Miltech Simulations CH47D

Welcome to the CH47D

At Miltech Simulations, we are committed to no upgrade fees on all products from MSFS2020 to MSFS2024. Any products bought now or in the past will be available to use in MSFS2024 at no additional cost.

SIMULATION USE ONLY - DO NOT USE THIS DOCUMENTATION ON A REAL AIRCRAFT

Make sure your hardware is correctly configured for Helicopter Flight:
Recommended Hardware Configuration

A layered Paintkit is available upon request.

Overview

At Miltech Simulations, we continue innovating. Two years ago we presented the very first tiltrotor for MSFS. This time we present to you the result of one year of Research and Development towards our most ambitious product yet.

The Mighty Wokka is ready for takeoff on the virtual skies.

Miltech Simulations CH47D is a tandem-rotor, heavy-lift helicopter designed for diverse missions including troop and cargo transport, medical evacuation, and construction support. Its powerful twin engines and counter-rotating rotors provide exceptional lifting capacity for internal or underslung loads. Its robust design and advanced systems allow for operation in demanding environments and ensure the successful completion of critical missions.

Get Started

We've put together some helpful guides for you to get set up with our product quickly and easily.

Requirements 📜

- Microsoft Flight Simulator – PC or Xbox. Latest version available.
- A valid product license from Miltechsimulations.com, ORBX or the MS Marketplace
- Joystick Controller (Recommended) or Xbox controller
- CPU: Quad-core processor or better.
- GPU: At least 6GB of dedicated memory, Nvidia 1060 or better.
- RAM: 8GB Minimum.
- Hard Disk: At least 4GB Recommended.

Where to Buy? 💰

1. Miltech Simulations: https://miltechsimulations.com/collections/aircraft
2. Microsoft Flight Simulator in-game Marketplace

Installation - Miltech Simulations Webstore 🔽

Products distributed via Miltechsimulations.com are downloaded and updated via Contrail. Download the Contrail App here: https://cdn-eu.29palms.de/contrail/releases/ContrailSetup.exe

1. Download and Launch Contrail
2. Click on **"Accounts"** on the bottom left corner and "Connect" Miltech Simulations Account (log-in with your Miltech Simulations credentials)
3. Click on **"Downloads"**. Your products will download and install automatically.'

Installation - MS Marketplace 🔽

1. Launch Microsoft Flight Simulator
2. Open the Marketplace
3. Search the product
4. Click “Install” and wait for the product to install successfully. The product is by default installed on: (User)\AppData\Roaming\Microsoft Flight Simulator\Packages\Official\miltechsimulations-aircraft-osprey-mv22

Ready to Fly? 🛫

Follow our Quick Start Guide

Removal ❌

The product can be removed from ORBX Central or the MS Marketplace, by clicking on the uninstall button.

Product Information

Introduction

Thank you very much for purchasing Miltech Simulations CH47D.

At Miltech Simulations, we continue innovating. Two years ago we presented the very first tiltrotor for MSFS. This time we present to you the result of one year of Research and Development towards our most ambitious product yet. The Mighty Wokka is ready for takeoff on the virtual skies.

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This product is once again the result from a successful partnership with Maryadi, a talented developer who has worked in very well-known projects since the FSX Days. As result of such collaboration, we now present our rendition of the CH47D for Microsoft Flight Simulator.

We hope you enjoy the product,

Miltech Simulations.

Release Notes

~~V1.0.0 - INITIAL RELEASE~~

- **Beautifully Modeled Helicopter:** high-quality modeling and texturing throughout - exteriors and interiors.
  - Highly detailed Cockpit Model, with detailed wear and tear throughout.
  - Fully modeled cargo bay.
  - 4K Textures throughout, with sharp details and realistic damage/dirt maps.
- **Realistic Animations:** including working doors and cargo ramp, accurately rotating Tandem Rotors, Blade Droop, etc.
- **Liveries:** 13 Liveries, including US Army, RAF, Luftwaffe, Italian Esercito, Spain Ejercito, RCAF, Australian Army, etc. A layered paintkit is available upon request.
- **Effects:** Downwash effect (water, dirt); engine heat blur, volumetric lighting.
- **Flight Model:** Tailored flight and engine model, validated through testing and feedback from CH47 pilots and technicians.
  - Specialized flight model that accurately simulates the stability, maneuverability, and capacities of a Tandem Rotor Configuration.
  - The flight model makes use of the native helicopter Flight Model, enhanced with customized parameters to accurately simulate the expected behavior.
  - NOTE: FM Will be migrated to fully native Tandem Support after the release of SU15.
- **Sounds:** Comprehensive sound pack, developed from sounds recorded on real aircraft.
  - Comprehensive engine and rotor soundset, with distinct sounds for the iconic Blade Slap based on collective, pitch/roll angle, and High G slap.
  - Accurate depiction of APU sounds, FWD Transmission Whine and Ramp hydraulic sounds.
- **Cargo Loading Capabilities:**
  - 6 External Cargo Loads (Sling loads in both Tandem and Single-sling configurations), including Humvees, UAV Containers, Rhibs and even

Helicopter Fuselages. External loads spawn in the world and are picked up by the aircraft by hovering above them.
    - 5 Internal Cargo Loads to choose from, including Medvacs, Troops, Humvee and Pallets.
- **Electronic Flight Bag:** A Tablet EFB is included to interact with the aircraft systems - From Fueling to External Loads.
- **Navigation Systems:** Realistic instrumentation based on documentation from the CH47D.
    - Functional TACAN, ADF and VOR Navigation Systems.
    - Optional Aera-Style GPS, with more GPS options coming up soon (PMS GTN750, TDS GTNXi)
- **Mission System:** Set of predefined flights with tasks to execute.
    - Missions are designed so the pilot follows a set of Mission Dispatch Instructions but must fully configure, execute, and perform the mission by themselves.
    - These include fully functional Firefighting missions, Cargo Hoist missions, Rescue and Humanitarian missions, and Military Exercise missions.
    - Some missions may require Miltech Simulations Supercarrier Pro or Miltech Simulations UK Carrier Strike Group, sold separately.
- **Complementary *Included* Sceneries and Scenes:** The CH47D includes a set of sceneries and scenes to enhance the piloting experience.
    - RAF Odiham EGVO (UK), home of the No. 7, 18 and 27 squadrons.
    - Bryant Airfield PAFR (Alaska), home of the Army Alaska Task Force CH47s.
    - Chabelley Airfield HDCH (Djibouti), a growing US Military Base, key for the stability of the Horn of Africa region.
    - Camp Resilience US01 (Jordan), a fictional military outpost serving as base for Army CH47s.
    - Al Sahra Base US02 (Kuwait), a fictional military outpost serving as base for Army CH47s.
    - Multiple small training facilities, exercise scenes, and rescue scenes.

~~V1.0.1 – RELEASED March 12, 2024~~

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- Improved performance of downwash effects.
- Downwash effects can now be fully deactivated on the EFB.
- VHF Radio screen flicker resolved
- Changes to C&D and Ready to Fly FLT Files
- In-sim checklist flow edited
- Changed logic for side door: Top hatch and bottom stairs can be operated independently
- Changed logic for back ramp and slide: Ramp position can now be manually operated. Changes to EFB UI.
- Added disclaimer on mission loading screen to deactivate crash detection and avoid the simulator from freezing.
- Fuel tanks in EFB renamed to "AFT AUX"
- Copilot side search light missing emissive map fixed.
- Cyclic Trim Sensibility adjusted
- Odiham blue taxiway lighting added.
- Chabelley Airfield blue taxiway lighting added.
- Minor texturing fixes on the Announcement Indicator and decals around the cockpit.
- Flight model adjustments to avoid "sideways flight".
- Aircraft CFG ATC ID Edited
- Transmission Oil Gauges fixed
- INOP Pitot Heat fixed
- Modified the clickspot to hide the EFB due to conflicts with the touchscreen.
- Beacon Light shining through fuselage fixed
- Cyclic Trim actuator switches modified to 3-way position
- Cyclic trim indicators functionality improved
- APU Light on announcement panel logic edited
- Cruise Guide Test switch enabled
- Fuel logic edited to fix bugs with fuel flows between tanks.
- [Sound adjustments]: Adjusted startup sounds inside/exterior volume
- [Sound adjustments]: Adjusted exterior APU combustion loop volume

- [Sound adjustments]: Modified exterior engine combustion volume
- [Sound adjustments]: Slightly adjusted interior/exterior Forward (FWD) transmission whine
- [Sound adjustments]: Adjusted some rotor effect blends based on feedback
- [Sound adjustments]: Replaced interior engine sound samples
- [Sound adjustments]: Replaced bass/low end samples

~~V1.0.2 – RELEASED March 21, 2024~~

- Further adjustments to downwash effects. Effect is now more visible with no additional performance impact.
- OSPD Switch fixed to spring loaded 3-positon
- APU and Generator switches now have a spring-loaded test position
- APU is no longer on the test position on C&D
- Fuel Slider prevented going to 0 to avoid engine failure.
- Altimeter Drum fixes
- Pilot models replaced by custom models. FPS issues related to broken pilot animations fixed. Pilot and copilot can be hidden on the EFB.
- ADF Bug on the rightmost drum fixed.
- Added new buildings to RAF Odiham
- Improved memory consumption and performance on included custom airports.
- Option to hide rearview mirror added to EFB.
- Option to fold seats added to EFB.
- Documentation link and QR code added directly to EFB.
- Rotor blade animations improved
- Aera GPS can now be moved to glareshield position, center console position is still available.
- HSI Localizer and glideslope deviation scales adjusted to correct for offsets.
- Camera quick views for side door, back ramp, hook door.
- Fixed bug - after internal load is added, aircraft moves "slightly down", triggering automatic closing of the slide, and not permitting slide to extend again.
-

- Added C&D Spots to military compounds US01 and US02
- Rotor animations improved: Improved rotor blur, as well as collective effect in blur animations. Cyclic effect in rotor animations removed for realism.
- Fuel Flow Gauge marked as RPM x 100 rather than PPH x 100 fixed
- Added dirty/dusty livery variations to Army Tan, RAF and Australian Army.
- Water drop from bucket now possible outside missions with keybind TOGGLE WATER RUDDER
- US Army Green livery texture fix
- Adjusted engine shutdown sequence timings.
- Disabled mixture controls on engines to avoid issues with dying engines in incorrect hardware configurations.
- FUEL PRESS Caution lights logic revised. Caution lights now extinguish when using XFEED.
- TRQ readings adjusted further.
- LAX Fire Mission start location relocated. Issues with fire not visible fixed.
- Adjusted Yaw MOI to increase stability at high speeds.
- Increased friction on rotor, rotor now slows down faster in case of engine failure

~~V1.0.3 - RELEASED March 25, 2024~~

- Misplaced PAPI in Bryant Airfield PAFR Fixed
- Copilot Altimeter INOP Fixed
- Saving EFB Options is now possible (Experimental)
- HSI in GPS mode is now locked to waypoint bearing as programmed on Aera GPS.
- Engine ON 1/2 also makes HYD 1 and 2 lights extinguish (even with XFER off)
- Lighting added to cargo bay (controlled by dome lights switch)
- HYD XFER logic edited.
- Keybinds added: Pilot search light = LANDING LIGHT TOGGLE Copilot search light = TAXI LIGHT TOGGLE Top collision light = WING LIGHT TOGGLE Bottom collision light = BEACON LIGHT TOGGLE Formation light = LOGO LIGHT TOGGLE APU Starter = APU STARTER APU Shutdown = APU OFF

V1.0.4 - RELEASED April 5th, 2024 (LATEST VERSION)

- Optional accessories: Antennas, Skis, Engine Sand Filters, Remove before flight tags, FLIR, etc.
- Further adjustments to Saving EFB Options (Experimental)
- Windshield Wiper too fast fixed
- FADEC B/U PWR and warning lights logic restructured.
- Pull for cockpit air should be a “pull” instead of switch fixed
- Fixed issues with inconsistent time changes with teleporting scripts on missions.
- Bryant Airfield parking position orientations revised.
- Added new Checklist tab to tablet EFB.
- Added option to extend load hooking time to random value between 20-45 sec.
- Cockpit emergency doors re-weighted normals to fix lighting discrepancies.

V1.0.5 - RELEASING April 2024

- Support for complex GPS Systems (GTN750)
- Final corrections and edits for checklists
- Improved external LOD Models on multiplayer (interior not visible fixed)
- Left Pump + Crossfeed doesnt feed fuel to right engine
- starting C&D, HYD2 light does not extinguish Fixed
- Right Landing Light (Pilot Side Search Light) seems to be very dim in comparison to the CoPilot side Fixed

V1.1.0 - RELEASE TBD - SUBJECT TO RELEASE OF SU15

- New native tandem Flight Model
- New native Engine Model, with accurate torque readings.
- ECLs GRD Position now limits RPM of engines and rotors as per the real aircraft documentation.
- TRQ Gauge now behaves closer to the expected torque readings.

- AFCS (Autopilot) System now enabled, with three modes: HDG Select, BARO Alt hold and RAD Alt hold.
- Sound triggers adjusted for FM/Engine changes.
- Optional sound filtering of high-pitched frequencies (experimental)
- Optional animated copilot visible in the cockpit.

Disclaimer and Credits

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This product has been developed using the available resources. The scope is limited to “As realistic as practical”, and though some systems have been accurately developed, others have been greatly simplified. For that reason, the systems, performance, operations, and procedures shall be considered purely fictional and not representative (nor intends to accurately represent) the real counterpart.

