

DCS OH-6A CAYUSE MOD

Version: 1.0

**MOD BY:
EIGHTBALL
&
TOBSEN**



MANUAL BY: MADEBOMBER

LAST UPDATE 4-15-2024

Disclaimer

This document has been created for recreational purposes only. Do not use for training or real life flying.

The author of this document has never had access to restricted or classified documentation on the OH-6A Cayuse. All the information within this Document is taken from public documentation (i.e. OH-6A Cayuse) and non-official tutorials (player-made videos on Youtube).

The procedures listed in this document are deliberately simplified for game play purposes due to the limitations of the DCS World simulation environment and the limitations of the OH-6A Cayuse module
By Eightball & Tobsen

This document is merely a free, personal project that is used for entertainment. This document is not meant nor designed to teach someone to fly a real OH-6A Cayuse.

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Introduction

The Hughes OH-6 Cayuse is a single-engine light helicopter designed and produced by the American aerospace company Hughes Helicopters. Its formal name is derived from the Cayuse people, while its "Loach" nickname comes from the acronym for the Light Observation Helicopter (LOH) program under which it was procured.

The OH-6 was developed to meet United States Army Technical Specification 153, issued in 1960 to replace its Bell H-13 Sioux fleet. The Model 369 submitted by Hughes competed against two other finalists, Fairchild-Hiller and Bell, for a production contract. On 27 February 1963, the first prototype conducted its maiden flight. The Model 369 had a distinctive teardrop-shaped fuselage that was crashworthy and provided excellent external visibility. Its four-bladed full-articulated main rotor made it particularly agile, and it was suitable for personnel transport, escort and attack missions, and observation. During May 1965, the U.S. Army awarded a production contract to Hughes.

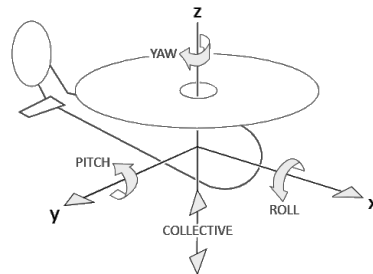


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What You Need Mapped

ACTION	DEFAULT KEY BIND
Cyclic Trim Down	S
Cyclic Trim Left	A
Cyclic Trim Right	D
Cyclic Trim Up	W
Governor Trim Up	R
Governor Trim Down	F
Gun Fire	SPACE
Gun Down	J
Gun Up	U
Gunsight Down	H
Gunsight Up	Y
Occupy Copilot Seat	2
Occupy Pilot Seat	1
Open / Close Door	LCTRL+C
Toggle Search Light Mode	LSHIFT+E
Searchlight Down	LSHIFT+S
Searchlight Left	LSHIFT+A
Searchlight Lock	LSHIFT+Q
Searchlight Right	LSHIFT+D
Searchlight Up	LSHIFT+W
Search Light	RSHIFT+L
Start Engine	HOME

ACTION	DEFAULT KEY BIND
Throttle Idle	INSERT
Throttle Cutoff	DELETE
Throttle Levers - Down	PAGEDOWN
Throttle Levers - Up	PAGEUP
Toggle Searchlight Mode	LSHIFT+E
Toggle Gunsight	O



AXIS COMMANDS

Action	Description of Action
Pitch Cyclic	Pitch Up or Down
Roll Cyclic	Roll Left or Right
Pedals	Yaw Left or Right
Collective	Collective Up or Down
Throttle	Controls RPM
Zoom View	Zooms In or Out

Main Controls

The main controls of a helicopter are cyclic, collective and anti-torque-pedals.

The collective changes the pitch of all blades collectively. This way the thrust generated by the main rotor is controlled. The RPM of the rotor is kept constant automatically.

The cyclic is used to control the main rotor in order to change the helicopter's direction of movement. In a hover, the cyclic controls the movement of the helicopter forward, back, and laterally. During forward flight, the cyclic control inputs cause flight path changes similar to fixed-wing aircraft flight; left or right inputs cause the helicopter to roll into a turn in the desired direction, and forward and back inputs change the pitch attitude of the helicopter resulting in altitude changes.

Anti-torque-pedals control the direction that the nose of the aircraft points. Applying the pedal in a given direction changes the tail rotor blade pitch, increasing or reducing tail rotor thrust and making the nose yaw in the direction of the applied pedal.

