

FLIGHT MANUAL

DELTA SIMULATIONS
C-17A
AIRCRAFT



C-17 MILITARY TRANSPORT AIRCRAFT
FOR SIMULATION USE ONLY

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WARNING - This document has been created for the sole use for Delta Simulations aircraft within simulation use. This is not meant to supplement or replace any real-world training documents or is it designed as such. **THIS IS FOR REFERENCE AND SIMULATION USE ONLY.**

FOR YOUR KNOWLEDGE - This document has been created by our team, and is designed for use in an aircraft that is rapidly evolving and updating. As such this may not have the most up-to-date documentation or operation instructions, or might contain errors and other issues. Please help us improve our work by sending in bug reports via our Discord.

<https://discord.gg/T99hTme8PS>

FLIGHT MANUAL REVISIONS

A revision provides a more complete and updated and feature-complete manual. It is highly recommended to join our Discord server for the most up-to-date version. This is as always a constant work in progress and should be treated as such.

VERSION	DATE	TITLE
1	2022/01/30	Initial release
2	2022/02/01	Minor fixes
3	2023/01/03	New manual
4	2023/05/22	CAWS system, startup, fixes
5	2023/09/13	Updated legibility and layout
6	2023/10/26	Updated checklists
7	2024/01/08	New manual elements
8	2024/04/01	Resize for better EFB usage
9	2024/05/10	Re-make of manual with new methods

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SECTION I

DESCRIPTION AND OPERATION

1-1 THE PROJECT

Delta Simulations was founded in March of 2021, with its flagship project being the C-17 for Microsoft Flight Simulator 2020. The team has grown from one to over a dozen developers located around the world. They are all talented individuals who work on projects like this during their limited time off. If you are interested in contributing please fill out the form below.

Discord <https://discord.gg/T99hTme8PS>

Team Application
<https://forms.gle/pkCpLtgKz754ETbZA>

Contact Us Inquiries@DeltaSimulations.ca

As a freeware organization, we must self-fund necessary software, equipment, and subscriptions to keep our projects going. After 2 years of development and hundreds, if not thousands, of dollars invested into these projects, we are looking to make the group more sustainable in the long term. With this in mind, we have decided to open up donations. Donors get a special role on our discord server, as well as early looks at our development.

Donate www.paypal.me/DeltaSimulations

1-2 A THANK YOU TO OUR DEVELOPERS AND SMEs

This project has been in the works for many years now, over which we have seen dozens of freeware projects come and go as mindsets change and attention drifts. It is the simple curse of freeware projects – it can be easy to lose motivation in something where there is seemingly no reward for continuing. Our continuing effort can be attributed to the incredible work ethic of the developers on this project. Each and every one that has stuck on has shown incredible talent and determination, working tirelessly from one obstacle to the next to bring this project forwards. We would not be here without your work and your unwavering vision for the future of this group.

To our SMEs: Thank you for sharing our vision for this project, and for providing such valuable contributions. You are the reason that we have been able to achieve so much, and we cannot thank you enough.

1-3 OUR DEVELOPMENT TEAM

These are the current and past developers who have had a significant impact on the project.

Destroyer	Lead Developer, Founder
Nace	Lead Systems
Lincolncruz	Systems
Taco	Avionics
Technotech	Avionics
Toby C.	Avionics
Vitor	Team Logo, Graphic Design
Pr0ksee	3D Modelling
Variable	3D Modelling
Jerj.	Support
JT.	Support
Lanax	Support



1-4 THE AIRCRAFT

The C-17 is a heavy logistic transport aircraft featuring four Pratt & Whitney F117-PW-100 engines, enabling long-range operations and air refueling. With its high-lift wing design, slats, and externally blown flaps, it can efficiently navigate short runways and austere airfields while carrying substantial payloads.

Its engine thrust reverser system allows for backing up even when fully loaded, with the blast directed forward and above the wings to mitigate wind effects on troops and equipment during loading and unloading. In-flight, idle reverse thrust can be utilized for attitude and speed control when landing flaps are extended. Regarding landing gear, the main gear consists of two struts on each side, each with three wheels, while the nose landing gear comprises a single strut and dual nosewheels.

For flight control, the aircraft employs a quadruple redundant electronic fly-by-wire system, supplemented by a mechanical reversion backup for added safety. Pilots benefit from Head-Up Displays (HUD), four Multi-Function Displays (MFD), and redundant mission computers, reducing workload and enhancing mission capability. Station Keeping Equipment (SKE) facilitates multi-ship formation flights and airdrops in challenging weather conditions.

The C-17's versatility extends to its ability to airlift various cargo types, troops, passengers, and aeromedical evacuation patients. A range of airdrop methods, including Low Velocity Airdrop (LVAD), Low Altitude Parachute Extraction System (LAPES), and Container Delivery System (CDS), enhance its operational flexibility. Additionally, the aircraft's rail system enables rapid offloading of cargo without requiring material handling equipment.

1-5 AIRCRAFT DIMENSIONS

Aircraft dimensions may change with cargo and fuel loading.

Span	169 ft., 10 in.
Length.....	174 ft.
Height	55 ft., 1 in.
Wing Sweep25 deg.
Wing Area	3,800 sq. ft.
Cargo Compartment	
Width.....	216 in.

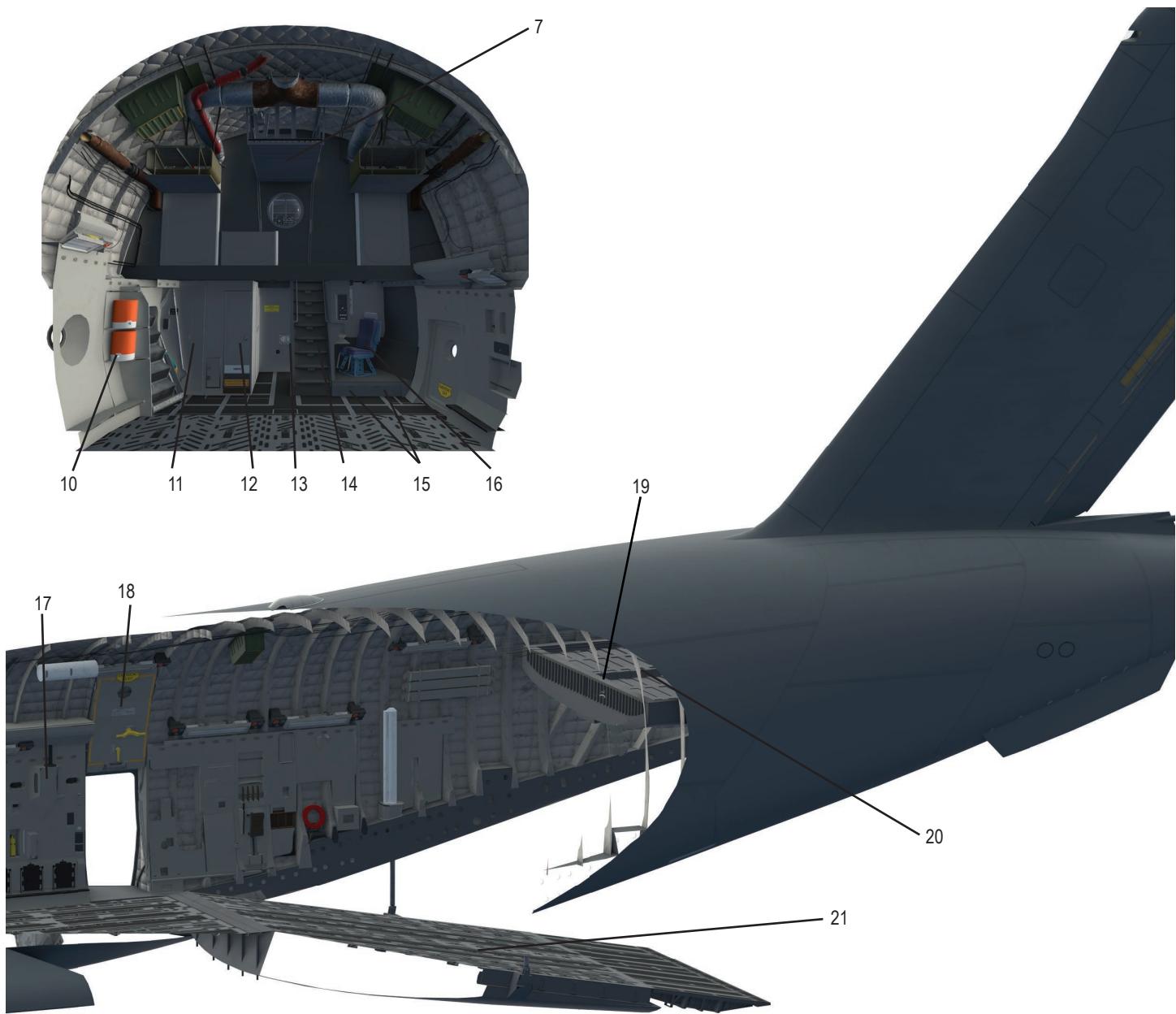
Length..... 1,056 in.