Credits

- Programming: Maryadi, Gabriel V, Christopher Grybowski
- 3D Modeling & Texturing: Gabriel V, Leonardo Almirez
- Scenery Design: Brayan Lopez, Gabriel V
- Mission Design: Liam Timmerman, Gabriel V
- Animations: Maryadi
- Flight Dynamics: Maryadi, Gabriel V, Christopher Grybowski
- Sounds: Maryadi, Keith Sandford, Echo19 Audio
- Documentation: Gabriel V
- Distribution: Gabriel V, Vantech North America LLC, ORBX, Microsoft, Lars Pinkenburg
- Marketing: Gabriel V, ORBX
- Video and Promotion Materials: AviationLads

Special Thanks to all independent Beta Testers:

- Giogio La Pira, JinxxDCS, Jonathan Hilarie, Bradley Soanes, Keith Sandford, Christopher Olmstead

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Product Support

All support for this product will be handled initially by Miltech Simulations. Support is available via our support forum: https://miltechsimulations.talkyard.net/latest

Our support is also offered via email in a 1-to-1 manner, through our Email Address: contact@miltechsimulations.com

Emails are typically replied to in under 24hrs. Please check our FAQs before emailing: https://miltechsimulations.talkyard.net/-12/osprey-mv22b-readme-important-notes-and-faq

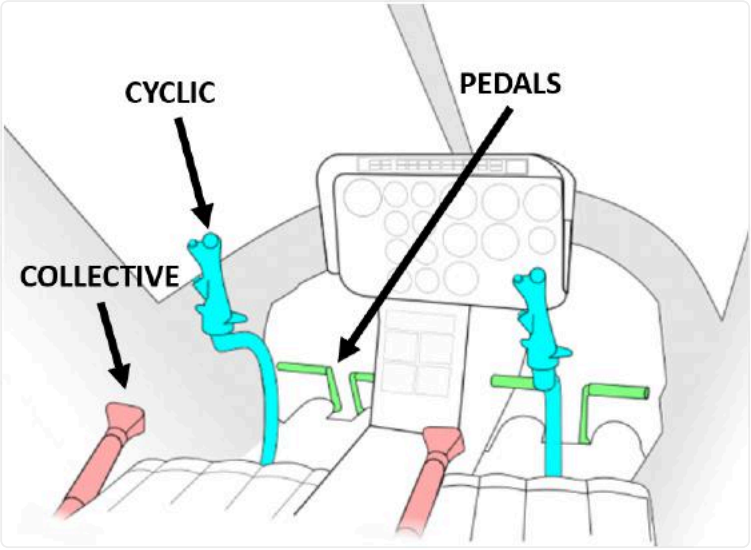
For company/business inquiries, please contact hello@vantech.dev

Recommended Hardware Configuration

Primary Flight Controls Configuration

If you are not familiar with helicopters, this guide should help you understand the basic controls that make them fly, and help you configure the controls correctly.

- **The Cyclic:** This stick sits between your legs. Moving it forward or back controls the helicopter's pitch (nose up or down). Moving it side-to-side controls the helicopter's roll (leaning left or right).
  - Pitch can be binded to `ELEVATOR AXIS` or `CYCLIC LONGITUDINAL AXIS`
  - Roll can be binded to `AILERONS AXIS` or `CYCLIC LATERAL AXIS`
  - Both Pitch and Roll can be trimmed, making flight more comfortable for the user:
    - Cyclic Pitch Trim: `INCREASE ROTOR LONGITUDINAL TRIM` and `DECREASE ROTOR LONGITUDINAL TRIM`
    - Cyclic Roll Trim: `INCREASE ROTOR LATERAL TRIM` and `DECREASE ROTOR LATERAL TRIM`
- **The Collective:** This lever is on your left side. Raising the collective increases the pitch of all rotor blades at once, generating more lift and making the helicopter rise. Lowering it causes the helicopter to descend.
  - Collective can be binded to `THROTTLE AXIS` or `COLLECTIVE AXIS`
  - **Is there Throttle?:** The CH47D does NOT have manual throttle control. Instead, the governor (device that automatically maintains a constant rotor speed (RPM) in a helicopter) will adjust the throttle as required. **DO NOT USE** `HELICOPTER THROTTLE AXIS`
- **Directional Pedals:** These are on the floor at your feet. Pushing the pedals lets you turn the helicopter nose left or right.
  - Directional Pedals can be binded to `RUDDER AXIS` or `TAIL ROTOR AXIS`
  - Ground Steering Control is also binded to `RUDDER AXIS` or `TAIL ROTOR AXIS`, however, you must have Power Steering Control set to SWIVEL for ground steering to function. More details here: Center Console



Primary Helicopter Controls

Control Sensitivity Configuration

The design of the CH47D makes it an inherently stable aircraft. No pedal input is required to keep the aircraft under control. For this reason, Control Sensibility is a personal preference of the user and we don't have any particular recommendations to make.

Xbox Controller users may benefit from dampened sensibility in the cyclic axis for more precise control in hover.

Keybinds, LVARs and HEvents

A growing number of functions will be supported for Keybinding and Hardware Interaction over the upcoming updates. The Keybind Guide is frequently updated, and available here: Keybinds Guide

Keybinds Guide

> Support for Keybinded Switches, as well as this guide is still a Work in Progress. We plan to support as many functions as possible given the limited amount of usable keybinds available.
>
> **NOTE THAT NO KEYBINDS WILL BE AVAILABLE FOR EFB FUNCTIONS.**

Primary Flight Controls

Function	MSFS Axis Bindings
Collective	`THROTTLE AXIS` or `COLLECTIVE AXIS`
Cyclic Pitch	`ELEVATOR AXIS` or `CYCLIC LONGITUDINAL AXIS`
Cyclic Roll	`AILERONS AXIS` or `CYCLIC LATERAL AXIS`
Directional Pedals	`RUDDER AXIS` or `TAIL ROTOR AXIS` - You may have to use the Split Rudder Axis depending on your hardware configuration (`RUDDER AXIS LEFT` and `RUDDER AXIS RIGHT`)
Steering Control	`RUDDER AXIS` or `TAIL ROTOR AXIS` - No dedicated axis for Steering Control.

DO NOT USE `HELICOPTER THROTTLE AXIS`

Trims

Function	MSFS Axis Bindings
Cyclic Pitch Trim	`INCREASE ROTOR LONGITUDINAL TRIM` and

Function	MSFS Axis Bindings
	`DECREASE ROTOR LONGITUDINAL TRIM`
Cyclic Roll Trim	`INCREASE ROTOR LATERAL TRIM` and `DECREASE ROTOR LATERAL TRIM`

Electrical

Function	MSFS Axis Bindings
Battery	`MASTER BATTERY ON` and `MASTER BATTERY OFF`
Auxiliary Power Unit Start	`APU STARTER`
Auxiliary Power Unit Shutdown	`APU OFF`

Lights

Function	MSFS Axis Bindings
Pilot Search Light	`LANDING LIGHT TOGGLE`
Copilot Search Light	`TAXI LIGHT TOGGLE`
Top Collision Light	`WING LIGHT TOGGLE`
Bottom Collision Light	`BEACON LIGHT TOGGLE`
Formation Light	`LOGO LIGHT TOGGLE`

Others

Function	MSFS Axis Bindings
Release Water (Bucket External Load)	`TOGGLE WATER RUDDER`

PRODUCT GUIDES

Quick Start Guide

Getting Started

The CH47D is a rather simple aircraft to understand. The Tandem Rotor Design makes it an inherently stable helicopter, requiring no antitorque pedaling. Systems-wise, is what you would expect from an aircraft designed in the 1960s - your typical steam gauges.

You must, however, make sure your controls are correctly configured for helicopter flight. Out of the box, MSFS will interpret your regular throttle, elevator, and aileron axis as collective, cyclic longitudinal, and cyclic lateral axis respectively. However, it is important that if you are used to flying other helicopters, the CH47D **does not make use of "Helicopter Throttle Axis"** and therefore you must keep it deactivated on your hardware.

More information on how to configure your hardware is available here:
Recommended Hardware Configuration

Launching the Aircraft

1. Launch MSFS and select Miltech Simulations CH47D.
2. Select any scenery of your preference. We remind you that this product includes sceneries and scenes that can be used to enhance your flying experience:

- RAF Odiham EGVO (UK), home of the No. 7, 18 and 27 squadrons.
- Bryant Airfield PAFR (Alaska), home of the Army Alaska Task Force CH47s.
- Chabelley Airfield HDCH (Djibouti), a growing US Military Base, key for the stability of the Horn of Africa region.
- Camp Resilience US01 (Jordan), a fictional military outpost serving as base for Army CH47s.
- Al Sahra Base US02 (Kuwait), a fictional military outpost serving as base for Army CH47s.

- Multiple small training facilities, exercise scenes, and rescue scenes.

More information on included sceneries here: Included Scenery Packages

3. If you start from C&D, follow the Normal Procedures Checklist

Doing Cargo Load Operations

Cargo Loading Operations (Both internal and External) follow special procedures, listed here:

Cargo Load Operations - Internal

Cargo Load Operations - External

Familiarize yourself with these procedures as it may confusing the first time you use them.

Launching Missions

Miltech Simulations CH47D includes a growing number of missions.

Missions are predefined flights, from one location to another, featuring custom sceneries in both the initial and final locations and activities to do along the way. Missions are only accessible through the Electronic Flight Bag (EFB) on free flight.

Follow the Special Mission Procedures here: Mission Procedures

For Firefighting Missions, follow: Firefighting Operations

All included missions are listed here: Missions

Normal Procedures

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Sim Operation Remarks

1. Make sure your controls are correctly configured for Helicopter Flight. Check the Recommended Hardware Configuration

Pre-Start

1. EAPS Engine Fan - CLOSED
2. External Lights - AS REQUIRED
3. Copilot Lights - AS REQUIRED
4. Compass Switch - AS REQUIRED
5. Cabin Temperature/HTG - AS REQUIRED
6. Electrical Switches - ALL OFF
7. Cockpit Lighting - AS REQUIRED
8. Crossfeed Switch - CLOSED
9. Fuel Station Switch - OFF
10. All Fuel Pump Switches - OFF
11. Start Switch - OFF
12. Engine Condition Levers - STOP
13. NR Switch - 100%
14. PRI/PREV Switches - PRI
15. Backup Power Switch - OFF
16. Load Share Switch - TRQ
17. Internal Lighting - AS REQUIRED
18. Pilot Lighting - AS REQUIRED

19. Anti Ice Switch - OFF
20. Hoist Switch - OFF
21. Master Hook Switch - OFF
22. Hook Select Switch - AS REQUIRED
23. Emergency Hook Release All Switch - OFF AND GUARDED
24. Hydraulic Power Transfer Switch - OFF
25. Hydraulic Flight Control Switch - OFF
26. Fire Pull Handle - IN
27. VGI Switch - NORM
28. Cyclic Trim Switch - AUTO
29. AFCS System Switch - OFF

Power Startup

1. Battery Switch – ON
2. Caution Light Switch - TEST
3. APU Switch - RUN
4. APU Switch - START
5. APU Generator Switch - ON
6. Hydraulic Power Transfer Switch - ON
7. Parking Brake Lever - SET
8. FADEC Backup Power - ON
9. Engine Condition Levers - BOTH STOP
10. EAPS Fan Switch - BOTH ON
11. Troops Warning Switch - ON for 10 Seconds

Engine Startup

1. Left Main Fuel Pump Switch - ON
2. Fuel Crossfeed Switch - OPEN

3. Engine Condition Lever 1 - GRD
4. Start Engine 1 - ON until 10% N1
5. Engine 1 Instruments (within 45 sec) – N1 >50%, Engine Oil Pressure >5 psi
6. Engine Condition Lever 2 - GRD
7. Start Engine 2 - ON until 10% N1
8. Engine 2 Instruments (within 45 sec) – N1 >50%, Engine Oil Pressure >5 psi
9. Oil Transmission Pressure - 7 Psi or Above
10. Engine Condition Lever 1 - FLT
11. Engine Condition Lever 2 - FLT
12. Engine Generator 1 - ON
13. Engine Generator 2 - ON
14. APU Generator Switch - OFF
15. Hydraulic Power XFER 1 and 2 Switches – OFF
16. APU – OFF

Pre Taxi

1. Fuel Pumps - ALL ON
2. Parking Brake Lever - OFF

Taxi

1. Power Steering - SWIVEL

Takeoff

1. Parking Brake Lever - OFF
2. AFCS System Select Switch - BOTH

3. Cyclic Trim Switch - AUTO
4. Power Steering - LOCKED
5. Transponder - AS REQUIRED

Climb, Cruise and Descent

1. Ramp Area - CHECK
2. Fuel Consumption - CHECK

Before Landing

1. Rotor Check - CHECK
2. Torque Check - CHECK
3. Engine Check - CHECK
4. Transmission Check - CHECK
5. Fuel Consumption - CHECK
6. Caution Light Check - CHECK
7. Parking Brake Lever - AS REQUIRED
8. Power Steering - LOCKED
9. Landing Area - ALL CLEAR

After Landing

1. Flight Controls - NEUTRALIZE
2. Cyclic Trim Switch - GROUND
3. Power Steering - SWIVEL

Engine Shutoff/Aircraft Switchoff

1. Flight Controls - NEUTRALIZE

2. Parking Brake Lever - SET
3. HTG Switch - OFF
4. AFCS System Select Switch - OFF
5. APU Switch - START
6. APU Generator Switch - ON
7. Engine Generator 1 and 2 Switch - OFF
8. Hydraulic Power XFER 1 and 2 Switch - ON
9. Engine Condition Levers - BOTH GRD
10. Crossfeed Switch - CLOSED
11. Fuel Pump Switch - ALL OFF
12. Engine Condition Levers - BOTH STOP
13. EAPS Engine Fan - BOTH CLOSED
14. FADEC Backup Power Switch - OFF
15. APU Generator Switch - OFF
16. APU - OFF
17. Lights - ALL OFF
18. Battery Switch - OFF

Other Procedures

Cargo Load Operations - Internal

Loading Procedure

The Electronic Flight Bag (EFB) is used to load and unload internal cargo to the aircraft.