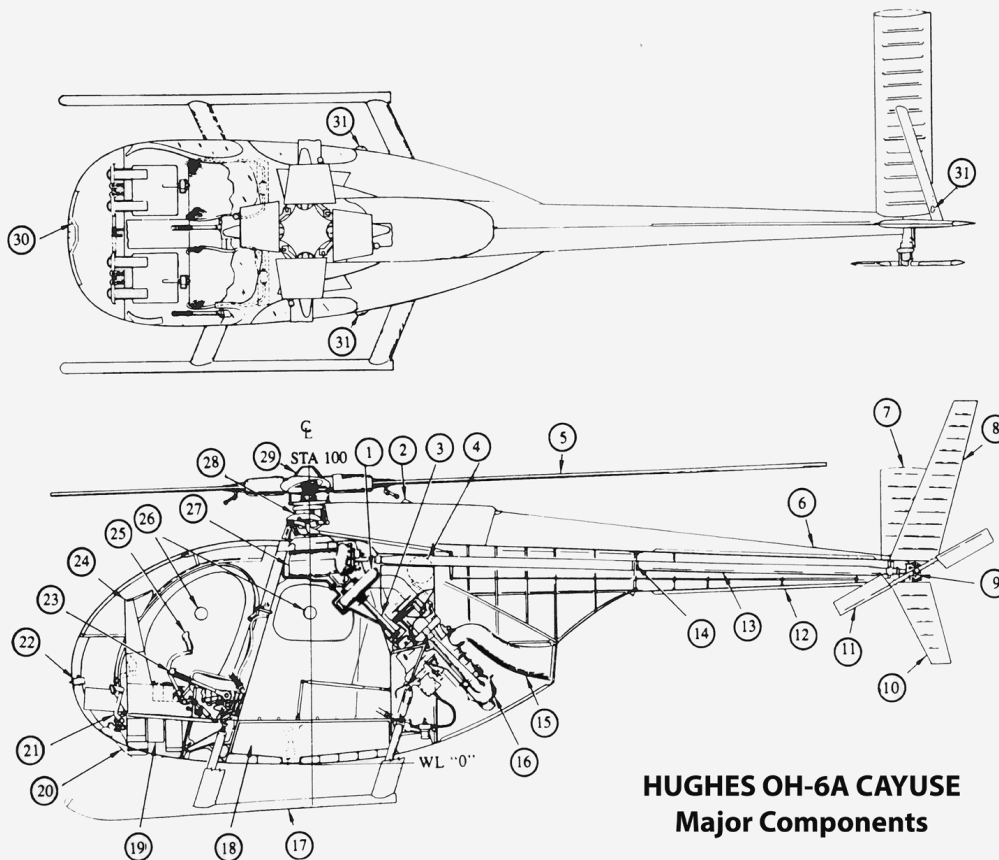
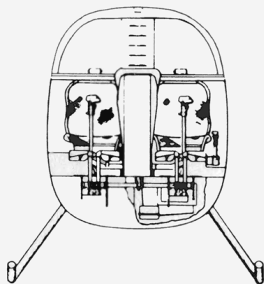
A change of one control element needs corrections of all the other control elements. For example an increase on the collective does not only produce more lift of each blade, it also increases the drag of each blade. This leads to more torque of the main rotor. This needs to be countered with the anti-torque-pedals. The tail rotor does not only creates a yaw moment it also pushes the helicopter to side. This needs to be countered by adjustment of the cyclic.

Notes About Controls

"The thing is, helicopters are different from planes. An airplane by it's nature wants to fly, and if not interfered with too strongly by unusual events or by a deliberately incompetent pilot, it will fly. A helicopter does not want to fly. It is maintained in the air by a variety of forces and controls working in opposition to each other, and if there is any disturbance in this delicate balance the helicopter stops flying; immediately and disastrously. There is no such thing as a gliding helicopter."

