



DCS UH-60L Black Hawk Mod

1.3

Known Issues & Limitations

This is not a feature complete release. Further updates with features and bug-fixes will be released in future. Please report any issues on our Discord (<https://discord.gg/cZWHMaFQdH>).

1. Rearming/Refueling can only be done with engines off (Ng at 0) and door open
2. Refueling probe does not have a dedicated panel yet - is currently extended using 'Fuel Boost Pump Right' switch. A panel will be added later. The probe is considered a 'fun' feature. It must be enabled in the mission editor options for the aircraft.
3. No player controlled or AI gunners are currently available. If they become possible to implement then they will be added.
4. Aircraft sinks a little into the deck of objects. Suspension code is a PITA; we're working on it.
5. Fuel bags don't always show for other players on spawn - rearming fixes this. Possible DCS issue syncing the initial state of aircraft?
6. Damage model is simple - more complexity will be added later.

Please understand that I have spent a **lot of time trying to solve these issues already. I will continue trying to fix them for future updates.**

-Kinkkujuustovoileipa

Installation

- Download the latest release from: <https://github.com/Kinkkujuustovoileipa/uh-60l/releases>
- STEAM/NON-OPEN BETA: Extract the 'Mods' folder into C:\Users\###\Saved Games\DCS\ folder
- STANDALONE OPEN BETA: Extract the 'Mods' folder into C:\Users\###\Saved Games\DCS.openbeta\ folder
- You may require the [latest C++ redistributables for this mod to work properly](#)

Important Gameplay Changes

1.2

- Selecting an Air Source is required for engine start (APU or running engine)
- Pylon positions and loadouts have changed - there may be broken behaviour on missions or servers running earlier builds
- Flare countermeasures added

1.1

- You **MUST** bind the 'PTT - Push To Talk (Game Comms)' key to use radios (except SRS)
- You **MUST** select the correct radio to transmit on using the Intercom Panel
- Stabilator Auto engages automatically on receiving AC power
- Tail Wheel Lock engages automatically on receiving AC power

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The Devs Would Like To Thank:

Our Testers

Eagle Dynamics

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The “DCS Modding Hub” Discord users

Hanna & Charlie, for their love and understanding

Alvaro & Elizabeth, for their unending support

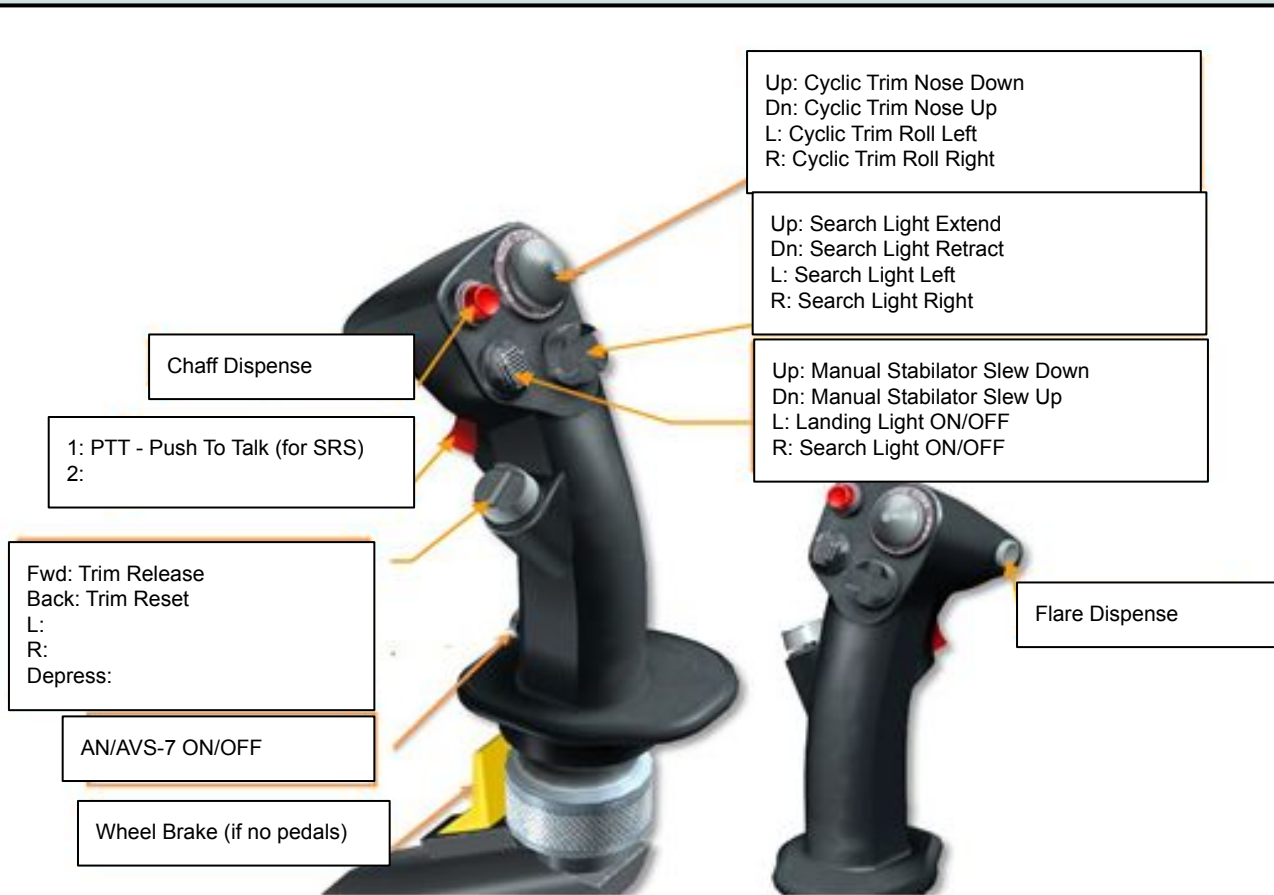
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Controls

Suggested Joystick Inputs



Suggested Throttle Inputs

Left Throttle Axis: Engine 1 + 2 Power Control Levers

Up: PTT - Push To Talk (Game Comms)
Dn: PTT - Push To Talk (SRS)
Fwd:
Aft:

Fwd:
Aft:

Fwd:
Aft:

Fwd: AN/AVS-7 Brighten
Aft: AN/AVS-7 Dim



Fwd:
Aft:

X:
Y:
Depress:

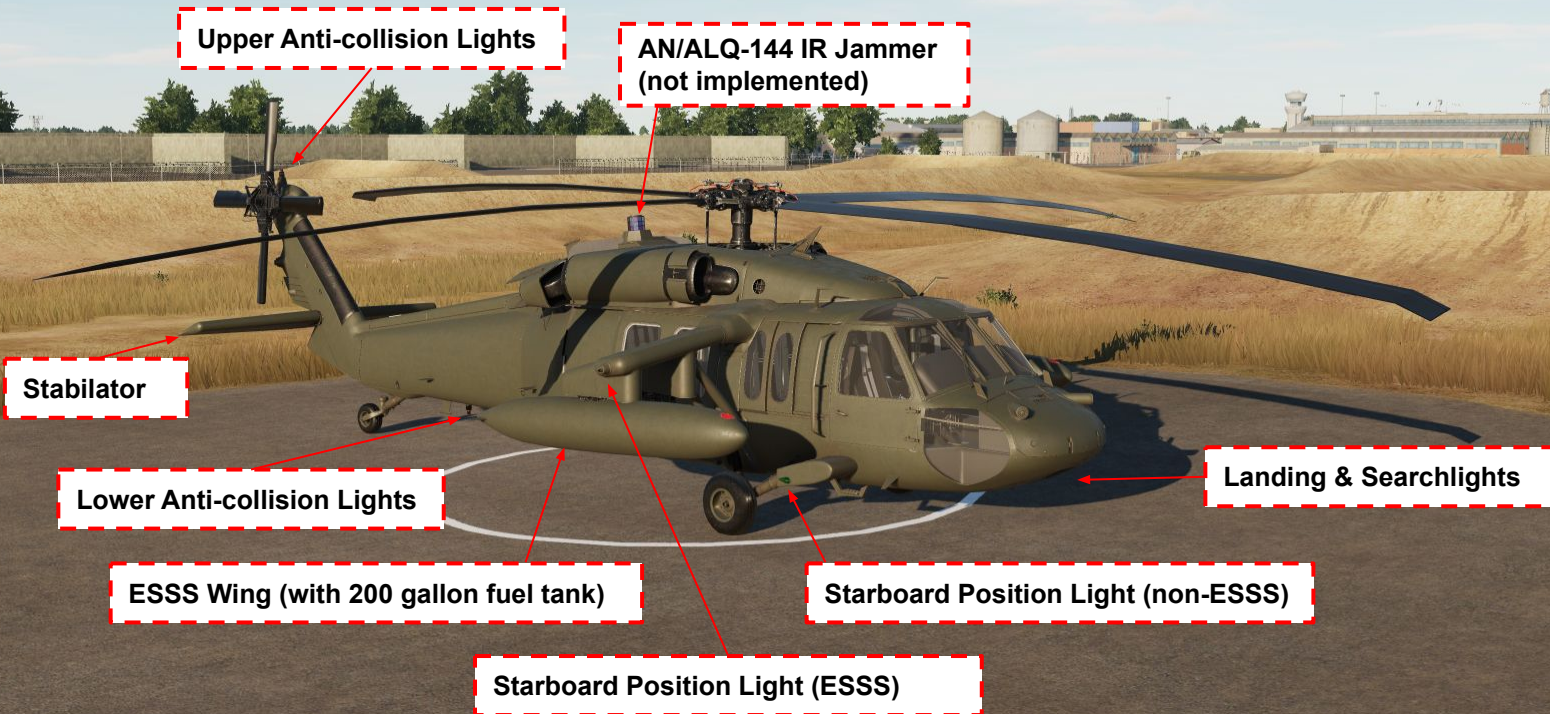
Up: Landing Light Extend
Dn: Landing Light Retract
L: ICS XMIT Select Previous Radio
R: ICS XMIT Select Next Radio