Height 148 in.

1-6 GENERAL CHARACTERISTICS

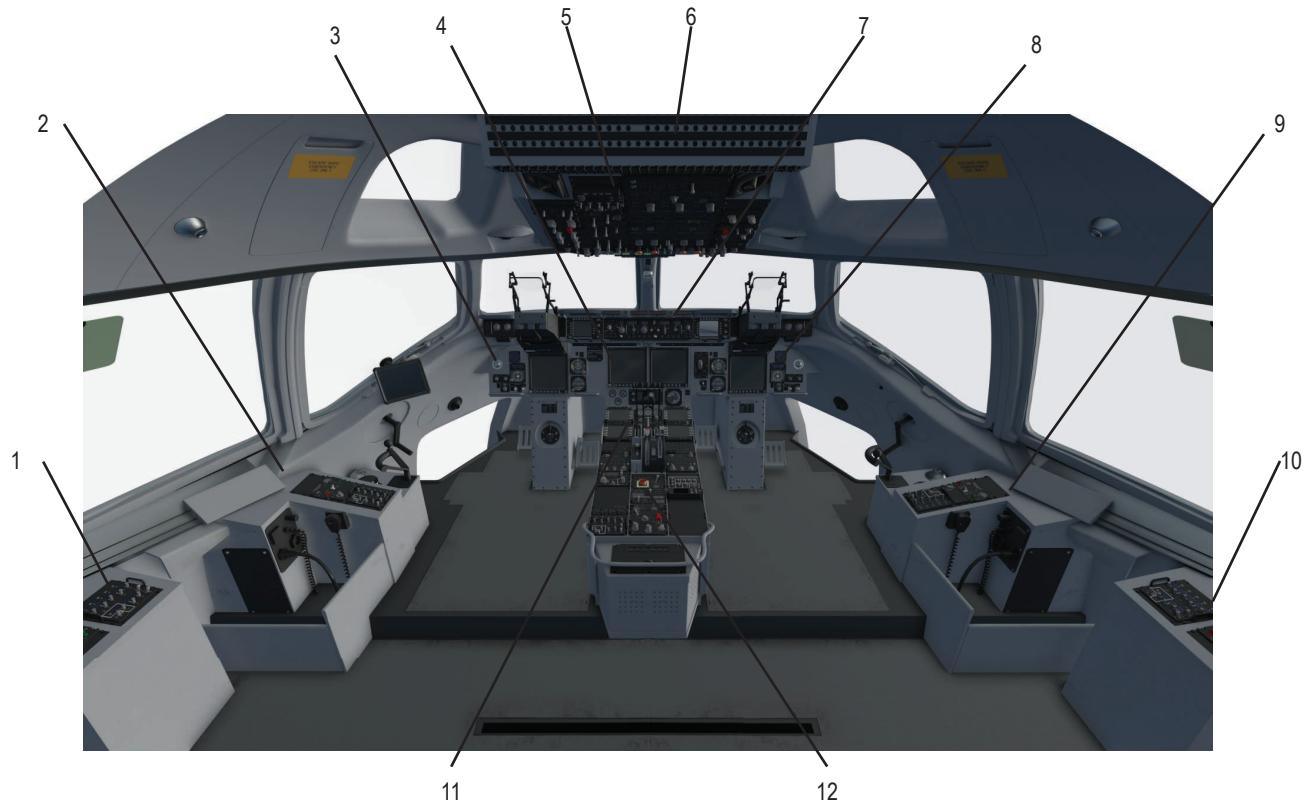
Operating Weight	282,500 lb.
Maximum Payload	170,900 lb.
Zero Fuel Weight	447,400 lb.
Maximum Ramp Weight (2.25g)	586,000 lb.
Maximum Takeoff Gross Weight (2.25g)	585,000 lb.
Design Landing Gross Weight (DLGW).	435,800 lb.
Maximum Landing Gross Weight (MLGW).....	585,000 lb.
Maximum Range Cruise Speed74 M
Typical Long Range Cruise Speed76 M
Service Ceiling	45,000 ft.

GENERAL ARRANGEMENT

GENERAL ARRANGEMENT**LEGEND**

- | | |
|--------------------------------|------------------------------------|
| 1. PILOT'S AND COPILOT'S SEATS | 13. GALLEY |
| 2. ACM SEATS | 14. BATTERIES |
| 3. ELECTRICAL POWER CENTER | 15. STORAGE DRAWERS |
| 4. RIGHT AVIONICS RACK | 16. LOADMASTER'S SEAT |
| 5. UARRSI | 17. HYDRAULIC RESERVOIR (4 PLACES) |
| 6. CREW REST AREA | 18. PARATROOP DOOR (BOTH SIDES) |
| 7. MAINTENANCE/DITCHING HATCH | 19. COCKPIT VOICE RECORDER |
| 8. LEFT AVIONICS RACK | 20. UPPER CARGO DOOR |
| 9. CREW ENTRANCE DOOR | 21. LOWER CARGO DOOR |
| 10. TROOP WATER CONTAINERS | |
| 11. SURVIVAL EQUIPMENT LOCKER | |
| 12. LAVATORY | |