Harry Reasoner

- 1 - Blower-Gearbox and Oil Cooler
- 2 - Anticollision Light
- 3 - Engine Drive Shaft
- 4 - Oil Reservoir
- 5 - Blade
- 6 - ADF Sense Antenna
- 7 - Horizontal Stabilizer
- 8 - Upper Vertical Stabilizer
- 9 - Rear Rotor Gearbox
- 10 - Lower Vertical Stabilizer
- 11 - Tail Rotor
- 12 - Tailboom
- 13 - Tail Rotor Drive Shaft
- 14 - Damper-tail Rotor Shaft
- 15 - Engine Exhaust
- 16 - Powerplant Installation
- 17 - Landing Gear Assembly
- 18 - Fuel Cell
- 19 - Avionics Compartment
- 20 - Anticollision Light
- 21 - Rudder Pedal
- 22 - Cooling Duct
- 23 - Collective Pitch Control Stick
- 24 - Instruments Panel
- 25 - Flight Control System
- 26 - Vents
- 27 - Main Gearbox
- 28 - Mixer-Flight Controls
- 29 - Main Rotor Assembly
- 30 - FM Homing Loop and FM/VHF Whip Antennas
- 31 - Navigation Lights



HUGHES OH-6A CAYUSE
Major Components

Cockpit and Instrument Panels

Front Panel

1. Magnetic Compass	12. Attitude Indicator
2. AN/ARC-54 FM Radio *	13. Homing, Heading and Bearing Indicator
3. AN/ARC-51 UHF Radio *	14. Barometric Altimeter
4. Oil Pressure Warning	15. Vertical Velocity Indicator
5. Oil Temp Warning	16. Engine Oil Pressure
6. Engine Out Warning	17. Engine Oil Temperature
7. Torque	18. Ampere Meter
8. TOT	19. Caution Lights
9. N1 Tachometer	20. An/ARC-83 ADF Controls (not functional) *
10. Indicated Airspeed	21. Fuel Indicator
11. Rotor RPM and N2 Tachometer	

*: For Radios, see Radio Section



4. Transmission Oil Pressure Light

If N1 is below 55% this light flashes. During normal flight this light will illuminate if the transmission oil pressure is below a safe operating level.

5. Transmission Oil Temperature Light

When the oil temperature reaches an abnormally high temperature this light will illuminate.

6. Engine Out Warning Light

Throttle in full position:

The engine out warning activates the warning light and an audible warning if N2 is below 95%. This warning is deactivated if the Gen Switch is in OFF Position.

Throttle not in full position:

The Engine Out Warning light flashes if N1 is below 55%. If the Gen Switch is in Position GEN an audible warning is active if N1 is below 55%.



7. Torque

The main transmission is subject to torque limitations.

Normal continuous operation is 0 to 70 PSI

The aircraft can be operated between 70 PSI at 80.3 PSI for maximal 5 minutes.

Torque should not exceed 80.3 PSI.



8. TOT, (Turbine Outlet Temperature:)

Normal continuous Operation is from 385° to 693° C.

Cautionary Operation is from 693° to 749° C. (5 Min Limit)

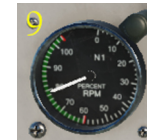
843° C is the 6-second maximum, transient limit



9. N1 Tachometer:

The N1 tachometer shows the RPM of the gas producing turbine of the engine in percent.

In normal operation N1 should be between 59% and 104%. 104% is the value maximum continuous operation.



10 Airspeed

This instrument shows the airspeed in knots. The area of normal operation is between 40 and 120 knot. The never exceed speed is 121 knots. Above this speed effects of retreading blade stall increases.



11. Rotor RPM and N2 RPM

This instrument shows the RPMx100 of the Rotor and the Power turbine RPM in percent of the engine.

Usually both needles are aligned. In auto rotation then RPM of the Rotor can be higher than N2.

The minimal Rotor RPM for flight is 400.

Normal operation is between 465 and 514 RPM.

The Rotor RPM should not exceed 514 RPM.

In normal operation N2 should be between 100 and 103%.



12. Attitude Indicator

The attitude and slip indicator is mounted in the upper right section of the instrument panel and indicates the aircraft flight attitude with respect to the earth's horizon.



13. Homing, Heading and Bearing Indicator

The homing, heading and bearing indicator receives signals from and operates with the FM receiver/transmitter, the adf receiver and the directional gyro simultaneously or individually. One manual control is provided for synchronizing the gyromagnetic compass set during free gyro (DG or FREE) operation.



