C-130 H3 Pilot Conversion Notes

The H3 were produced from 1992 to 1996 and were the last of the “legacy” C-130’s produced before the C-130J. The H3 aircraft is powered by T56-A-15 engines, and most annunciator lights have been consolidated in the mode advisory and caution and warning system (MACAWS). Additionally, the H3 models have electronic ADI and HSIs, dual INSs, APN-241 color radar, TCAS, and an improved autopilot system.

Mode Advisory and Caution and Warning System (MACAWS)

There are three levels of alerts: WARNINGS, CAUTIONS, and ADVISORIES. The crew is alerted to all WARNINGS via dedicated lights on pilot and copilot warning panels located on the glare shield warning panel on either side of the SKE panel. The crew is alerted to all CAUTIONS via a MASTER CAUTION light on the pilot/copilot warning panel, and then individual lights on the top half of the MACAWS panel located in the center of the main instrument panel. The crew is alerted to ADVISORYs via individual lights on the bottom half of the MACAWS panel. Both CAUTION and ADVISORY lights on the MACAWS panel are NVG compatible green.
WARNING LIGHTS:
GPWS TEST/PULL UP (Red): Aircraft entered GCAS warning envelope for modes 1 – 4. Pressing the switch initiates GCAS self test.

FIRE (Red): Combined engine fire and nacelle overheat.

AP FAIL (Red)” Indicates monitoring system has sensed an autopilot internal failure or failure of gyro, power source, or servo.

CREW DOOR (Red) Crew entrance door may not be closed and latched.

GPWS INHB/BELOW GS: GCAS Mode 5 alert, aircraft below glide slope. Pressing the switch below 1500 RA feet inhibits GS alerts.

ALT LOW (Green) Radio altitude is below altitude bug on radio altimeter.
The Caution and advisory lights are located in the center of the main instrument panel:

When a fault is detected in a monitored system, the associated MACAWS caution light and the MASTER CAUTION light will illuminate. For multiple caution lights, the MASTER CAUTION may illuminate steady. Advisory lights do not cause the MASTER CAUTION light to flash. Depressing either MASTER CAUTION light resets the MASTER CAUTION light to off/standby position and causes the caution light on the MACAWS to illuminate steady. The MASTER CAUTION light is rearmed to flash for subsequent illumination of any caution lights.

Technique: When resetting the MASTER CAUTION light, do not press on the center portion of the light. Use two fingers and reset the light by pressing on the frame. These lights cost $16,000.
The MACAWS caution light indicates that the MACAWS panel has an internal failure or that the annunciator light panel rheostat is faulty.

The MACAWS test switch is located behind the throttle/condition levers.

![MACAWS Test Switch](image)

**WARNING**

If an electrical short is experienced in the MACAWS panel wiring, the panel will not illuminate to advise the crew of caution, warning, and system mode advisories. If a MACAWS panel malfunction is suspected, perform a MACAWS panel self test. For confirmed failure, land as soon as possible.
Do not operate the lamp test function for more than 30 seconds. To do so may cause excessive heat to build up in the MACAWS panel.

To prevent excessive heat buildup, anytime MACAWS does not require the bright/dim switch to be in BRT, it should be placed to DIM.

Because of the above CAUTION, it is common practice to place the MACAWS BRT/DIM switch to DIM after the engineer’s preflight. For daylight operations, ensure MACAWS is readable before engine start.

**Aircraft General**

The following CAUTION indications are on the MACAWS

- **DOOR**: One or more of the following doors (paratroop, cargo door, cargo ramp) may not be closed and latched, or the ADS RAMP and DOOR switch is not the OFF position
- **OXYGEN**: Oxygen quantity less than 2.5 liters.

**Engines and Propellers**

Nacelle overheat and fire indications combined into fire light, as a result there is no separate indication or procedure for nacelle overheat. Either an engine fire or nacelle overheat will illuminate the red fire light on the MASTER CAUTION and WARNING panel and the light in the fire handle.

Oil cooler augmentation is installed on all H3s, and uses 14th stage compressor bleed air through an ejector to increase the air flow across the engine oil coolers. For the oil cooler augmentation system to operate, the following conditions must be met:

- Oil cooler switch must be in AUTO
- Oil cooler flap must be at least 90 percent open
- Throttle must be in the ground range
- Engine start switch must be in the OFF position.

Because the oiler cooler augmentation uses bleed air, it can be a significant load on the engine during:

- Low speed ground idle, and
- During reverse operations at hot temperatures/high density altitudes.
It is a good technique to turn off the oil cooler augmentation on hot days when landing if reverse will be used, and when operating all engines in low speed ground idle.