1. Turn on the EFB screen by pressing the **HOME** Button
2. Navigate to the **LOAD** page
3. Select "Internal Loads"

Loads Page

4. Load/Unload cargo by pressing on the available options.
    1. A single cargo load type (External or Internal) can be active at any given moment.
    2. Selecting a different load type will unload the active option, and load the selected option.

3. Loading any external cargo load will automatically unload any internal cargo.

Included Internal Loads

- **Troops**
- **Medvac**
- **Special Ops Rhib**
- **Pallets**
- **Humvee**

Cargo Load Operations - External

- **Beware of sling load limitations** - must fly at maximum 120kts and avoid violent maneuvers when carrying external loads.
- External Cargo dropping and loading are currently incompatible with our carrier products. We are actively looking for solutions to this issue.

Loading Procedure

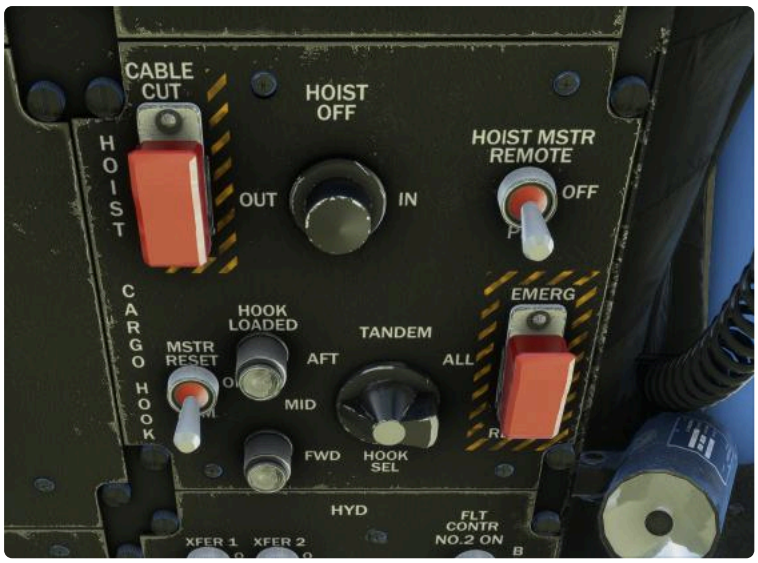
The Electronic Flight Bag (EFB) is used to load and unload internal cargo to the aircraft.

1. Turn on the EFB screen by pressing the **HOME** Button
2. Navigate to the **LOAD** page
3. Select "External Loads"

Loads Page

4. Load/Unload cargo by pressing on the available options.
    1. A single cargo load type (External or Internal) can be active at any given moment.
    2. Selecting a different load type will unload the active option, and load the selected option.
5. **Select the correct Sling Mode on the overhead panel.** Sling mode depends on the type of load (Tandem or Mid).
    1. The tablet will display a blinking red error message if the sling mode is not configured correctly.
    2. If not configured correctly, the aircraft won't be able to pick up loads.

UH60 Load Selected. Note Red Blinking message to "Set Hook Mode to MIDDLE"



Overhead Panel - CARGO HOOK Panel. Note HOOK MODE SEL is set to MID

6. **The selected object will spawn near the aircraft - usually at 9 o'clock.** Takeoff and establish a hover.
7. Use the Tablet Radar to slowly approach the object:
    1. Sustain a controlled hover. Altitude must be **at or slightly above the target altitude as indicated on the tablet.**
    2. Approach the object slowly.
    3. **Object (Red Dot) must be within the area marked by the green circle.** Keep altitude as close to the target as possible.
    4. Sustain hover for a few seconds while the cargo is loaded.
    5. Upon confirmation that cargo has been successfully loaded, apply collective and increase altitude.

Tablet Radar - Note the horizontal radar (Left side), with RED Dot representing the position of the object. Height radar on the left, with the target set at 40ft.

8. **Cargo will be automatically dropped upon crossing below 50ft.**
9. **The cargo sling may break in high G/violent maneuvers/overspeed.**
10. **Dropped cargo can be picked up again. However, you must increase the altitude >100ft before dropped cargo is available for pickup again.**

Included External Loads

- **[TANDEM] UAV Container**
- **[MID] Blackhawk Helicopter Fuselage**
- **[MID] Cargo Nets**
- **[TANDEM] Large Rhib**
- **[TANDEM] Humvee**
- **[MID] Water Bucket**

Water can be manually deployed using `TOGGLE WATER RUDDER`

Firefighting Operations

> - Firefighting Operations are only accessible through Missions.
> - **Crash detection must be OFF** for Missions to load correctly, as Crashes may interfere with our loading scripts.
> - **Beware of sling load limitations** - must fly at maximum 120kts and avoid violent maneuvers when carrying external loads.

Firefighting is only available on missions. To start a firefighting mission:

Accessing Firefighting Missions

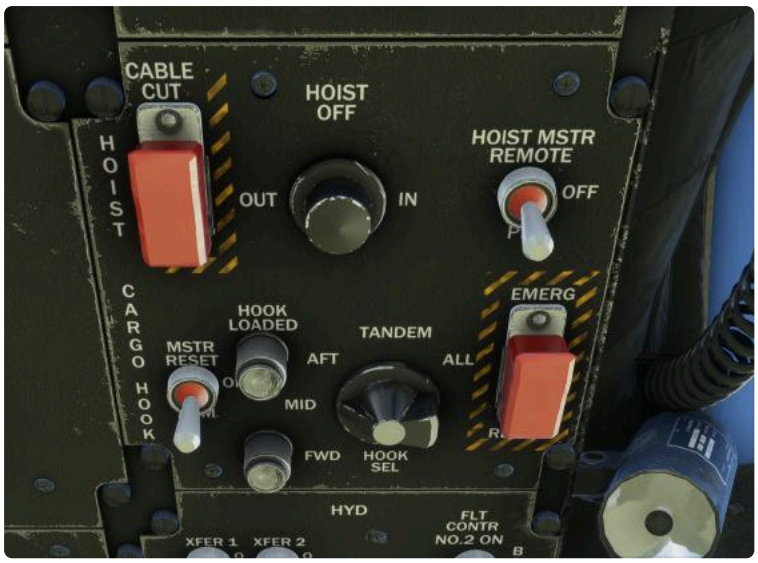
1. Launch a flight with the CH47D at any airport in the world.
2. Turn on the EFB screen by pressing the **HOME** Button
3. Navigate to the **MISSION** page

Mission Page

4. Select any mission from the list.
5. Wait a few minutes for the mission to load completely. The aircraft will be automatically relocated to the start location and all required mission objects will be loaded.

As the mission is started, you'll get a brief with mission details.

1. **Load the Water Bucket:**
    1. Navigate to the EFB **LOAD** page
    2. Select "External Loads"
    3. Select Bucket
    4. **Select the correct Sling Mode on the overhead panel.** Sling mode for the Bucket is "Mid"
    5.



Overhead Panel - CARGO HOOK Panel. Note HOOK MODE SEL is set to MID

6. **The object will spawn near the aircraft - usually at 9 o'clock.** Takeoff and establish a hover.
7. Use the Tablet Radar to slowly approach the object:
    1. Sustain a controlled hover. Altitude must be **at or slightly above the target altitude as indicated on the tablet.**
    2. Approach the object slowly.
    3. **Object (Red Dot) must be within the area marked by the green circle.** Keep altitude as close to the target as possible.
    4. Sustain hover for a few seconds while the cargo is loaded.
    5. Upon confirmation that cargo has been successfully loaded, apply collective and increase altitude.

Tablet Radar - Note the horizontal radar (Left side), with RED Dot representing the position of the object. Height radar on the left, with the target set at 40ft.

8. **Fly to the mission location** as per the Mission Brief.
    1. Be careful or not doing any high-G maneuver, and control your speed. The bucket rope may break under violent flying conditions.
9. Upon arriving at the mission area, find the nearest body of water to fill your water bucket.
    1. Slow down and come to a hover over the water.
    2. Lower your altitude to 20ft for 3 seconds.
    3. The bucket will automatically fill. No internal cockpit confirmation is available at this time.
10. **Fly to the location of the fires**
    1. Approach the fires at an altitude of **no more than 350ft** above ground and speed of 20kts maximum.
    2. Fly directly above the fires. The water will automatically deploy and extinguish the fire.

3. Repeat until all fire is fully extinguished.

> Water can be manually deployed using `TOGGLE WATER RUDDER`

Mission Procedures

> - **Crash detection must be OFF** for Missions to load correctly, as Crashes may interfere with our loading scripts.
> - **Beware of sling load limitations** - must fly at maximum 120kts and avoid violent maneuvers when carrying external loads.

Accessing Missions

1. Launch a flight with the CH47D at any airport in the world.
2. Turn on the EFB screen by pressing the **HOME** Button
3. Navigate to the **MISSION** page

Mission Page

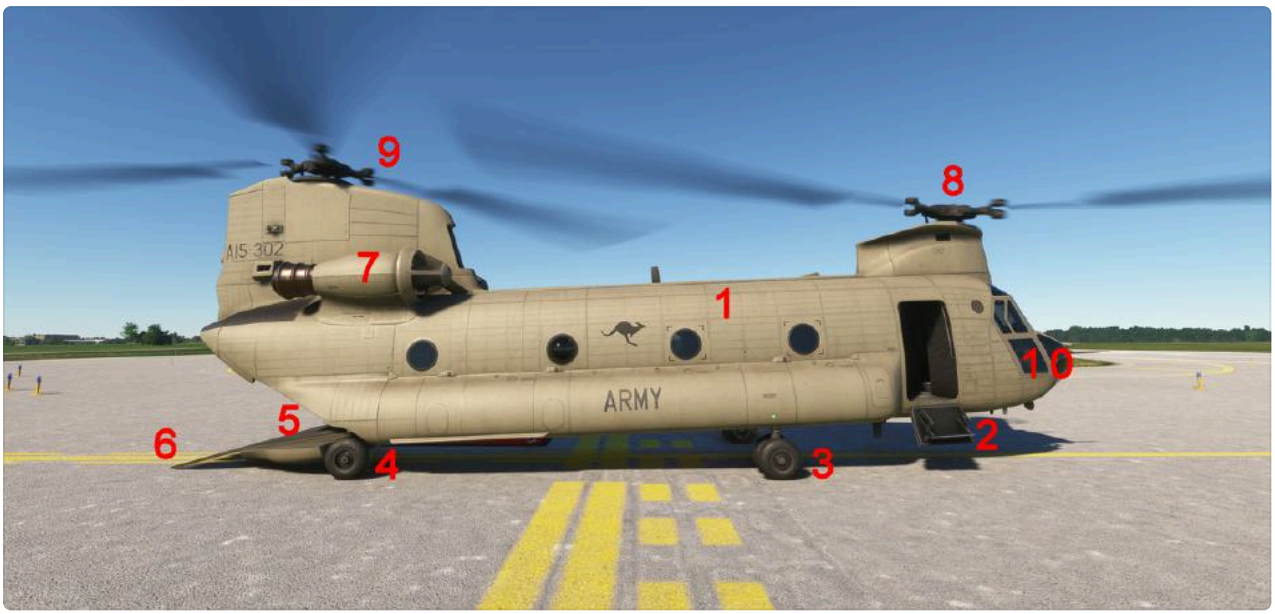
4. Select any mission from the list.
5. Wait a few minutes for the mission to load completely. The aircraft will be automatically relocated to the start location and all required mission objects will be loaded.

Included Missions

Missions List

AIRCRAFT AND SYSTEMS

Overview - Exterior



External Overview

1. **Aircraft Fuselage**
2. **Front Side Door:** Consists of two parts - a sliding top half, and a bottom half with stairs. More information on how to operate the doors, read #door
3. **Front Landing Gear:** Non-retractable, fixed
4. **Rear Landing Gear:** Non-retractable, can swivel
5. **Main Ramp:** Consists of two parts - a sliding top half, and a bottom half. More information on how to operate the doors, read #door
6. **Ramp Slide:** More information on how to operate the doors, read #door
7. **T55 Engine**
8. **Front Rotor:** Counterclockwise Rotation
9. **Back Rotor:** Clockwise Rotation
10. **Pilot Side Emergency Cockpit Door:** These doors are emergency use only, and therefore once jettisoned they cannot be closed unless you restart the flight.