Right Throttle Axis: Collective



External Layout

External Systems



External Systems - Stores

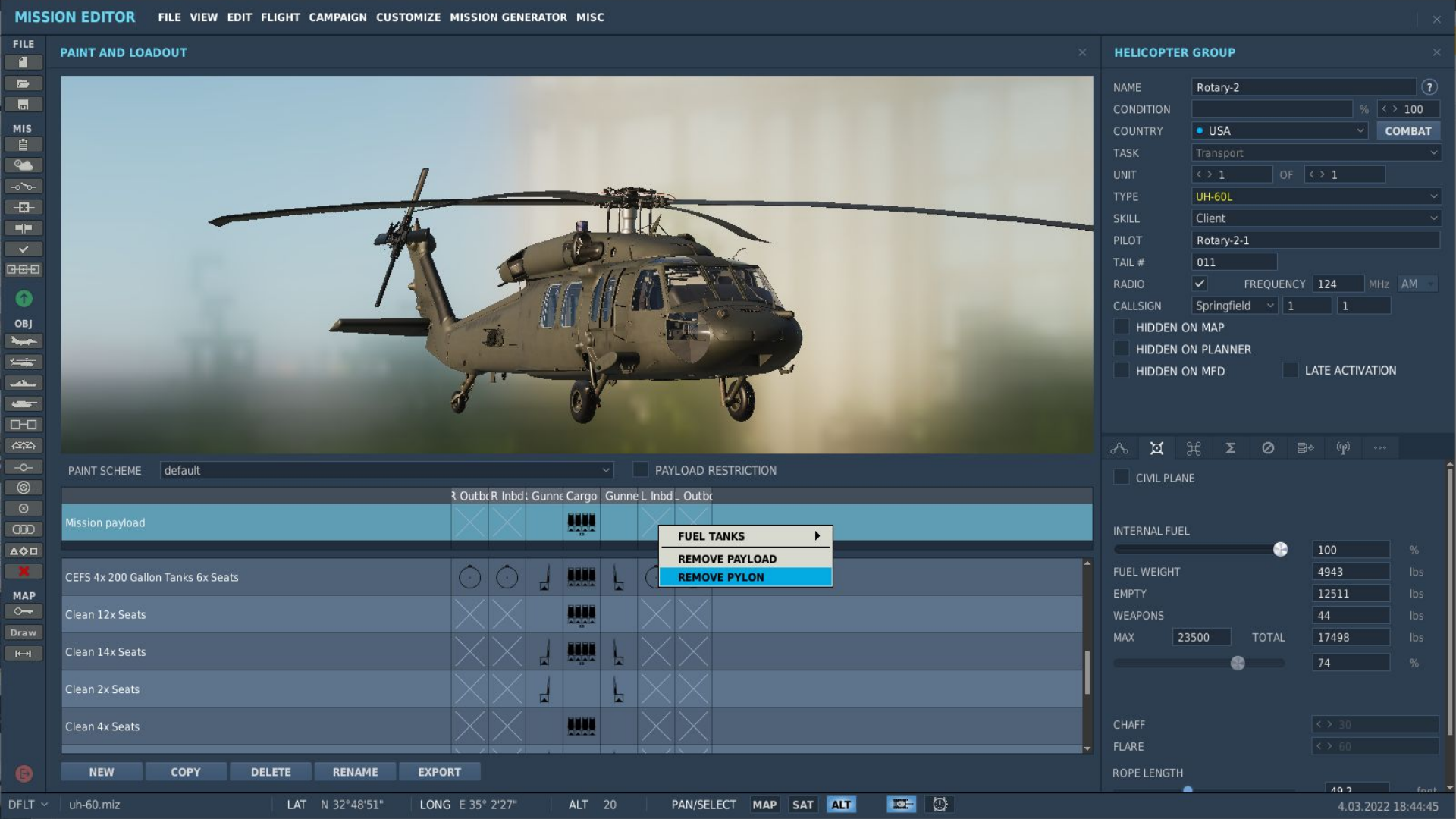
The UH-60L can be equipped with the External Stores Support System (ESSS) with the Crashworthy External Fuel System (CEFS).

This allows for up to 4x 200 gallon auxiliary fuel tanks for long range flights.

The loadouts can be configured using the **Rearm and Refuel menu**. In order to Refuel and Rearm, the aircraft must have its engines off and the pilot's door opened.

Because we wanted to allow for the aircraft to be flown with and without the ESSS wings, the options 'Remove Payload' and 'Remove Pylon' are also available. In order to remove the wings, you must select 'Remove Pylon' on any of the pylon entries. To clear a 'NO PYLON' and allow fuel tanks to be attached, you **must** select 'Remove Payload' first.

We suggest using the preset loadout options to quickly switch between these modes. Always use 'Clean' if you want to remove the ESSS wings - depending on the last selected loadout, the wings may remain on mission start. Likewise, always select fuel tanks, then 'EMPTY' if you want the wings present but with no tanks attached.



External Systems - CEFS

The CEFS is a work in progress feature.

The CEFS allows up to 800 gallons of auxiliary fuel in order to extend range. The supply of fuel is controlled by the Auxiliary Fuel Management System, which can be found on the main dashboard.

Currently only automatic fuel transfer is implemented. In order to enable automatic fuel transfer, set the 'XFER MODE' switch to AUTO. When the amount of fuel in any internal tank (left or right) falls below 1000 lbs, fuel will automatically transfer from the selected pair of tanks. The source tanks can be selected using the 'XFER FROM' switch. Fuel transfer will continue until the total internal fuel measures 2000 lbs.

Stations with no tanks will display 'cccc'.
Currently, warnings for empty tanks are not implemented.

Jettisoning tanks is not yet implemented.





Cockpit Layout

Pilot's Instruments

Master Caution Panel

Airspeed Indicator

Vertical Situation Indicator (VSI)

Stabilator Indicator

Radar Altimeter

Pilot's Display Unit

Barometric Altimeter

Pilot's Chronometer

Command Instrument System Panel (CISP)

Horizontal Situation Indicator (HSI)

Vertical Speed Indicator



Non Flight Instruments

Magnetic Compass

Centre Display Unit

Blade De-Icing System
(not implemented)

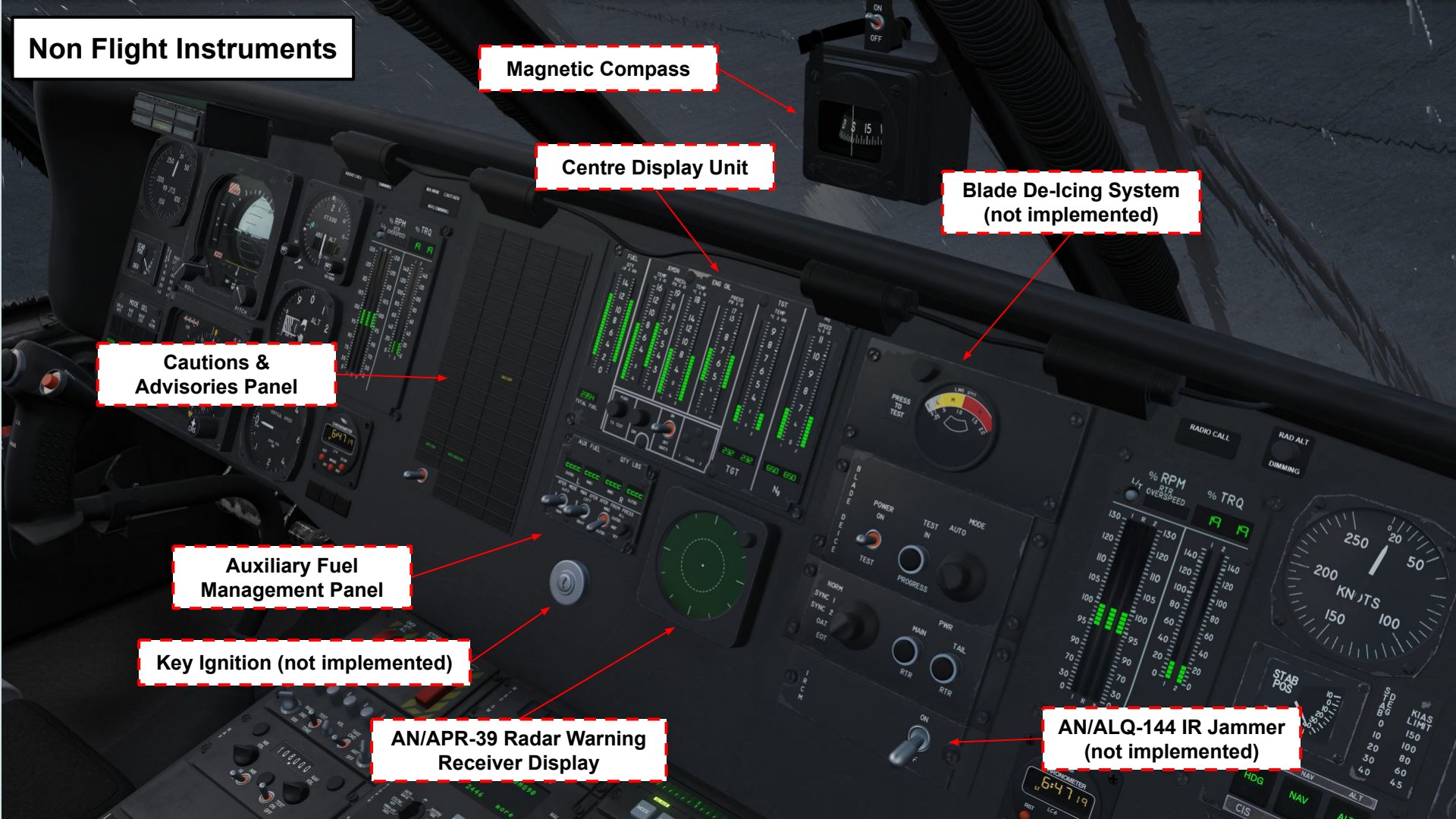
Cautions &
Advisories Panel

Auxiliary Fuel
Management Panel

Key Ignition (not implemented)