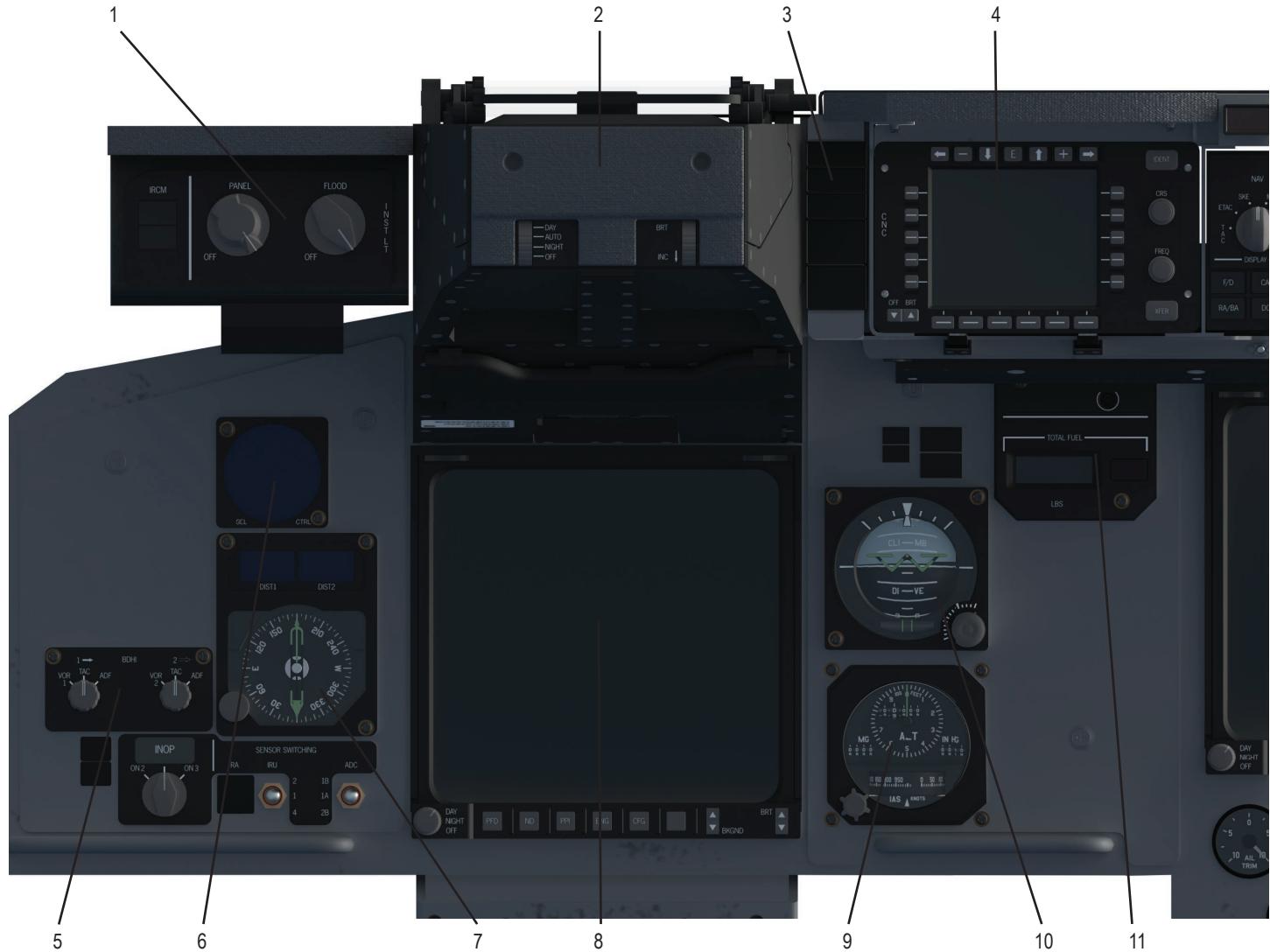
FLIGHT COMPARTMENT



LEGEND

- | | |
|-----------------------------------|-------------------------------|
| 1. LEFT ACM CONSOLE | 7. GLARESHIELD PANEL |
| 2. PILOT'S CONSOLE | 8. COPILOT'S INSTRUMENT PANEL |
| 3. PILOT'S INSTRUMENT PANEL | 9. COPILOT'S CONSOLE |
| 4. CENTER INSTRUMENT PANEL | 10. RIGHT ACM CONSOLE |
| 5. OVERHEAD SYSTEMS PANEL | 11. FORWARD PEDESTAL |
| 6. OVERHEAD CIRCUIT BREAKER PANEL | 12. AFT PEDESTAL |

PILOT/COPILOT INSTRUMENT PANEL

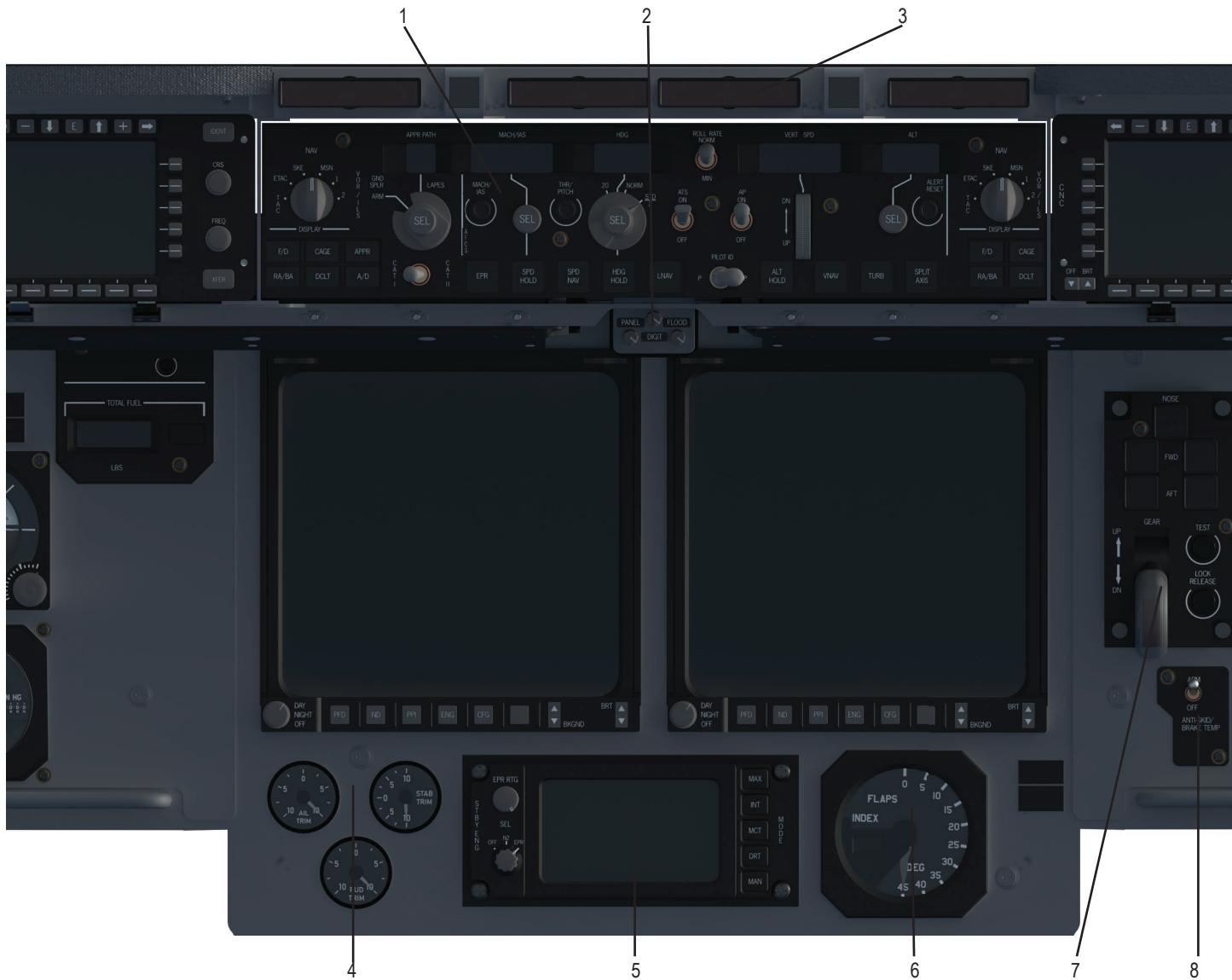


LEGEND

- | | |
|-------------------------|--------------------------|
| 1. PILOT LIGHTING PANEL | 7. BDHI |
| 2. HUD | 8. MFD |
| 3. MASTER WARNING PANEL | 9. STANDBY ALTIMETER |
| 4. CNC PANEL | 10. STANDBY HORIZON |
| 5. BDHI SOURCE PANEL | 11. TOTAL FUEL INDICATOR |
| 6. CLOCK | |