14. Barometric Altimeter

Barometric Altimeter indicates pneumatic altitude reference to the barometric pressure level as selected by the pilot .



15. Vertical Velocity Indicator

The Vertical Velocity Indicator shows the rate of climb or descent of the helicopter, 1000' per minute.



16. Engine Oil Pressure

Operating ranges:

50PSI minimum for flight

50 - 90PSI Cautionary Operation

90 - 130 PSI Normal Operation

NOTE: During cold weather starts, maximum may go to 150 PSI. Engine must remain at idle until normal range is attained.



17. Engine Oil Temperature

30° C - 107° C Normal Operating Range

107° C is the Maximum

18. Ampere Meter

0 - 60 AMP is Normal Operation

60 - 150 AMP Cautionary Operation

150 AMP Maximum



21. Fuel Indicator

Shows the fuel quantity in lbs.
Maximum lbs is 400.

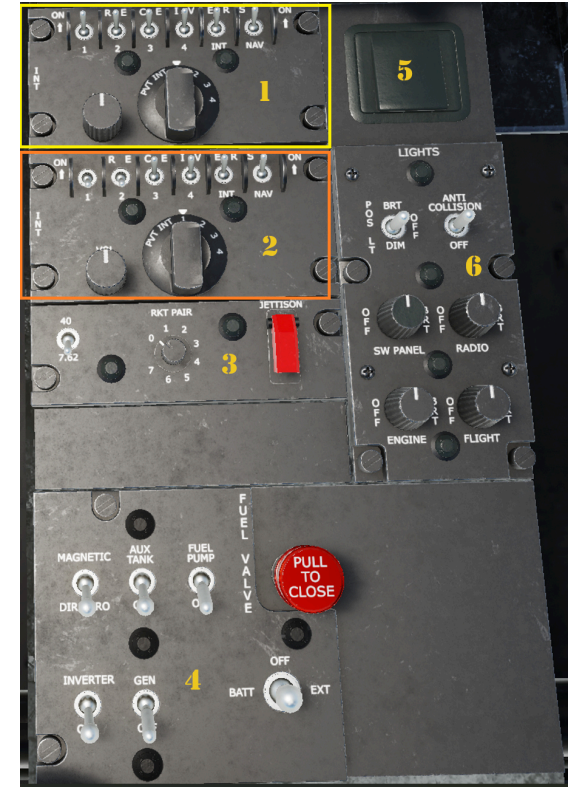
Caution Lights

BY-PASS AIR	The caution light illuminates when the pressure in the engine intake plenum chamber, downstream of the filter, is less than the outside air pressure.
OIL CHIPS	The caution light will illuminate whenever loose, ferrous metallic matter has been magnetically accumulated by either of two chip detectors in the engine oil system.
FUEL FILTER	When the fuel reaches a set differential pressure between the before and after fuel filter chambers , the fuel filter caution light is illuminated : Fuel will not bypass the filter until a slightly higher set differential pressure is reached .
GENERATOR OUT	If the GEN -OFF switch is in the GEN position , and generator output voltage is less than battery voltage, the caution light will be illuminated . Light is illuminated if the Gen Switch is OFF.
FUEL LOW	When illuminated, indicates that the fuel supply has diminished to approximately 35 pounds.
OIL CLR BYPASS	When illuminated, the light indicates that the low oil level warning switch in the self- sealing oil tank has been activated .



Center Panel

1. Copilot Intercom C-1611D/AIC	Nonfunctional
2. Pilot Intercom C-1611D/AIC	Intercom used by the pilot
3. Rocket Panel	Rocket settings and jettison
4. Electrical Panel	The electrical panel is used to control the electrics.
5. Ash Tray	For smoking
6. Lights Panel	All the lights controls