AN/APR-39 Radar Warning
Receiver Display

AN/ALQ-144 IR Jammer
(not implemented)



Copilot's Instruments

Master Caution Panel

Airspeed Indicator

Stabilator Indicator

Vertical Situation Indicator (VSI)

Radar Altimeter

Pilot's Display Unit

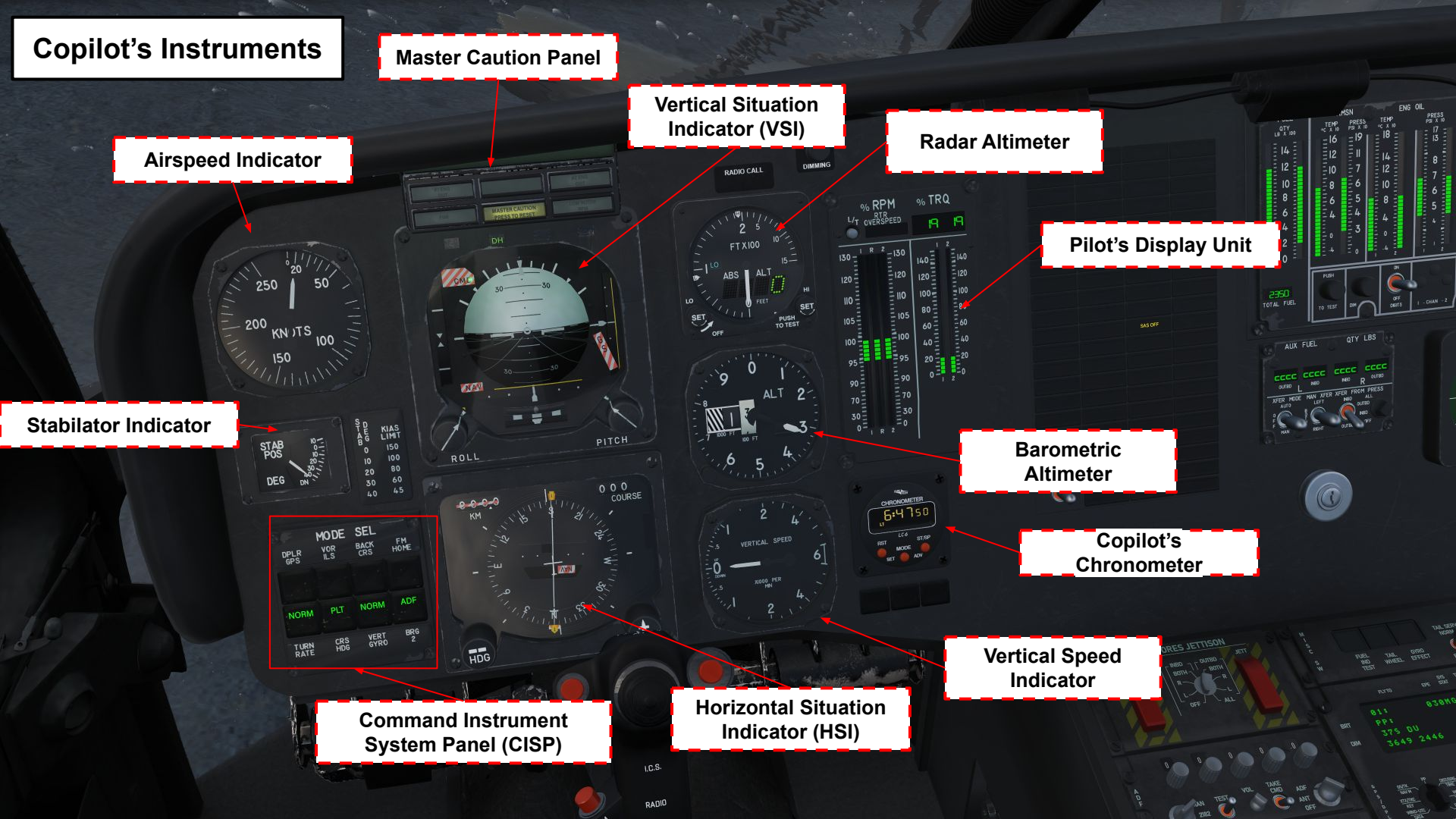
Barometric Altimeter

Copilot's Chronometer

Command Instrument System Panel (CISP)

Horizontal Situation Indicator (HSI)

Vertical Speed Indicator



Lower Console

Stores Jettison (not implemented)

AN/ARN-149 ADF Control Panel

AN/ARN-147 VOR/ILS Control Panel

Copilot Intercom Panel (not functional)

AN/ARC-201 FM Radio

AN/APX-100 Transponder Panel (not implemented)

Countermeasures Panel (not implemented)

Fuel Boost & (temp) Refuel Probe Panel

AN/APR-39 RWR Control Panel

Misc Panel (incl. Tail Wheel Lock)

Automatic Heading Reference System

AN/ASN-128 DGNS (Doppler GPS Navigation System)

AN/ARC-164 UHF Radio

Pilot Intercom Panel

Stabilator Control & AFCS

AN/ARC-201 FM Radio

AN/ARC-186 VHF Radio

AN/ARC-220 HF Radio (not implemented)

Parking Brake

AN/AVS-7 Heads Up Display Control Panel

Upper Console

Cockpit Dome Lighting

APU Control Panel

Electrical Systems

Fuel/Air/Misc

Formation
Lights/Interior Lighting

Exterior Lighting

Hydraulics (not
implemented)

Free Air Temperature
Gauge

Cargo Hook Panel (not implemented)

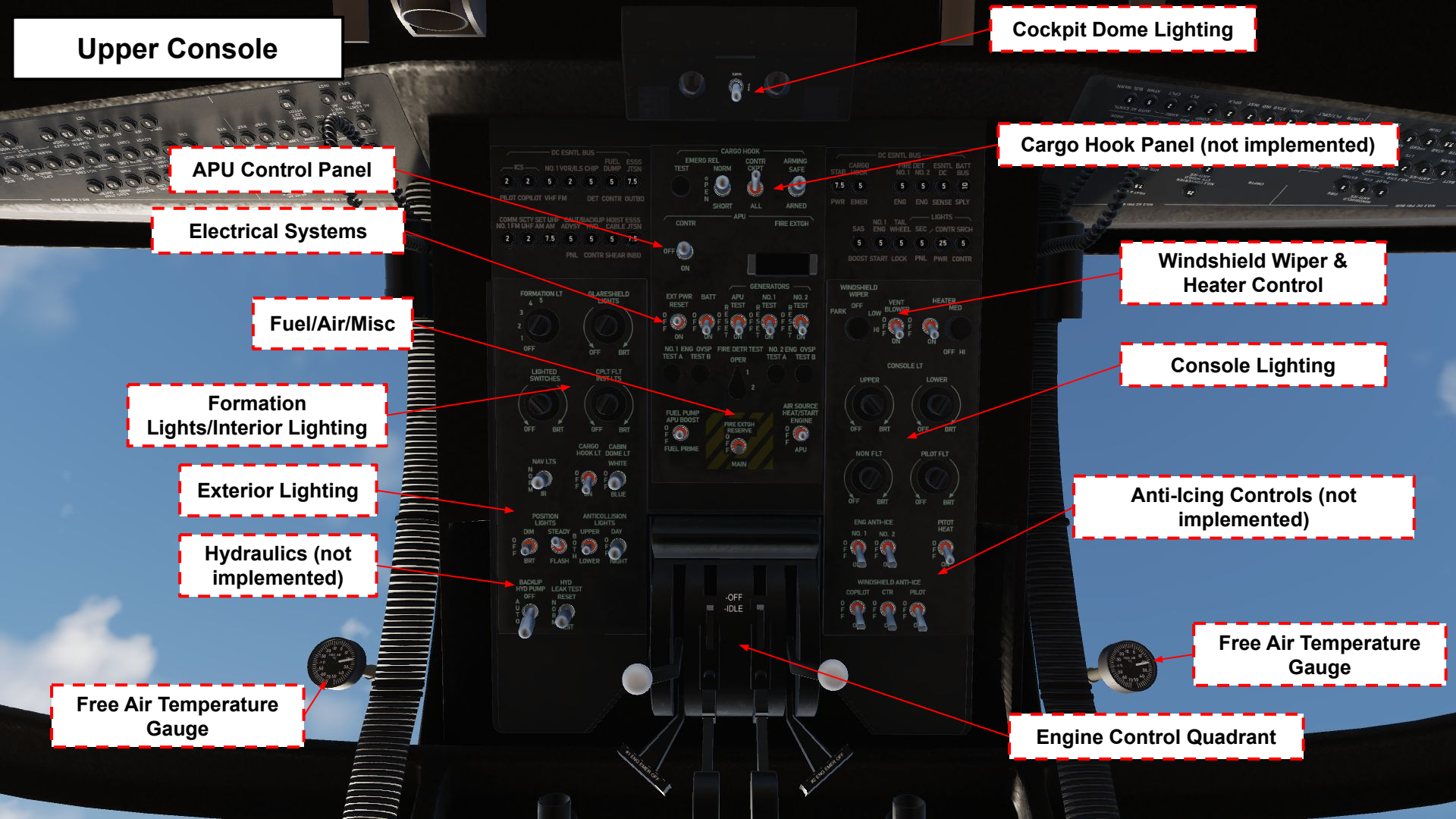
Windshield Wiper &
Heater Control

Console Lighting

Anti-Icing Controls (not
implemented)