SAME AS COPILOT

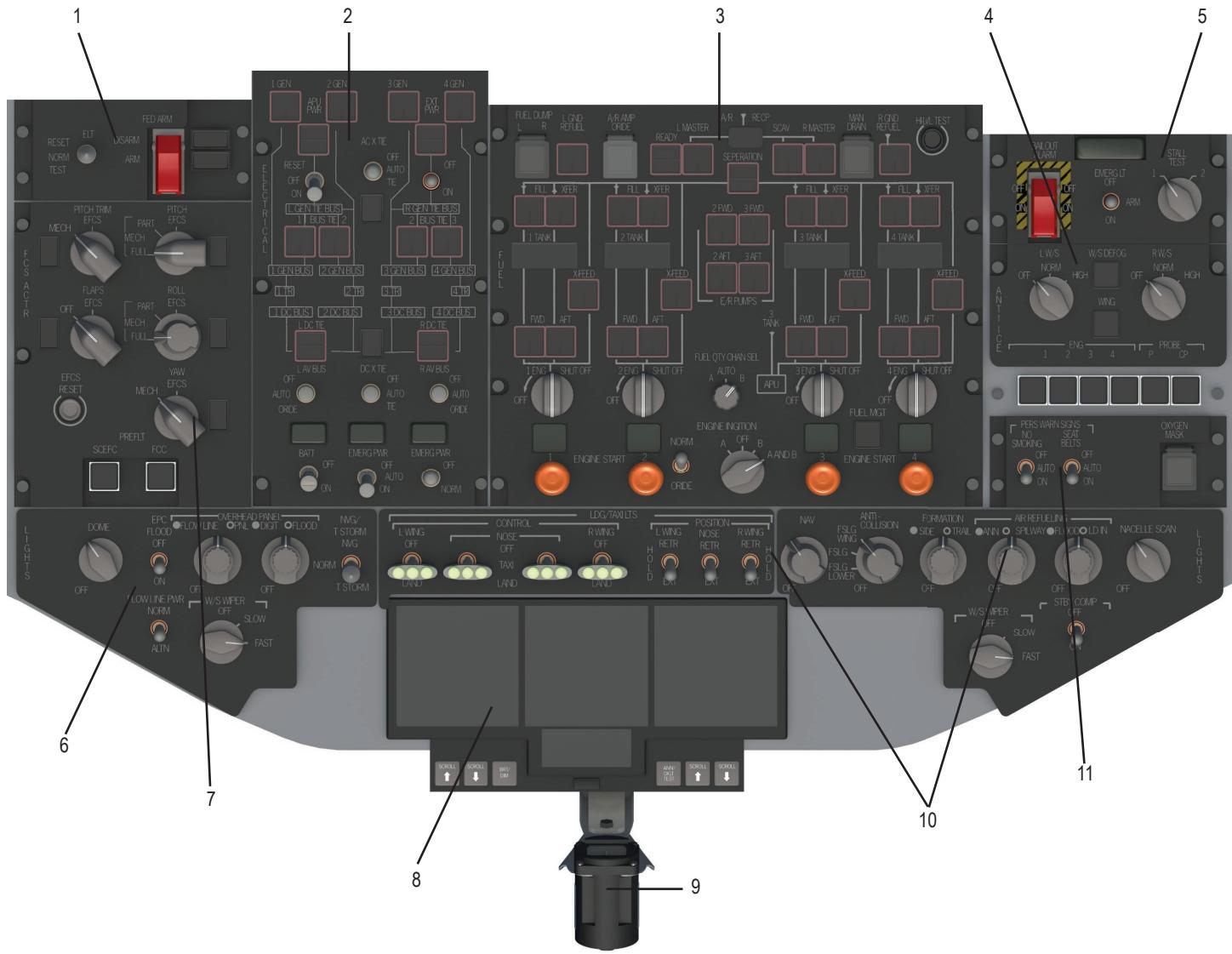
CENTER INSTRUMENT PANEL



LEGEND

- AFCS CONTROL PANEL
- AFCS LIGHTING PANEL
- ENGINE FIRE HANDLES
- TRIM INDICATORS
- STANDBY ENGINE DISPLAY
- FLAP POSITION INDICATOR
- GEAR CONTROL PANEL
- ANTI-SKID PANEL

