RESTRICTED

FLIGHT MANUAL

OH6A - H500C

LIGHT HELICOPTER BY TAOG'S HANGAR

This manual does not supersede any real life manual and is only for flight simulation

Table of Contents

Introduction

This addon for Microsoft Flight Simulator 2024 features the OH-6A and Hughes 500C, two light utility helicopters known for their compact size and maneuverability. Originally developed for military observation, the OH-6A became widely used in various roles due to its reliability and responsive handling. The Hughes 500C is its civilian counterpart, commonly seen in utility operations, law enforcement, and private use.

The goal of this project is to offer a practical, usable version of these aircraft within MSFS, with enough detail to support realistic procedures while remaining accessible for casual use. Deep systems, cockpit layout, and flight behavior have been modeled to reflect the general experience of operating the real aircraft, based on multiple pilots' feedback, real life references and documentation.

This manual includes information on aircraft operation, checklists, controls, and limitations intended to help you get started and use the aircraft effectively within the simulator.

Aircraft Overview

Origins & Development

- **OH-6 Cayuse (Model 369)**
  Developed by Hughes Helicopters to meet the U.S. Army's Light Observation Helicopter (LOH) requirement, the prototype first flew on **27 February 1963**, with entry to service in **1966**. Its distinctive **teardrop-shaped fuselage**, crash-resistant design, and **four-blade main rotor** made it agile, rugged, and ideal for reconnaissance, transport, and light attack roles during the Vietnam War

- **H500C (Civil Variant)**
  Hughes later adapted the OH-6 for civilian use as the **Model 500C**, powered by an **Allison/Rolls-Royce 250-C20 turboshaft** producing approximately **278 hp**.

Roles & Operational Use

- **OH-6A**: Used extensively in Vietnam for **observation, reconnaissance, LZ escort**, and teamed with AH-1 Cobras in "hunter-killer" formations.

- **H500C**: Adopted globally for **utility work, law enforcement, EMS, news, and personal transport**, continuing in production under McDonnell Douglas and MD Helicopters since 1967

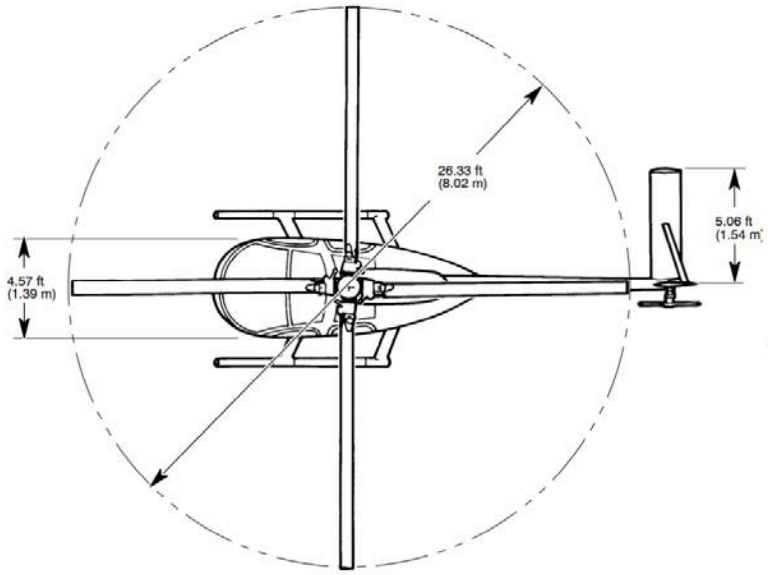
Specifications

Feature	OH-6A	H500C
Crew / Capacity	2 (+ up to 4 passengers)	1 (+ 3-4 seats)
Empty Weight	~1,077 lb	~1,229 lb
Max Takeoff Weight	~2,400 lb	~2,550 lb +150 jettisonable
Main Rotor Diameter	~26 ft 4 in	~26 ft 4 in
Maximum Speed	~121 knots	~130 knots
Cruise Speed	~110 knots	~125 knots
Rate of Climb	~1,700 ft/min	2,070 ft/min

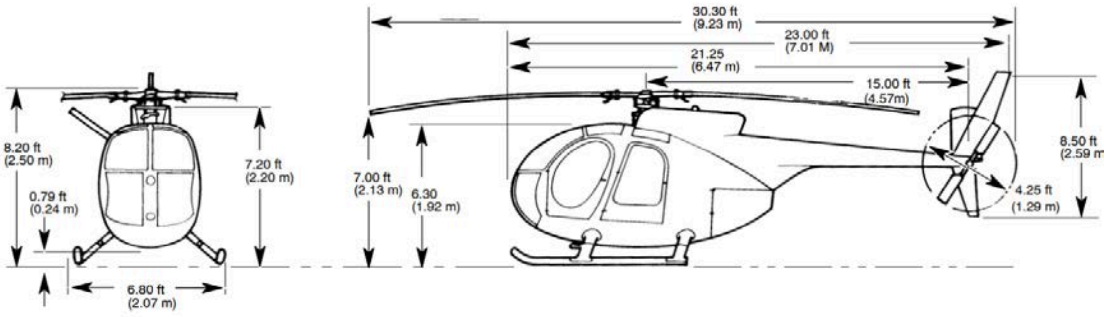
Max Altitude	~20,000 ft	20,000 ft
Service ceiling	15,800 ft	15,800 ft
Range	~330 NM	~330 NM
Engine	Allison T63-A-5A (~317 hp)	Allison/Rolls-Royce 250-C20 (~278–420 hp)

Airframe dimensional and general data

DIMENSIONAL CONVERSION	
ENGLISH (FEET)	METRIC (METERS)
0.79	0.24
4.25	1.295
4.57	1.393
5.06	1.542
6.30	1.92
6.80	2.07
7.00	2.13
7.20	2.20
8.20	2.50
8.50	2.59
15.00	4.572
21.25	6.477
23.00	7.010
26.33	8.025
30.30	9.235



NOTE:
ADD 0.63 FOOT (0.19 METER) TO ALL VERTICAL DIMENSIONS IF EXTENDED GEAR IS INSTALLED.



The H500/OH6A helicopter is a turbine powered, rotary-wing aircraft constructed primarily of aluminum alloy. The main rotor is a fully articulated four-bladed system, while the tail rotor is a two-bladed semi-rigid type. Power from the turboshaft engine is transmitted through the drive shafts to the main and tail rotor transmissions.
An overrunning (one-way) clutch, placed between the engine and main rotor transmission, permits free-wheeling of the rotor system during autorotation. The airframe structure is egg-shaped and provides very clean aerodynamic lines.
The rigid, three-dimensional truss type structure increases crew safety by means of its roll bar design, and by reduction in the number of potential sources of failure.

The airframe structure is designed to be energy absorbing and fails progressively in the event of impact. The fuselage is a semi-monocoque structure that is divided into three main sections. The forward section is comprised of a pilot compartment and, directly aft separated by a bulkhead, a passenger/cargo compartment. The pilot compartment is equipped with seats for the pilot and either one or two passengers.
A canopy of transparent tinted acrylic panels provide excellent visibility. The left seat in the pilots compartment (looking forward) is the pilot's seat (command position); in the OH6A military version helicopters, the pilot's seat is on the right side. The H500C requires a minimum crew of one pilot seated on the left side of the compartment. The passengers sit to the right, abreast of the pilot. Seat belts are provided for all positions. In the military version, the center seat is eliminated. (edited)

An instrument panel is located forward of the seat at the aircraft centerline. The panel incorporates standard flight and engine instruments in addition to warning and caution lights. The panel also contains adequate space provisions for various arrangements of communication and navigation equipment. The lower fuselage structure beneath the pilot/passenger floor contains compartment space for the aircraft battery and provision for small cargo storage or installation of avionics equipment. Access to the compartments is through two floor door plates. The cargo compartment in the center of the aircraft contains provisions for installation of a bench or individual folding type passenger seats, which are adjustable in height. Seat belts are provided with several styles being offered. The seats and belts are easily removed.
Cargo compartment bench-type seats may be easily folded out of the way or completely removed for accommodating cargo. During cargo carrying operations, the compartment floor serves as the cargo deck. Removable and interchangeable cargo tiedown fittings are available. The aft section includes the structure for the tailboom attachment and engine compartment. Access to the engine compartment is provided through clamshell doors contoured to the shape the fuselage.

The lower section is divided by the center beam and provides a housing for the two fuel cells. Provisions for the attachment of a cargo hook are located on the bottom of the fuselage in line with the center beam. Four doors are installed on the helicopter-two on each side. The two forward doors permit access to the forward compartment for pilot and passengers. The two aft doors allow entry to the passenger/cargo compartment. Transparent tinted windows are contained in the doors.

The power plants used are either the Allison Model 250-C18 gas turbine engine with a takeoff power rating of 317 shp (OH6A) or the Allison 250-C20 with a take-off power rating of 400 shp(H500C).
Only 278 shp at 104 percent N2 RPM is used for takeoff; 243 maximum continuous shp provides sufficient power for all other flight modes. Limiting the maximum power to less than the maximum rated power provides a higher engine critical altitude.
The power turbine governor provides automatic constant speed control of rotor RPM. The overrunning clutch transmits power from the engine to the main drive shaft. The clutch has no external controls and disengages automatically during autorotation and engine shutdown. The main drive shaft connects to the main rotor transmission input shaft.
The engine oil cooler blower is belt driven off the main drive shaft. The oil cooler blower draws cooling air from the air inlet fairing to supply ambient air to the engine oil cooler and to the engine compartment. The main rotor transmission is mounted on the basic airframe structure above the passenger/cargo compartment. The transmission is lubricated by its own internal lubrication system.

The main rotor static mast is non-rotating and is rigidly mounted to the mast support structure. The rotor hub is supported by the rotor mast. Torque is transmitted independently to the rotor through the main rotor drive shaft, thus lifting loads are prevented from being imposed onto the main transmission eliminating thrust loading of transmission parts.

The tailboom is a monocoque structure of aluminum alloy frames and skin. The tailboom is the supporting attachment structure for the stabilizers, tail rotor transmission and tail rotor. The tailboom also houses the tail rotor transmission drive shaft; the one piece dynamically balanced shaft requires no intermediate couplings or bearings. Metallic diaphragm shaft-end-couplings are used.

The tail rotor transmission is mounted on the aft end of the tailboom and has a self contained lubrication system. The tail rotor is mounted on the output shaft of the transmission and consists of two variable pitch blades.

The helicopter utilizes a four bladed, fully articulated main rotor assembly with unique features. While contemporary helicopters use torsion tension straps in lieu of thrust bearing stacks to contain blade centrifugal loading and allow feathering, the MDHI strap pack arrangement goes three steps further. First, the strap configuration (while secured firmly to the hub) actually allows the centrifugal load exerted by one blade to be countered by the force exerted by the opposite blade. Thus, very light centrifugal loads are sensed by the hub. Second, the V-legs of the strap pack rotate as driving members to turn the blades. Finally the straps are configured to allow feathering and flapping of the blades. The main rotor blades are secured to the hub with quick release lever type pins.