Free Air Temperature
Gauge

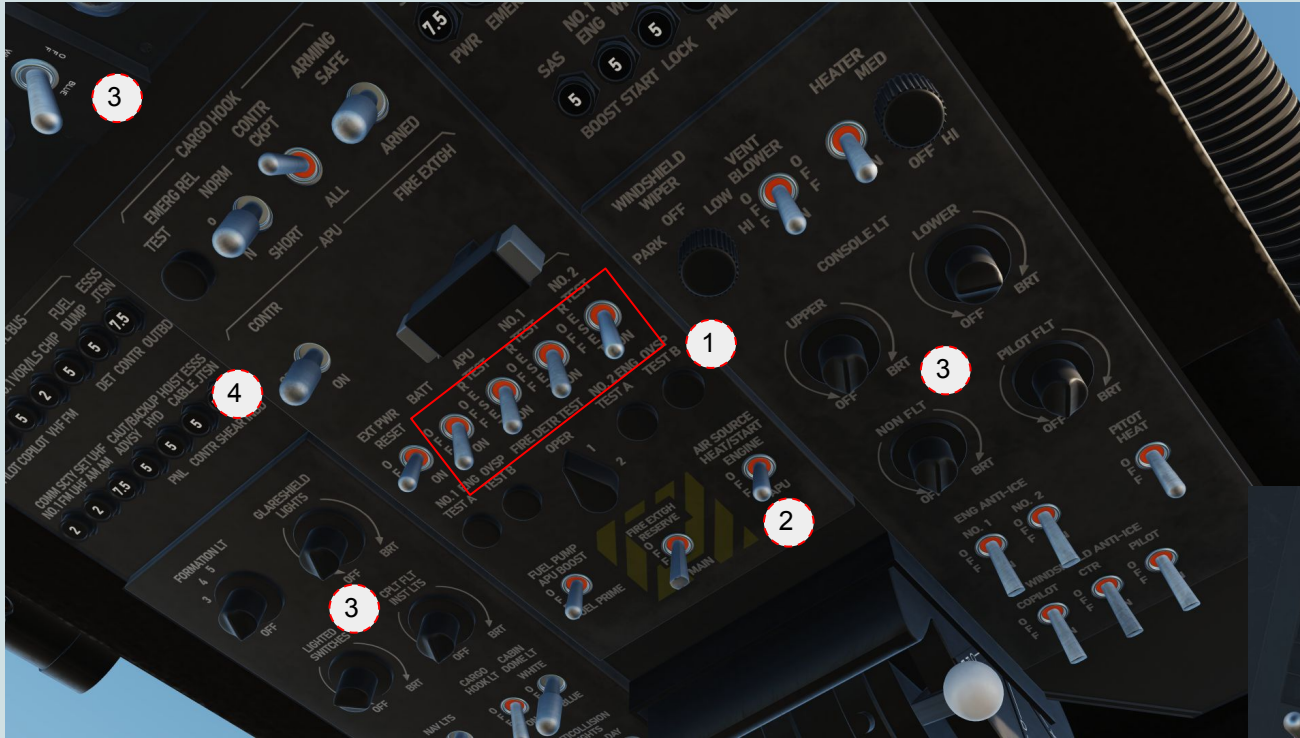
Engine Control Quadrant



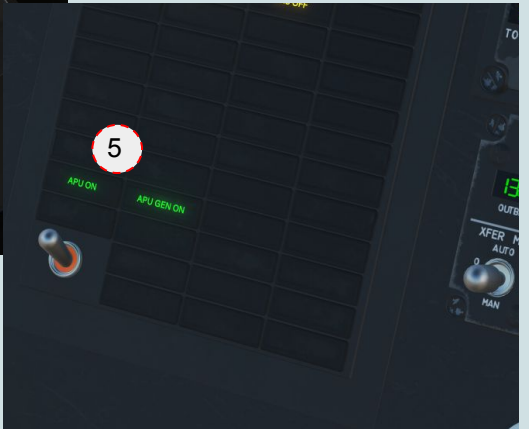


Start-up Procedure

Start Up Procedure (Simplified)



1. Battery & Gens - ON
2. Air Source Switch - APU
3. Lower Console lighting - ON
4. Cockpit Lighting - As Required
5. APU - ON
6. APU & APU GEN Advisories - CHECK



Start Up Procedure (Simplified)

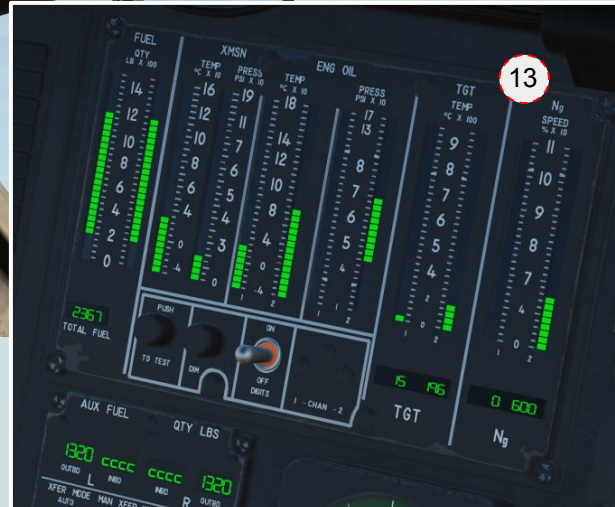
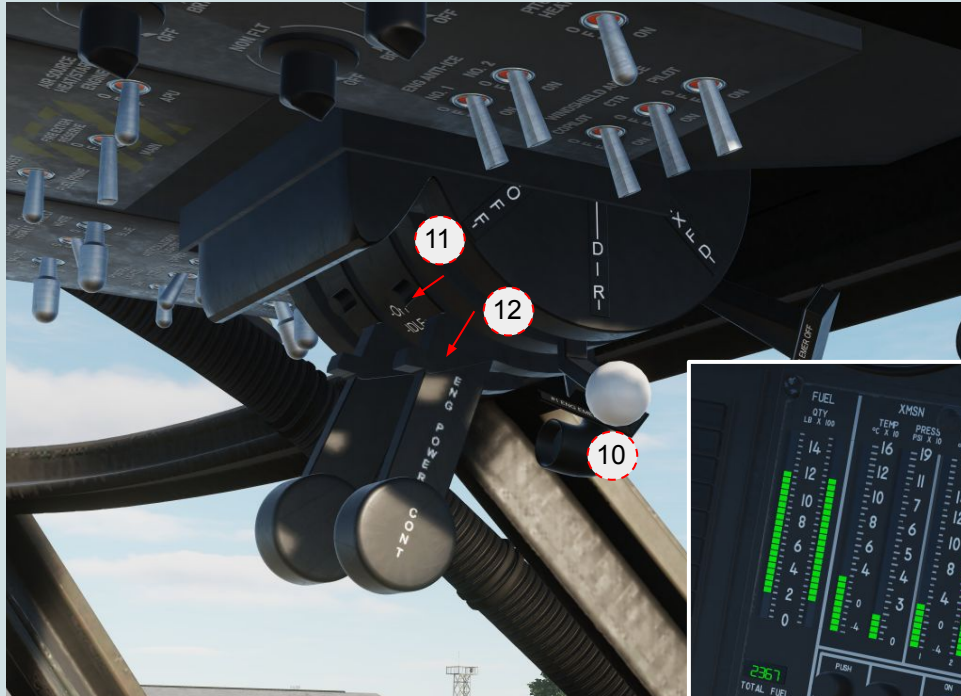


7



- 6. AHRS Aligning - CHECK
- 7. Tail Wheel Lock - AS NEEDED
- 8. Stabilator AUTO CONTROL - ON
- 8. SAS 1 - ON
- 8. SAS 2 - ON
- 8. BOOST - ON
- 8. TRIM - ON
- 8. FPS - AS NEEDED
- 9. Stabilator Down Position - CHECK

Start Up Procedure (Simplified)



10. Fuel Selectors - DIR & Air Source - APU

11. Engine 2 Starter - PRESS

12. Engine 2 Power Control Lever - IDLE (click base)

13. Engine Temp & Ng Speeds - MONITOR

14. Repeat for Engine 1

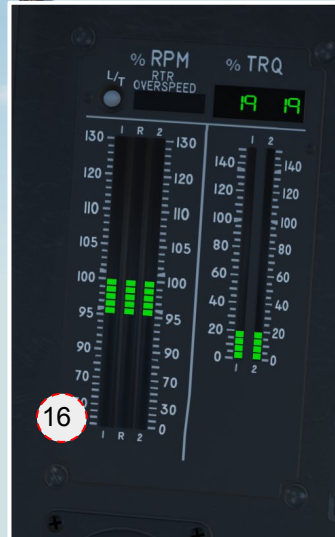
Start Up Procedure (Simplified)



15. When engine speeds stabilised, Power Control Levers to FLY (forward)

16. RPMs 100% & TRQ stable - CHECK

17. MCP and Cautions - CHECK NONE VISIBLE



Start Up Procedure (Simplified)



- 18. Set GPS NAV MODE to MGRS or LAT/LONG
- 19. Press ENT (PAGE) twice to confirm start-up
- 20. ADF Control - ANT or ADF
- 21. VOR/ILS Control - ON
- 22. AHRS - SLAVE and alignment complete (reference HSI with magnetic compass)
- 23. Radios - AS NEEDED
- 24. RWR - AS NEEDED
- 25. Helmet Mounted Sight - AS NEEDED
- 26. APU & APU GEN - OFF
- 27. Tail Wheel Lock - AS REQUIRED



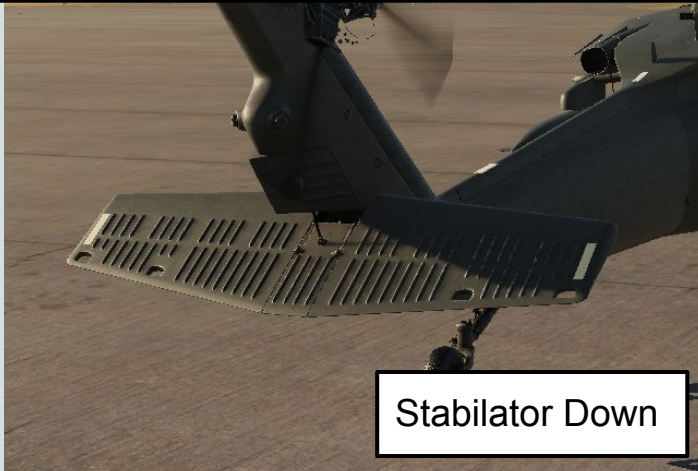
Flight Systems

AFCS - Stabilator

The UH-60 features a variable incidence stabilator that improves stability and control response. The stabilator changes angle to prevent downwash (at hover/low forward speed) and airflow (at higher forward speeds) from causing unwanted pitch excursions.