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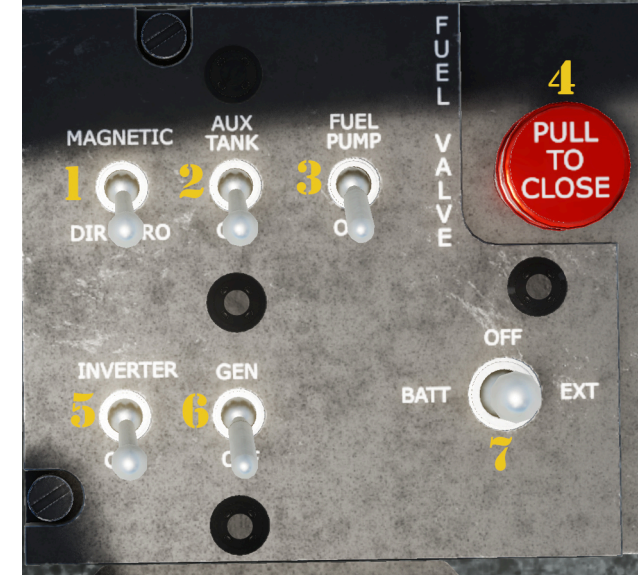
Pilot Intercom Panel C-1611D/AIC

1. Channels	Activates Channels (Up is On)
2. Volume Control	Adjusts Intercom Audio Volume
3. Transmit Intercom Selector Switch	<p>PVT: Hot Mic Operation.</p> <p>INT: Headset Mic is connected for voice coms.</p> <p>1: FM Radio Communications 2: UHF Radio Communications 3: VHF Radio Communications 4: NOT USED</p> <p>INT: Intercom Communications</p> <p>NAV: Direction Finder for the AN/ARN-83 Radio (Nonfunctional)</p>



Electrical Panel

1. Magnetic - Dir Gyro	Enables Gyros
2. Aux Tank	Nonfunctional
3. Fuel Pump	Turns on the Fuel Pump
4. Fuel Valve	Pushed: Open Fuel Valve Pulled: Closed Fuel Valve
5. Inverter	Provides power for Attitude Indicator and Directional Gyro
6. Generator	Enables Generators to supply 28 volts DC
7. Power Supply	BATT: Selects Battery OFF: No Power Supply EXT: External Powersupply



Lighting Panel

1. Position Lights	BRT: Turns the Position Lights Bright DIM: Turns the Position Lights Dim OFF: Turns Off the Position Lights
2. Anti Collision	Turns On / Off the Anti-Collision Light
3. Center Panel	Adjusts brightness for the Center Panel Lights
4. Radio Panel	Adjusts the brightness for the Radios
5. Engine	Adjusts the brightness for the Engine Gauges on the Front Panel
6. Flight	Adjusts the brightness for the Flight Gauges on the Front Panel