Cyclic, collective, and adjustable pedal controls are provided at the left crew position (right position, military only). Adjustable friction devices, which may be varied to suit the individual pilot, are incorporated in the cyclic, collective and throttle controls. In addition, electrical cyclic trim actuators allow flight loads to be trimmed out. Since stick control forces are low, a hydraulic boost system is unnecessary. An optional dual control system may be easily removed to provide room for passengers or cargo. The landing gear is a skid-type attached to the fuselage at 12 points and is not retractable. Aerodynamic fairings cover the struts. Nitrogen charged landing gear dampers act as springs and shock absorbers to cushion landings and provide ground resonance stability. Provisions for ground handling wheels are incorporated on the skid tubes.

Installation & Setup

1. **Purchase & Download**
    - Open **Microsoft Flight Simulator 2024**.
    - Navigate to the **Marketplace**,
    - Locate the “OH-6A / Hughes 500C” addon and select **Buy & Download**, or **Download** if previously purchased.
    -
2. **Automatic Installation**
    - The sim will install the addon into its hidden **Official/OneStore packages folder**—you won’t see it under the Community folder. Updates are handled through the same interface.
3. **Verify the Addon**
    - Once downloaded, return to **My Library** under Marketplace or open the **Content Manager** via the Profile menu.
    - Confirm that the OH-6A / 500C addon shows as **Installed** and, if available, check for updates.

Aircraft and Variants

This addon provides two aircraft in one package. The OH-6A Cayuse and the Hughes 500C. Each of those aircraft are selectable from the main free flight roster.

They both have two variants:

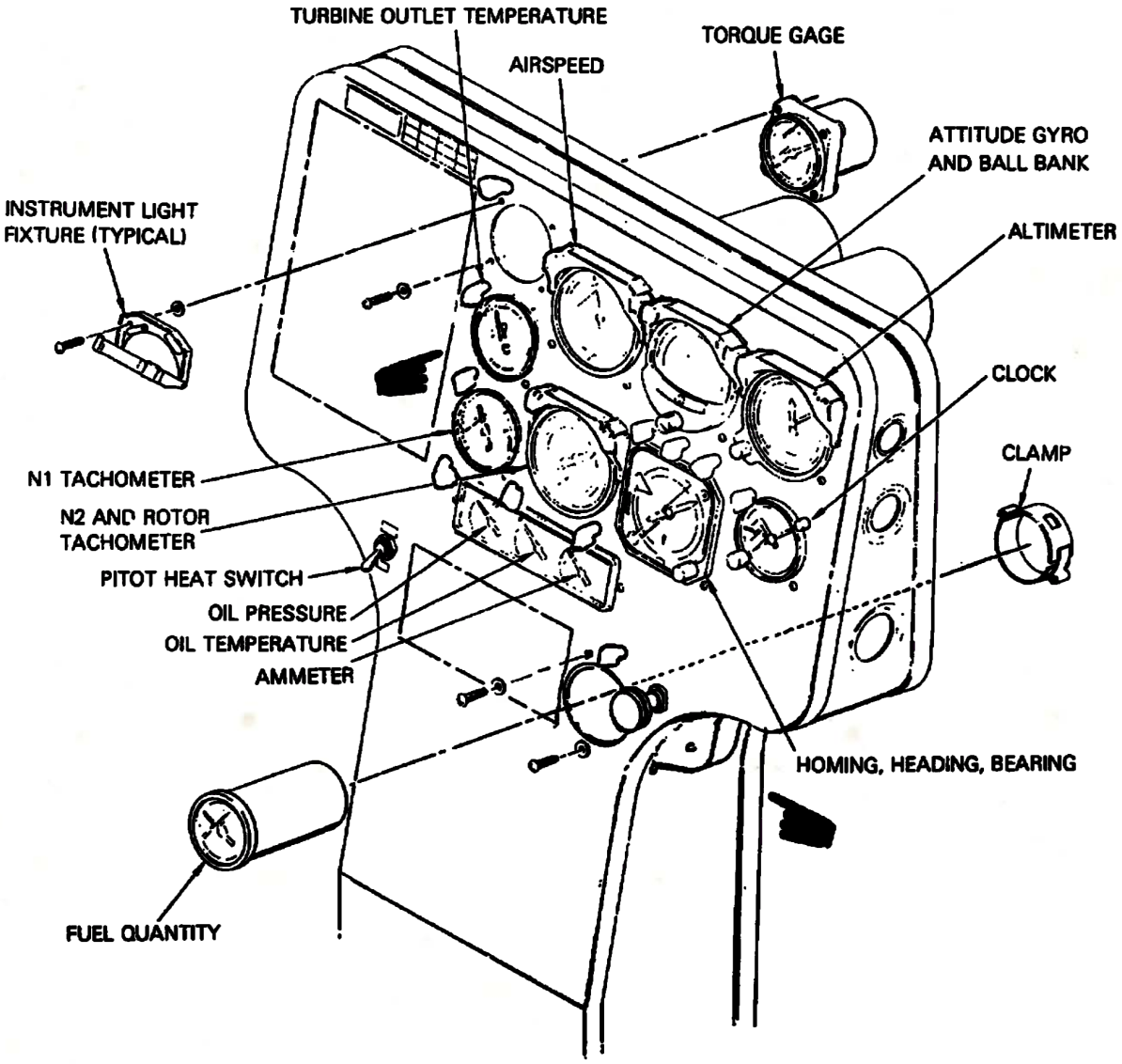
- OH-6A : Low skids and High Skids
- Hughes 500C : High skids and floats

In order to choose between those variants, use the configure panel. You will also be able to choose the liveries through this panel.

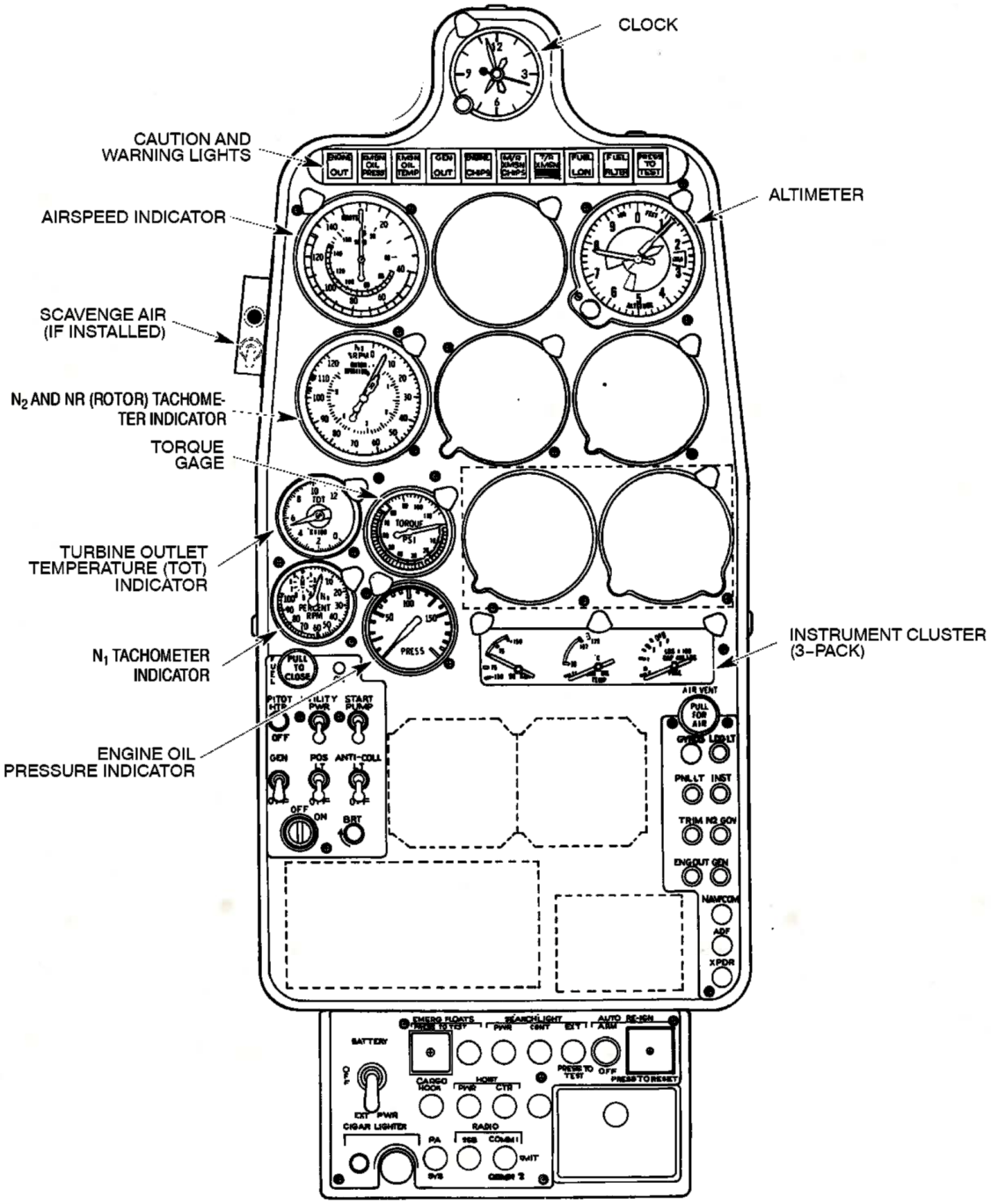
Cockpit Familiarization

The OH-6A and Hughes 500C share a compact, utilitarian cockpit layout, but each reflects its intended purpose, military or civilian. This section provides a basic introduction to the main panels and instruments to help you get flying quickly and comfortably.

