCRAFT CORPORATION

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GARMIN G1000 SOFTWARE CONFIGURATION MATRIX FOR THE MODEL 58/G58

The following is the approved configuration of GARMIN hardware and its associated software. This document may be subsequently revised by Service Bulletins and/or product upgrades. Replace LRUs with the same part number and MOD level unless otherwise HBC approved. To confirm the approved configuration for your airplane visit http://www.hawkerbeechcraft.com/service_support/pubs/ or call Hawker Beechcraft Customer Support at 1-800-429-5372.

G1000 58/G58 Code Loader Card, Garmin Part Number 010-00725-06 (Installs G1000 System Software Version 0857.06)				
Description	Compatible LRU P/N's	System Status Page Name	Software	
			P/N	VER.
GTX 33 Mode S Transponder	011-00779-10	GTX1	006-B0172-XX	4.06
GEA 71 No. 1 Engine/Airframe Adapter (Left)	011-00831-00	GEA1	006-B0193-05	2.07
GEA 71 No. 2 Engine/Airframe Adapter (Right)	011-00831-00	GEA2	006-B0193-05	2.07
GDC 74A ADC	011-00882-00 or 011-00882-10	GDC1	006-B0261-11	3.01
		GDC1 FPGA	006-C0055-00	01.05
GMU 44 Magnetometer	011-00870-00	GMU1	006-B0224-00	2.01
		GMU1 FPGA	006-C0048-00	2.00
GDU 1040 PFD	011-00972-03	PFD1	006-B0319-65	8.10
		PFD1 FPGA	006-C0036-04	1.04
GDU 1043 MFD or GDU 1045 MFD	011-01079-00 or 011-00819-04	MFD1	006-B0319-65	8.10
		MFD1 FPGA	006-C0036-04	1.04
GIA 63W No. 1	011-01105-01	GIA1	006-B0544-25	5.40
		GPS1	006-B0339-07	3.0
		COM1	006-B0081-XX	7.00
		NAV1	006-B0082-XX	5.02 or 5.03
		GS1	006-B0083-XX	4.00
		GIA1 AUDIO	006-D0425-02	2.02

GARMIN G1000 SOFTWARE CONFIGURATION MATRIX
FOR THE MODEL 58/G58

GIA 63W No. 2	011-01105-01	GIA2	006-B0544-25	5.40
		GPS2	006-B0339-07	3.0
		COM2	006-B0081-XX	7.00
		NAV2	006-B0082-XX	5.02 or 5.03
		GS2	006-B0083-XX	4.00
		GIA2 AUDIO	006-D0425-02	2.02
GRS 77 AHRS	011-00868-10	GRS1	006-B0223-09	2.11
		GRS1 FPGA	006-C0049-00	02.00
		GRS1 MV DB (3)	006-D0159-01	2005.00
GMA 1347 Audio Panel	011-00809-00	GMA1	006-B0203-42	4.02
GDL 69A Data Link	011-00987-00	GDL69	006-B0317-14	3.20.00
GSA 81 Autopilot Servo – Qty 4	011-00878-00	(2)	006-B0398-20	2.13
		(1)	006-D0373-02	2.02
GWX 68 Weather Radar	011-00883-20	GWX	006-B0266-09	2.10
		GWX FPGA	006-C0042-06	3.01

(1) All LRU entries that begin with GFC CERT.
(2) All LRU entries that begin with GSA.
(3) Software Part Number and Version may be updated by Service Bulletin on five year cycle.