Overview - Cockpit

Cockpit Overview

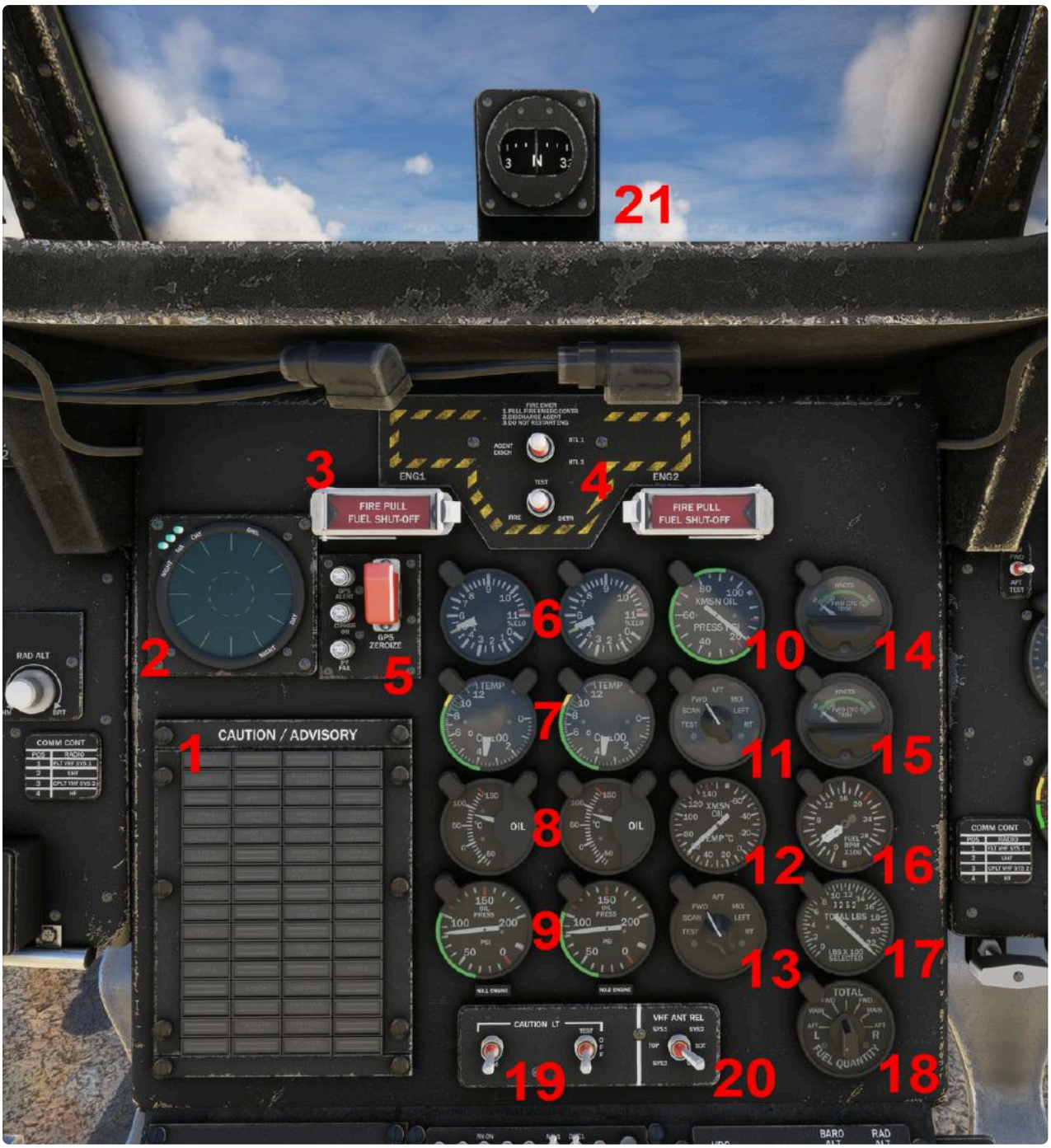
1. **Overhead Panel:** Overhead Panel
2. **Main Instrument Panel:** Main Instrument Panel
3. **Center Console:** Center Console
4. **Cyclic:** It allows the pilot to tilt the rotor discs. By tilting the rotor discs, the pilot directs the helicopter's thrust, enabling forward, backward, lateral, and combined movement.
5. **Collective:** It controls the overall pitch angle of all the main rotor blades simultaneously. Increasing the collective pitch increases the lift generated by the rotor system, causing the helicopter to rise.
6. **Directional Pedals:** These pedals control the yaw (rotation around the vertical axis) of the helicopter. Pressing the left pedal increases the pitch of the aft rotor blades and reduces pitch on the forward rotor blades. Conversely, pressing the right pedal increases pitch on the forward rotor blades and decreases it on the aft rotor blades. This differential adjustment of blade pitch controls the torque balance and allows the pilot to turn the helicopter left or right.
7. **Electronic Flight Bag:** Electronic Flight Bag (EFB)

8. **Coilot Side Emergency Cockpit Door:** These doors are emergency use only, and therefore once jettisoned they cannot be closed unless you restart the flight.
9. **Pilot Side Emergency Cockpit Door:** These doors are emergency use only, and therefore once jettisoned they cannot be closed unless you restart the flight.

Main Instrument Panel

Main Instrument Panel Overview

Center Instrument Panel

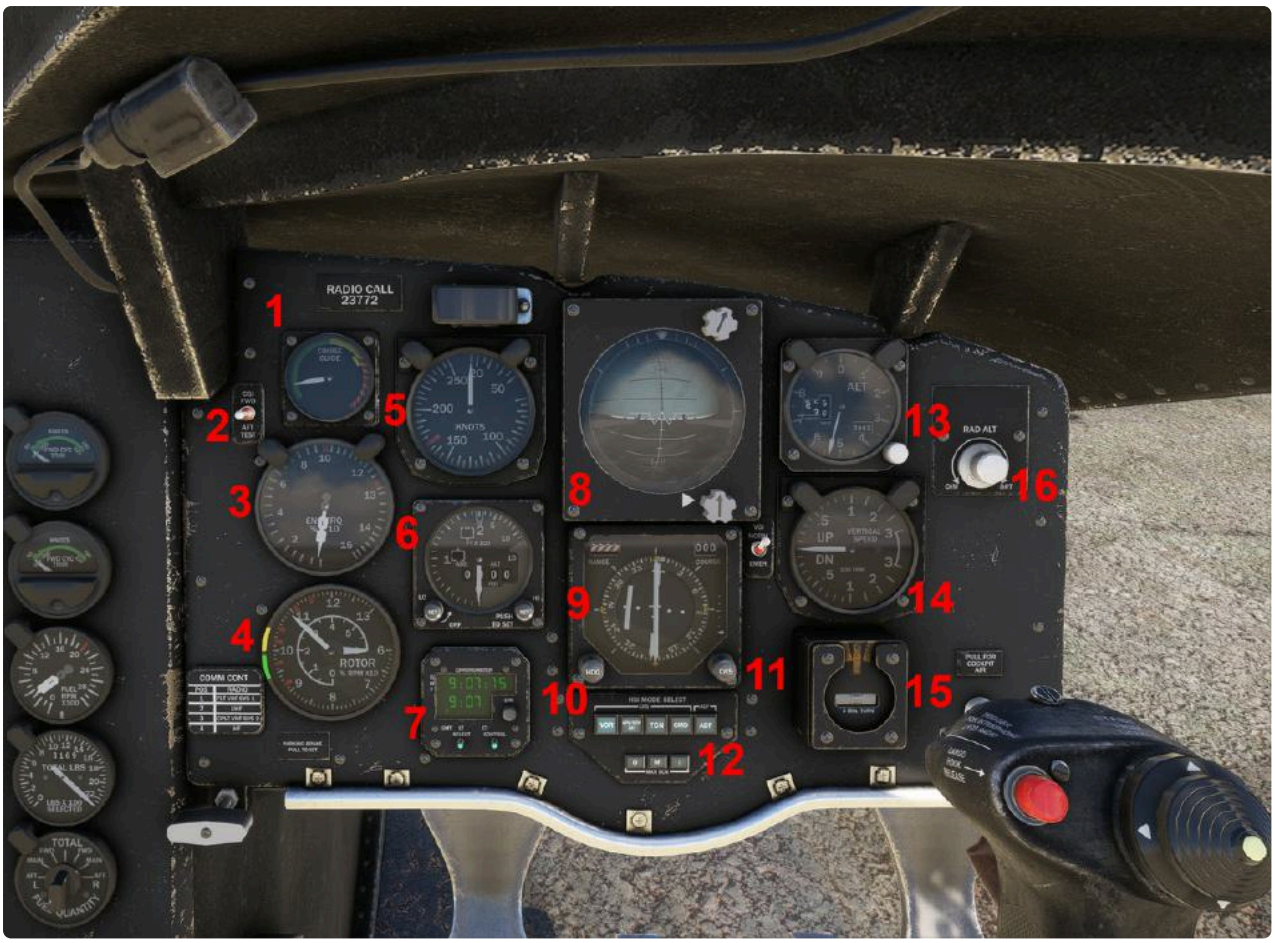


Center Instrument Panel

1. **Master Caution/Advisory Panel**
2. **Missile Alert Display** (INOP)
3. **FIRE PULL Handles** (INOP)
4. **FIRE Test Switches** (INOP)
5. **IFF/GPS Zeroize Switch** (INOP)
6. **Engine 1/Engine 2 N1:** Gas Producer Tachometer
7. **Power Turbine Inlet Temperature Indicator**

8. **Engine Oil Temperature Indicator**
9. **Engine Oil Pressure Indicator**
10. **Transmission Oil Pressure Indicator**
11. **Transmission Oil Pressure Selector:** selects system to display on #10
12. **Transmission Oil Temperature Indicator**
13. **Transmission Oil Temperature Indicator:** selects system to display on #12
14. **FWD Longitudinal Cyclic Trim Indicator**
15. **AFT Longitudinal Cyclic Trim Indicator**
16. **Fuel Flow Indicator**
17. **Fuel Quantity Indicator**
18. **Fuel Quantity Selector:** selects tank to display on #17
19. **Caution Light Test**
20. **VHF Antenna Selector** (INOP)
21. **Compass**

Pilot-Side Instrument Panel

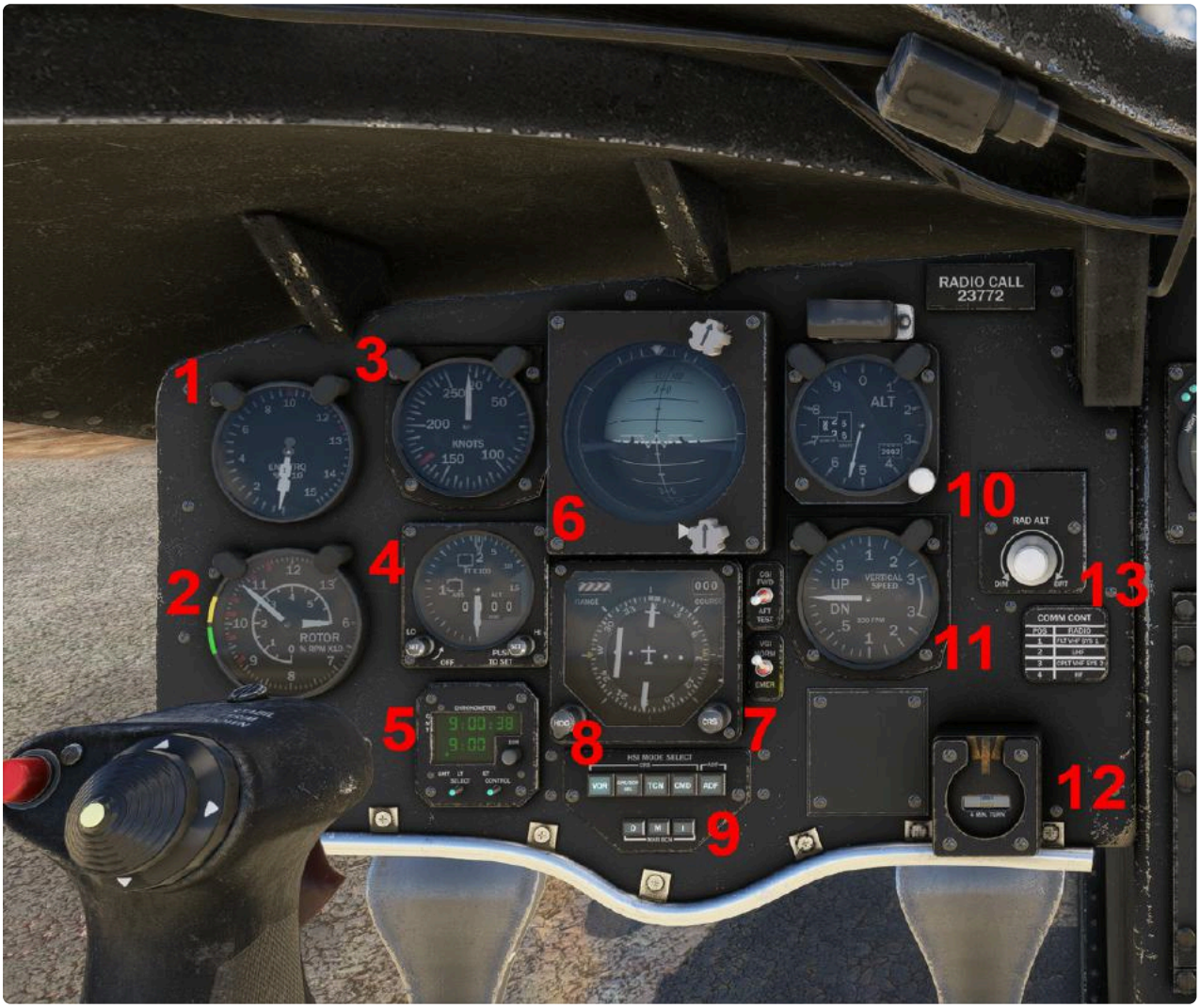


Pilot-Side Instrument Panel

1. **Cruise Guide Indicator (CGI):** Gives the pilot a visual indication of the loads imposed on critical components. Needle should be kept in the green band, with only transient excursions into the yellow band.
2. **CGI Test:** Up for FWD Rotor System, down for AFT Rotor System.
3. **Torquemeter**
4. **Rotor Tachometer (RPM %).** Small needle measures from 0-50%, large needle from 50-130%
5. **Airspeed Indicator (Knots)**
6. **Radar Altimeter**
7. **Chronometer**
8. **Attitude Indicator**
9. **Horizontal Situation Indicator (HSI)**
10. **Heading Selector:** Affects both the heading (HSI heading bug) and Autopilot Heading Select.
11. **Course Selector**