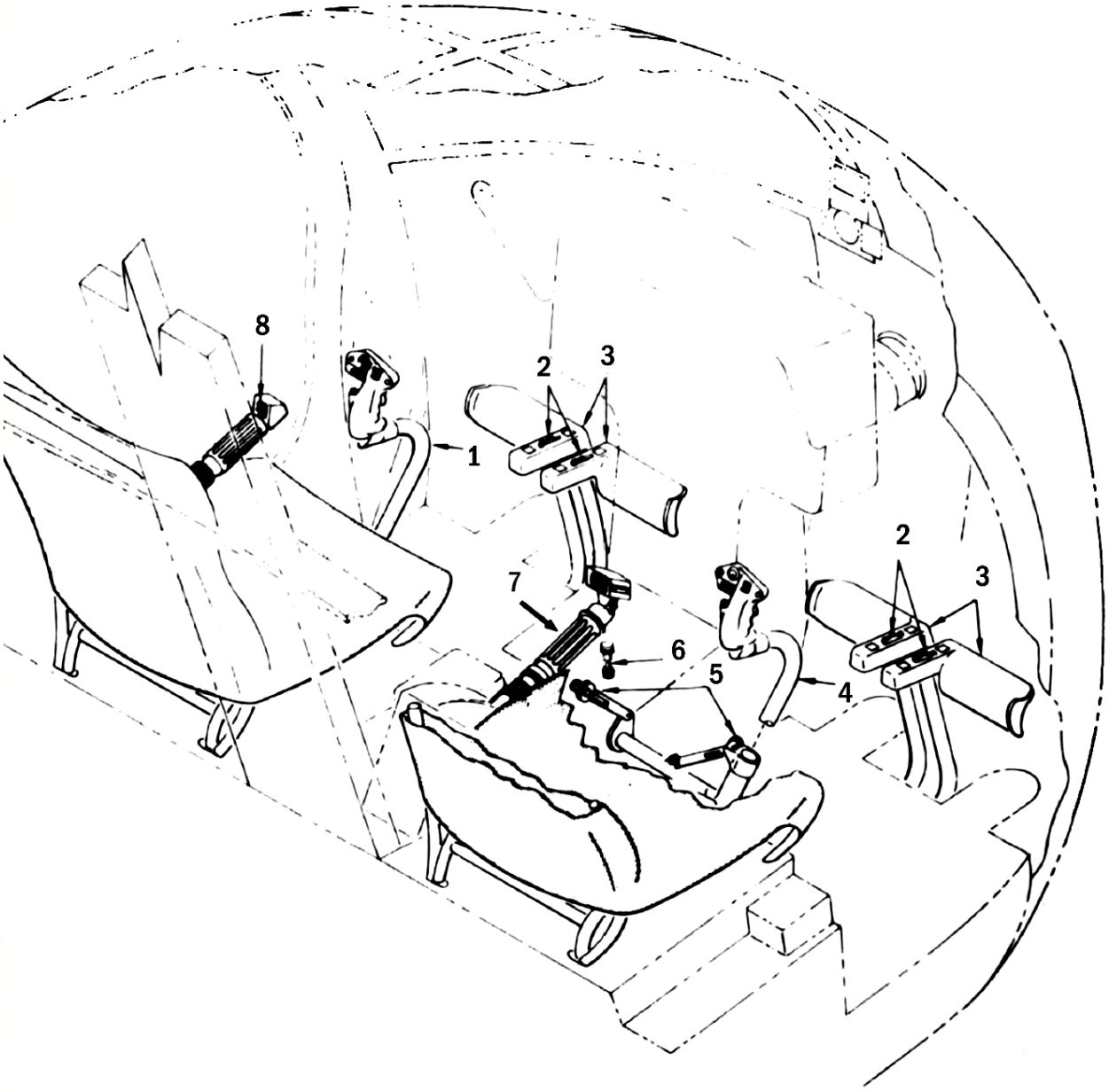
OH6A:



H500C:

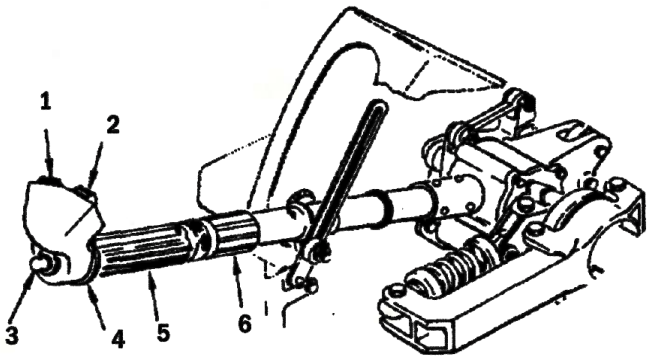

CLOCK
CAUTION AND WARNING LIGHTS
AIRSPEED INDICATOR
ALTIMETER
SCAVENGE AIR (IF INSTALLED)
N_2 AND NR (ROTOR) TACHOMETER INDICATOR
TORQUE GAGE
TURBINE OUTLET TEMPERATURE (TOT) INDICATOR
N_1 TACHOMETER INDICATOR
ENGINE OIL PRESSURE INDICATOR
INSTRUMENT CLUSTER (3-PACK)

Flight Controls



1. Copilot's cyclic
2. Antitorque pedals adjustment pin
3. Antitorque pedals
4. Pilot's cyclic
5. Cyclic stick adjustment knob (lateral and longitudinal)
6. Fuel Shut off valve (OH6A only)
7. Pilot's collective (see figures below)
8. Copilot's collective

Collective



1. Landing light switch
2. N2 Beep trim switch
3. Starter button
4. Idle stop release
5. Throttle grip
6. Collective stick friction

1. **Landing Light Switch**
    - Located on the head of the collective grip. Toggles the landing light on/off, useful for night ops or low visibility.
2. **N2 Beep Trim Switch**
    - Fine-tunes the engine RPM (N2) when the governor is in manual mode. Allows minor adjustments to maintain rotor RPM within limits.
3. **Starter Button**
    - Spring-loaded push button to engage the engine starter. Requires the ignition key to be ON.
4. **Idle Stop Release**
    - Mechanism to move the throttle from idle to full open (or vice versa). Acts as a safeguard against accidental throttle closure.
5. **Throttle Grip (Twist Grip)**
    - Integrated into the collective, this grip controls engine power. Twisting it increases or decreases RPM. When the governor is active, it should be set to full open.
6. **Collective Stick Friction Adjustment**
    - A friction knob that adjusts resistance on the collective movement, helping the pilot stabilize it in flight or during hover.

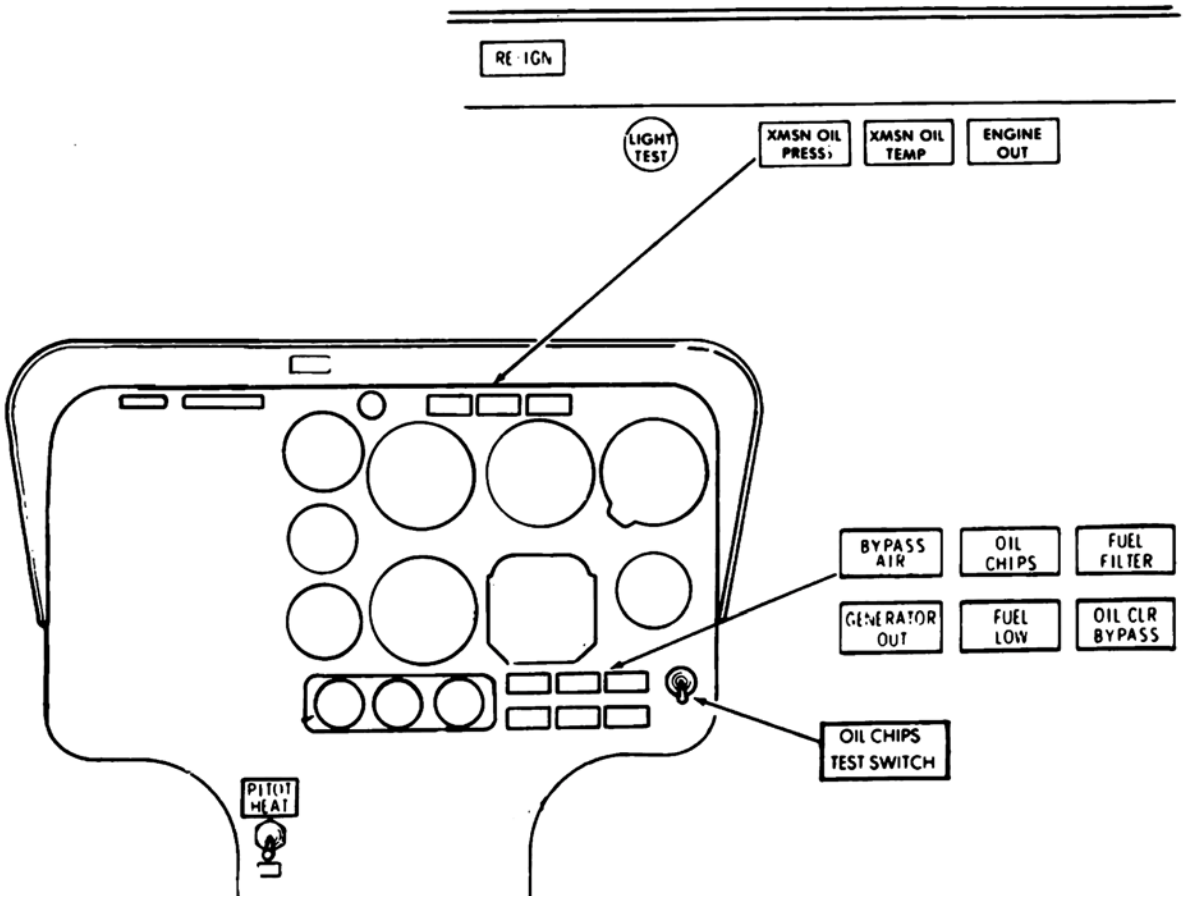
Starter Switch: Location and Use

On both the **OH-6A** and **Hughes 500C**, the **starter switch is located on the collective lever**, within easy reach of the pilot's left hand. It's typically a guarded push-button or spring-loaded switch marked **"START"**.

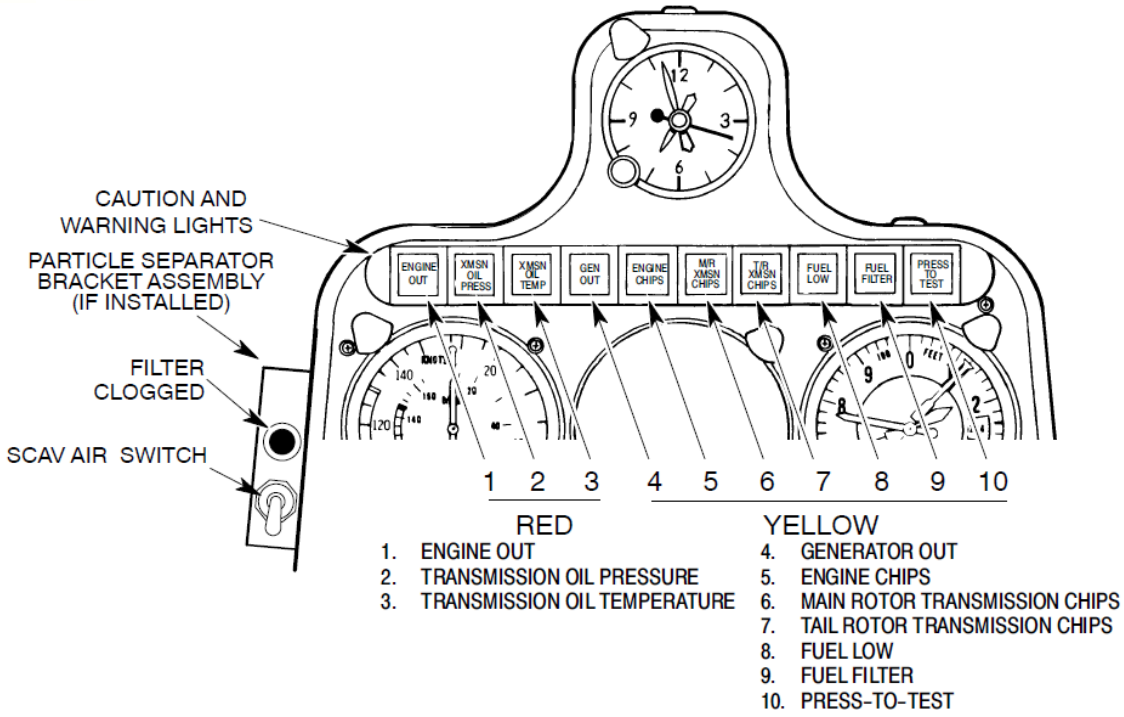
Note: The **ignition key must be in the ON position** before the starter will function.