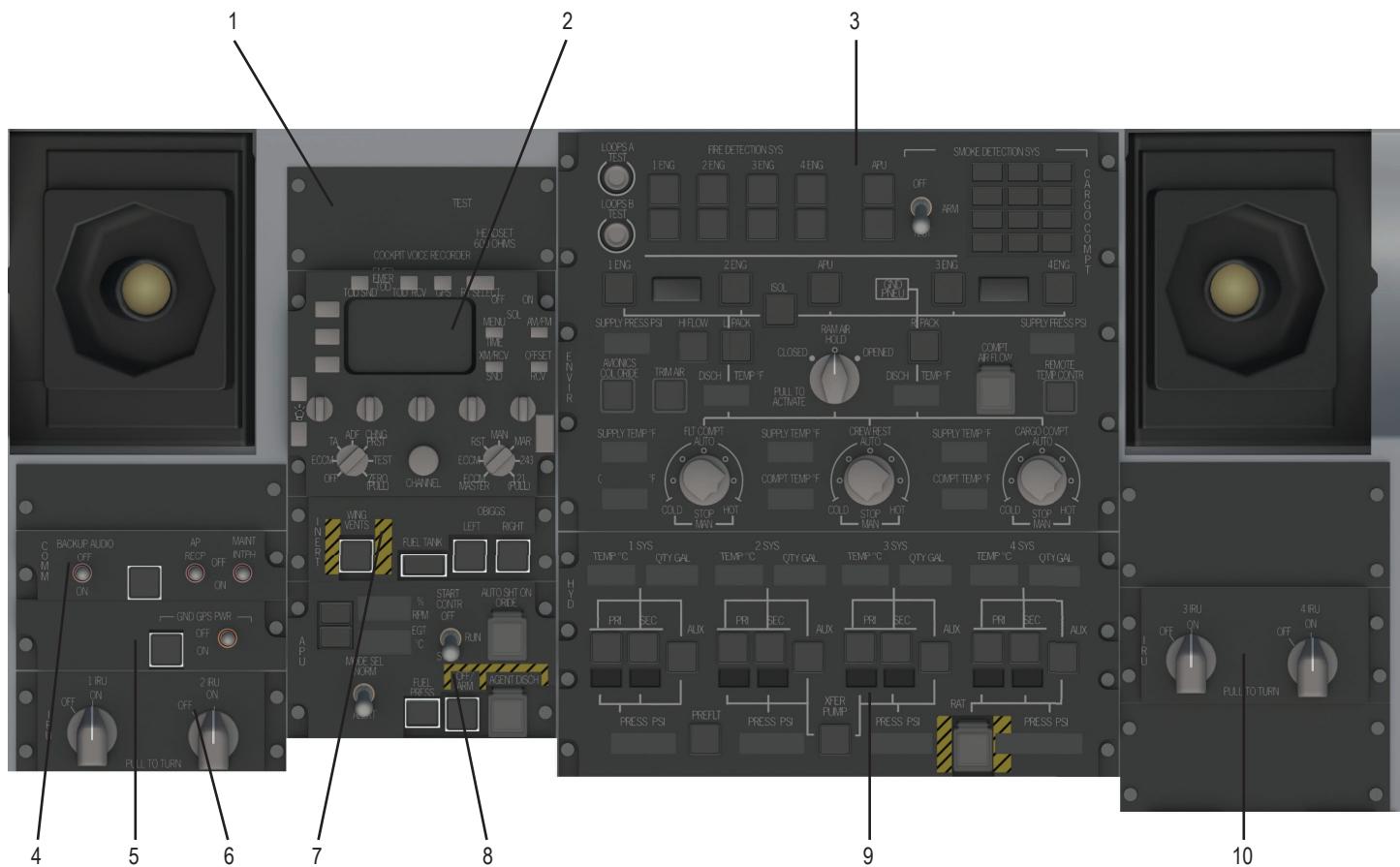
FORWARD OVERHEAD INSTRUMENT PANEL



LEGEND

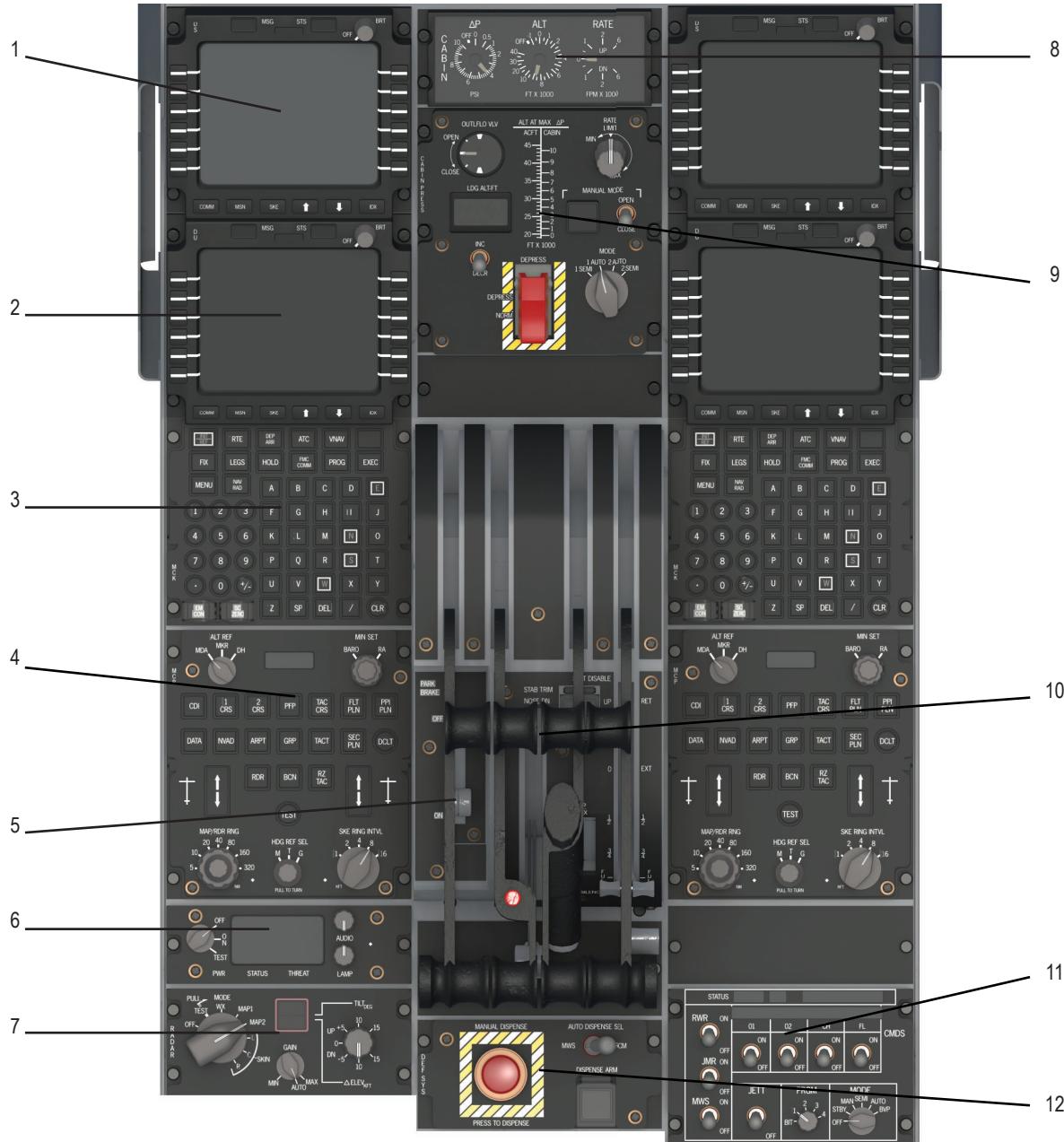
- | | |
|-------------------------------|--------------------------------|
| 1. EMERGENCY ESCAPE PANEL | PANEL |
| 2. ELECTRICAL CONTROL PANEL | 7. FLIGHT CONTROL SYSTEM PANEL |
| 3. FUEL CONTROL PANEL | 8. WACS DISPLAY |
| 4. ANTI-ICE PANEL | 9. STANDBY COMPASS |
| 5. EMERGENCY ALERT PANEL | 10. EXTERNAL LIGHTING PANEL |
| 6. OVERHEAD INTERNAL LIGHTING | 11. PASSENGER PANEL |