12. **HSI Mode Select:** Selects source for navigation data (VOR, TACAN, ADF)
13. **Barometric Altimeter**
14. **Vertical Speed Indicator**
15. **Turn and Slip Indicator**
16. **Radar Altimeter Dimmer Knob**

Copilot-Side Instrument Panel



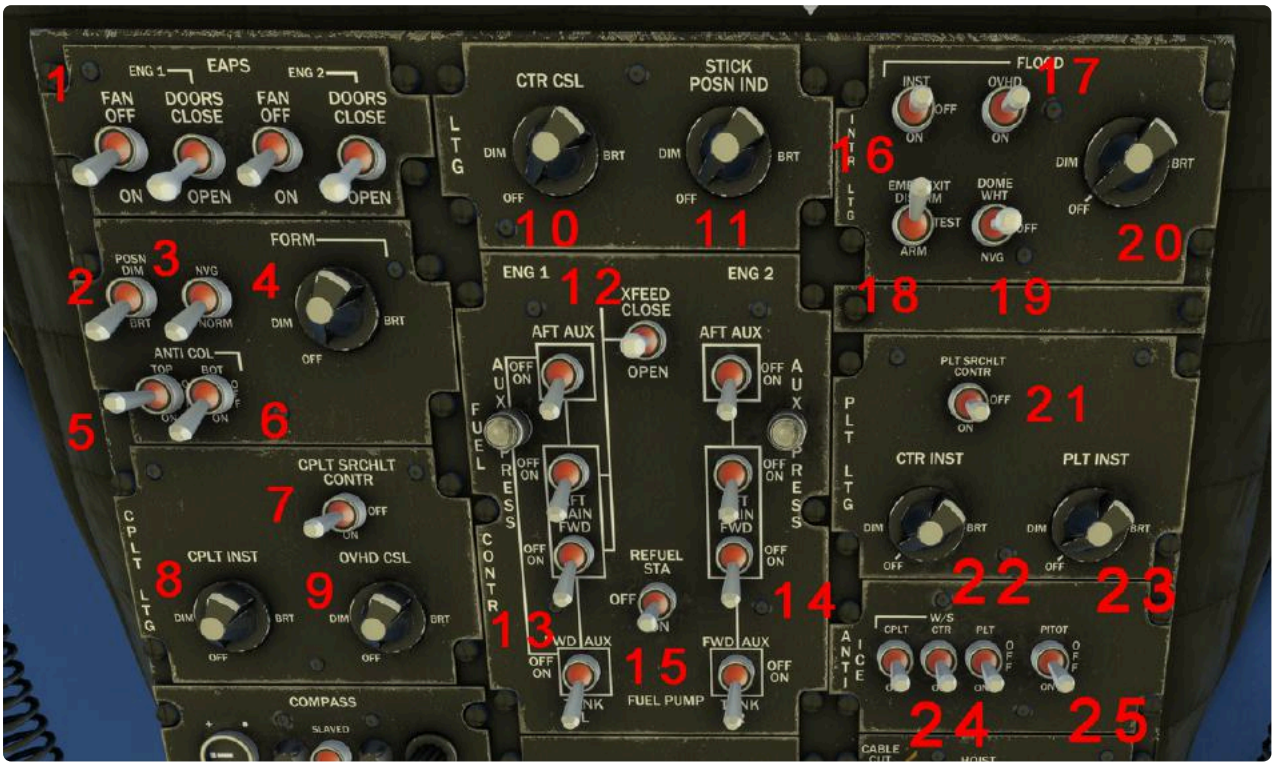
Copilot-side Instrument Panel

1. **Torquemeter**
2. **Rotor Tachometer (RPM %).** Small needle measures from 0-50%, large needle from 50-130%
3. **Airspeed Indicator (Knots)**

4. **Radar Altimeter**
5. **Chronometer**
6. **Attitude Indicator**
7. **Course Selector**
8. **Heading Selector:** Affects only the HSI heading bug
9. **HSI Mode Select:** Selects source for navigation data (VOR, TACAN, ADF)
10. **Barometric Altimeter**
11. **Vertical Speed Indicator**
12. **Turn and Slip Indicator**
13. **Radar Altimeter Dimmer Knob**

Overhead Panel

Top Overhead Panel



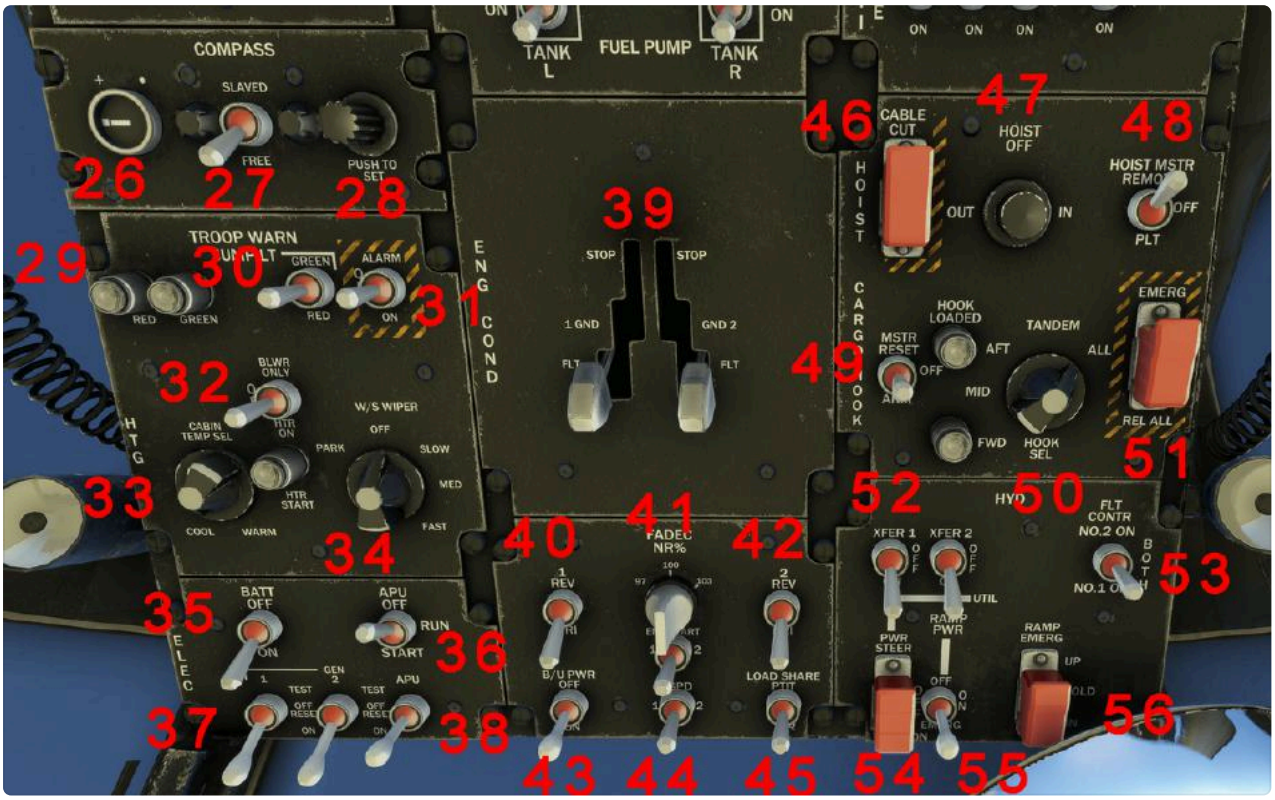
Top Overhead Panel Overview

1. **Engine Air Particle Separator (EAPS) Fans/Doors:** Turns fan on/Opens EAPS Doors on ENG1 and ENG2 when EAPS are installed (#config). This has no impact on engine performance.
2. **Position Lights:** Three-way switch (DIM, OFF, BRT). Sets external Green/Red Position (Navigation) Lights on/off.
3. **Formation Lights:** Sets external Green Formation lights on (NVG)/off (NORM).
4. **Formation Lights Dimmer:** Controls the intensity of Formation Lights when Switch is NVG.
5. **Top Anticollision Lights:** Toggles flashing red Top Anticollision Light on/off.
6. **Bottom Anticollision Lights:** Toggles flashing red Top Anticollision Light on/off.
7. **Copilot Seach Lights:** Toggles Copilot side Search Light on/off. Search Lights are generally used as Landing Lights.
8. **Copilot Instrument Lights Dimmer:** Controls the intensity of light of the Copilot Instruments.

9. **Overhead Lights Dimmer:** Controls the intensity of the overhead panel green backlight.
10. **Center Console Lights:** Controls the intensity of the center panel green backlight.
11. **Stick Position Indicator Lights:** Controls the intensity of the stick position indicator (INOP, indicator not installed on this aircraft)
12. **Fuel Crossfeed Valve:** Opens/Closes the Crossfeed Valve connecting both fuel systems.
13. **Left Fuel Tank Pumps:** Controls the left-side fuel pumps (AFT AUX, two MAIN pumps, and FWD AUX)
14. **Right Fuel Tank Pumps:** Controls the right-side fuel pumps (AFT AUX, two MAIN pumps, and FWD AUX)
15. **Refueling Station:** Enables single Point Refueling (No Sim Function)
16. **Instrument Flood Lights:** Turns on/off Green Instrument Flood Lights, located just under the instrument sun visor. Brightness is controlled by dimmer knob (#20). Instrument flood lights will illuminate only if this switch is ON and the brightness knob is at a setting other than OFF.
17. **Overhead Flood Lights:** Turns on/off Green Instrument Overhead Lights. Brightness is controlled by dimmer knob (#20). Instrument flood lights will illuminate only if this switch is ON and the brightness knob is at a setting other than OFF.
18. **Emergency Lights:** Arms or disarms the emergency exit lights.
19. **Dome Lights:** Three-Way Switch (DOME WHT, OFF, NVG). Turns On/Off the Dome lights. DOME WHT uses the white lighting lamps in the cabin to illuminate the cockpit and cargo bay. NVG makes use of the green lighting only, illuminating the cockpit.
20. **Instrument/Overhead Flood Lights Dimmer:** Controls intensity of both Instrument and Overhead Flood lights. For this knob to function, one or both switches must be set to the ON position.
21. **Pilot Search Lights:** Toggles Pilot side Search Light on/off. Search Lights are generally used as Landing Lights.
22. **Center Instrument Lights Dimmer:** Controls the intensity of light of the Center Instruments.
23. **Pilot Instrument Lights Dimmer:** Controls the intensity of light of the Pilot Instruments.

24. **Windshield Antiice:** Controls the Windshield Antiice (Copilot/Center/Pilot)
25. **Pitot Antiice:** Controls the Pilot Antiice

Bottom Overhead Panel

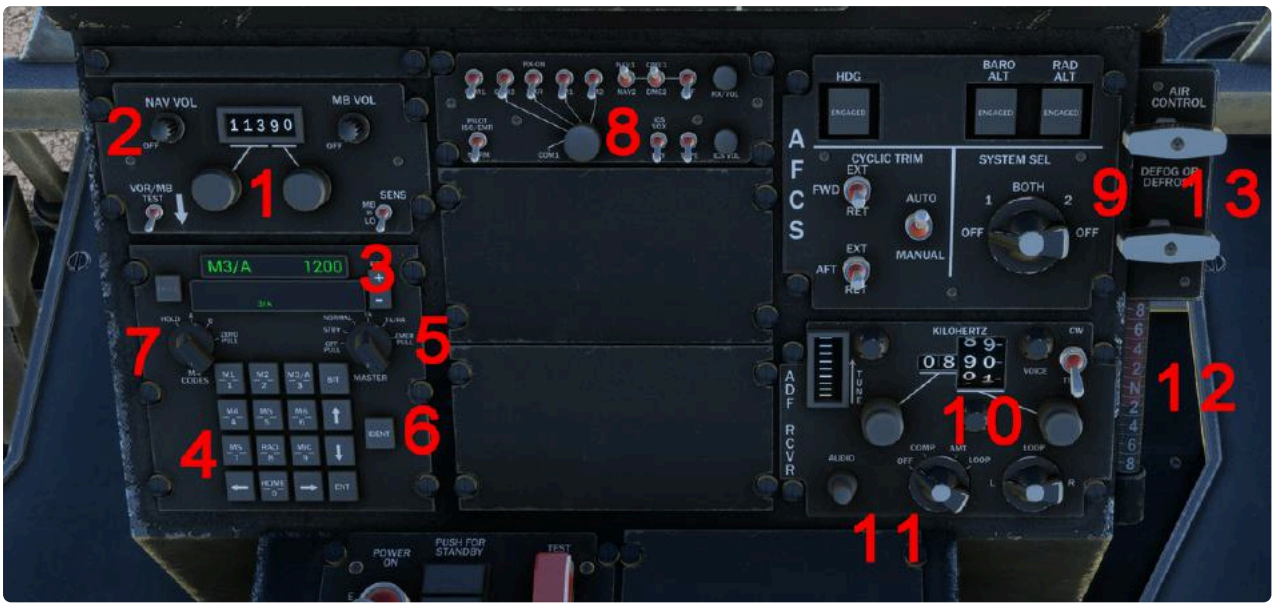


Bottom Overhead Panel Overview

26. **Compass Annunciator:** No Sim Function
27. **Compass Slaving Switch:** No Sim Function
28. **Compass Synchronizing Knob:** No Sim Function
29. **Red/Green Troop Warning Lights**
30. **Green/Red Troop Warking Lights Switch:** Three-Way Switch (Green/OFF/Red)
31. **Troop Alarm**
32. **Heat Blower:** Blower Only/Off/Heater On, No Sim Function
33. **Cabin Temperature Selector:** No Sim Function
34. **Windshield Wiper Selector:** Park/Off/Slow/Med/Fast
35. **Battery Switch**
36. **APU Switch:** Off/Run/Start