Warning and Caution Lights Indicators

OH-6A:



H500C:



ENGINE OUT
Indicates engine failure or flameout. Requires immediate autorotation entry and emergency landing procedures.

TRANSMISSION OIL PRESSURE
Low or lost oil pressure in the main transmission. Risk of transmission failure—land as soon as possible.

TRANSMISSION OIL TEMPERATURE
Transmission oil is overheating. May indicate cooling failure or overwork. Reduce power and land as soon as practical.

GENERATOR OUT
The generator is offline or not producing current. Check switches; electrical systems may be running on battery only.

ENGINE CHIPS
Metal particles detected in the engine oil system. Sign of potential engine wear or failure. Monitor closely and prepare for landing.

MAIN ROTOR TRANSMISSION CHIPS
Metal particles detected in the main transmission. Indicates gear or bearing wear. Land as soon as practical.

TAIL ROTOR TRANSMISSION CHIPS
Metal particles found in tail rotor gear system. Tail rotor may be compromised—land as soon as possible.

FUEL LOW
Fuel quantity is at or below the minimum safe limit. Land as soon as possible to refuel.

FUEL FILTER
Contamination or blockage detected in the fuel filter. May lead to engine performance issues or flameout.

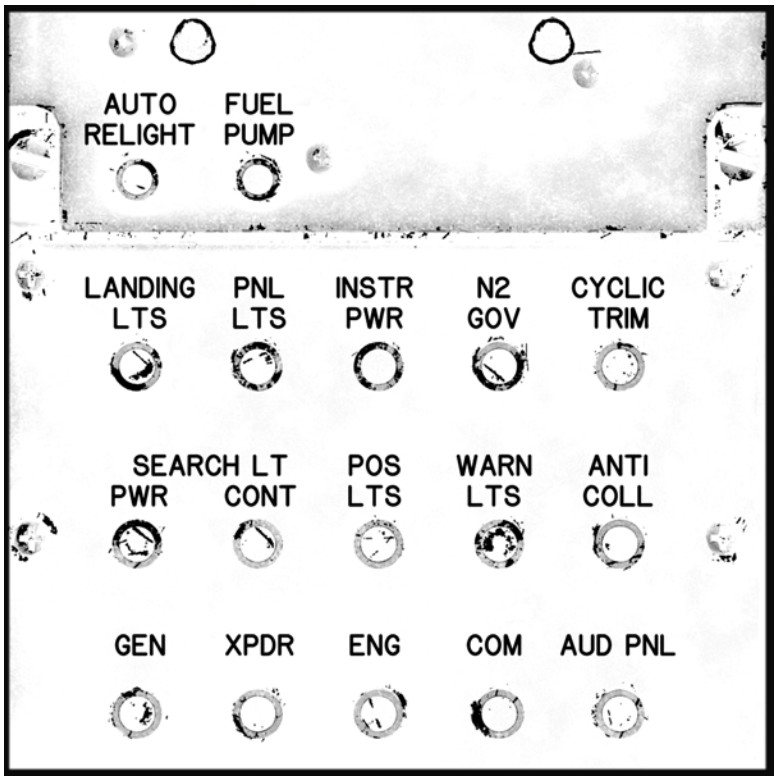
PRESS-TO-TEST
Press this button to check if all caution and warning lights are functioning properly during preflight.

Circuit Breakers

In both aircraft versions the majority of the circuit breakers are functional and will have an impact if you decide to pull them.

OH-6A:

Located on the center pedestal to the left side of the pilot.

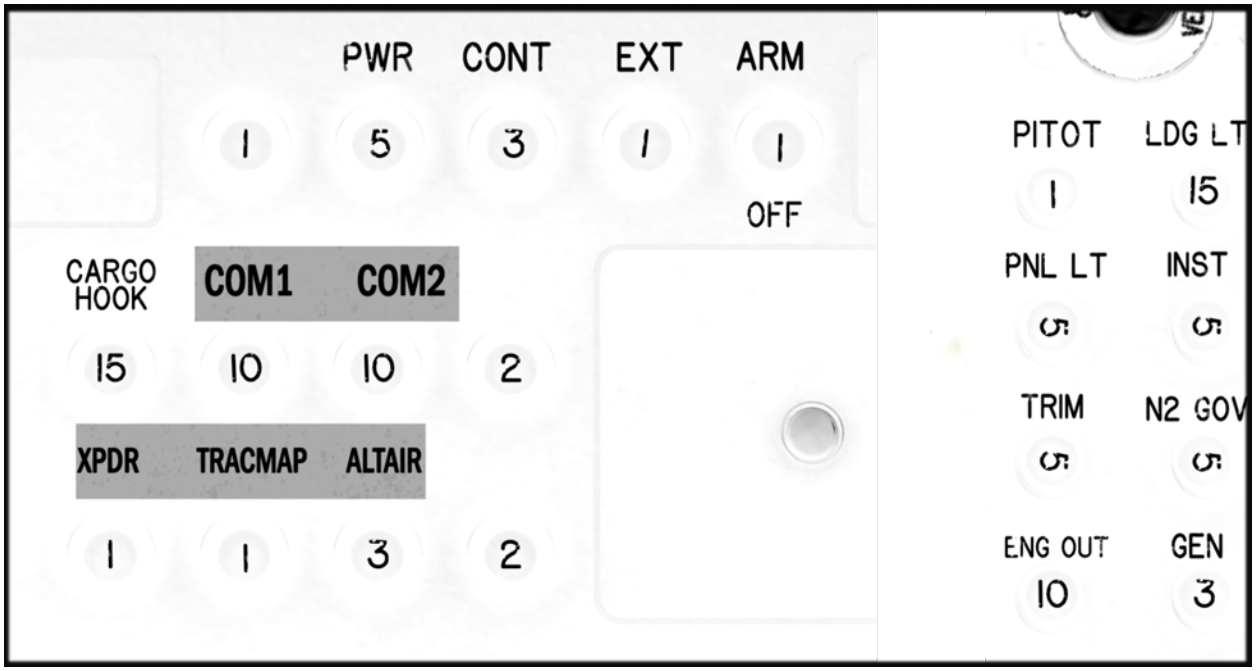


Circuit Breaker ID	Function
AUTO_RELIGHT	RE-IGNITION System
FUEL_PUMP	Electrical Fuel Pump
LANDING_LTS	Landing Light
PNL_LTS	Panel Lights
INSTR_PWR	Instrument Lights
N2_GOV	Governor

CYCLIC_TRIM	Trim Actuators (*not simulated*)
SEARCH_PWR	Search Light
SEARCH_CONT	Search Light Control
POS_LTS	Position Lights
WARN_LTS	Caution Lights
ANTI_COL	Anti-Collision Lights
GEN	Generator
XPDR	Transponder
ENG	Engine Out Warning
COM	COM Radio Panel
AUD_PNL	Audio Panel

H500C:

Located on the center console in front of the pilot.



PITOT	Pitot Heat
LDG_LT	Landing Light
PNL_LT	Panel and Caution Lights
INST	Instrument Lights
TRIM	Trim Actuators (*not simulated*)
N2_GOV	Governor
ENG_OUT	Engine Out Warning
GEN	Generator
PWR	Search Light
CONT	Search Light Control
EXT	External Power Jack
ARM	Utility Power
CARGO_HOOK	PWR Cargo Hook
COM1	COM1 Radio
COM2	COM2 Radio
XPDR	Transponder
TRACMAP	TracMap System (agricultural GPS Unit) (*not installed*)
ALTAIR	ICS

Emergency Procedures

Autorotation Characteristics

a. Lowering the collective to establish autorotation must be accompanied by approximately 2 to 3 inches aft movement of the cyclic . The amount of aft cyclic required will increase with higher entry speed. This coordinated action is necessary to counteract the tendency of the aircraft to nose down.

b. Exercise caution when lowering the collective and using aft cyclic, to avoid raising the nose of the aircraft excessively. A sudden excessive nose-up attitude will increase the angle of attack on the rotor system and possibly cause a rotor overspeed. At high gross weights, the collective must be utilized to control rotor rpm within normal limits. When a pitch-down condition exists, it is imperative that abrupt lowering of the collective and erratic movement of the cyclic be avoided to prevent a rotor blade strike on the tailboom.

Automatic Re-ignition System

The Automatic Re-ignition System activates the engine ignition automatically during an engine-out condition, as detected by the power-out warning system. If the throttle is at FULL OPEN, re-ignition and engine-out warnings are enabled when N2 drops to 98% (H500C) respectively 95% (OH-6A) or less. A throttle switch disables this detection when not fully open (e.g. during autorotation). There is a 3–4 second delay after returning to FULL OPEN to avoid false triggers. Regardless of throttle position, the system also activates if N1 drops to 55% or less. Re-ignition is limited to 5 seconds to prevent surges or fire risk after a crash.

Power Plant Limits - Allison 250-C18 (OH-6A)

Engine torque limits:

Maximum takeoff (5 minute): 80.3 psi torque.
Maximum continuous: 70 psi torque.
Transient torque limits:
80.4 to 90.0 psi torque for 10 seconds at 104 percent N2
90.1 to 100.0 psi torque for 3 seconds at 104 percent N2

Turbine outlet temperature limits:

Maximum takeoff (5 minute): 749°C
Maximum continuous: 693°C
Maximum for starting (lightoff): 150°C
Transient limits:
During start and shutdown: 749°C to 927°C for up to 10 seconds with a Momentary peak temperature of 927°C for not more than 1 second.
During power changes in flight: 749°C to 843°C for 6 seconds.

Power Plant Limits - Allison 250-C20 (H500C)

Engine torque limits:

Maximum takeoff (5 minute): 64.5 psi torque.
Maximum continuous: 56 psi torque.
Transient torque limits:
72.0 psi torque for 10 seconds at 104 percent N2
80.0 psi torque for 3 seconds at 104 percent N2

Turbine outlet temperature limits:

Maximum takeoff (5 minute): 793°C
Maximum continuous: 733°C
Maximum for starting (lightoff): 150°C
Transient limits:
During start and shutdown: 793°C to 927°C for up to 10 seconds with a Momentary peak temperature of 927°C for not more than 1 second.
During power changes in flight: 793°C to 843°C for 6 seconds.