Unlike the H2, the H3 does not have oil cooler augmentation ON/OFF switches that allow oil cooler augmentation to be turned off with the OIL FLAP switch in AUTO. To turn the oil cooler augmentation OFF, move the oil cooler switch to FIXED. Turning OFF the bleed air switch for the engine will not disable the oil cooler augmentation.

**NOTE**
It is recommended that the oil cooler flaps be placed to FIXED/OPEN to deactivate the augmentation system during operations when all engines are in low speed ground idle before moving the throttles out of the ground idle detent on a downsped engine. If oil temperatures cannot be maintained within normal limits under these conditions, return engines to normal ground idle and place the OIL COOLING switches to “AUTO.”

When the oil cooler flap switch is moved to AUTO position, oil cooler augmentation will be enabled. When the oil cooler flap switch is moved from AUTO with the oil cooler flap in the full open position, the oil cooler flap will close, causing the oil temperature to increase. Once the oil temperature increases, the oil cooler augmentation valve will open.

The following CAUTION indications are on the MACAWS:
- T-OVHT 1, 2, 3, 4: Turbine overheat in affected engine
- PROP 1, 2, 3, 4: Propeller oil quantity is at least 2 quarts low in the pressurized sump
- ST VV 1, 2, 3, 4: Start valve is open
- SEC FP 1, 2, 3, 4: Secondary fuel pressure. If illuminated above 65% RPM, primary engine driven fuel pump, pressure switch, paralleling valve stuck closed, or 65% switch on speed sensitive control failure
- FUEL P 1, 2, 3, 4: Fuel pressure below 8.5 psi.
- OIL QTY: Oil quantity in one engine is less than 4.0 gallons, refer to oil quantity gages on overhead panel to determine affected engine.
- OIL TEMP: Oil temperature in one engine above 90 C, refer to oil temperature gages on overhead panel to determine affected engine.

The following ADVISORY indications are on the MACAWS:
- BETA 1, 2, 3, 4: Propeller blade angles are below the low pitch stop (23 degrees).
- FTHR 1, 2, 3, 4: Propeller feathering cycle in progress with FTHR OVRD button pulled in. If light remains illuminated after the feather cycle is complete, pull the FTR OVRD button out to turn off the auxiliary pump.
- TD 1, 2, 3, 4: Temperature datum correction lights, should be extinguished in temperature controlling range (above 65 degrees throttle position).
- NTS 1, 2, 3, 4: Feather valve is in position to feather the propeller. During airstart, light flashes to indicate NTS is functioning. A negative torque condition exists.
- AUG 1, 2, 3, 4: Oil cooler augmentation valve is open.
APU
Provides AC electrical power (via 40 KVA generator) and bleed air for engine starts on the ground. The APU can be operated inflight for electrical power only. The APU powers only the ESS AC bus. The APU may be operated inflight from -1,000 to 20,000 feet PA. The MAIN AC bus tie switch allows the ESS and MAIN AC busses to be powered.

The following CAUTION indication is on the MACAWS
   APU GEN: APU generator failure due to over/undervoltage, over/underfrequency, or ground fault.

The following ADVISORY indication is on the MACAWS:
   APU DR: APU Door is not completely closed

Autopilot/Flight Director (FCS-105)
The flight control system is made up of two (pilot and copilot) independent flight director systems and the autopilot. Two flight selector panels, one for the pilot and one for the copilot, are located on the center console behind the throttles are used for flight mode selection.

Modes are engaged when the associated button is pushed and green flag on the bottom of the button is in view. Pressing the button again will disengage the mode.

When a flight mode is engaged, steering commands will be given to the ADI command bars. The autopilot, if engaged, can be coupled to either flight director guidance by
pressing the AP CPLD button on either the pilot’s or copilot’s flight select panel. Once engaged, the autopilot will follow the commands from the selected flight control computer.

Flight director and autopilot modes are displayed on the system annunciator panels, one on the pilot’s instrument panel, one of the copilot’s instrument panel. The pilot’s and copilot’s flight directors are completely independent. The pilot’s mode annunciator panel shows the pilots flight director settings, while the copilot’s mode annunciator shows the copilot’s flight director settings:

The NAV OFF light, on the copilot’s system annunciator panel indicates that the copilot’s selection with his navigation selector has been disconnected. This light will illuminate if the pilot selects the same navigation source as the copilot, except for (SCNS, INS-1, INS-2, I-INS, or I-DOP). If the NAV OFF light is illuminated, the copilot should select another navigation source.