37. **Generator 1/2 Switches:** Three-way Position (Test/OFF/On)
38. **APU Generator Switch:** Three-way Position (Test/OFF/On)
39. **Engine 1/2 Condition Levers:** Stop/GRD/FLT. Stop cuts off fuel to the engines, shutting the engines down. GND position is meant to be used while on the ground (NOTE: **after SU15 is released**, GND POSITION will limit the engines to 53% RPM and rotor to 50% as per the real aircraft).
40. **FADEC Operation Switch 1:** FADECs can be operated in Primary (PRI) or revisionary (REV) mode. No Sim Function.
41. **FADEC NR% Selector:** Select the target rotor RPM between 97% and 103%
42. **FADEC Operation Switch 2:** FADECs can be operated in Primary (PRI) or revisionary (REV) mode. No Sim Function.
43. **Backup Power:** Enables the FADEC units to be powered from the aircraft battery.
44. **ENGINE START Switch:** Engages starter for engine 1/2.
45. **Load Share:** Selects between PTIT (turbine inlet temperature) or TRQ matching for sharing load between engines. No Sim Function.
46. **Hoist Cable Cut:** No Sim Function
47. **Hoist Control Knob:** No Sim Function
48. **Hoist Master Switch:** Remote/Off/Pilot, No Sim Function
49. **Hook Switch Master:** Reset/Off/ARM, No Sim Function
50. **Hook Mode Selector:** Selects the hook configuration used by external loads. Correct configuration selection (eg. Tandem/Mid) is required for external equipment to be loaded correctly. More information: Cargo Load Operations - External
51. **Hook Emergency Release:** No Sim Function
52. **Hydraulic Transfer Switch 1/2:** Provides hydraulic pressure to systems 1/2 when the engines are off.
53. **Flight Control Selector:** No Sim Function
54. **Power Steering Hydraulics:** No Sim Function
55. **Ramp Power:** No Sim Function
56. **Ramp Emergency:** No Sim Function

Center Console



Canted Console Overview

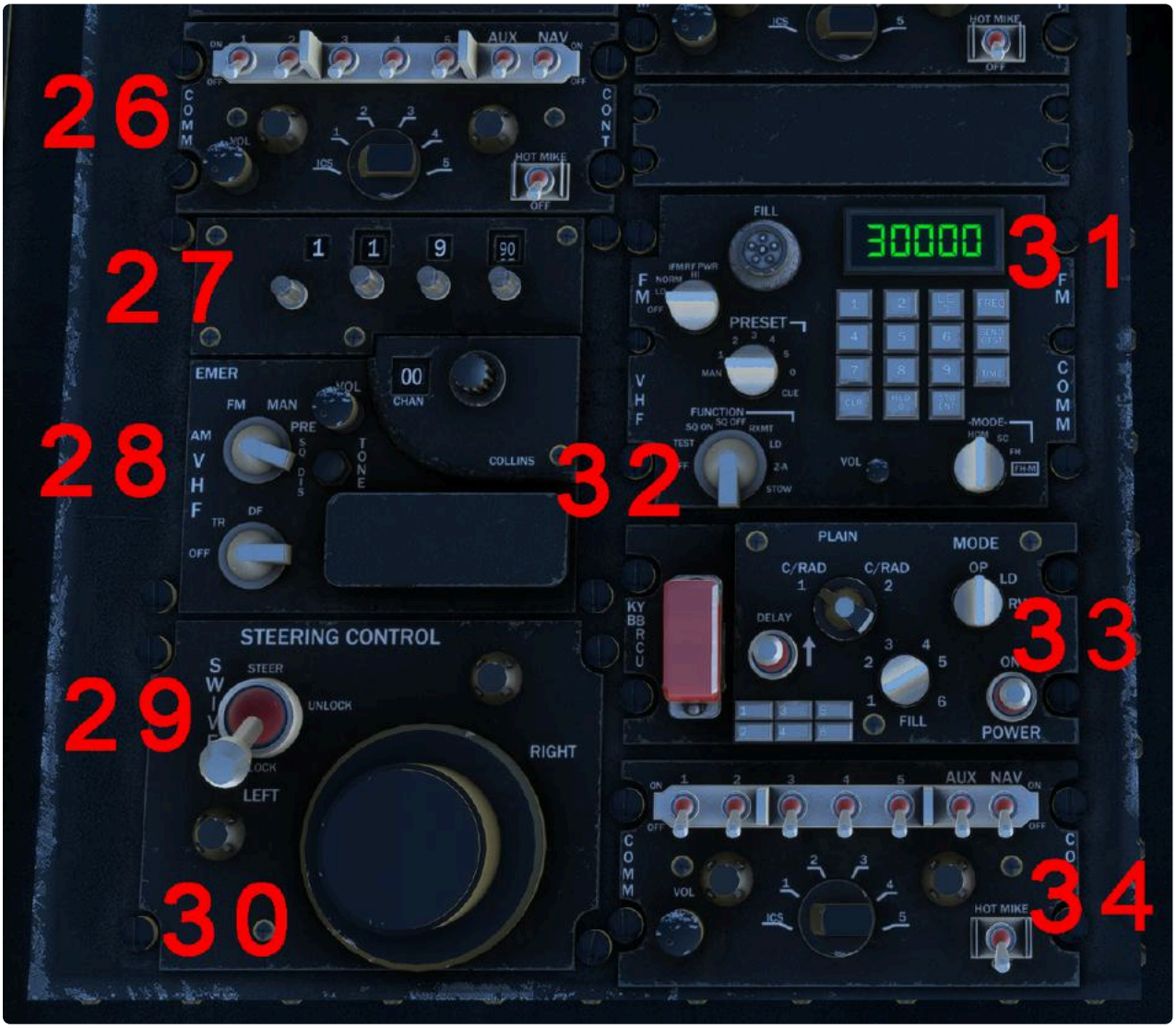
1. **NAV/ILS Frequency Selector:** Left knob selects the first three digits, right knob selects the decimal digits. For NAV/ILS to engage, the correct Nav Mode must be selected on the HSI Mode Select. For more information, Main Instrument Panel
2. **NAV Volume**
3. **Transponder/IFF Unit**
4. **Transponder/IFF Input Keyboard**
5. **Transponder/IFF Mode:** OFF/STBY/Normal/TA/TA-RA
6. **IDENT Button**
7. **Transponder Code Mode:** Hold/A/B/Zero, No Sim Function
8. **COMM Receiver Selector:** No Sim Function
9. **AFCS System:** A two-degree of Freedom aircraft flight control system (Autopilot) will be available shortly after the release of SU15. More information here: AFCS System (Autopilot)
10. **ADF Frequency Selector:** The left knob selects the first two digits, the right knob selects the last two digits.
11. **ADF Mode:** OFF/COMP/AMT/LOOP
12. **Air Control/Defog Handles:** No Sim Function

13. **Longitudinal Stick Position Indicator**

Top Center Console Overview

14. **ALQ-156 Electronic Countermeasures Panel:** No Sim Function
15. **ARC-220 High Frequency (HF) Radio:** No Sim Function due to lack of support of HF Frequencies.
16. **Z-AVH Remote Control Unit:** No Sim Function, Display Only
17. **Comsec Mode:** No Sim Function, Display Only
18. **Comsec Power:** No Sim Function, Display Only

19. **APR-39 Radar Signal Detecting:** No Sim Function
20. **TACAN Frequency Selector:** Left knob selects first two values, middle selector selects rightmost numeric value, right knob selects X/Y. For TACAN to engage, the correct Nav Mode must be selected on the HSI Mode Select. For more information, Main Instrument Panel
21. **TACAN Mode Selector:** OFF/REC/TR/AA REC/AA TR
22. **ARC-164 UHF Frequency Selector:** No Sim Function due to lack of support of UHF Frequencies, Display Only
23. **UHF Mode Selector:** OFF/Main/Both, No Sim Function, Display Only
24. **UHF Preset:** No Sim Function, Display Only
25. **Pilot Interphone Control:** No Sim Function



Bottom Center Console Overview

26. **Copilot Interphone Control:** No Sim Function
27. **ARC-186 VHF Radio Set:** Use the first three knobs to select the frequency, and the last knob to select the decimal (Currently supporting only two decimals, 0.05Mhz).
28. **VHF Mode, Power Knobs:** Use to select VHF Mode (AM/FM/MAN) and Power (On/Off).
29. **Steering Control:** Three-Way Switch (Lock/Unlock/Steer). LOCK keeps the steering wheels locked in the centered position. UNLOCK lets the wheels freely swivel 360deg. STEER Steering angle is controlled through the steering knob (linked to Rudder Axis).
30. **Steering Knob:** Linked to Rudder Axis.
31. **ARC-201A VHF Radio Set:** No Sim Function, Display Only
32. **VHF Function:** No Sim Function, Display Only
33. **KY-58 Voice Security Equipment:** No Sim Function
34. **Aux Interphone Control:** No Sim Function

Aircraft Systems

GPS Systems

By default, the CH47D includes the Stock Aera GPS. This is a rather basic GPS system, that will allow you to create simple flight plans, "Direct-to" flights and access the map and navaids. Real operators of the CH47D use these types of systems in real life.

The Aera is by default hidden. To access it, go to the EFB - CONFIG Tab - "Enable Handheld GPS"

Aera GPS

The GPS screen may be difficult to see in small displays. The GPS Screen is undockable with the stock "Alt+Click" command.

Due to popular demand, we are working on adding other GPS Systems to the CH47D. Namely, support for **PMS50's GTN750 GPS and TDS GTNXi will be added shortly in a future update,** as an optional instrument on the cockpit.

AFCS System (Autopilot)

AFCS IS NOT FUNCTIONAL ON THE CURRENT BUILD - A Custom, Functional Two-Degree of Freedom AFCS (Autopilot) System has been developed for the CH47D, and will be added in an upcoming update, shortly after the release of SU15.

A minimum 2% Deadzone (In some cases up to 5-8% on old or inaccurate hardware) is required for AFCS to function correctly. Not enough deadzone will result in the input controllers and the system inputs conflicting with each other, leading to erratic or unexpected behavior.

AFCS Panel

1. **HDG SELECT:** Upon pressing and engaging, the aircraft will follow the Selected Heading on the Pilot Side HSI. System Select must be set to any option but OFF.
2. **BARO ALT HOLD:** Upon pressing and engaging, the aircraft will mantain the current Barometric altitude. System Select must be set to any option but OFF.
3. **RAD ALT HOLD:** Upon pressing and engaging, the aircraft will mantain the current Radio altitude. Will not engage above 1,000ft above ground. System Select must be set to any option but OFF.
4. **System Select:** Selects the AFCS System the aircraft will use. Under normal conditions, BOTH will be selected for redundancy. HDG/BARO/RAD won´t engage unless the selector is at any position other than OFF.

5. **Cyclic Trim FWD**
6. **Cyclic Trim AFT**
7. **Cyclic Trim AUTO/MANUAL Selector**

> The CH47D does not have any sort of Speed Hold, nor it has Vertical Speed modes, Autohover, etc.
>
> Speed can be controlled by a combination of ALT Holds and Longitudinal Cyclic Trimming. Trimming the aircraft down while holding the altitude will result in a forward acceleration; similarly trimming the aircraft up will result in a forward desceleration.
>
> To perform altitude changes, the pilot input is required.

Electronic Flight Bag (EFB)

An Electronic Flight Bag (EFB) is a digital device, generally a Tablet, that provides the pilot with additional information. On Miltech Simulations CH47D, the EFB is the main way of interacting with the aircraft - from operating doors, launching missions, and loading cargo.

MAP

Displays a generic terrain OR satellite map on the tablet.

EFB Map Page

LOAD

Allows loading and unloading of cargo, both in the inner cargo bay and externally. More details here: Cargo Load Capabilities

EFB Load Screen

1. **EFB Page Selector**
2. **Internal Loads:** Displays complete list of internal loads available on the load selector. (More info: Cargo Load Capabilities)
3. **External Loads:** Displays complete list of external loads available on the load selector. (More info: Cargo Load Capabilities)
4. **Load Selector:** Display lists of loads available, depending on which option (internal/external) is selected. Clicking on any load will spawn it, either inside the cargo bay (internal) or near the aircraft (external).