AFT OVERHEAD INSTRUMENT PANEL



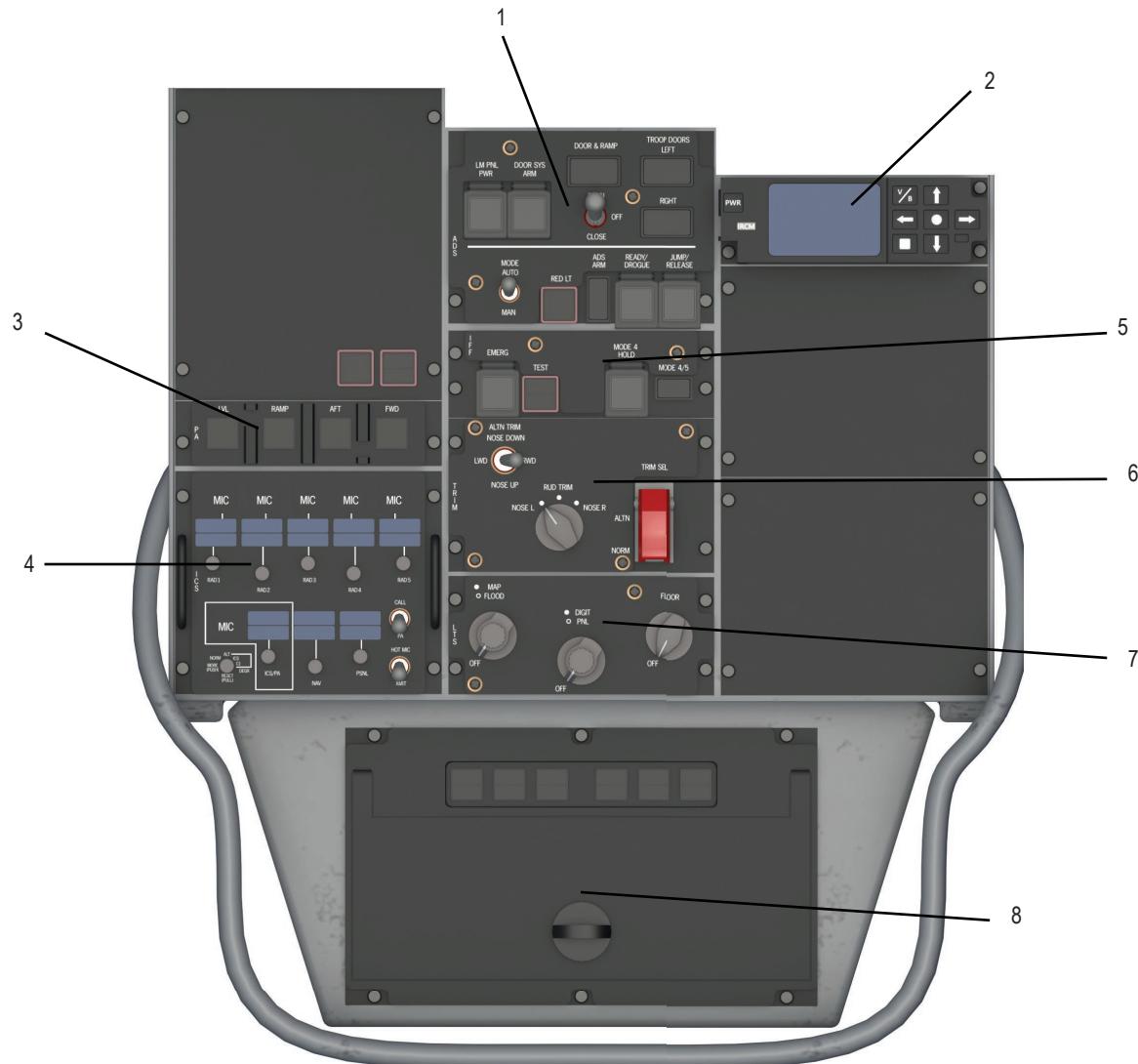
LEGEND

- | | |
|--------------------------------|----------------------------------|
| 1. COCKPIT VOICE RECORDER | 7. OBIIGGS VENTING CONTROL PANEL |
| 2. BACKUP RADIO PANEL | 8. APU CONTROL PANEL |
| 3. ENVIRONMENTAL CONTROL PANEL | 9. HYDRAULIC CONTROL PANEL |
| 4. GROUND COMMUNICATION PANEL | 10. IRU 3-4 CONTROL PANEL |
| 5. GROUND OPERATIONS PANEL | |
| 6. IRU 1-2 CONTROL PANEL | |

FORWARD PEDESTAL**LEGEND**

- | | |
|------------------------|---------------------------------|
| 1. DU DISPLAY | 7. RADAR CONTROL PANEL |
| 2. MCD DISPLAY | 8. CABIN PRESSURE INDICATORS |
| 3. MCK CONTROL PANEL | 9. PRESSURIZATION CONTROL PANEL |
| 4. MCP CONTROL PANEL | 10. THROTTLE QUADRANT |
| 5. PARKING BRAKE PANEL | 11. CMDS CONTROL PANEL |
| 6. IRCM CONTROL PANEL | 12. DEFENSIVE SYSTEMS PANEL |

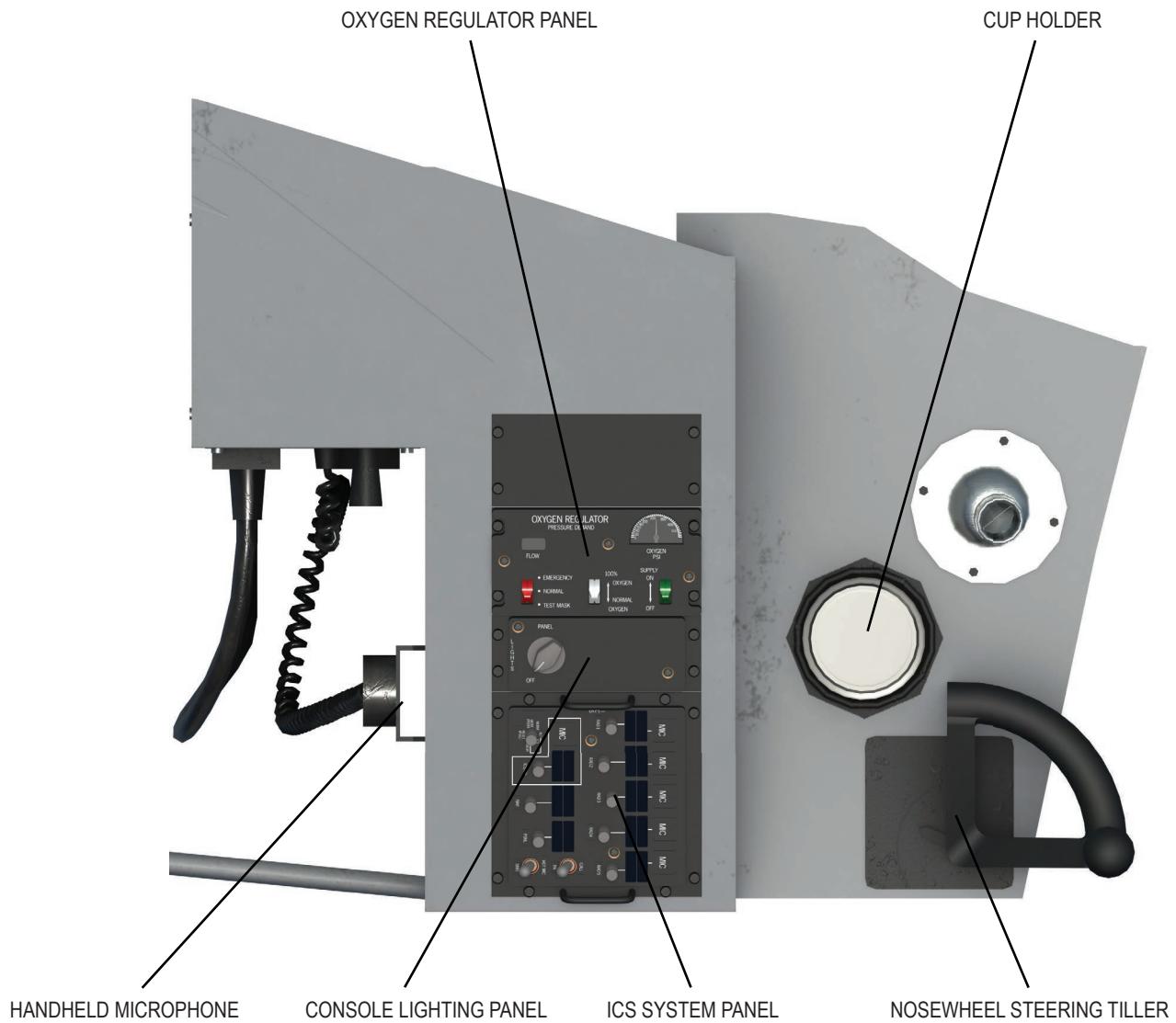
AFT PEDESTAL



LEGEND

- | | |
|-----------------------|----------------------------|
| 1. ADS SYSTEM PANEL | 7. PEDESTAL LIGHTING PANEL |
| 2. LAIRCM DISPLAY | 8. COCKPIT PRINTER |
| 3. PA SYSTEM PANEL | |
| 4. ICS SYSTEM PANEL | |
| 5. IFF CONTROL PANEL | |
| 6. TRIM CONTROL PANEL | |