User Options

Attachments

Use the option clipboard to access the attachment options and the realistic damage simulation and repair options. The clipboard is located next to you in the pocket between the two front seats. Click on the metal clip to unstow/stow it.

Realistic Damage Simulation

If this option is enabled, it is **mandatory to operate** the helicopter **within the Power Plant Limits listed on the page above** to avoid damage to the MGB (main XMSN gearbox) or the engine!

Repair All Damage

In the unfortunate event that

- you might have damaged your **MGB** (indicated by caution light 

(OH-6A) respectively  (H500C)) or

- you might have damaged your **engine** during a hot start (injecting fuel below N1 12% or above TOT 150°C - see above limit!), the engine will run significantly hotter than normal, which leaves you less available power to stay within the above listed TOT limits,

land as soon as practicable and call your mechanics to repair the damage (click "*Repair all damage*" on the clipboard)

NOTE: keep an eye on your TOT gauge upon every startup! After shutting down the engine, it will still be hot and only slowly cool down to outside air temperature over time. If you want to startup your (hot) engine again, make sure to cool down TOT by motoring the engine with the starter GEN (press and hold starter) until TOT is below 150° C before injecting fuel!.

Damage to your engine will be persistent! If you don't repair the engine, it will still be damaged at your next load into the simulation.

Keybindings for MSFS 2024

In case you have suitable hardware connected to your PC or Console, you can use the following keybindings to enhance immersion and realism of the simulation.
NOTE: There's more than you'll need! You can often choose between ON/OFF or TOGGLE depending on the nature of your hardware switches and buttons.

Function	MSFS 2024 KEYBINDING
Cyclic Axes	SET CYCLIC LATERAL AXIS
	SET CYCLIC LONGITUDINAL AXIS
	INCREASE ROTOR LATERAL TRIM
	DECREASE ROTOR LATERAL TRIM
	INCREASE ROTOR LONGITUDINAL TRIM
	DECREASE ROTOR LONGITUDINAL TRIM
	QUICK TRIM
	ROTOR TRIM RESET
Collective Axis	COLLECTIVE AXIS
Anti Torque Pedals	TAIL ROTOR AXIS
Twist Grip Throttle	SET HELICOPTER THROTTLE AXIS
Idle Release	THROTTLE 1 PREVIOUS DETENT
Starter	SET STARTER 1
	TOGGLE STARTER 1
Engine Beep Trim	ENGINE TRIM RPM INCREASE
	ENGINE TRIM RPM DECREASE
Fuel Shutoff Valve	SHUTOFF VALVE ON
	SHUTOFF VALVE OFF
	TOGGLE SHUTOFF VALVE
Engine Anti Ice	SET ANTI ICE ON
	SET ANTI ICE OFF
	TOGGLE ANTI ICE
Ignition Key	MAGNETO 1 START
	MAGNETO 1 OFF
	MAGNETO 1 RIGHT (= TOGGLE)

Battery MAIN	SET BATTERY 1
Battery OFF	SET BATTERY 2
Battery EXT	SET BATTERY 3
Generator	ALTERNATOR ON
	ALTERNATOR OFF
	TOGGLE MASTER ALTERNATOR
Inverter (OH-6A only)	TOGGLE ALTERNATOR 2 (= ON)
	TOGGLE ALTERNATOR 3 (= OFF)
	TOGGLE ALTERNATOR 4 (= TOGGLE)
Pitot Heat	PITOT HEAT ON
	PITOT HEAT OFF
	TOGGLE PITOT HEAT
Anti Coll Light	BEACON LIGHTS ON
	BEACON LIGHTS OFF
	TOGGLE BEACON LIGHTS
Position Lights	NAV LIGHTS ON
	NAV LIGHTS OFF
	TOGGLE NAV LIGHTS
Landing Light	LANDING LIGHTS ON
	LANDING LIGHTS OFF
	TOGGLE LANDING LIGHTS
Search Light	WING LIGHTS ON
	WING LIGHTS OFF
	TOGGLE WING LIGHTS
Search Light Control	LANDING LIGHTS HOME
	LANDING LIGHTS LEFT
	LANDING LIGHTS RIGHT
	LANDING LIGHTS UP
	LANDING LIGHTS DOWN

Action Button 1 (e.g. Bambi Water Release)	TAXI LIGHTS SET TOGGLE TAXI LIGHTS
Action Button 2 (Cargo Hook Release/ Emergency Jettison Bambi Bucket)	LOGO LIGHTS SET TOGGLE LOGO LIGHTS

PMS50 GTN750 Integration

If you want to use the PMS50 GTN750 (fully integrated), you need to follow these steps:
a) Download the GTN750 Free from the PMS50 homepage:
https://pms50.com/msfs/
b) To use the full functionality, you can additionally purchase the GTN750 Premium license.
c) Unzip the file into your community folder
d) Select the corresponding GPS option on the clipboard

TDS GTNXi750 Integration

If you want to use the TDS GTNXi750 (fully integrated), you need to follow these steps:
a) Purchase the GTNXi Pro from the TDS Sim Software homepage:
https://www.tdssim.com/tdsgtnxi
b) Download the “TDSGPSManager.exe” and follow the installation instructions
c) Select the corresponding GPS option on the clipboard

Checklists

(correspond with in-game EFB Checklist LEVEL EXPERT)

Preflight External		
Pitot Tube Cover	REMOVE	No obstructions
Aircraft Tiedowns	REMOVE	Blade socks and tiedowns
Aircraft Attitude	CHECK	Weak or damaged dampers
Canopy Condition	CHECK	Possible cracks, clear visibility
OAT Thermometer Sun Shield	CHECK	In place and in good condition
Landing Light	CHECK	
Antennas	CHECK	
Skid Tube	CHECK	Obvious damage
Skid Shoes	CHECK	Wear and tear, abrasion
Strut Fairings and Cuffs	CHECK	
Position & Anti-Collision Lights	CHECK	
Passenger Steps	CHECK	Condition and security
Engine Oil Level	CHECK	
Engine Air Inlet Bypass Door	CHECK	No obstructions
Main Rotor Assembly	CHECK	Pitch control rods, blade dampers for correct phasing, swashplate and mast.
Main Rotor Strap Pack	CHECK	
Blade and Damper Attach Pins	CHECK	
Main Rotor Blade Root Fittings	CHECK	Lead-lag link assemblies and lead-lag nuts for cracks

Preflight External		
Main Rotor Blades	CHECK	Chordwise cracks on the underside of the blade skin and doubler
Engine Air Inlet	CHECK	No obstructions
Fuel Level & Cap Security	CHECK	
Engine Outlet Cover	REMOVE	
Tailboom	NO DAMAGE ALLOWED	
Stabilizers and Strut	CHECK	No obvious damage, secure attachment
Tail Rotor Transmission Attach Bolt	CHECK	no evidence of movement
Tail Rotor Transmission Oil Level	CHECK	
Engine Mounts & Firewall	CHECK	
Landing Gear Attach Points, Rear Dampers	CHECK	Leaks, inflation and evidence of hard landing
Oil/Air/Fuel Lines	CHECK	No leaks or obvious damage
Electrical Connections	CHECK	
Exhaust Ducts	CHECK	
Engine Compartment Doors	CHECK	Condition and security
Cargo Hook	CHECK	

Preflight Internal Cockpit Checks		
Cabin Doors	CHECK	Closed and safelocked
Tail Rotor Pedals	ADJUST	
Tail Rotor Pedal Lock Pins	SECURED	

Preflight Internal Cockpit Checks		
Seat Belt and Shoulder Harnesses	FASTENED	Proper fit and engagement of buckle
Cyclic, Collective & Pedals	CHECK FULL TRAVEL	Frictions off
Cyclic Neutral	CHECK	Cyclic stick longitudinal neutral position is about 35 % (1/3) travel from full aft; lateral position may be determined by centering the friction control knob in the guide link.
Tail Rotor Pedals	CENTERED	
Collective	FULL DOWN, FRICTION ON	
Landing Light	CHECK OFF	
Rotor Brake Handle	STOWED	
Cabin Heat	OFF	CAUTION: Attempting to start the engine with any bleed air device ON may result in a "Hot Start"
Magnetic Compass HDG	CHECK	
VNE Card	SELECT	
Static Position of all Instruments	CHECK	
Altimeter	SET	
All Electrical Switches	CHECK OFF	
Radio Switches	CHECK OFF	
Circuit Breakers	AS REQUIRED	
Fuel Shutoff Valve	CHECK OPEN (IN)	
Electrical Power	AS REQUIRED	BATTERY/EXT PWR switch – set to BATTERY for battery start; to EXT PWR for external power start (connect ground power cart via clipboard)
Lights (Cabin, Panel, Instruments)	AS REQUIRED	

Preflight Internal Cockpit Checks		
Ignition Key	SWITCH ON	
Engine Out Warning System	GEN SWITCH ON THEN OFF	Flashing indicator light on the caution and warning light panel and audible warning in headsets
Auto-Reignition Test (H500C only)	PERFORM	Next three steps, skip for OH-6A (not installed)
PNL LT & ENG OUT CB	CHECK IN	
Place and Hold Test Switch	SWITCH TEST	ARMED and RE-IGN indicators illuminate and the sound of the igniter firing is heard. Release test switch. Only the RE-IGN light should remain illuminated after the test switch is released.
RE-IGN Light	PRESS TO RESET	
Caution and Warning Lights	PRESS TO TEST	
Caution Light Dimming (H500C only)	AS REQUIRED	
Twistgrip Throttle	CHECK	Twistgrip to FULL OPEN, return to GROUND IDLE STOP, then to CUTOFF position
Cyclic Trim Control	CHECK	Momentarily motor cyclic trim control- forward, left, right, aft – listen for motor actuation (NOT SIMULATED!)

Engine Start		
Cyclic	RECHECK	Trimmed to neutral; friction – ON
Collective	RECHECK	Full down; friction - ON
Twistgrip Throttle	RECHECK	Fully closed, CUTOFF position
Anti-Collision Lights	SWITCH ON	
Rotors	CLEARED	

Engine Start		
Starter/Ignition Button	PRESS AND HOLD	Rotate twistgrip to GROUND IDLE, when N1 indicates 12 to 15 % AND TOT < 150°C
TOT Gauge	MONITOR	During starts, overtemperatures between 793°C (C20) or 749°C (C18) and 927°C are permitted for up 10 seconds with a momentary peak at 927°C for not more than 1 second
Engine Oil Pressure	CHECK	50 to 130 psi. During cold weather operation, 150 psi oil pressure is allowable following an engine start. Remain at GROUND IDLE RPM until normal oil pressure limits are attained.
Caution & Warning Indicators	CHECK ALL OUT	Observe for any issues.
Engine Idle Speed	CHECK	250–C18: 62 to 67 percent N1 250–C20: 61 to 65 percent N1
All Other Engine Instruments	CHECK	
N2 and rotor RPM needles	CHECK SUPERIMPOSED	“Superimposed” reading (needles “married”) means within 1/2 needle width. The relative positions of the superimposed needles should remain constant during powered flight.