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GEA 71 No. 2 Engine/Airframe Adapter (Right)	011-00831-00	GEA2	006-B0193-05	2.07
GDC 74A ADC	011-00882-00 or 011-00882-10	GDC1	006-B0261-11	3.01
		GDC1 FPGA	006-C0055-00	01.05
GMU 44 Magnetometer	011-00870-00	GMU1	006-B0224-00	2.01
		GMU1 FPGA	006-C0048-00	2.00
GDU 1040 PFD	011-00972-03	PFD1	006-B0319-65	8.10
		PFD1 FPGA	006-C0036-04	1.04
GDU 1043 MFD or GDU 1045 MFD	011-01079-00 or 011-00819-04	MFD1	006-B0319-65	8.10
		MFD1 FPGA	006-C0036-04	1.04
GIA 63W No. 1	011-01105-01	GIA1	006-B0544-25	5.40
		GPS1	006-B0339-07	3.0
		COM1	006-B0081-XX	7.00
		NAV1	006-B0082-XX	5.02 or 5.03
		GS1	006-B0083-XX	4.00
		GIA1 AUDIO	006-D0425-02	2.02

GARMIN G1000 SOFTWARE CONFIGURATION MATRIX FOR THE MODEL 58/G58

GIA 63W No. 2	011-01105-01	GIA2	006-B0544-25	5.40
		GPS2	006-B0339-07	3.0
		COM2	006-B0081-XX	7.00
		NAV2	006-B0082-XX	5.02 or 5.03
		GS2	006-B0083-XX	4.00
		GIA2 AUDIO	006-D0425-02	2.02
GRS 77 AHRS	011-00868-10	GRS1	006-B0223-09	2.11
		GRS1 FPGA	006-C0049-00	02.00
		GRS1 MV DB (3)	006-D0159-01	2005.00
GMA 1347 Audio Panel	011-00809-00	GMA1	006-B0203-33	3.03
GDL 69A Data Link	011-00987-00	GDL69	006-B0317-14	3.20.00
GSA 81 Autopilot Servo –Qty 4	011-00878-00	(2)	006-B0398-20	2.13
		(1)	006-D0373-02	2.02
GWX 68 Weather Radar	011-00883-20	GWX	006-B0266-09	2.10
		GWX FPGA	006-C0042-06	3.01

(1) All LRU entries that begin with GFC CERT.
(2) All LRU entries that begin with GSA.
(3) Software Part Number and Version may be updated by Service Bulletin on five year cycle.

GARMIN G1000 SOFTWARE CONFIGURATION MATRIX FOR THE MODEL 58/G58

The following is the approved configuration of GARMIN hardware and its associated software. This document may be subsequently revised by Service Bulletins and/or product upgrades. Replace LRUs with the same part number and MOD level unless otherwise HBC approved. To confirm the approved configuration for your airplane visit http://www.hawkerbeechcraft.com/service_support/pubs/ or call Hawker Beechcraft Customer Support at 1-800-429-5372.

G1000 58/G58 Code Loader Card, Garmin Part Number 010-00500-13 (Installs G1000 Airframe System Software Version 0508.13)				
Description	Compatible LRU P/N's	System Status Page Name	Software	
			P/N	VER.
GTX 33 Mode S Transponder	011-00779-10	GTX1	006-B0172-XX	4.06
GEA 71 No. 1 Engine/Airframe Adapter (Left)	011-00831-00	GEA1	006-B0193-05	2.07
GEA 71 No. 2 Engine/Airframe Adapter (Right)	011-00831-00	GEA2	006-B0193-05	2.07
GDC 74A ADC	011-00882-00 or 011-00882-10	GDC1	006-B0261-11	3.01
		GDC1 FPGA	006-C0055-00	01.05
GMU 44 Magnetometer	011-00870-00	GMU1	006-B0224-00	2.01
		GMU1 FPGA	006-C0048-00	2.00
GDU 1040 PFD	011-00972-03	PFD1	006-B0319-65	8.10
		PFD1 FPGA	006-C0036-04	1.04
GDU 1043 MFD	011-01079-00	MFD1	006-B0319-65	8.10
		MFD1 FPGA	006-C0036-04	1.04
GIA 63 No. 1	011-00781-01	GIA1	006-B0190-44	5.42
		GPS1	006-B0093-XX	3.03
		COM1	006-B0081-XX	7.00
		NAV1	006-B0082-XX	4.00
				4.01
				5.01
				5.02