PILOT/COPILOT CONSOLE



SAME AS COPILOT

RIGHT/LEFT ACM CONSOLE*SAME AS RIGHT*

LOWER BULKHEAD CONTROLS

CREW ENTRY PANEL



CREW REST AREA

ICS CONTROL PANEL

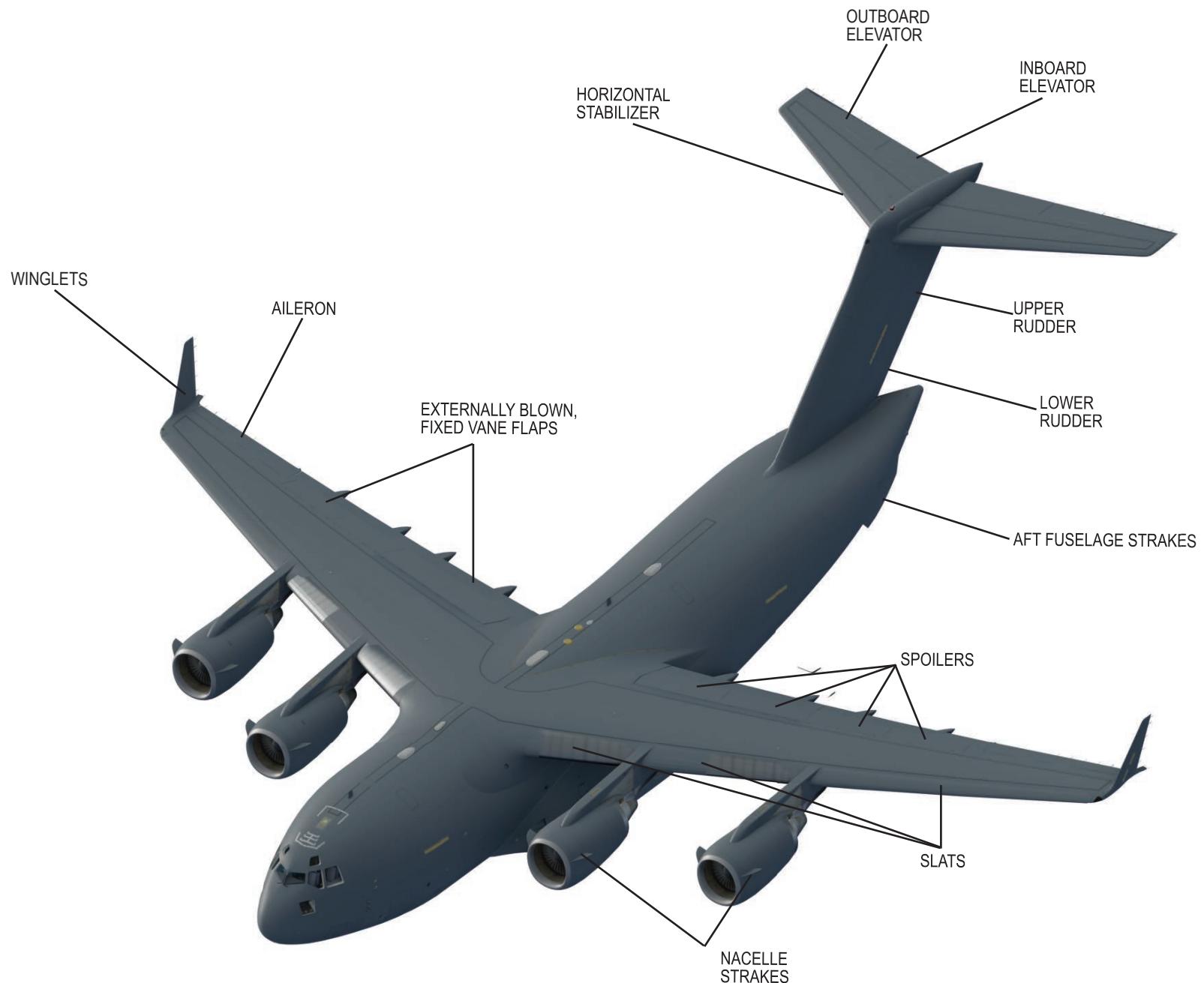


UARRSI OVERRIDE



CREW REST LIGHTING PANEL

AIRCRAFT AERODYNAMIC FEATURES



FOR FLIGHT SIMULATION USE ONLY

1-7 ENGINES

The aircraft is powered by four Pratt and Whitney F117-PW-100 turbofan engines, with a flat rated thrust of 40,440 pounds at sea level. They are each equipped with a thrust reverser system capable of ground and aerial actuation. The thrust reversers are designed to minimize object ingestion when operating from austere airfields.

Engine operation is controlled through an electronic control system featuring fuel cut-offs and throttles. Each engine can be monitored from the cockpit MFDs, which are capable of displaying oil quantity, oil pressure, oil temperature, fuel flow, fuel used, EGT, N1 and N2 RPM, reverser status, and EPR. The engines thrust output can be controlled through the Standby Engine Display, which will be reflected on the MFDs.

All engines provide bleed air for cabin pressurization, air conditioning, and anti-icing.

1-8 ENGINE THRUST RATINGS

MAXIMUM (MAX)

The maximum thrust approved for the engine. Limited to five minutes for takeoff.

INTERMEDIATE (INT)

The maximum thrust certified for continuous operation. Should only be used when MCT is not sufficient.

MAXIMUM CONTINUOUS THRUST (MCT)

The maximum thrust recommended for normal operations.

DERATED THRUST (DRT)

The minimum thrust required for a four-engine takeoff.

1-9 THRUST LOSS

The THRUST LOST annunciator (amber) will illuminate when there is a single-engine loss of thrust. It will illuminate when the following conditions are met:

- All four engines are running
- All thrust reversers are stowed
- The aircraft is airborne

- The engines are above idle

NOTE

The THRUST LOST annunciator will extinguish when MASTER CAUTION is reset.

1-10 ENGINE STARTING SYSTEM

Each engine is equipped with a pneumatic starter, a starter control valve, and start and ignition circuits. Pneumatic pressure can be provided from the APU, an external source, or another engine on the aircraft.

The starting system can be used in-flight and on the ground. When enough pressure is available, the starter will accelerate the engine to approximately 20 percent N2 RPM for starting and will continue to assist the engine until the engine reaches 51 percent N2.

1-11 THRUST REVERSER SYSTEM

Each engine is equipped with a thrust reverser operable in-flight or on the ground. The reversers are ducted to divert airflow above the engines to prevent engine particulate ingestion.

The thrust reversers are activated by throttle movement, moving the throttle to the forward idle position will stow the thrust reversers and resume normal operation.

NOTE

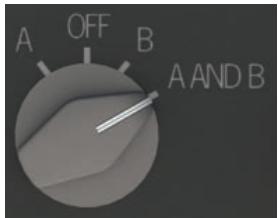
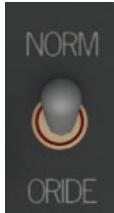
Due to sim limitations, in-air thrust reverser deployment must be initialized and disabled with the "E" button on the CNC panel.