Engine Run-up		
Electrical Power	SELECT	External start: Set BATTERY/EXT PWR switch to BATTERY, disconnect external power source (via clipboard)
Generator Switch	SWITCH ON	
Inverter Switch (OH-6A only)	SWITCH ON	
Cyclic Friction	RELEASE	
Avionics	ON AND CHECK	
Twistgrip Throttle	FULL OPEN	Keep torque needle 250-C18: between 30 and 35 psi

Engine Run-up		
		250-C20: between 20 and 25 psi until GOV engages
N2 High Beep Range	CHECK	104% or more (105% max)
N2 Low Beep Range	CHECK	100% or less
Auto-Reignition Test (Engine Run-Up)	PERFORM	ARMED light should be on (H500C only). Reduce RPM (beep trim) below 98% (C20) respectively 95% (C18), the RE-IGN light should illuminate. Set N2 to 104% (beep trim), press and release RE-IGN light to acknowledge, light should go out
Low Rotor Warning and Auto-RE-IGN	CHECK	ON at 98 ±1 percent
N2 @ 104%	RECHECK	
Throttle Rigging Check	PERFORM	Snap to IDLE, if engine flames out, do not try to recover by opening twistgrip. Close twistgrip to CUTOFF and monitor TOT. Twist to FULL OPEN again, keep torque needle 250-C18: between 30 and 35 psi 250-C20: between 20 and 25 psi until GOV engages
Engine Oil Pressure	RECHECK	> 90 psi
Ammeter	CHECK READING	
All Caution and Warning Lights	RECHECK OUT	

Before Takeoff		
Cabin Doors	RECHECK	Closed and safelocked
Collective Friction	RELEASE	
Cyclic Response Check	PERFORM	With collective pitch full down, gently move cyclic stick and observe rotor tip for correct movement and track
All Instruments	CHECK	All in the green

Before Takeoff		
Position and Anti-Collision Lights	AS REQUIRED	
Pitot Heat	AS REQUIRED	Usually at OAT < 5° C

Takeoff		
Hover Area and Takeoff Path	CHECK CLEAR	
Hover Check	PERFORM	Governed N2 rpm should increase 1 to 2 percent (C18); 1–1/2 to 2 percent (C20) on takeoff – adjust as necessary to maintain N2 at 104 percent
Cyclic Trim	AS REQUIRED	Proper longitudinal trim is established when small fore and aft cyclic movements require the same force

Shutdown		
Twistgrip Throttle Deceleration Test	PERFORM	Follow the next 5 steps (250-C20 only)
Generator Switch	SWITCH OFF	
Twistgrip Throttle	FULL OPEN	
Collective	FULL DOWN	
N2	104 %	Stabilize at exactly 104 % (BEEP as required)
Twistgrip Throttle	SNAP TO IDLE	Begin time check with stop watch. Stop time as N1 passes through 65 percent. Observe elapsed time. Minimum allowable lapsed time is 2 seconds.
Twistgrip Throttle	IDLE	Hold for 2 minutes
Collective	FULL DOWN, FRICTION ON	
Cyclic	TRIM TO NEUTRAL, FRICTION ON	about 35 % (1/3) travel from full aft

Shutdown		
All Unnecessary Bleed Air and Electrical Equipment	SWITCH OFF	
Pedals	CENTERED	Maintain until rotor has stopped, then block
Twistgrip Throttle	CUTOFF	Immediately after closing twistgrip to the CUTOFF position, a dual tachometer needle split should occur with NR lagging behind N2
Engine Out Warning	CHECK	At 55 % N1
Auto-Reignition Light	CHECK ON	
All Other Switches	OFF	All except Anti-Collision lights and Battery
Rotor Brake	APPLY	At 235 rpm or less, release during last revolution
Rotor Brake Handle	CHECK STOWED	
Anti-Collision Lights	SWITCH OFF	
Battery/External Power	SWITCH OFF	

Performance Charts

Quick note from the devs:
The performance charts included in this manual—such as height/velocity diagrams, power check graphs, and hover ceiling references—are provided primarily for user reference and educational purposes. While this remains a simulation environment, these charts are real-world data from the actual H500 series and are included to **help users understand and appreciate the aircraft's real-life performance characteristics.**

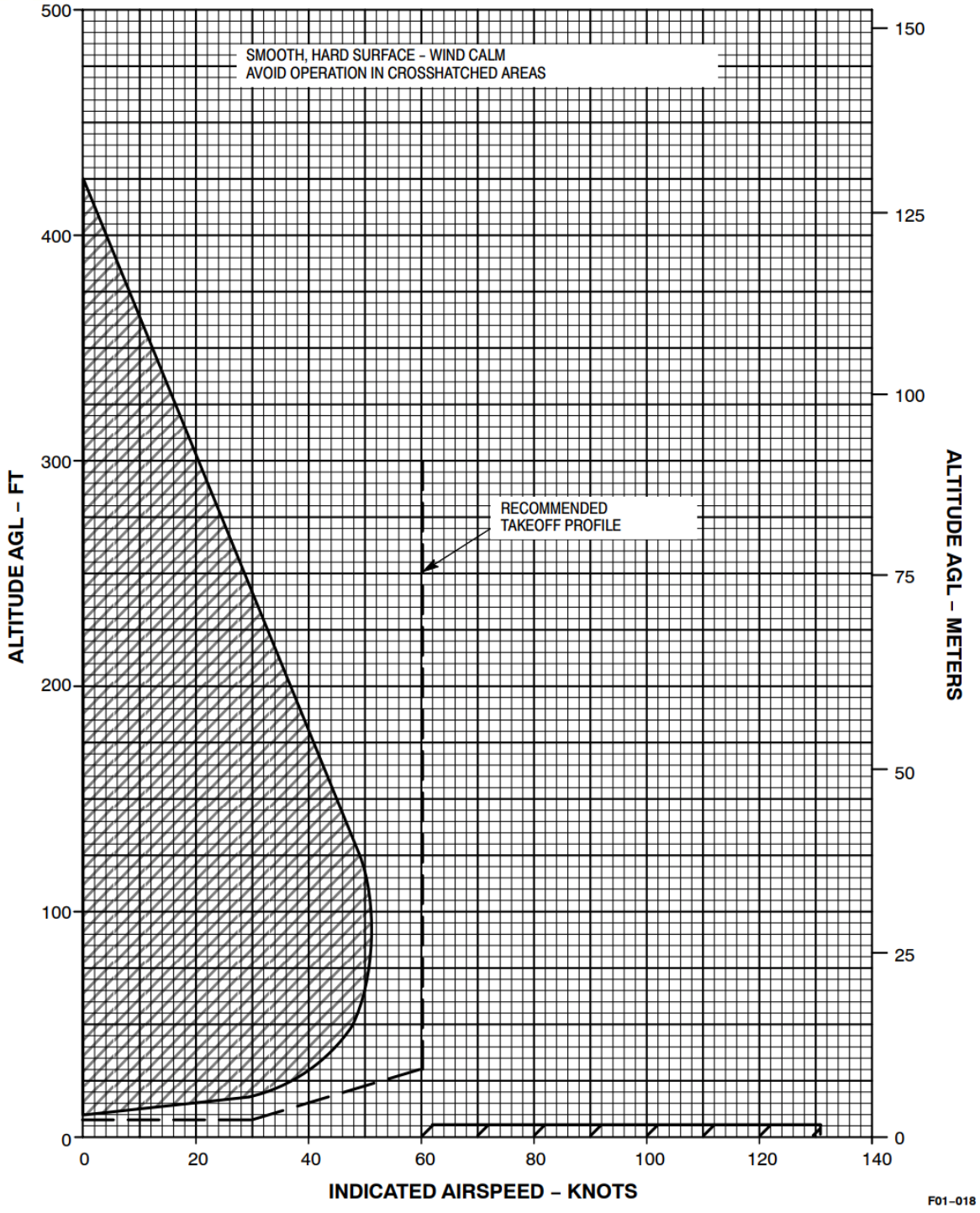
The flight model of the addon has been carefully tuned to follow these real-world values as closely as possible within the limits of the simulator. While not every nuance can be perfectly replicated, great care has been taken to reflect the aircraft's handling and performance behavior realistically.

These charts are not required for casual operation, but are offered to enhance immersion and enjoyment, especially for users who enjoy flying by the book or who want to deepen their knowledge of helicopter operations.

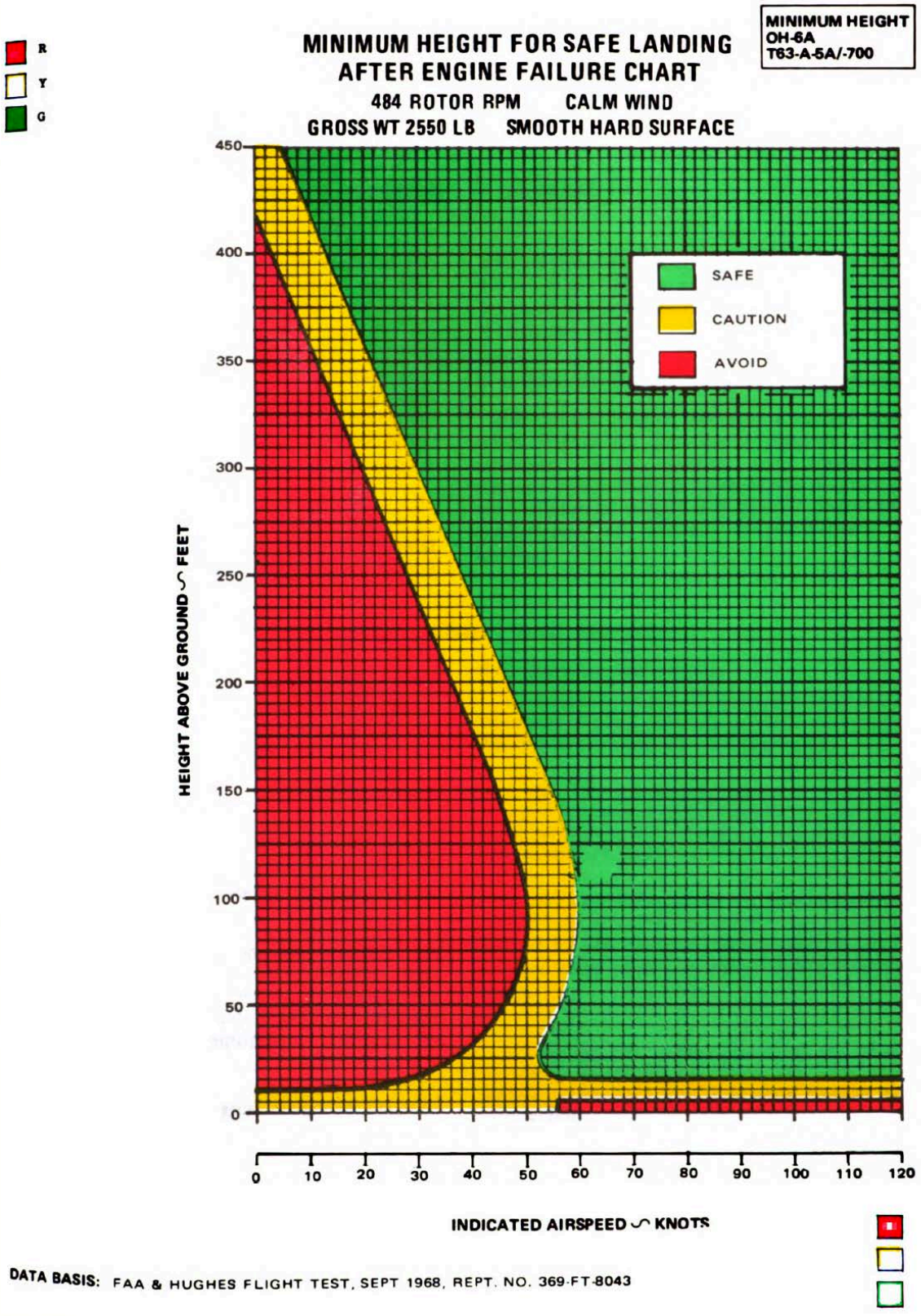
	V_{NE}, KNOTS, IAS GROSS WEIGHT = 2000 LBS OR LESS							
PRESSURE ALTITUDE x 1000 / °C OAT	0	1	4	7	10	13	17	20
–30						116	73	40
–15					126	102	58	– –
0		130			116	86	42	– –
15				127	103	71	– –	– –
30				118	89	56	– –	– –
45			129	107	76	43	– –	– –