The stabilator should always be used in AUTO mode where it will automatically transition as indicated as airspeed increases or decreases. However it can also be manually controlled when the AUTO mode is disabled or from the cyclic slew switch (the latter is meant for emergency use to aid recovery).

WARNING: Incorrect setting/use of the stabilator WILL affect flight and cause dangerous or deadly nose up/nose down attitudes.



AFCS - SAS, BOOST & TRIM

The Automatic Flight Control System is comprised of four main subsystems - the stabilator, SAS, trim and FPS systems.

- The Stability Augmentation System (SAS) provides improved stability and damping in all axes.
- The Boost system provides electromechanical assistance to the pilot inputs.
- The Trim & FPS system provides control positioning and basic attitude hold functions.

To put it simply:

- Turning on BOOST will improve the response of the controls.
- Turning on SAS1 and SAS2 will improve the general handling of the helicopter
- Turning on TRIM will allow use of both the trim hold and trim adjust systems
- Turning on FPS engages attitude hold functions (see FPS section for more info)

HAVING THESE SYSTEMS ON IS IN YOUR BEST INTEREST!

SAS CONTROL PANEL



AFCS - FPS

The Flight Path Stabilization is an attitude hold system that will be recognisable to those who fly the Ka-50.

When engaged, the FPS has two modes dependent on the UH-60's airspeed.

Below 60 knots

- Provides pitch, bank and heading hold functionality

Above 60 knots

- Provides airspeed hold (not yet implemented) and coordinated turn functionality

The **TRIM RELEASE** button is your main interaction with this system. Pressing and holding this button will disable the system, allowing 'hands-on' flying. Releasing the button will engage the FPS system and it will attempt to hold the aircraft at the attitude at which the button was released.

When above 60 knots IAS, the aircraft will attempt to hold pitch and bank angle. If your bank angle is over 3 degrees left or right, it will also attempt to yaw the aircraft to maintain a coordinated turn.

AFCS - FPS

The FPS system **WILL FIGHT YOU** unless you use it properly.

There are three methods by which you can manoeuvre the aircraft when using FPS.

1. Press and hold the **TRIM RELEASE** button. Fly the aircraft to your desired attitude, then release the button.
2. Use the **TRIM HAT SWITCH** to adjust pitch and bank angles
3. Override the FPS forces using the cyclic and pedals to fly the aircraft into a new attitude, then press and release the **TRIM RELEASE** button to hold the aircraft at the new attitude.

My personal advice is to use method 1 whenever maneuvering, such as during take-off, landing or hover adjustments.

Method 2 can be useful for making fine adjustments to pitch to control airspeed.

Method 3 can feel clunky and takes getting used to as you will feel the FPS fighting against you.

CONTROL OPTIONS							
UH-60L		Cyclic		☐ Foldable view	Reset category to default	Clear category	Clear all
					Load profile	Save profile as	
Action	Category	Keyboard	TWCS Throttle { ...	T.16000M {73EE...	TrackIR	Mo	
Cyclic Trim Nose Down	Cyclic	RCtrl + .		JOY_BTN_POV1_U			
Cyclic Trim Nose Up	Cyclic	RCtrl + ;		JOY_BTN_POV1_D			
Cyclic Trim Roll Left	Cyclic	RCtrl + ,		JOY_BTN_POV1_L			
Cyclic Trim Roll Right	Cyclic	RCtrl + /		JOY_BTN_POV1_R			
Trim Release	Cyclic			JOY_BTN3			
Trim Reset	Cyclic						

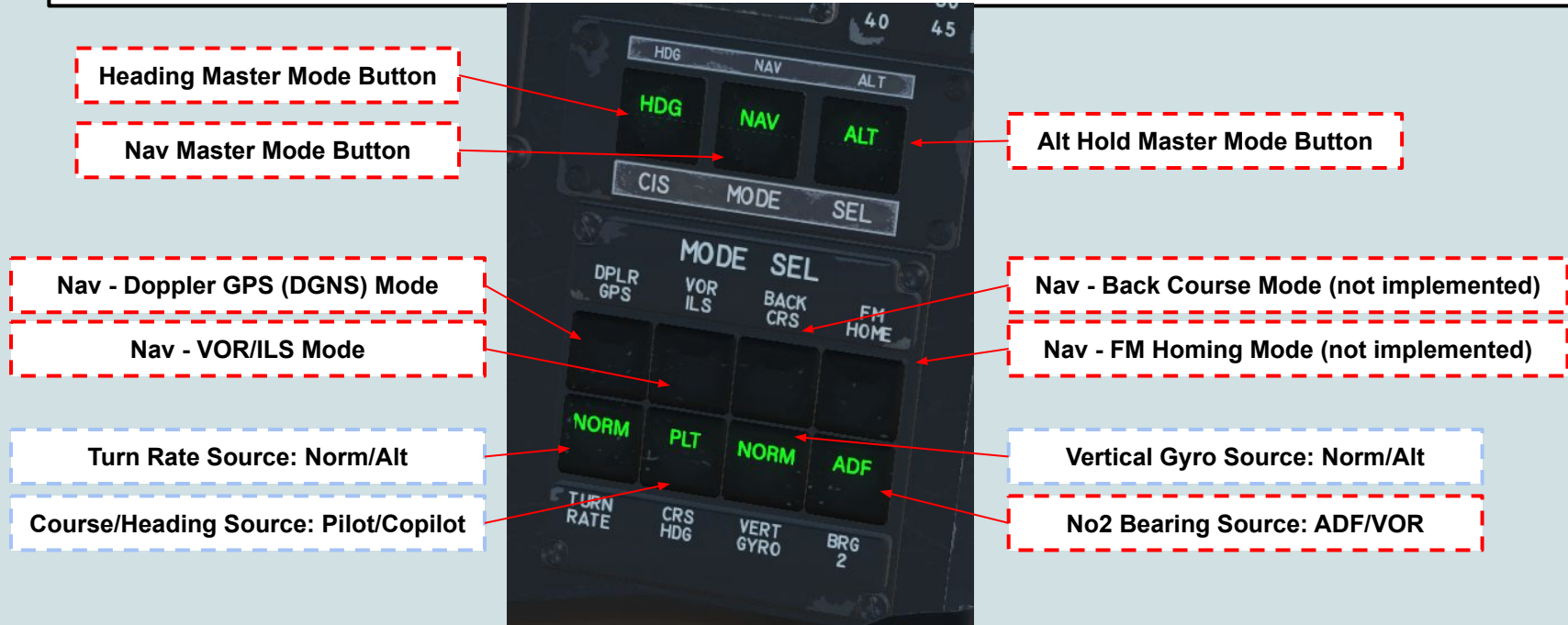


Navigation

CISP Overview - Panel

The Command Instrument System Panel governs the navigation modes available in the UH-60. It sources information from various systems and sensors, and based on the modes selected will display navigation commands to the pilot via the HSI and VSI.

The CIS is a complex system and so I will use my own terminology to try and explain it here. You can also find a good reference to the system here: <https://slideplayer.com/slide/4279759/>



CISP Overview - HSI & VSI

Roll Command Bar

Collective Command Bar

Pitch Command Bar

Inclinometer & Turn Rate Indicator

Distance to Waypoint (DGNS only)

No.1 Pointer (DGNS)

VOR TO/FROM Arrow

Heading Bug

Course Needle

Decision Height Alert

Glide Slope Indicator

Glide Slope Flag

Course Deviation Pointer

Course Bearing

Course Deviation Bar

No.2 Pointer (ADF/VOR)



CISP Overview - VSI Commands

IMPORTANT! The pitch, roll and collective command bars respond instantly and when following their commands you should attempt to centre the bar. Do not try to intercept the command bars - instead fly the aircraft to keep them centered at all times.

The **ROLL COMMAND BAR** is a **ROLL COMMAND BAR**, not a target heading indicator. It is commanding you to bank left or right relative to the aircraft's current bank angle. It is **NOT** telling you to change heading. Keeping the bar centered will put the aircraft into the correct bank angle to achieve a turn onto the desired heading or radial. It will also move to indicate you should roll to level out the aircraft once on the desired heading or radial.

CISP Navigation - Heading Mode



1. Set Heading Bug to desired heading
2. Switch on Heading Master Mode
3. Follow the Roll Command Bar directions

CISP Navigation - Altitude Hold Mode



1. Press Altitude Hold button - aircraft must be travelling at less than ± 200 fpm
2. Follow the direction of the Collective Command Bar

Collective Command Bar shows relative position of the collective compared to where it should be for level flight. You should try to keep the bar centered between the white arrows - if the bar is high, lower the collective. If the bar is low, raise the collective.

CISP Navigation - ADF Navigation



1. Enter ADF frequency into the AN/ARN-149 ADF Control Panel
2. Set BRG2 mode to ADF
3. No.2 Pointer on HSI will move to bearing of the ADF beacon



ADF navigation provides no commands to the pilot. You can simultaneously make use of other navigation modes such as Heading Mode to navigate to the beacon.