		GS1	006-B0083-XX	3.00
				4.00
		GIA1 AUDIO	006-D0425-02	2.02
GIA 63 No. 2	011-00781-01	GIA2	006-B0190-44	5.42
		GPS2	006-B0093-XX	3.03
		COM2	006-B0081-XX	7.00
		NAV2	006-B0082-XX	4.00
				4.01
				5.01
				5.02
		GS2	006-B0083-XX	3.00
				4.00
		GIA2 AUDIO	006-D0425-02	2.02
GRS 77 AHRS	011-00868-10	GRS1	006-B0223-09	2.11
		GRS1 FPGA	006-C0049-00	02.00
		GRS1 MV DB (3)	006-D0159-01	2005.00
GMA 1347 Audio Panel	011-00809-00	GMA1	006-B0203-33	3.03
GDL 69A Data Link	011-00987-00	GDL69	006-B0317-14	3.20.00
GSA 81 Autopilot Servo –Qty 4	011-00878-00	(2)	006-B0398-20	2.13
		(1)	006-D0373-02	2.02
GWX 68 Weather Radar	011-00883-20	GWX	006-B0266-09	2.10
		GWX FPGA	006-C0042-06	3.01

(1) All LRU entries that begin with GFC CERT.
(2) All LRU entries that begin with GSA.
(3) Software Part Number and Version may be updated by Service Bulletin on five year cycle.

GARMIN G1000 SOFTWARE CONFIGURATION MATRIX FOR THE MODEL 58/G58

The following is the approved configuration of GARMIN hardware and it's associated software. This document may be subsequently revised by Service Bulletins and/or product upgrades. To confirm the approved configuration for your airplane visit http://www.raytheonaircraft.com/service_support/publications.asp or call Raytheon Aircraft Customer Support at 1-800-429-5372.

G1000 58/G58 Code Loader Card, Garmin Part Number 010-00500-02 (Installs G1000 System Software Version 0500.02)				
Description	Compatible LRU P/N's	System Status Page Name	Software	
			P/N	VER.
GTX 33 Mode S Transponder	011-00779-10	GTX1-GIA1	006-B0172-XX	4.02
		GTX1-GIA2		
GEA 71 Engine/Airframe Unit (Left)	011-00831-00	GEA1-GIA1	006-B0193-04	2.06
		GEA1-GIA2		
GEA 71 Engine/Airframe Unit (Right)	011-00831-00	GEA2-GIA1	006-B0193-04	2.06
		GEA2-GIA2		
GDC 74A ADC	011-00882-00	GDC1-GIA1	006-B0261-03	2.05
		GDC1 FPGA	006-C0055-00	01.05
GMU 44 Magnetometer	011-00870-00	GMU1	006-B0224-00	2.01
		GMU1 FPGA	006-C0048-00	2.00
GDU 1040 PFD	011-00972-03	PFD1	006-B0319-40	6.00
GDU 1043 MFD	011-01079-00	MFD1	006-B0319-40	6.00
GIA 63 No. 1 (1)	011-00781-01	GIA1	006-B0190-30	4.00
		GPS1	006-B0093-xx	3.01
		COM1	006-B0081-xx	7.00
		NAV1	006-B0082-xx	4.00
		GS1	006-B0083-xx	3.00
		GIA1 AUDIO	006-D0425-00	2.00
GIA 63 No. 2 (1)	011-00781-01	GIA2	006-B0190-30	4.00
		GPS2	006-B0093-xx	3.01
		COM2	006-B0081-xx	7.00
		NAV2	006-B0082-xx	4.00
		GS2	006-B0083-xx	3.00
		GIA2 AUDIO	006-D0425-00	2.00