Start-Up Procedure



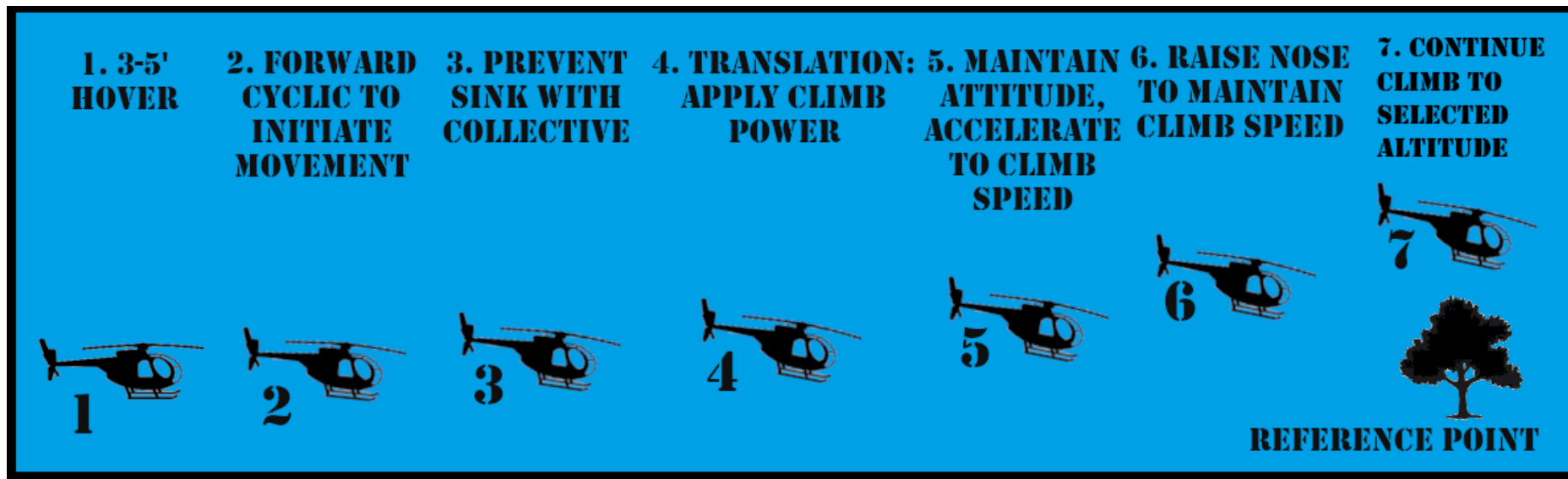
OH-6A START PROCEDURE

1. TURN ON BATTERY (RC)
2. OPEN FUEL VALVE (RC)
3. GOVERNOR TRIM DECREASE FOR 7 SECONDS (F)
4. PRESS AND KEEP PRESSED STARTER BUTTON UNTIL N1 REACHES 12 TO 15%
5. TURN THROTTLE TO IDLE (PRESS INS) WHILE KEEP PRESSING STARTER BUTTON
6. CONTINUE PRESSING STARTER BUTTON UNTIL N1 REACHES 60%
7. GENERATOR SWITCH TO GEN
8. INVERTER TO ON
9. GYRO TO MAGNETIC (ON)
10. ADJUST ALTIMETER
11. INCREASE THROTTLE (PG UP) TO MAX N2 (100%) (GREEN)



Step 10.
Adjust Barometric
Altimeter.