Roll Modes
HDG: The flight director guidance is to turn in the shortest direction using 25 degrees of bank and follow the HSI red heading bug:
A heading bug control for each flight director is located in front of the flight select panels on the center console behind the throttles. The pilot and copilot heading bugs are independent:

NAV LOC: Flight director guidance is provided to capture and maintain the navigation aid selected by the navigation selector switch on pilots or copilot’s instrument panel:

![Navigation Selector Switch](image)

**WARNING**

On aircraft with dual INU installed, if the pilot selects a non-operational mode on the navigation selector switch (MLS 1 (if not installed), MLS 2 (if not installed), SPARE, the copilot’s HSI bearing pointer will indicate erroneous data.

Prior to capture of the navigation course, heading select guidance may be used. Bank angle is limited to 25 degrees during capture. The navigation course is selected using the course knobs, located in front of the flight select panels on the center console behind the throttles.

APPR MODE: May be used with the navigation selector in ILS or MLS. Engages both lateral guidance to follow the localizer/MLS azimuth and pitch guidance to follow the glide slope. Prior to capture of the localizer/MLS azimuth course, heading select guidance may be used. Unless altitude hold is used, prior to glide slope capture, the pitch mode is pitch attitude hold.
Pitch Modes
Note: Pitch modes can only be engaged if a roll mode is previously engaged.

ALT: Altitude hold mode provides guidance to maintain pressure altitude when button was pressed. When altitude hold mode is engaged, the ALT HOLD light on the pilot’s system annunciator panel will illuminate.

ALT SEL: Altitude select, available only on the pilot’s flight control computer. Arms flight control system to capture and maintain altitude set in altitude alert/preselector (located near the top of the copilot’s instrument panel). When armed, the ALT ARM light on the pilot’s system annunciator panel will illuminate.

In the armed condition, IAS HOLD or vertical speed may be used to climb/descend to the selected altitude. ALT SEL is disengaged when pitch sync is engaged or by moving the autopilot pitch knob with the autopilot engaged. The ALT ALRT light on the pilot’s and copilot’s system annunciator panel will illuminate and a two second tone will sound when the aircraft is climbs/descends within 1000 feet of the armed altitude, and will extinguish when the aircraft is within 200 feet of the armed altitude.

VS: Vertical speed hold mode, available only on the pilot’s flight control computer. Provides guidance to maintain existing vertical speed when the mode was engaged. Must have a lateral mode active before engaging. When V/S hold mode is engaged, the VS HOLD light on the pilot’s system annunciator panel will illuminate.

**WARNING**

If vertical speed mode is selected on climbout, the autopilot will attempt to maintain the selected vertical speed at the expense of airspeed to the point of stall.

IAS: Indicated airspeed hold mode, available only on the pilot’s flight control computer. Provides guidance to maintain existing indicated airspeed when the mode was engaged. Must have a lateral mode active before engaging. When IAS hold mode is engaged, the IAS HOLD light on the pilot’s system annunciator panel will illuminate.
Pitch Synchronization mode: Actuated with lower yoke push button. The purpose of pitch synchronization is to synchronize flight director pitch commands to the aircraft’s current pitch attitude. With the autopilot engaged, pitch sync functions as control wheel steering, disengaging the autopilot pitch servo and allowing the aircraft to be manually flown in the pitch axis. Pilot and copilot pitch sync work independently, so if agreement between the pilot and copilot’s flight director guidance is desired, both pitch sync buttons need to be pushed at the same time. When pitch sync is engaged, any vertical modes [ALT HOLD, ALT SEL, IAS HOLD, or VS HOLD] and AP CLPD are disengaged, and must be reengaged after the pitch sync button is released. With APPR selected and glide slope captured, pressing pitch sync has no effect. After using pitch sync, the pilot must reengage:

- Pitch mode [ALT, IAS HOLD, or VS HOLD]
- AP CPLD
- ALT SEL to get altitude alerter capture.

Go-around mode: Actuated with upper yoke push button, disengages autopilot (if engaged), releases ALL flight select panel mode pushbuttons (including ALT SEL), and provides 7 degree pitch guidance. Pilot and copilot TOGA modes are independent.

NOTE
Pressing either go-around pushbutton will disengage the autopilot. The corresponding ADI command bars will display go-around command steering but the other attitude indicator will not change from previous selected mode.

NOTE
After a go-around command, command bars will not appear if the pitch sync button is pressed and no lateral mode has been engaged.

This provides an easy way to get rid of the flight director command bars; on yoke, hit G/A followed by P/S.
Autopilot
The autopilot is engaged using the engage levers (left one for the yaw damper, right one for the autopilot) behind the throttle quadrant. The yaw damper must be engaged in order to engage the autopilot. Autopilot basic modes are:

- Roll: heading hold
- Pitch: pitch attitude hold

Once engaged, the autopilot turn and pitch wheels can be used to control the aircraft.