CISP Navigation - VOR Navigation



1. Enter VOR frequency into the AN/ARN-147 VOR/ILS Control Panel
2. Set BRG 2 mode to VOR to see direct bearing to VOR beacon on HSI
3. Set Course Pointer to desired radial
4. Set Heading Bug to desired intercept heading
5. Press VOR ILS Mode button - VOR will light up if frequency is valid



CISP Navigation - VOR Navigation



6. Engage NAV Master Mode button
7. If aircraft is ± 10 degrees out of the radial, Heading submode will be automatically engaged
8. Follow the Roll Command Bar onto the set intercept heading
9. Once within ± 10 degrees of the radial, the heading submode will disengage and the Roll Command Bar will direct you to a 45 degree intercept



CISP Navigation - VOR Navigation



10. Follow the 45 degree intercept course as directed by the Roll Command Bar
11. When near the radial, the Roll Command Bar will direct the pilot to turn onto the radial and follow the desired course



CISP Navigation - ILS Navigation



1. Enter the ILS frequency into the AN/ARN-147 VOR/ILS Control panel
2. Set desired intercept heading using the Heading Bug
3. Set Course Pointer to the runway heading
4. Engage ILS mode by pressing the VOR/ILS button on the CISP - the button will read ILS if a valid frequency is selected



CISP Navigation - ILS Navigation

5. Set Radar Altimeter LOW ALTITUDE to desired Decision Height (e.g. 200 feet)
6. Set Nav Master Mode to ON
7. If outside +/- 2.5 degrees of the ILS radial, the Heading Submode will engage and direct the pilot to follow the input intercept heading
8. The Altitude Hold will engage and direct the pilot to hold the altitude at which the ILS mode was turned on
9. The Pitch Command Bar will direct the pilot to maintain the airspeed at which the ILS mode was turned on
10. When within +/- 2.5 degrees of the ILS radial, the Roll Command Bar will direct the pilot onto a 45 degree intercept course



CISP Navigation - ILS Navigation

11. When the aircraft is near the ILS radial, the Roll Command Bar will direct the pilot onto the radial
12. When the glide slope localiser is detected, the Glide Slope Flag on the VSI will disappear the ALT HOLD light will turn off automatically, and the Glide Slope Indicator will begin moving to indicate the relative vertical angle between the aircraft and glideslope.
13. The Collective Command Bar will direct the pilot to adjust the collective to follow the glide slope.



CISP Navigation - ILS Navigation

14. The Command Bars will direct the pilot to descend following the glide slope until the Decision Height is reached, at which point the pilot will be directed to level off. Manual navigation must be resumed at this point to continue approach and landing

Note: The Decision Height is decided by whichever radar altimeter (pilot or copilot) has the higher 'Low Altitude' setting

WARNING: The ILS navigation will direct the pilot to the **beacon**, not the **runway**. The beacon is usually placed beside the runway.



For information on using the AN/ASN-128 DGNS please refer to that section of the guide.

1. Select desired waypoint on the AN/ASN-128 DGNS
2. Enable Doppler GPS Nav mode by pressing the Doppler GPS button on the CISP
3. Enable Nav Master Mode
4. Verify that No.1 Pointer on the HSI has moved to the direct bearing to the waypoint
5. The Distance To Waypoint Flag has disappeared and the display is showing the direct distance to the selected waypoint
6. If using the AN/AVS-7 Heads Up Display then the bearing and distance to the waypoint should be visible - bearing is marked by a chevron on the compass ribbon.
7. To achieve a more accurate picture, set the Course Pointer to the same direction as the No.1 Pointer
8. The Roll Command Bar will direct the pilot onto the waypoint course (if course from previous waypoint exists) or direct to waypoint (if no previous waypoint/DIRECT TO mode). Roll Command Bar follows same logic as for VOR mode
9. Waypoint incrementing must be done manually using the INC/DEC buttons on the DGNS

04:LLHA 030MG90
FLIGHT PLAN L:01
030 km 325°
00h 16.1min more

108.000

225000

Doppler-GPS Navigation System

Doppler-GPS Navigation System

The DGNS is work-in-progress and further functionality will be added to it in future updates.

The AN/ASN-128 Doppler-GPS Navigation System allows for creation, editing and navigation of waypoints (and in later updates flight plans). It can provide information on the present location of the aircraft and the environment around it, and is integrated into the Command Instrument System (CIS) to allow navigation using the pilot and copilot instrumentation.

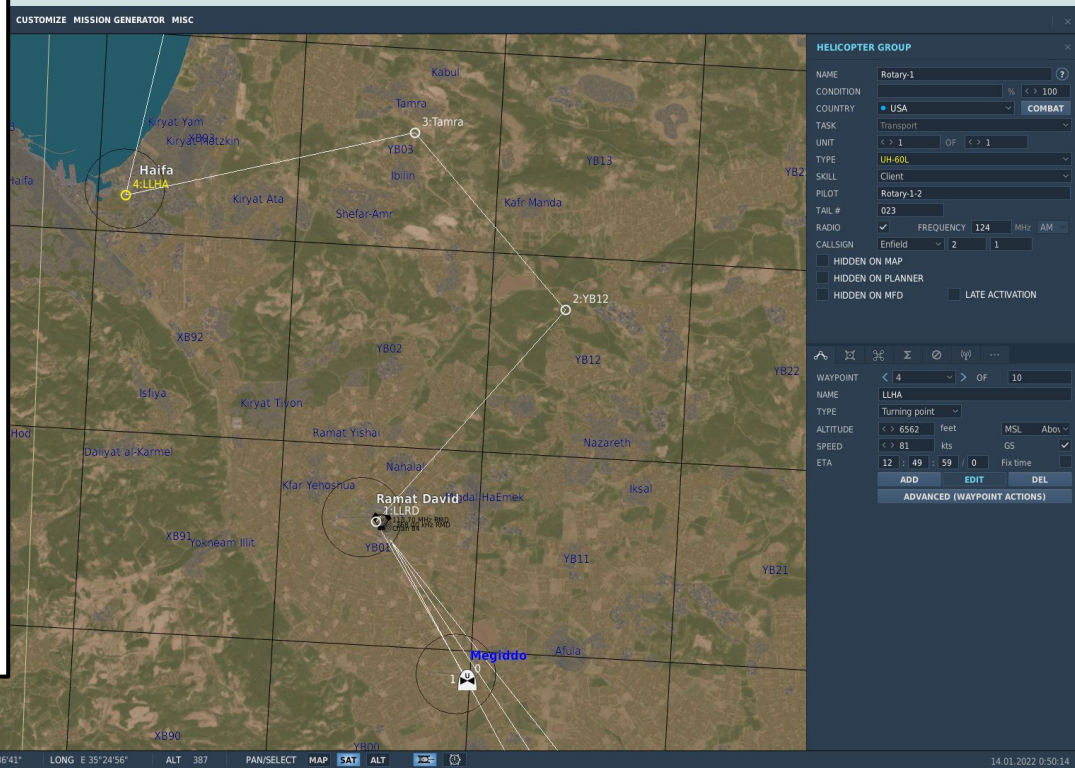
The DGNS in DCS is also integrated with the mission editor, and will automatically detect mission waypoints and add them to the default flight plan on mission start.

Doppler-GPS Navigation System

In this example mission, I've placed a single player UH-60 and some waypoints. I've also named the waypoints as these names will make it easier to refer to remember them in the DGNS.

Any unnamed waypoints will be entered with a default name following the format `MIZ##` e.g. `MIZ 01`, `MIZ 02` etc.

Since the DGNS works interchangeably with both Latitude and Longitude (in format LL-MM.MM) and Military Grid Reference System (MGRS), it's worth remembering that you can change the coordinates system in the mission editor and F-10 map (default: Alt-Y)



Doppler-GPS Navigation System

If starting from cold and dark, you can turn on the DGNS by switching the MODE selector to either MGRS or LAT/LONG.

Press the ENT (PAGE) key to accept the start-up data, press it a second time to accept the DAFIF STATUS. You should now be on the WIND-UTC DATA display page.



Doppler-GPS Navigation System - WIND-UTC DATA

At the top of the WIND-UTC DATA display page you will see the generic top bar that is repeated on most pages in the DGNS. This shows the current waypoint number and name, as well as GPS system information (not simulated).

Below you will see the wind speed and direction.

In MGRS mode speed/distance/altitude measurements will always be presented in kilometers per hour/kilometers/meters.

In LAT/LONG mode units will be presented in knots/nautical miles/feet.

Both modes are identical apart from the unit system used and can be used interchangeably.



Doppler-GPS Navigation System - WIND-UTC DATA

On the bottom left of the page you will see 'more'. This indicates that there are further pages available in this display mode. To cycle through these pages, press the ENT (PAGE) key. In most cases, the last page is marked with 'end' to indicate that you will return to the first page on pressing ENT (PAGE).

The second page of the WIND-UTC DATA display shows the current time and date.

The last page of the WIND-UTC DATA display shows a menu for accessing other systems. With the exception of 'NETWORKING' these systems are not implemented.

The 'NETWORKING' entry provides access to the multicrew feature of this mod and is covered separately.