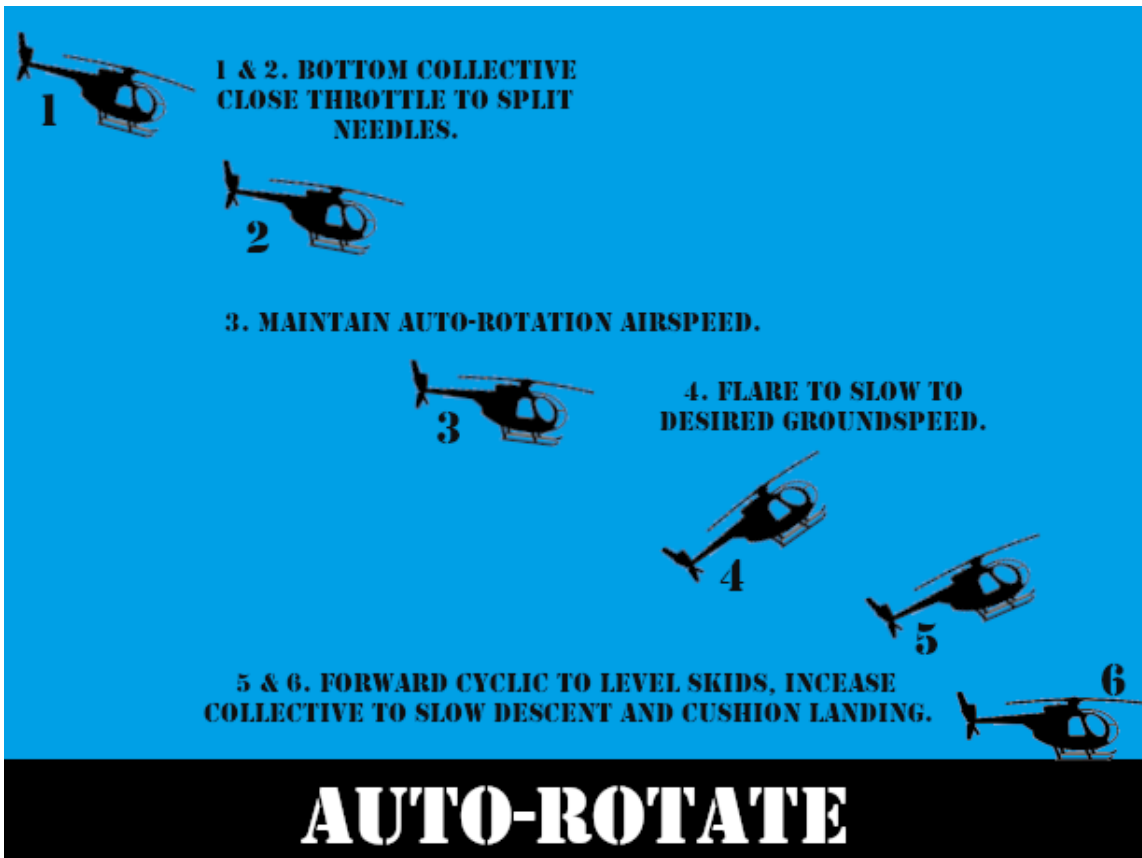
Takeoff



Landing



Auto-rotation



Offense: Weapons & Armament

The OH-6A is a Recon / FAC platform, and dropping smoke to mark enemy locations of Gunships, or dropping Frag Grenades is a huge part of what it does. In addition to that HE explosive grenades can be carried.

Smoke & Frag Grenades



Stations G1-G4 can be equipped with 4 Smoke Grenades each. Glue, Green, Red and Yellow are available. 10 High Explosive Grenades are equipped at Station HE.

To drop the Frag Grenades or the Smoke Grenades, press the “G” key.
To change the color of the Smoke Grenades, press the “T”.

The color is displayed in the Crew Status Overlay.

Doors must be removed to carry grenades.

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Both Smoke Grenades and Frag Grenades appear in the cockpit on the Copilots side,.



Arm the Weapons

In order to use the minigun you have to switch the ARMED-SAFE-switch to ARMED Master Switch:

There are three positions. "Off", "Fire To Clear" and "Fire Norm".

The position "Fire To Clear" is used to clear the gun. If the gun is not cleared, every rotation of the barrels will cause the gun to fire.

Set the Switch to "Fire Norm" to use the normal fire mode.

1. GUN NOT CLEARED LIGHT	Indicates that the gun is not cleared.
2. ARMED LIGHT	Illuminates when armed switch is set to armed.
3. ARM SWITCH	Gun safe or armed.
4. AMMO LOW LIGHT	Illuminates when ammo is running low (approximately 40 rounds left), or 6 seconds of firing.
5. SYSTEM MODE MASTER SWITCH	SAFE: Weapons systems are safe. FIRE TO CLEAR: Used to clear the gun. FIRE NORM: Normal firing position.



M134 Minigun

The OH-6A is also a capable light attack helicopter. Able to deliver fire with a variety of weapons.



Doors must be removed to carry the M134 Minigun.

The elevation of the gun can be controlled with switches (default up: U down: J)

After changing the elevation you might want to readjust the height of the sight. (default up: R down: F)

To use the Aiming Reticle, Click it, or press the "O" is default of the Bind "Toggle Gunsight."



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The M27 armament subsystem is used on the left side of the aircraft. It consists of an 7.62 mm M134 machine gun and an XM70E1 reflex sight. The elevation of the gun can be controlled with switches at the cyclic.



To fire the M134 Minigun, use the <SPACE> or Gun Fire Key Bind.

NOTE: The M134 Minigun changes the center of gravity noticeably more to the left side.

Doorgunner

Door gunners provide extra firepower so the pilot can focus on piloting the helo, and still have good firepower for protection or keeping the enemies heads down.



Doors must be removed to use a Doorgunner.

You can equip a M60 Doorgunner or a M134 Doorgunner (no Gunner model yet)

The ROE of the Gunner can be toggled between hold and fire (Default: M)

The burstlength can be toggled between LONG and SHORT (Default: RALT+M)

The Crew Status Overlay can be toggled ON/OFF (Default: LWIN + M)



XM158 Rockets

Rockets provide heavy punch, able to take out vehicles, but there is a trade off, they are also very heavy for the OH-6A and are rarely used because of it.



Doors must be removed to carry Rockets

Set the Weapon selector switch to 40 to use rockets.

Rockets are rarely used as they are quite heavy for the Loach. Be aware on the max Torque!

To fire the XM158 Rockets, use the <SPACE> or Gun Fire Key Bind.



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1. 40: Selects Rockets.
7.62: Selects Machine Guns.
2. RKT PAIR
Fires the number selected rockets in pairs.
3. Jettisons weapons pods.

Additional Equipment

Searchlight

The Searchlight can be turned on and off by pressing “SearchLight” (Default: Rshift*L).
It can be operated in 3 different modes:

1A. Manual

In manual mode the searchlight can be controlled by keys WASD (Searchlight Up, Left, Down and Right).