	V_{NE}, KNOTS, IAS GROSS WEIGHT = MORE THAN 2000 LBS							
PRESSURE ALTITUDE x 1000 / °C OAT	0	1	4	7	10	13		
–30					92	66		
–15				108	79	54		
0		130	128	92	66	43		
15			109	80	55	– –		
30			94	68	45	– –		
45	125	112	83	58	– –	– –		

H500C: Height Velocity Diagram



OH-6A: Height Velocity Diagram



DATA BASIS: FAA & HUGHES FLIGHT TEST, SEPT 1968, REPT. NO. 369-FT-8043

These charts above are the Height-Velocity Diagram (also known as the "dead man's curve") for the H500C and OH6A helicopters. It is a critical performance chart that illustrates combinations of altitude above ground level (AGL) and airspeed where a safe autorotation landing is unlikely in the event of an engine failure.

What It Explains:

Unsafe Flight Envelope (Shaded/Crosshatched Area):

- The crosshatched and red zones on the left of the charts marks combinations of low altitude and low airspeed where:
    - The helicopter cannot safely autorotate if the engine fails.
    - There is insufficient height or forward speed to build rotor energy and execute a safe landing.
- Avoid operating in this zone, especially close to the ground and below ~60 knots.

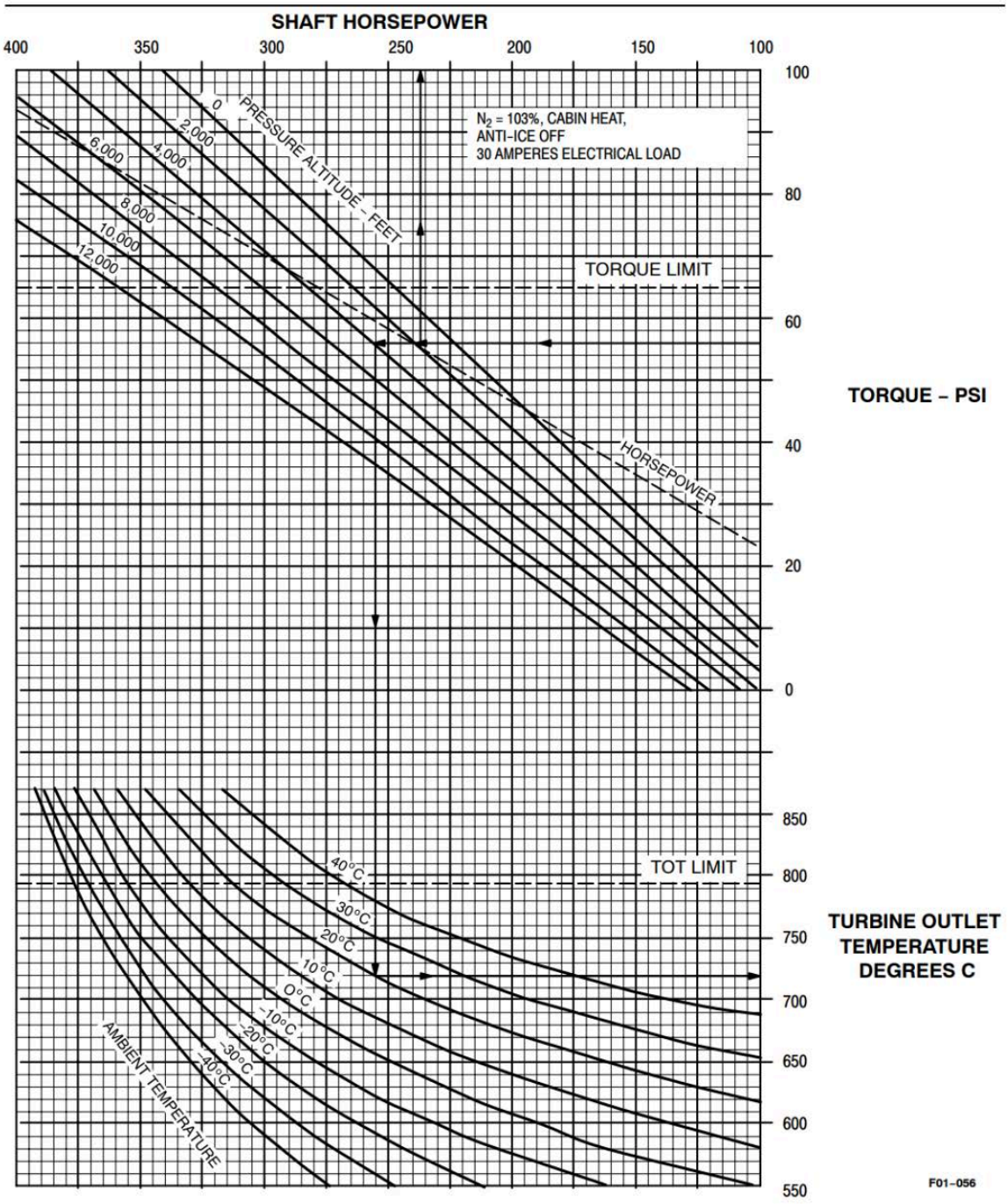
Safe Flight Envelope (Outside Shaded Area):

- Operations outside the shaded zone offer enough altitude and/or airspeed to safely perform an autorotation if the engine fails.
- Safe profiles typically involve either:
    - Flying above a minimum altitude vertically with little forward airspeed, or
    - Flying forward at sufficient speed with lower altitude, so kinetic energy can be traded for rotor RPM and descent control.

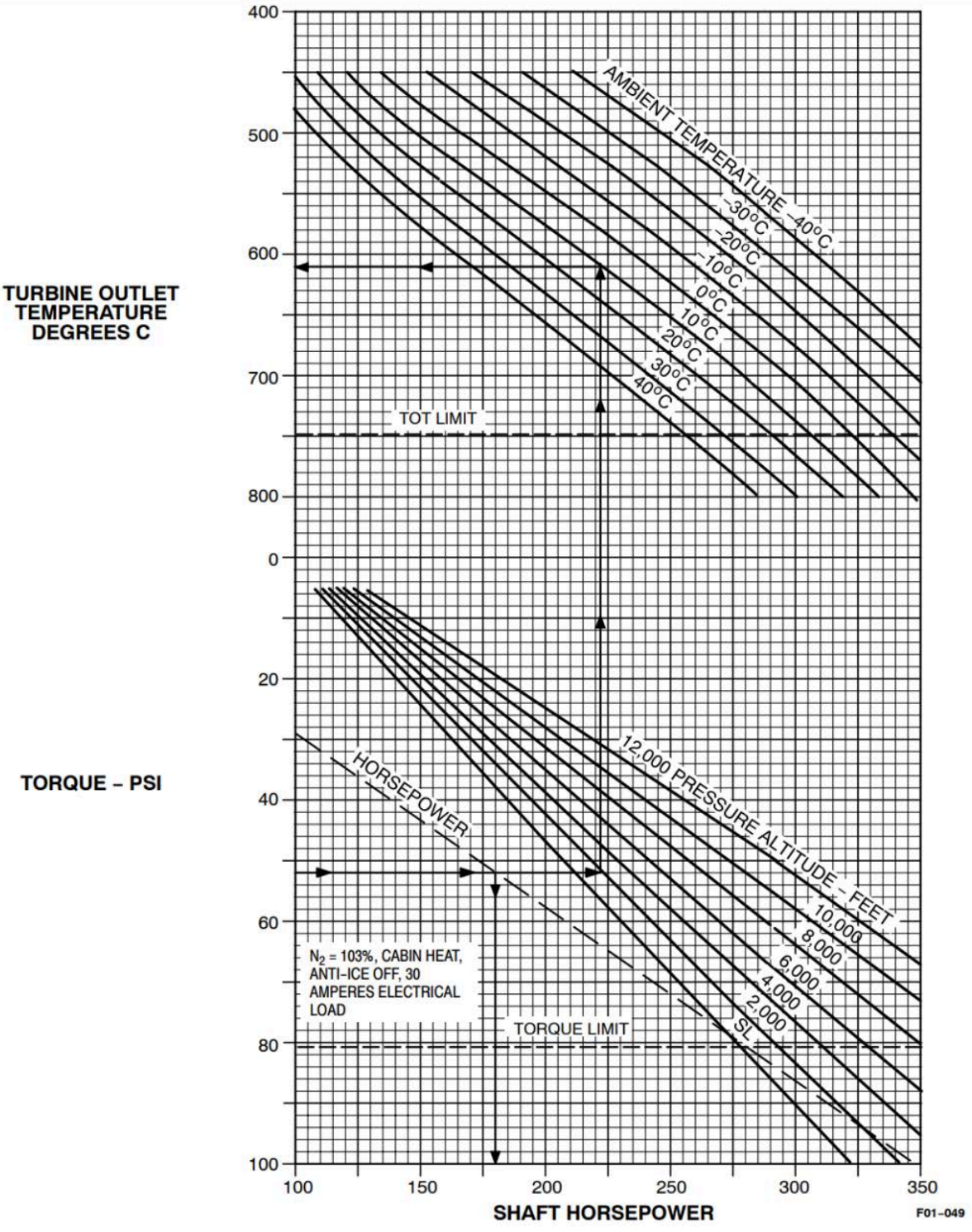
Recommended Takeoff Profile:

- The arrow marked “Recommended Takeoff Profile” shows the suggested path for transitioning from hover to forward flight.
- This path avoids flying through the shaded danger area by gaining some altitude first, then accelerating into forward flight.