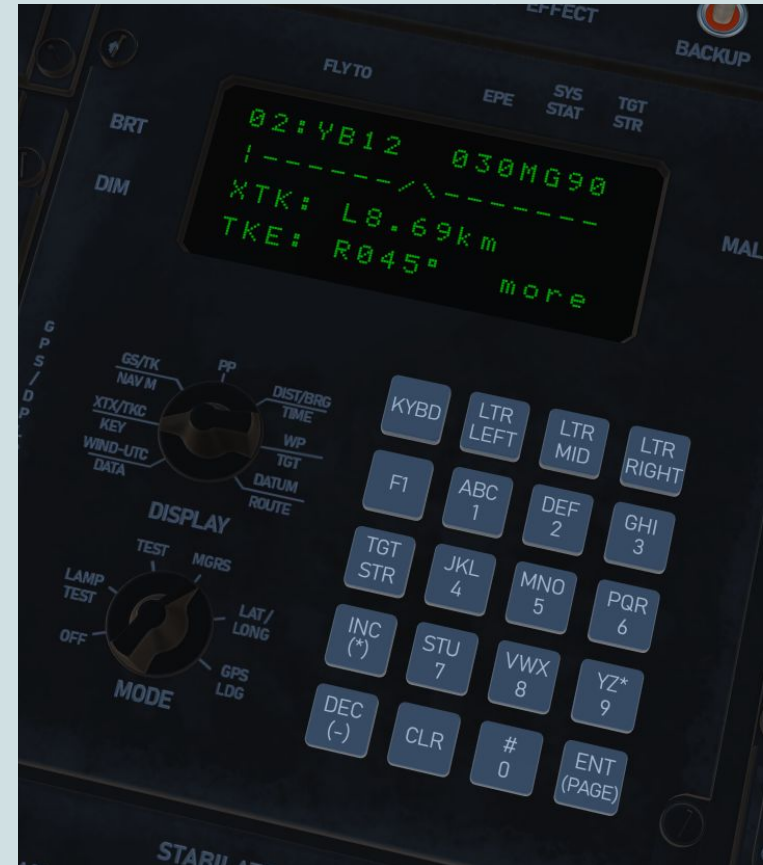
Doppler-GPS Navigation System - XTK/TKC KEY

The XTK/TKC KEY display main page shows a visual representation of your course track error and relative direction of travel to the waypoint. It is a digital version of your HSI course deviation bar and VOR TO/FROM arrow. The course is calculated between the selected waypoint and previous waypoint in the flight plan (later updates will allow for DIRECT-TO and configurable flight plans).

The cross-track (XTK) displays the correction needed to be made to return to the course.

The track error (TKE) displays the track correction error.

Further pages for the XTK/TKC KEY display have not yet been implemented.

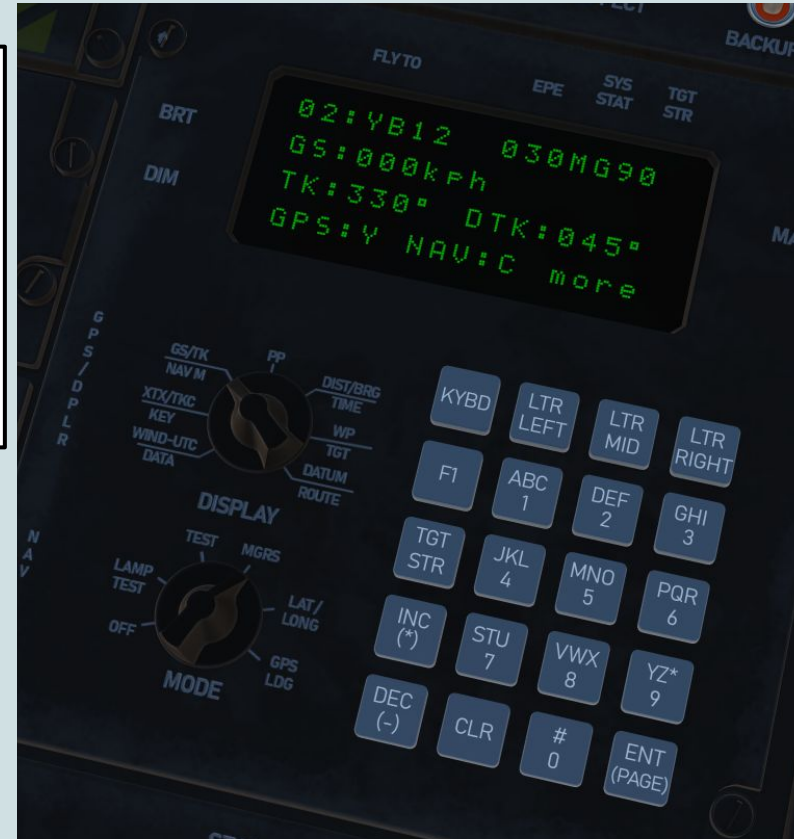


Doppler-GPS Navigation System - GS/TK NAV M

The GS/TK NAV M display page shows the current ground speed and track angle of the aircraft, and the direct track to the selected waypoint.

The GPS and NAV data is not simulated.

Further pages for the GS/TK NAV M display have not yet been implemented.



Doppler-GPS Navigation System - PP

The PP (Present Position) display page shows the current position of the aircraft in the chosen coordinate type.

The second page shows the GPS altitude and magnetic variation at the aircraft's position.



Doppler-GPS Navigation System - PP

The PP (Present Position) display page shows the current position of the aircraft in the chosen coordinate type.

The second page shows the GPS altitude and magnetic variation at the aircraft's position.



Doppler-GPS Navigation System - DIST/BRG TIME

The DIST/BRG TIME display page shows the current flight plan and leg (not functional), the distance and bearing to the selected waypoint, and the estimated travel time remaining.

The second and third pages display non-simulated GPS information about the selected waypoint.



Doppler-GPS Navigation System - WP TGT

The WP TGT page shows the position of waypoints. This page is used for the creation and modification of waypoint data.

The second page displays the altitude and non-simulated GPS information about the waypoint.



Doppler-GPS Navigation System - DATUM ROUTE

DATUM ROUTE page contains a menu for accessing and creating flight plans and other settings. **These are yet to be implemented.**

Doppler-GPS Navigation System - Waypoints

To change the currently selected waypoint, you can make one of two entry methods:

- 1) Press the INC/DEC buttons to cycle waypoints
- 2) In the DIST/BRG TIME display, enter the number of the waypoint on the keypad

Doppler-GPS Navigation System - Waypoints

To add or edit a waypoint

1. Switch to the WP TGT display.
2. Cycle to the desired waypoint index
3. Press KYBD to enter keyboard entry mode
4. The currently selected item will start flashing to indicate it can be edited. Press KYBD again to cycle through lines to select a different line to edit
5. When entering letters, you must select the appropriate 'LTR LEFT'/'LTR MID'/'LTR RIGHT' before pressing the corresponding number key to enter a letter. This is not required for Latitude/Longitude entry - pressing the relevant number will enter the associated letter for cardinal directions automatically (i.e. just press '2' for 'E').
6. When you have entered data into the lines, press 'ENT (PAGE)' to confirm entry. A successful valid entry will cause the selected line to stop flashing. If for any reason you are stuck, switching to a different display mode and back will reset the display.
7. MGRS coordinates are entered at the 4 digit level for easting and northing.



Radios Communications

Radio Communications - Overview

The UH-60L has five radio systems for communication.

Each of these radios is compatible with SRS (a third party DCS voice communication tool) as long as the accompanying script is used (see Installation notes)

1. AN/ARC-201 FM (Pilot side)
2. AN/ARC-164 UHF
3. AN/ARC-186 VHF
4. AN/ARC-201 FM (Copilot side)
5. AN/ARC-220 HF

IMPORTANT:

To use the radios you must bind the 'PTT - Push To Talk (Game Comms)' and use this instead of the default 'Communications' key to talk to AI units and airfields.

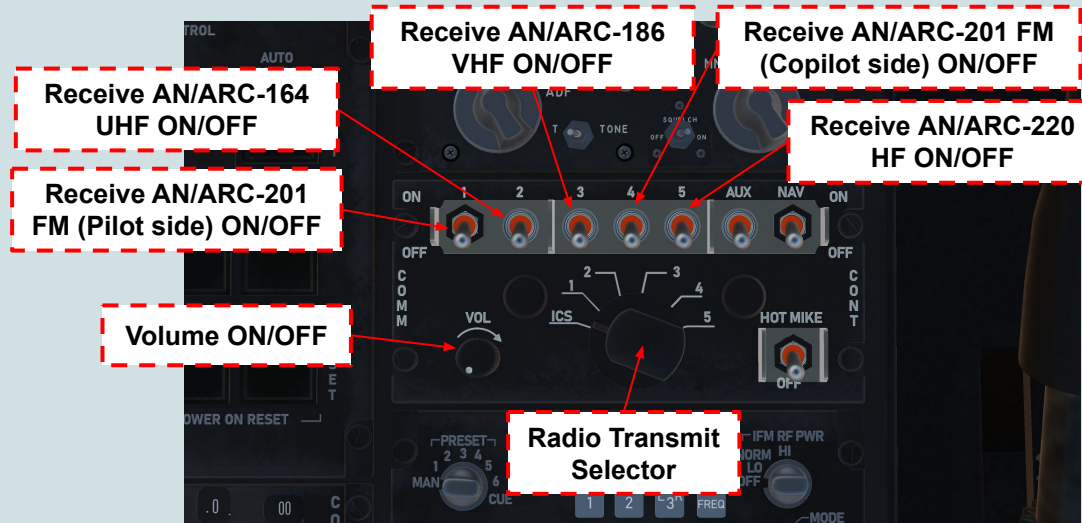
You must also select the correct radio on the Intercommunications panel when transmitting!

NOTE:

Due to a lack of documentation and references, the AN/ARC-220 is not clickable and fully implemented. If you are able to help us out with this, please contact us!

Radio Communications - Intercom Panel

The intercom panels (pilot and copilot side) govern receiving and transmitting on all radios, as well as provide a 'master volume' tool. Currently only the pilot intercom is functional. The intercom is integrated into SRS and is required to be used to both receive and transmit when using SRS.



Radio Communications - AN/ARC-201 FM

There are two FM radios in the cockpit, one each on the pilot and copilot side. These are treated as two separate radios by the intercom panel, but are functionally identical.