1B. Ground Locked

Enabling ground locked mode can be done from manual mode. Once you moved the spotlight to a place on the ground which you want to observe you need to press the ‘Searchlight Lock’ (Default: Q). The Searchlight tries to follow the spot. Press Q again to unlock.

2. Tracking Enemy Units

Enemy units can be tracked with the Searchlight automatically. To enable this mode you have to press Toggle Searchlight Mode (Default: E). If you want to use Manual Mode or Groundlocked Mode again you have to Toggle Searchlight Mode again.

The Camrig is purely a visual feature.

The camera tracks enemy units automatically to add some immersion.



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Radios

AN/ARC-54 FM Radio

1. Squelch	DIS: Squelch position is disabled CARR: Squelch circuits operate normal TONE: Squelch operation is disabled only on set signals (signals containing Hz tone modulation).
2. Volume Control	Adjust Volume
3. Mode Control	PTT: Power is supplied to the FM radio set RETRAN: Nonfunctional HOME: Nonfunctional
4. Adjust 10's Frequency	Adjusts from 30-60
5. Displays Frequency	Displays what channel your on
6. Adjust Decimal Frequency	Adjusts from 00-95 by 5's

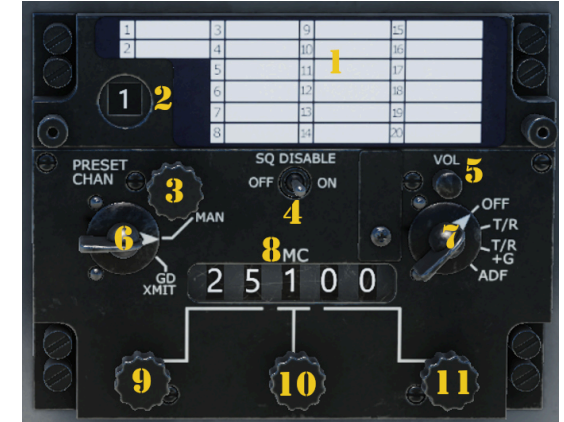


FREQUENCY RANGE
Range: 30.00 - 69.95

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AN/ARC-51 UHF Radio

1. Preset Channels	Nonfunctional
2. Preset Channel Display	Displays the Channel when in Man for #6
3. Preset Channel Selector	Adjusts the Preset Channel (1-20)
4. Squelch Disable Switch	in the ON position , the squelch is disabled. In the OFF position , the squelch is operative.
5. Volume Control	Adjusts the volume
6. Mode Selector Switch	Allows for Preset or Manual Channel changes
7. Function Selector Switch	See Below for details
8. Manual Channel Display	Displays the channel when in GD XMIT for the #6
9. 10 Megacycle Control	Adjusts the Megacycles for the 10-100 digits
10. 1 Megacycle Control	Adjusts the Megacycles for the 1 digit
11. 0.50 Megacycle Control	Adjusts the Megacycles for the .10 digits



Frequency Range:
225.00 - 399.95 MHz

6. Determines the operating mode of the radio set as follows:

Off: Removes power from uhf radio set; uhf radio set is inoperative.

T/R: Provides for uhf radio set operation as a transceiver on main channels indicated on FREQUENCY RANGE indicator. (Guard receiver is inoperative.)

T/R Guard: Same as T /R above plus reception of guard channel.

ADF: Nonfunctional

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INSTANT ACTION
CREATE FAST MISSION
MISSION
CAMPAIGN
MULTIPLAYER

LOGBOOK
ENCYCLOPEDIA
TRAINING
REPLAY

MISSION EDITOR
CAMPAIGN BUILDER

EXIT



F-86F



F/A-18C

EA



FC3



Fw 190 A-B



Fw 190 D-9



I-16



JF-17



Ka-50



Ka-50 III



L-39



M-2000C



Maddox

0.11.2



Marianas

EA



MB-339



Mi-24P



Mi-8MTV2

beta



MiG-15bis



MiG-19P

Dev 2.15.x



Mirage F1

EA



Mosquito FB

Mk VI



Normandy



OH-6A Cayuse

1.0



P-47D-30



P-51D



Mustang