GRS 77 AHRS	011-00868-10	GRS1-GIA1	006-B0223-02	2.03
		GRS1 FPGA	006-C0049-00	02.00
		GRS1 MV DB	006-D0159-01	2005.00
GMA 1347 Audio Panel	011-00809-00	GMA1-GIA1	006-B0203-06	2.07
		GMA1-GIA2		
GDL 69A Data Link	011-00987-00	GDL69	006-B0317-10	3.00.00
GSA 81 Autopilot Servo –Qty 4	011-00878-00	(3)	006-B0398-15	2.08
		(2)	006-D0373-01	2.01
GWX 68	011-00883-20	GWX	006-B0266-07	2.01
		GWX FPGA	006-C0042-05	3.00

(1) Garmin Service Bulletin 0418 must be complied with.
(2) All LRU entries that begin with GFC1 CERT or GFC2 CERT.
(3) All LRU entries that begin with GSA.

GARMIN G1000 SOFTWARE CONFIGURATION MATRIX FOR THE MODEL 58/G58

The following is the approved configuration of GARMIN hardware and it's associated software. This document may be subsequently revised by Service Bulletins and/or product upgrades. To confirm the approved configuration for your airplane visit http://www.raytheonaircraft.com/service_support/publications.asp or call Raytheon Aircraft Customer Support at 1-800-429-5372.

G1000 58/G58 Code Loader Card, Garmin Part Number 010-00500-01 (Installs G1000 System Software Version 0500.01)				
Description	Compatible LRU P/N's	System Status Page Name	Software	
			P/N	VER.
GTX 33 Mode S Transponder	011-00779-10	GTX1-GIA1	006-B0172-XX	4.02
		GTX1-GIA2		
GEA 71 Engine/Airframe Unit (Left)	011-00831-00	GEA1-GIA1	006-B0193-04	2.06
		GEA1-GIA2		
GEA 71 Engine/Airframe Unit (Right)	011-00831-00	GEA2-GIA1	006-B0193-04	2.06
		GEA2-GIA2		
GDC 74A ADC	011-00882-00	GDC1-GIA1	006-B0261-03	2.05
		GDC1 FPGA	006-C0055-00	01.05
GMU 44 Magnetometer	011-00870-00	GMU1	006-B0224-00	2.01
		GMU1 FPGA	006-C0048-00	2.00
GDU 1040 PFD	011-00972-03	PFD1	006-B0319-40	6.00
GDU 1043 MFD	011-01079-00	MFD1	006-B0319-40	6.00
GIA 63 No. 1 (1)	011-00781-01	GIA1	006-B0190-30	4.00
		GPS1	006-B0093-xx	3.01
		COM1	006-B0081-xx	7.00
		NAV1	006-B0082-xx	4.00
		GS1	006-B0083-xx	3.00
		GIA1 AUDIO	006-D0425-00	2.00
GIA 63 No. 2 (1)	011-00781-01	GIA2	006-B0190-30	4.00
		GPS2	006-B0093-xx	3.01
		COM2	006-B0081-xx	7.00
		NAV2	006-B0082-xx	4.00
		GS2	006-B0083-xx	3.00
		GIA2 AUDIO	006-D0425-00	2.00

GRS 77 AHRS	011-00868-10	GRS1-GIA1	006-B0223-02	2.03
		GRS1 FPGA	006-C0049-00	02.00
		GRS1 MV DB (4)	006-D0159-00	2000.00
GMA 1347 Audio Panel	011-00809-00	GMA1-GIA1	006-B0203-06	2.07
		GMA1-GIA2		
GDL 69A Data Link	011-00987-00	GDL69	006-B0317-10	3.00.00
GSA 81 Autopilot Servo –Qty 4	011-00878-00	(3)	006-B0398-12	2.05
		(2)	006-D0373-00	2.00
GWX 68	011-00883-20	GWX	006-B0266-07	2.01
		GWX FPGA	006-C0042-05	3.00

(1) Garmin Service Bulletin 0418 must be complied with.
(2) All LRU entries that begin with GFC1 CERT or CFC2 CERT.
(3) All LRU entries that begin with GSA.
(4) GRS1 MV DB Must be updated by Garmin Mandatory Service Bulletin No. 0533 to software part number 006-D0159-01 and Version 2005.00.