- To turn the radio on, switch the FUNCTION selector to SQ ON
- To enter a new frequency:
 - a. Set the PRESET selector to MAN
 - b. Press FREQ on the keypad
 - c. Enter the five digit frequency
 - d. Press STO ENT to enter the frequency

The FM radios work on frequencies between 30.000MHz and 87.975MHz



Radio Communications - AN/ARC-164 UHF

The AN/ARC-164 UHF radio works in the 225.000 to 399.975MHz range. It can store up to 20 presets (configurable in the mission editor) and these are displayed on the paper screen at the top left.

- To switch the radio on, set the left hand selector to MAIN.
- To select a preset, switch the right hand selector to PRESET and use the preset selector dial to change channel



Radio Communications - AN/ARC-186 VHF

The AN/ARC-186 VHF radio functions in the 30.000 to 151.975MHz range.

To switch on the radio, set the right hand selector to TR, and the left hand selector to MAN.

To select a preset, switch the left hand selector to PRE and use the center dial to choose a preset channel.

To write a preset, select the preset channel you wish to save the frequency to, then press the LOAD button.



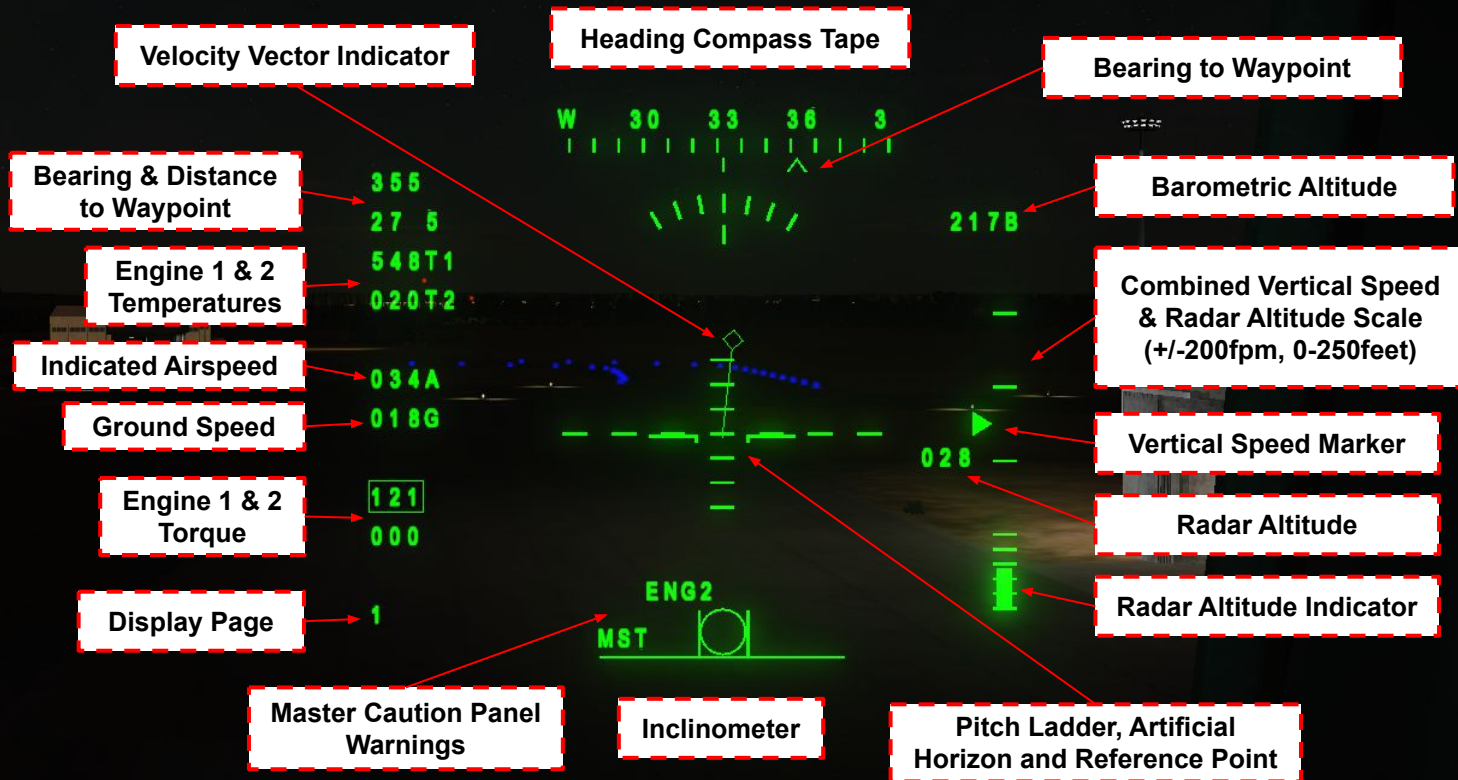
Radio Communications - AN/ARC-220 HF

The AN/ARC-220 is not fully implemented in this module due to lack of documentation and references. However it is present in SRS and can receive and transmit. The frequency range can be manually set in SRS and the radio works from 2.000 to 29.999MHz.



Heads-Up Display

AN/AVS-7 Heads Up Display





Countermeasures

Note: The current implementation of the AN/APR-39 is simplified.

The AN/APR-39 Radar Warning Receiver detects and highlights radar threats. Alongside the visual display, it also has an audio warning output, which can be controlled using the volume dial on the copilot side panel. The display brightness can be controlled using the dial on the screen.

To turn the RWR on, set the power switch to ON on the panel.

Currently Implemented Symbology:

- GUN (Gepard) 
- ZU (ZSU-23 SHILKA) 
- HELICOPTER 
- FIXED WING 
- SAM - corresponding number - e.g. SA-2 = 2, SA-10 = 10



Countermeasures control panel

Note: The current implementation of the Countermeasures System is simplified.

To use the countermeasures, set the switch to ARM. If the green light is on, the countermeasures are armed. The amount of chaff and flares should be set automatically on mission start.

To dispense chaff, press the Dispense Chaff button or use the key binding.

To dispense flare, press the Dispense Flare key.

The selector for manual and program mode is not yet implemented.





Multicrew

Multicrew

WARNING!

The multicrew feature is experimental and may cause issues. Use at your own risk!

While players can fly together at any time, in order to share cockpit animations and states the players must use the multicrew feature detailed here. You do not have to use this feature to sit in the cockpit or back seats with other players, but you will not see their actions (i.e. switches moving etc.)

In order to use multicrew, you must configure IP address and ports before launching DCS.

1. In the mod folder, open NetConfig.lua
2. To configure which port you want to host on, change the 'myPort' value.
3. To configure an address you want to connect to, you can change one of the four available slots containing a name (a visible reference point in game), IP address and port. The port should match the other player's 'myPort' value. Their port must be open 'forwarded' to work properly.

These addresses and ports should be those of the people you wish to fly with, not the server you are flying on. The UH-60 multicrew only supports two connected users at a time - one who 'hosts' and the second who 'connects' to the first.

Multicrew

How to host and connect in game:

1. Once you have set up your configuration, join a server with the person you want to fly with.
2. Both players enter the same aircraft through the usual interface.
3. In this example, Player A is the host, and Player B is the client.
4. Both Player A and B should switch on the aircraft electrical systems and turn on the DGNS
5. Both Player A and B navigate to the third page on the WIND-UTC DATA display (press ENT (PAGE) to cycle pages)
6. Both Player A and B press '1' to select NETWORKING
7. Player A selects 'CREATE (PLT)' by pressing '1'
8. If the creation is successful, the message 'SERVER STATE: ACCEPTING' will be displayed
9. Player B selects 'CONNECT (CPLT)' by pressing '2'
10. Player B selects the name of the configuration they created earlier by pressing the associated number button
11. If successful, the display will read 'CONNECT STATE: CONNECTED'
12. At this point, the players can verify the connection is working by moving a switch (for example, an engine power control lever or generator switch)
13. Some areas of the cockpit are still not synced and may have issues. Remember, this is an experimental feature.



Air to Air Refueling

Air-to-Air Refueling is a work in progress feature. A dedicated panel and features will be added soon.

NOTE:

Because the standard DCS tankers will not fly below 160ish knots (despite the mission editor speed going as low as 108kts....) we have included a modified version of the KC-130 tanker designed for refueling at speeds of 120-130kts. This is included in the mod and can be found in the mission editor as the KC-130J. It can be placed in missions just the same as any other tanker. It is also possible to refuel from the other standard tankers, but the speed makes this more difficult.

1. In order to equip the probe you must enable the option in the mission editor
2. To extend the probe, use the 'Fuel Boost Pump Right' switch
3. Enter the tanker frequency in the AN/ARC-164 radio (tanker frequency must be between 225 and 297MHz)
4. Contact the tanker using the Communication Menu, and refuel just as you would in a standard DCS aircraft

AAR

MISSION EDITOR FILE VIEW EDIT FLIGHT CAMPAIGN CUSTOMIZE MISSION GENERATOR MISC

FILE
[Icons for file operations]

MIS
[Icons for mission settings]

OBJ
[Icons for objects]

MAP
[Icons for map tools]

Draw
[Icons for drawing tools]

Enable the probe here:

HELICOPTER GROUP

NAME: Rotary-1
CONDITION: [Slider]
COUNTRY: USA
TASK: Transport
UNIT: 1 OF 1
TYPE: UH-60L
SKILL: Client
PILOT: Rotary-1-2
TAIL #: 023
RADIO: [Checked] FREQUENCY: 305 MHz
CALLSIGN: Enfield 2 1

☐ HIDDEN ON MAP
☐ HIDDEN ON PLANNER
☐ HIDDEN ON MFD ☐ LATE ACTIVATION

[Icons for group actions]

Enable Fuel Probe ☒
Solo Flight ☐
Aircraft Control Priority: Instructor

DFLT uh-60.miz LAT N 32°35'40" LONG E 35°14'11" ALT 180 PAN/SELECT MAP SAT ALT [Icons]

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DCS UH-60L Black Hawk Mod

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