Upon Selecting any of the external load options:

EFB Load Screen - External Load Selected

5. **External Load Selected,** in this example the RHIB Boat.
6. **External Load Radar & Target:** Upon selecting an external load, the object will spawn near the aircraft (usually at 9-o-clock). The radar screen allows the user to easily navigate the aircraft to the hover point directly above the load. The user must then slowly and carefully fly the aircraft until the red dot (target) is fully inside the green ring, and hover in position for a few seconds.
7. **Altitude above Ground Radar:** To safely operate the aircraft in hover and successfully pick up the loads, the user must consider the altitude above ground. The range for picking up loads is from 15-45 feet above ground. A white arrow on the right side of the scale indicates the ideal pickup altitude ("target altitude"). Ideally, you are at, or slightly above, the target altitude. Loads will be automatically released upon crossing below 50ft.
8. **Hoist/Sling Status:** Displays the status of the sling loads. Will display a countdown from 5-0 when the aircraft is in hover position within the pickup

limits, after which it will display "Hooked". Will display "Released" upon release of the loads due to crossing below 50ft. Will display "Broken" if the maximum G value has been broken or in violent maneuvers.

9. **Hook Mode:** Displays the required hook mode to be selected on the overhead panel for successful pick up of the loads. If the Hook Mode is not selected correctly, a red blinking warning will be displayed.

> **Beware of sling load limitations** - must fly at maximum 120kts and avoid violent maneuvers when carrying external loads.

CHECKLIST

Displays the aircraft checklist right on the EFB Tablet for ease of access.

EFB Checklist Screen

1. **EFB Page Selector**
2. **Checklist Page/Category Selector**
3. **Checklist Items:** Clicking will check the items. "Resets" unchecks all items.

4. **Reset Button:** Unchecks all checklist items

DOOR

Enables operation of all dors available in the aircraft:

EFB Door Page

- **Main Side Door**
  - On the ground, both the top and bottom sections of the exit open for full access.
  - In-flight or upon takeoff, only the top sliding portion opens.
- **Hoist Door**
  - Can be operated manually. Opens automatically upon selection of "Mid" Hoist mode. More information in Cargo Load Capabilities
- **Ramp Door**
  - Both the top side and bottom side of the ramp can be operated independently.

- On the ground, ramp is fully lowered.
- In-flight or upon takeoff, ramp is raised to "Flight Position" automatically.
- Slide can be extended only if Ramp is lowered and Top is open.

> Cockpit Doors (Pilot and Copilot) are for emergency use only, and therefore once jettisoned they cannot be closed unless you restart the flight. To jettison Pilot/Copilot cockpit doors, click on the yellow/black Striped Handle.

FUEL

Displays fuel quantity per tank.

EFB Fuel Screen

1. **EFB Page Selector**

2. **Fuel Tank Displays.** Fuel quantities can be modified upon clicking any of the fuel tank displays.

MISSION

Crash detection must be OFF for Missions to load correctly, as Crashes may interfere with our loading scripts.

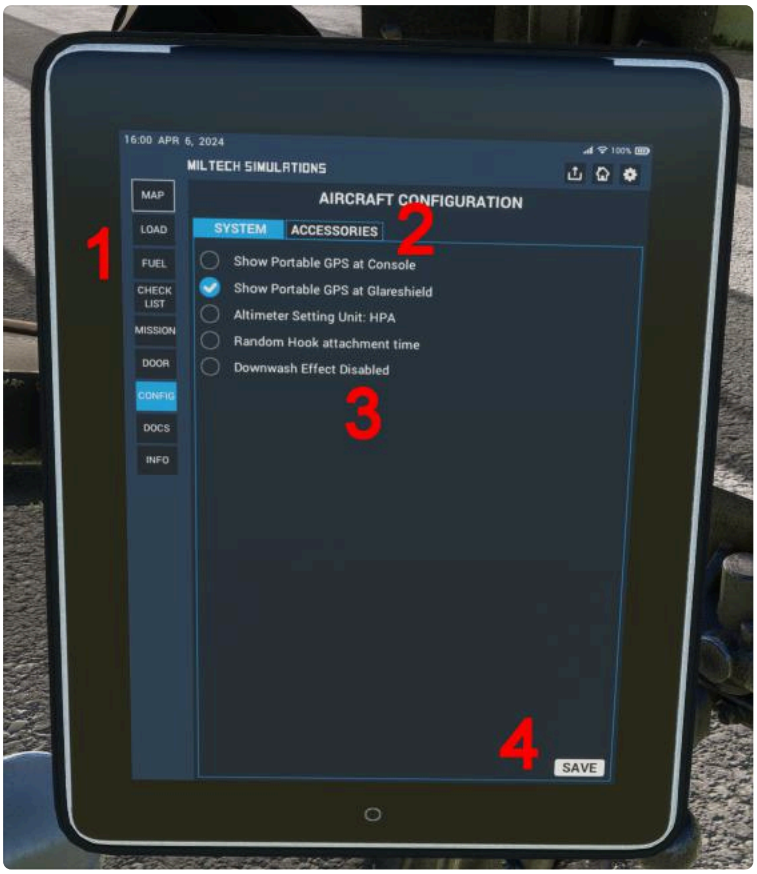
Enables access to Mission-Based Content. More Information: Missions

EFB Mission Screen

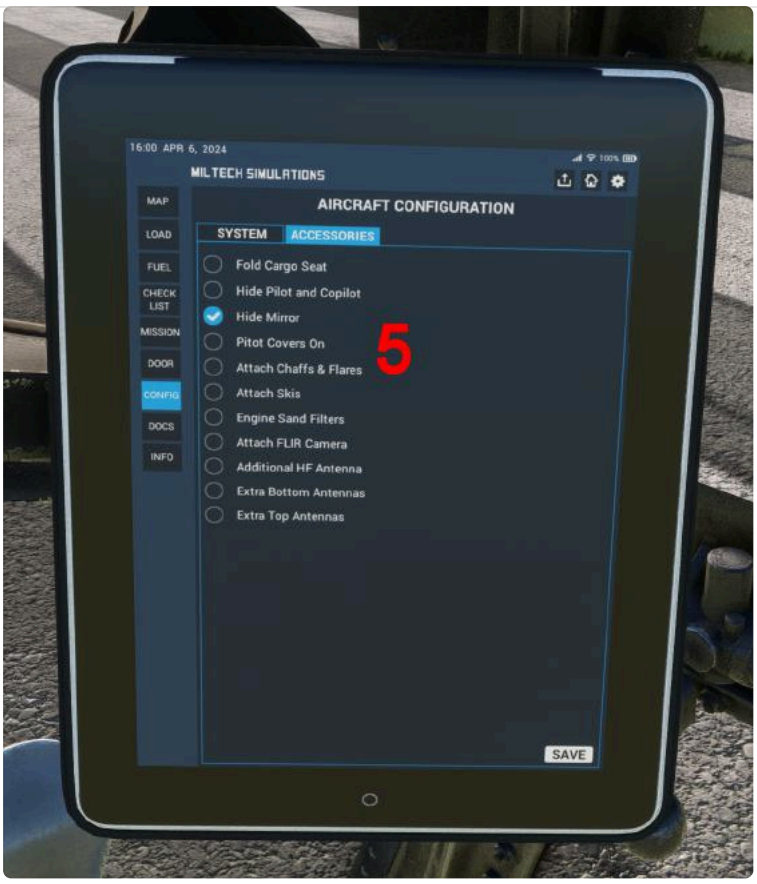
1. **EFB Page Selector**
2. **Mission Type Selector**
3. **Mission List Selector**

CONFIG

Allows configuration of the aircraft:



EFB Config Screen - System



EFB Config Screen - Accessories

1. **EFB Page Selector**
2. **Category Selector:** Select between System Config (GPS, Instrumentation, Effects) and Accessories Config (Seats, Pilot Models, External Antennas and Accessories)
3. **System Configuration Options List**

   FUTURE UPDATE: Support for other GPS: GTN750
4. **Save Button:** Will save all your config options (in both System and Accessories Pages). Saved Options will be automatically loaded the next time you launch the aircraft.
5. **Accessories Configuration Options List**

Cargo Load Capabilities

External Cargo dropping and loading are currently incompatible with our carrier products. We are actively looking for solutions to this issue.

The CH47D is a highly versatile support helicopter, designed to carry heavy cargo loads and transport troops from land and sea into the battlefield. Whether in remote locations, or challenging terrains such as deserts and mountains, the CH47D excels in its role.

Our rendition of the CH47D Features full cargo-loading and carrying capabilities, both in the internal cargo bay, and externally using sling loads.

Internal Cargo Configuration

Internal Cargo Configuration

CLICK HERE FOR HOW TO LOAD INTERNAL CARGO

The spacious cabin can be used for carrying troops, vehicles, supplies, and equipment. This rendition of the CH47D includes:

- **Troops:** Depiction of a generic troop load being transported inside the helicopter.
- **Medvac:** Depiction of a generic Medical Evacuation setup, with two injured patients escorted by a special military medical team.
- **Special Ops Rhib:** Depiction of a Special Ops Rigid-Hull Inflatable Boat that can be deployed to (or rescued from) a combat field directly from the helicopter.
- **Pallets:** Depiction of a generic Pallet Setup for humanitarian aid, supply transport or heavy cargo transport.
- **Humvee:** Depiction of a heavy armored vehicle, transported inside the cargo bay. A total of two humvees can be transported - one inside the helicopter and one externally.

Loading Procedure

The Electronic Flight Bag (EFB) is used to load and unload internal cargo to the aircraft.

1. Turn on the EFB screen by pressing the **HOME** Button
2. Navigate to the **LOAD** page
3. Select "Internal Loads"
4. Load/Unload cargo by pressing on the available options.
    1. A single cargo load type (External or Internal) can be active at any given moment.
    2. Selecting a different load type will unload the active option, and load the selected option.
    3. Loading any external cargo load will automatically unload any internal cargo.

External Cargo Configuration

External Cargo Configuration

> **Beware of sling load limitations** - must fly at maximum 120kts and avoid violent maneuvers when carrying external loads.

CLICK HERE FOR HOW TO LOAD EXTERNAL CARGO

For oversized or heavy cargo that cannot be carried inside the cabin, the CH47D uses an external load configuration. This involves attaching the cargo to the helicopter using a sling. Depicted in brackets is the sling load configuration used in each case. This rendition of the CH47D includes:

-

[TANDEM] UAV Container: Depiction of a generic UAV Container, used to control unmanned aerial vehicles from the battlefield.

- **[MID] Blackhawk Helicopter Fuselage:** Depiction of a Blackhawk Helicopter fuselage for rescue or transport operations.
- **[MID] Cargo Nets:** Large cargo nets for Vertical Replenishment Operations.
- **[TANDEM] Large Rhib:** Depiction of an oversize Rigid-Hull Inflatable Boat for patrol or SEAL operations.
- **[TANDEM] Humvee:** Depiction of a heavy armored vehicle, transported as a sling-loaded cargo.
- **[MID] Water Bucket:** For firefighting operations.

Cargo Hooks

The CH47D features three Cargo Hooks:

- [1] Front Fixed Cargo Hook
- [2] Mid Retractable Cargo Hook
- [3] Aft Fixed Cargo Hook

Hoist Modes

Four configurations can be used for different cargo loads:

- Tandem, in which both the front and aft hooks are used. Eg. UAV Container, Large Rhib, Humvee.
- Mid, in which only the mid hook is used. Eg. Blackhawk, Cargo Nets, Water Bucket.
- Aft, in which only the aft hook is used [NOT DEPICTED ON THIS PRODUCT]
- Front, in which only the front hook is used [NOT DEPICTED ON THIS PRODUCT]

Regardless of the sling configuration, weight is always added directly to the aircraft's center of gravity. This is due to the limitations of dynamic weight loading on MSFS.

Hoist mode must be selected on the overhead panel before picking up external loads. Selection of the Mid Hoist Mode will additionally operate the Hoist Door automatically.

Loading Procedure

The Electronic Flight Bag (EFB) is used to load and unload internal cargo to the aircraft.

1. Turn on the EFB screen by pressing the **HOME** Button
2. Navigate to the **LOAD** page
3. Select "External Loads"
4. Load/Unload cargo by pressing on the available options.
    1. A single cargo load type (External or Internal) can be active at any given moment.
    2. Selecting a different load type will unload the active option, and load the selected option.
5. Select the correct Sling Mode on the overhead panel. Sling mode depends on the type of load (Tandem or Mid). The tablet will display a blinking red error message if the sling mode is not configured correctly.
6. **The selected object will spawn near the aircraft - usually at 9 o'clock.** Takeoff and establish a hover.
7. Use the Tablet Radar to slowly approach the object:
    1. Sustain a controlled hover. Altitude must be **at or slightly above the target altitude as indicated on the tablet.**
    2. Approach the object slowly.
    3. **Object (Red Dot) must be within the area marked by the green circle.** Keep altitude as close to the target as possible.
    4. Sustain hover for a few seconds while the cargo is loaded.
    5. Upon confirmation that cargo has been successfully loaded, apply collective and increase altitude.
8. **Cargo will be automatically dropped upon crossing below 50ft.**
9. **The cargo sling may break in high G/violent maneuvers.**

10. **Dropped cargo can be picked up again. However, you must increase the altitude >100ft before dropped cargo is available for pickup again.**

Missions

Crash detection must be OFF for Missions to load correctly, as Crashes may interfere with our loading scripts.

Miltech Simulations CH47D includes a growing number of missions, as well as custom scenery packs.

Missions are predefined flights, from one location to another, featuring custom sceneries in both the initial and final locations and activities to do along the way. Missions are only accessible through the Electronic Flight Bag (EFB) on free flight.

Missions are designed so the pilot follows a set of Mission Dispatch Instructions but must fully configure, execute, and perform the mission by themselves. This means that the pilot will not be assisted or guided through the mission, but rather must set the flight route as defined on the Dispatch Instructions to reach the final location. This also allows for creativity and free-flying after the mission has been completed.