H500C: Power check chart



OH-6A: Power check chart



These charts above are a Power Check Chart used respectively for the H500C and OH6A models (different power plant). It's used by pilots and maintenance personnel to evaluate engine performance health under specific conditions.

Axes:

X-axis (bottom): Torque (in PSI)
Y-axis (left): Shaft Horsepower
Y-axis (right): Turbine Outlet Temperature (TOT) in °C
Top scale: Shaft Horsepower (same scale as left axis)

Verify Engine Power Output:

- You use this chart to determine if the engine is producing the expected power output at a given:

  -Ambient temperature
  -Pressure altitude
  -Torque
  -TOT

Perform Power Assurance Checks:

- Ensures the engine is still operating efficiently and not degraded (e.g., from wear or damage).
- Comparing measured TOT and torque values during a hover or flight test to the chart tells you if the engine is within limits.

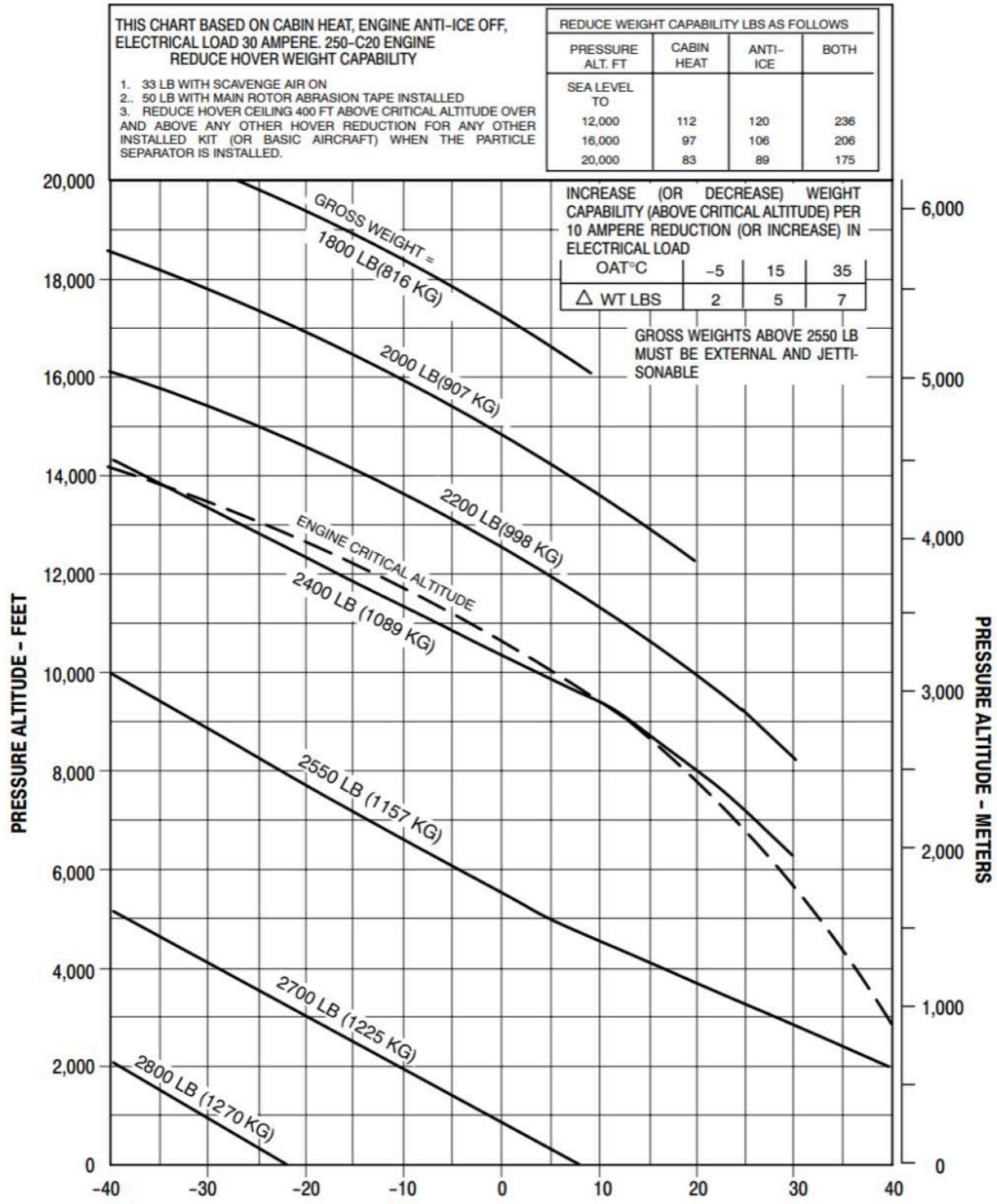
How to Use It:

- Determine Ambient Temperature (e.g., 20°C).
- Find the Pressure Altitude for your operating location (e.g., 6,000 ft).
- Locate the corresponding curve intersection for your torque and TOT readings.
- Verify that it aligns with expected horsepower output and does not exceed limits.

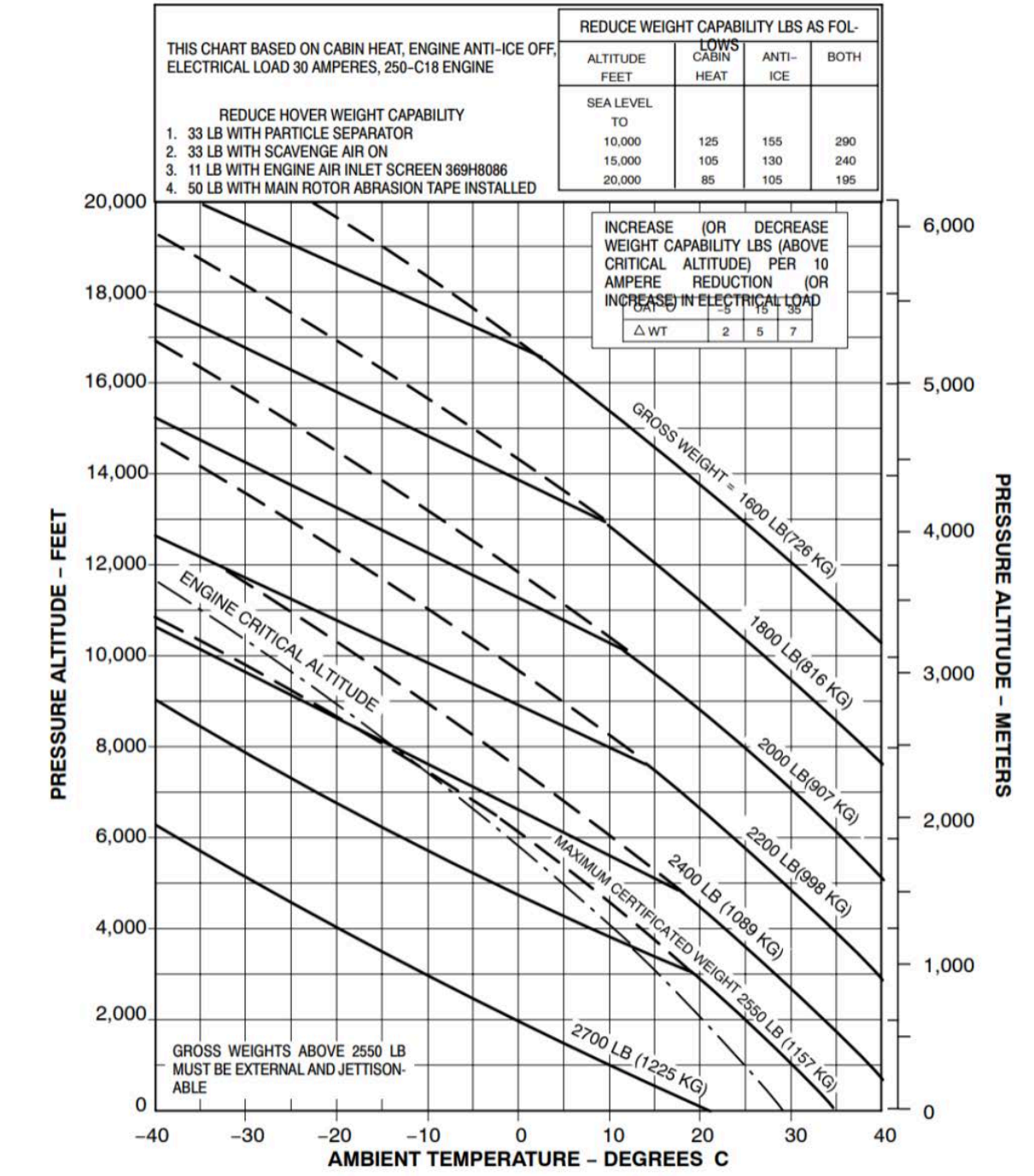
Important Notes:

- TOT Limit Line: If your measured TOT exceeds this line, engine performance is out of tolerance—this indicates a problem or degradation.
- Torque Limit Line: Don't exceed this regardless of TOT—it protects the transmission system.

H500C: Hover Ceiling vs. Temperature (OGE – Out of Ground Effect)



OH-6A: Hover Ceiling vs. Temperature (OGE – Out of Ground Effect)



NOTE: SOLID LINES REPRESENT HOVER CAPABILITY WITHIN THE LIMITATIONS OF 20 KNOT SIDE WIND. DASH LINES ARE REPRESENTED FOR INFORMATION ONLY AND REPRESENT PERFORMANCE CAPABILITY IN ZERO WIND CONDITIONS.

F01-067

These charts above are the Hover Ceiling vs. Temperature (OGE – Out of Ground Effect) performance chart respectively for the H500C and OH6A models. It helps pilots determine the helicopter's maximum hover capability under specific environmental conditions.

Axes:

X-axis (bottom): Ambient Temperature in °C (ranging from -40°C to +40°C)
Y-axis (left): Pressure Altitude in feet
Y-axis (right): Pressure Altitude in meters

Curved lines: Represent hover ceilings at different gross weights (e.g., 1800 lbs, 2000 lbs, up to 2800 lbs).

Purpose of This Chart:

To determine if the helicopter can safely hover OGE (Out of Ground Effect) at a given:
- Gross weight
- Pressure altitude
- Ambient temperature

This is essential for planning safe takeoffs, landings, and operations in high/hot environments where performance is degraded.

How to Use It:

- Determine your gross weight.
- Locate your ambient temperature (X-axis).
- Follow the vertical line upward until it intersects with the weight line.
- From the intersection, go left to find your maximum allowable pressure altitude for hovering OGE.

Important Note:

Dotted line = engine critical altitude (maximum altitude the engine can sustain full takeoff power).

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TAOG'S HANGAR