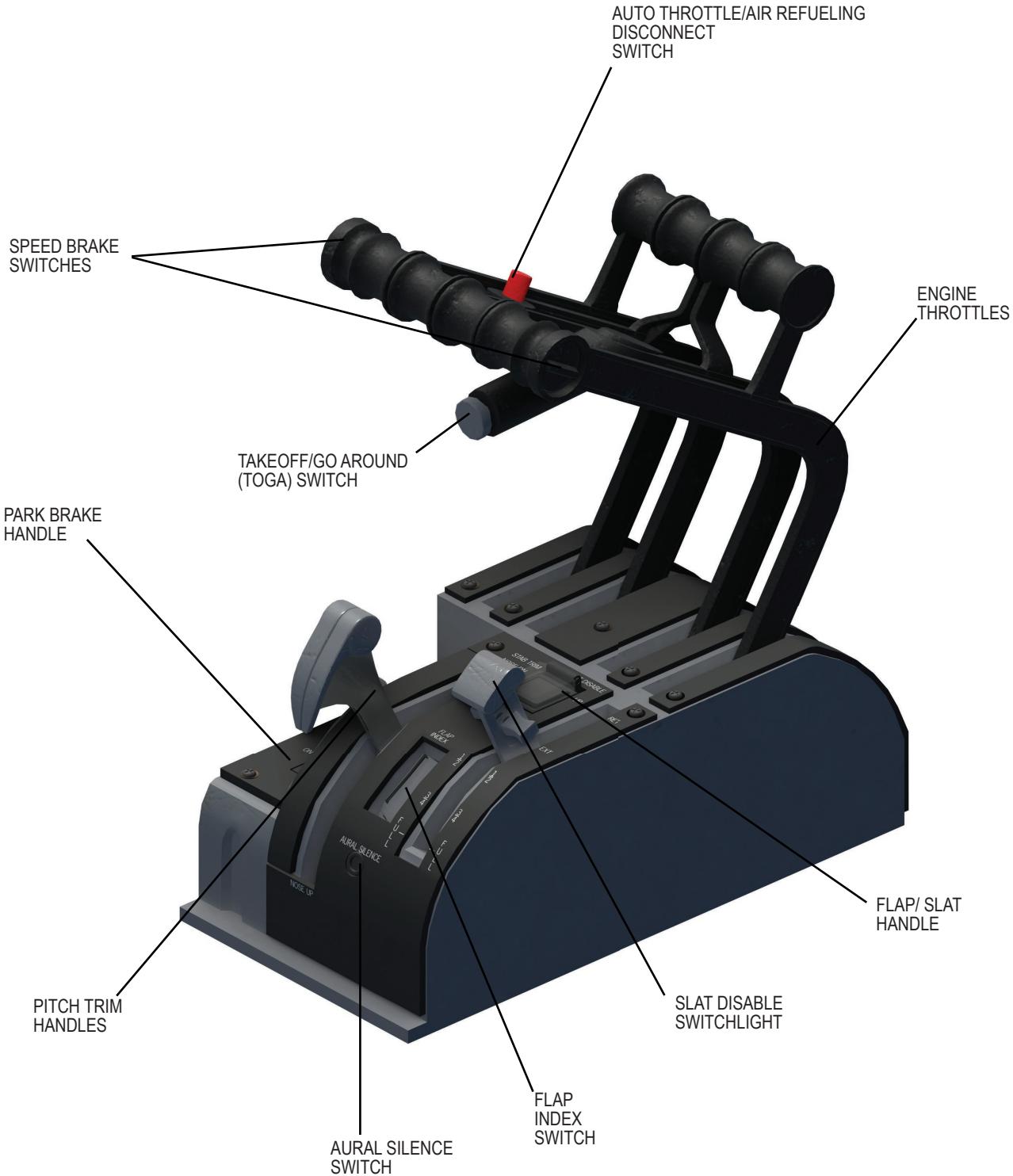
ENGINE FUEL AND IGNITION CONTROLS

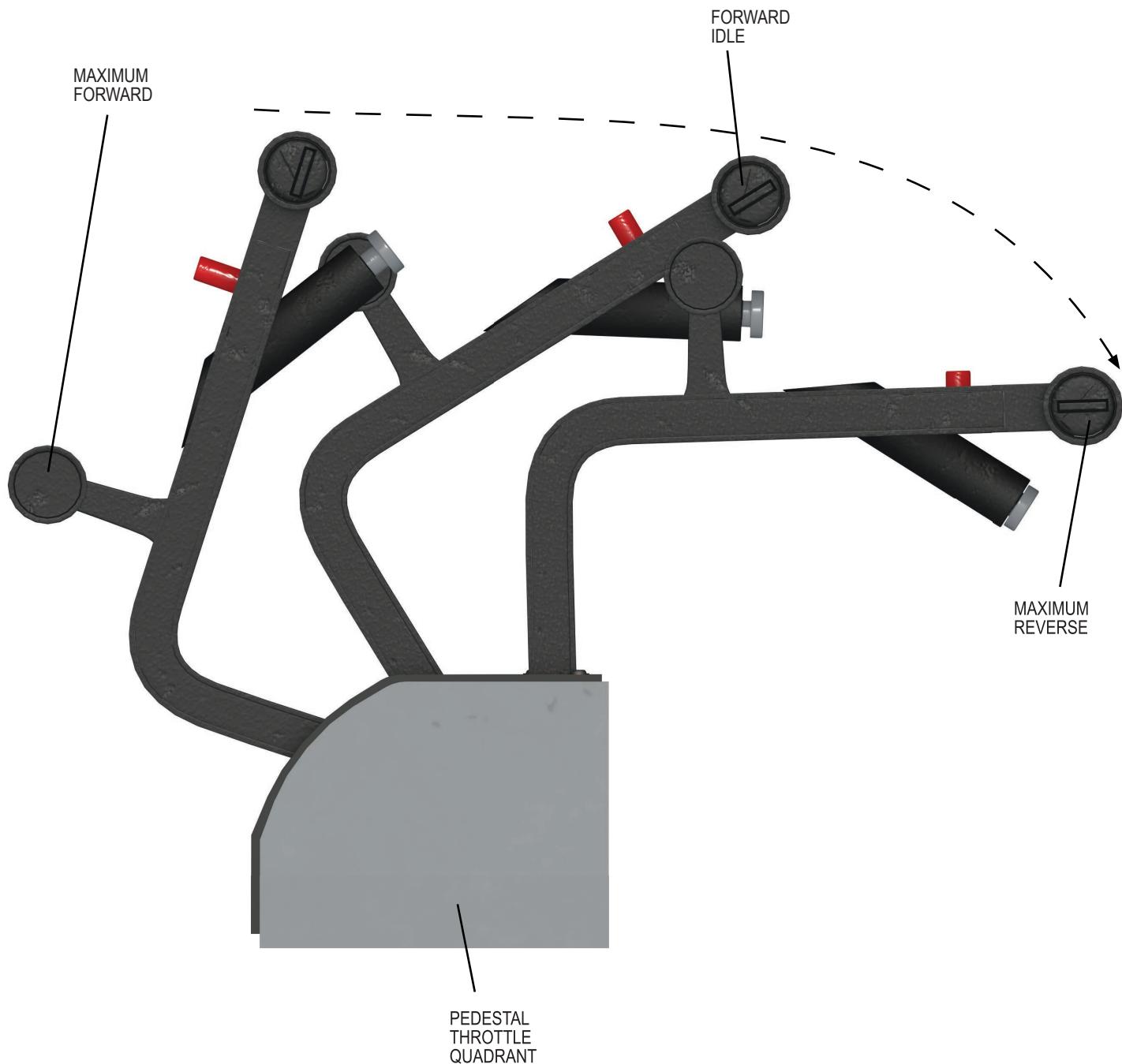


NO.	CONTROL/INDICATOR	DESCRIPTION/FUNCTION
1	 4 ENG SHUT OFF	ENGINE SHUT OFF Switch (4) A rotary switch that provides control of fuel to its respective engine. Rotating to align with the flow line opens the fuel shutoff valve.
2		ENGINE Light (4) Illuminates ANVIS yellow to provide engine fire annunciation when its associated engine fire warning light is activated. Will also illuminate when the fire shutoff handle is pulled. Acts as a cue to the pilot to determine which engine to shut down.
3	 4	ENGINE START Button (4) Opens the starter control valve and allows pneumatic pressure to rotate the engine starter. Once pressed it will be held in by a solenoid until the ignition switch is out of the OFF position. The light (amber) at the hilt will illuminate when the start valve on the engine has opened and the starter is active.

ENGINE FUEL AND IGNITION CONTROLS

NO.	CONTROL/INDICATOR	DESCRIPTION/FUNCTION
4		ENGINE IGNITION SELECTOR Switch INOP
5		NORM/ORIDE Switch INOP

THROTTLE QUADRANT

THROTTLE THRUST POSITIONS

SECTION II

NORMAL PROCEDURES

INTRODUCTION

PREFLIGHT INSPECTIONS

2-1 THE AIRCRAFT