Missions are not fully compatible with multiplayer. Full multiplayer compatibility is not planned due to MSFS Limitations. All missions and scenarios featured in this product are either loosely based on real events or are entirely fictional. The content has been developed using only publicly available information. We have made every effort to ensure that the product is respectful and does not intend to harm anyone's sensibilities, as well as respect Microsoft's policies. This product is designed for entertainment purposes only.

Accessing Missions

1. Launch a flight with the CH47D at any airport in the world.
2. Turn on the EFB screen by pressing the **HOME** Button
3. Navigate to the **MISSION** page
4. Select any mission from the list.

5. Wait a few minutes for the mission to load completely. The aircraft will be automatically relocated to the start location and all required mission objects will be loaded.

Included Missions

Firefighting Missions

Hoist Missions

Rescue Missions

Military Exercise Missions

Included Sceneries

Included Scenery Packages

Firefighting Missions

- Firefighting Operations are only accessible through Missions.
- **Crash detection must be OFF** for Missions to load correctly, as Crashes may interfere with our loading scripts.
- **Beware of sling load limitations** - must fly at maximum 120kts and avoid violent maneuvers when carrying external loads.

MISSION 1: CANADIAN ROCKIES FIRES

For the past several years, the province of Alberta, Canada, has been affected by an ongoing, record-setting series of wildfires. These ongoing fires have turned large areas of untouched nature into burnt land, posing a significant threat to both natural habitats and human settlements. A CH47D has been dispatched to an uncontrolled wildfire near the town of Banff. The fire is occurring in a hard-to-reach area because of the mountainous landscape.

Distance to Target: 60nm

Expected Duration: 50 minutes

MISSION INSTRUCTIONS

- **LAUNCH MISSION**
- **Load** the Firefighting Bucket to your aircraft on the EFB - Load Tab.
- **Takeoff** from Springbank Airport - Air Tanker Base, heading 267° **towards waypoint SPRAE.** Use the Handheld GPS (EFB Config Tab) to enter the flight plan.
- Upon entering the Canmore Valley, **follow the river** visually towards **Banff Airfield (CYBA)**. Fires will be visible north of the airfield.
- **Assess** the scale and intensity of the fire.
- Proceed to **Lake Minnewanka** (Closest lake to the East of the Fires) to fill the Firefighting Bucket. Aircraft must be <20ft above ground for

at least 3 seconds for the bucket to fill.

- **Fly directly above** the fires to extinguish. Water will be dropped automatically. Approach the fires at low speed.
- **Repeat** until all fires are extinguished.
- **Optional:** Return to Springbank Airport CYBW

MISSION 2: LOS ANGELES REFINERY FIRE

Los Angeles, known for its sprawling cityscape, is now facing a critical emergency. In this hypothetical scenario, a massive fire has erupted at the large refinery located just south of the city. A CH47D has been dispatched from John Wayne Airport to assist in extinguishing the fire.

Distance to Target: 30nm

Expected Duration: 35 minutes

MISSION INSTRUCTIONS

- **LAUNCH MISSION**
- **Load** the Firefighting Bucket to your aircraft on the EFB - Load Tab.
- **Takeoff** from John Wayne Airport, heading 290**° towards waypoint HAWWC.** Use the Handheld GPS (EFB Config Tab) to enter the flight plan.
- **Assess** the scale and intensity of the fire. Find the nearest body of water and fill your tanks. Aircraft must be <20ft above ground for at least 3 seconds for the bucket to fill.
- **Fly directly above** the fires to extinguish them. Water will be dropped automatically. Approach the fires at low speed.
- **Repeat** until all fires are extinguished.
- **Optional: Return to KSLI**

MISSION 3: LONDON FIRES

A massive fire has erupted in the heart of London, in a highly densely populated area. Due to the size of the flames and proximity to high-rise buildings, the city has reached out for help. A CH47D has been dispatched from RAF Odiham to assist and extinguish the fire before buildings are compromised.

Distance to Target: 35nm

Expected Duration: 35 minutes

MISSION INSTRUCTIONS

- **LAUNCH MISSION**
- **Load** the Firefighting Bucket to your aircraft on the EFB - Load Tab.
- **Takeoff** from RAF Odiham, heading **towards London City Airport EGLC.** Use the Handheld GPS (EFB Config Tab) to enter the flight plan.
- **Assess** the scale and intensity of the fire. Find the nearest body of water and fill your tanks. Aircraft must be <20ft above ground for at least 3 seconds for the bucket to fill.
- **Fly directly above** the fires to extinguish them. Water will be dropped automatically. Approach the fires at low speed.
- **Repeat** until all fires are extinguished.
- **Optional: Return to RAF Odiham**

Hoist Missions

- **Crash detection must be OFF** for Missions to load correctly, as Crashes may interfere with our loading scripts.
- **Beware of sling load limitations** - must fly at maximum 120kts and avoid violent maneuvers when carrying external loads.

MISSION 1: OPERATION HORNS CALL [MILTECH SUPERCARRIER PRO REQUIRED]

An Independence-Class ship serving in the Operations Horns Call, an international mission to ensure maritime security and combat piracy, is in need of supplies. A CH47D has been dispatched from nearby Chabelley Airfield in a seaborne resupply mission, carrying everything from food and fuel to medical supplies and spare parts. Your task is to visually locate the ship, land on the deck and safely deliver the cargo. Miltech Supercarrier Pro product is required for this mission.

Distance to Target: 35nm

Expected Duration: 40 minutes

MISSION INSTRUCTIONS

- **LAUNCH MISSION**
- **Load** the Cargo Nets to your aircraft on the EFB - Load Tab.
- **Takeoff** from Chabelley Airfield, heading **towards waypoint KASOL.** Use the Handheld GPS (EFB Config Tab) to enter the flight plan.
- Upon reaching KASOL, visually search the area for the Independence Class ship.
- **Approach** the ship and hover above the deck to release the cargo.
- Return to Chabellay Airfield HDCH. Upon arriving at Chabellay, load the Pallets internal Cargo on the on the EFB - Load Tab.
-

Return to the ship, heading towards waypoint KASOL and visually locating the ship.

- **Land on the deck** and deliver the pallet cargo.

MISSION 2: UAV DELIVERY

A cargo ship carrying sensitive military cargo has arrived at the port of Djibouti. A CH47D has been dispatched to pick up the sensitive cargo containers and deliver them to base as fast as possible.

Distance to Target: 10nm

Expected Duration: 20 minutes

MISSION INSTRUCTIONS

- **LAUNCH MISSION**
- **Takeoff** from Chabelley Airfield, heading **towards Port of Djibouti Helipad DJ01.** Use the Handheld GPS (EFB Config Tab) to enter the flight plan.
- Land on Port of Djibouti Helipad.
- **Load** the UAV Container to your aircraft on the EFB - Load Tab.
- Return to Chabellay Airfield HDCH. Upon arriving at Chabellay, drop off the UAV Container.
- **Optional: Return to the Port and repeat the mission. You can either carry another UAV Container or a Humvee.**

Rescue Missions

Crash detection must be OFF for Missions to load correctly, as Crashes may interfere with our loading scripts.

MISSION 1: ALASKA ROADSIDE RESCUE

An infrastructure expansion project in a remote area of Alaska has resulted in an accident. A large-scale fire engulfed the equipment and vehicles. Fortunately, workers were able to extinguish the fires and suffered only minor injuries. Alaska State Troopers are on site, but the treacherous terrain makes traditional rescue efforts of those injured nearly impossible. A CH47D from Brayant Army Airfield has been dispatched to the scene.

Distance to Target: 75nm

Expected Duration: 75 minutes

MISSION INSTRUCTIONS

- **LAUNCH MISSION**
- **Takeoff** from Brayant Army Airfield, heading **towards waypoint WAPRU.** Use the Handheld GPS (EFB Config Tab) to enter the flight plan.
- Locate the accident zone. Find a good area to land
- **Load** the Injured Patients to your aircraft on the EFB - Load Tab.
- Return to Brayant Army Airfield for patient treatment.

Military Exercise Missions

Crash detection must be OFF for Missions to load correctly, as Crashes may interfere with our loading scripts.

MISSION 1: EMBASSY EVACUATION EXERCISE

A squadron stationed at Camp Resilience Army Base in Jordan is preparing for a military exercise simulating the rescue of trapped personnel from a mock-up embassy at Camp Resilience Training Grounds. The squadron will provide air transport for a Special Ops team from the base to the training grounds.

Distance to Target: 25nm

Expected Duration: 30 minutes

MISSION INSTRUCTIONS

- **LAUNCH MISSION**
- **Load** the Troops to your aircraft on the EFB - Load Tab.
- **Takeoff** from Camp Resilience, heading **towards Training Grounds US03.** Use the Handheld GPS (EFB Config Tab) to enter the flight plan.
- Locate the mockup embassy building. Approach slowly and carefully land in the tight space.
- **Unload** the troops, and takeoff to monitor the surrounding area for potential threats.
- Return to the Training Grounds, and load your troops from the EFB - Load Tab.
- Fly back to Camp Resilience US01.

MISSION 2: KUWAIT TRAINING EXERCISE

A squadron stationed at Al Sahra Army Base in Kuwait is preparing for a military exercise simulating the transport of equipment and troops to the battlefield. The squadron will provide air transport for heavy equipment.

Distance to Target: 70nm

Expected Duration: 50 minutes

MISSION INSTRUCTIONS

- **LAUNCH MISSION**
- **Load** the Humvee from the EFB - Load Tab. You can either load it internally or externally as sling load.
- **Takeoff** from Al Sahra Army Base, heading **towards waypoint TULGO.** Use the Handheld GPS (EFB Config Tab) to enter the flight plan
- Continue flying towards Failaka Island.
- Visually locate the military exercise, where other CH47Ds have been transporting equipment
- Locate the military exercise, where other CH47Ds have been transporting equipment
- **Land** and unload the cargo.
- Optional: return to Al Sahra US02, repeat, and continue transporting equipment.

MISSION 3: QUEEN ELIZABETH TROOP TRANSPORT [MILTECH UK CARRIER STRIKE REQUIRED]

A team of high-rank officers from the Royal Navy have arrived to RAF Odinham to be transported to Queen Elizabeth Carrier, currently anchored just south of Portsmouth. Miltech UK Carrier Strike Product is required for this mission.

Distance to Target: 45nm

Expected Duration: 35 minutes

MISSION INSTRUCTIONS

- **LAUNCH MISSION**
- **Load** the Troops to your aircraft on the EFB - Load Tab.
- **Takeoff** from RAF Odinham, heading **towards** R081 Portsmouth Queen Elizabeth**.** Use the Handheld GPS (EFB Config Tab) to enter the flight plan.
- Locate the carrier, and land on the deck.
- **Unload** the Troops from your aircraft on the EFB - Load Tab.

Included Scenery Packages

The CH47D Includes multiple scenery and scene packages to further enhance the mission system on MSFS.

Included Airport Sceneries

- **RAF Odiham:** (ICAO: EGVO) is a Royal Air Force base located in Hampshire, England. It's a vital hub for the RAF's CH47D helicopter force, providing support for operations worldwide.
- **Bryant Army Heliport:** (ICAO: PAFR) is a United States Army airfield located at Fort Richardson, near Anchorage, Alaska. This heliport serves as a base for various Army aviation units, supporting training maneuvers, logistical operations, and readiness needs within the Alaskan environment. This base is often used by CH47D operated by the Alaska National Guard.
- **Chabelley Airfield:** (ICAO: HDCH) is a military airfield located near Djibouti City, Djibouti. It is a mixed-use facility serving as a base for the Djibouti Air Force, as well as a crucial operational hub for the United States and French militaries in the Horn of Africa. This base sees a very diverse range of operations, from UAV, Large Cargo Transport, and Helicopter ops.

Included Scenes

- **"Camp Resilience" Fictional Military Compound, Jordan (And Nearby Training Facilities)** (ICAO: US01). Camp Resilience is a forward operating base established in the Jordanian desert, strategically positioned near the Iraq/Syria border. The base layout prioritizes functionality, consisting of modular structures and field tents. Camp Resilience serves as a crucible for CH47D operations. Aircrews endure intensive training regimes simulating the rigors of desert warfare, including sling-load operations, tactical insertions, and casualty evacuations under challenging conditions. To prepare crews for complex mission scenarios, the camp boasts specialized training facilities. These include simulated embassy compounds designed for practicing evacuations in confined, potentially hostile urban environments.
-

- **"Al Sahra Base" Fictional Military Compound, Kuwait (And Nearby Training Exercises)** (ICAO US02). Is an improvised military outpost in the Kuwaiti desert near the Iran border. The base is smaller than permanent installations, with basic buildings and landing pads built for fast setup. Hesco barriers and sandbags provide perimeter security. Al Sahra is primarily a CH47D helicopter base. The base's key role is desert training. The surrounding area is used for realistic missions - CH47D practice difficult takeoffs and landings in dust and heat, along with troop landings and extractions in challenging scenarios.

[NOT INCLUDED] Optional Products for Additional Content

- **Supercarrier Pro** (https://miltechsimulations.com/products/supercarrier-pro-for-msfs): Includes multiple aircraft carriers and vessels - such as CVN-78 Ford Class, CVN-69 Nimitz Class and LCS Independence Class ships.
- **UK Carrier Strike Group** (https://miltechsimulations.com/products/uk-carrier-strike-group): Includes UK Aircraft Carriers, such as the Queen Elizabeth and Prince of Wales.