Steps required to engage autopilot and couple to the flight director:
1. Set up the flight director modes (lateral first, then pitch)
2. Engage the autopilot using the engaging levers behind the throttle quadrant. At this point, the autopilot engages in basic modes of pitch and roll attitude hold. The autopilot is NOT following the flight director guidance at this point
3. When the flight director command bars are satisfied, engage the AP CPLD button. This action tells the autopilot to follow the flight director.

**WARNING**

The yaw damper must be in the ENGAGED position for autocoupled approaches, but must be DISENGAGED prior to landing. The ELEV TRIM switch may not disengage the yaw damper. The autopilot disconnect or YD DISENGAGE switch must be activated.

**CAUTION**

Disengage autopilot and yaw damper prior to switching attitude reference with the vertical reference switch.

Both pilots have AP CPLD lights on their respective mode advisory panel to indicate when the autopilot is coupled or disengaged to their flight director system. The AP DSNG light on the pilot’s and copilot’s system annunciator panel will illuminate whenever the autopilot is disconnected. The AP DSNG light may be extinguished by pressing the autopilot disengage reset pushbutton on the MACAWS lamp test panel.
Flying ILS using Autopilot

- Go-around
- Glideslope Capture
- Established on Localizer, ARM APPR (GS)
- Localizer Capture

When:
- Localizer tuned and identified, and
- Have proper localizer displacement, and
- ATC clears you for the approach.

Select NAV/LOC. Recommend selecting NAV/LOC until the aircraft is established on final approach course before selecting APPR. APPR mode will descend you on glideslope before the aircraft is established on the localizer.

Use HDG SEL to follow radar vectors
Altitude hold engaged
Flight Instruments

Airspeed indicator.

The H3 has the Rosemont pitot static system. Use T.O. 1C-130H-1-1 data coded with:

[H] [R]

Airspeed indicator includes both a drum and pointer. The drum is not active until above 60 knots. Banded pointer indicates maximum recommended airspeed (VH), corrected for altitude.

Orange bug is used to drive FAST/SLOW indicator on right hand side of ADI. Full scale deflection is ± 10 knots

Techniques for setting the airspeed bug:
- Takeoff: Set to 2-engine VMCA
- Enroute: Set to speed commanded by the navigator
- Approach: Set to 2-engine VMCA or Vapp

Altimeter

Attitude Indicator:
Single cue flight director. Radio altitude displayed in upper left. Green rising runway represents a combination of radar altitude and expanded localizer deviation. Rises during when radar altitude is less than 200 feet, left and right displacement indicates localizer displacement. Full scale deflection is 1-1/4 localizer dots displacement.
The ADI and HSI use identical displays. To swap EFI (ADI to HSI or vice versa), press TST button twice in quick succession (0.5 second). Holding TST button runs BIT. Do not run the BIT while in flight.

The airspeed FAST-SLOW reference is shown on the right hand side of the ADI. The pointer is referenced to the orange bug on the airspeed indicator. Full scale deflection is ±10 knots. The pilot and copilot FAST-SLOW references are independent.

Attitude reference: Two sources, INS-1 and INS-2, selected using VERT REF switch:

![Image of VERT REF switch]

**WARNING**

Both pilots will have independent attitude references when flying in IMC.

**CAUTION**

Disengage autopilot and yaw damper prior to switching attitude reference with the vertical reference switch.
Defaults:
Pilot: INS-1 (switch in UP position)
Copilot: INS-2 (switch in DOWN position)

Horizontal Situation Indicator
Heading reference is from INS-1 for pilot, INS-2 for copilot. Selected course and heading in upper right, ground speed (GS) and TAS in lower right, static air temperature (SAT) in lower left, TACAN DME (any navigation selection other than SCNS, I-DOP, or I-INS) or distance to next waypoint (navigation selection in SCNS, I-DOP, or I-INS) in upper left. The GS readout is not accurate on the ground.

VVI
Provides TCAS RA guidance.
**Icing/Bleed Air Systems**

The following **CAUTION** indications are on the MACAWS:

- **ICING**: Ice has been detected. Anti-icing and deicing systems have been turned on automatically if individual system switches are ON and the ICE CTL MSTR switch is in the AUTO position
- **L OW OHT**: Left outboard wing overheat
- **L CW OHT**: Left centerwing overheat
- **R CW OHT**: Right centerwing overheat
- **R OW OHT**: Right outboard wing overheat
- **L WW OHT**: Left wheel well overheat
- **N WW OHT**: deactivated
- **R WW OHT**: Right wheel well overheat
- **CAB ALT**: Cabin altitude above 10,000 feet
- **P PITOT**: Pilot’s pitot heat is inoperative or the P PROBE HT switch is OFF
- **CP PITOT**: Copilot’s pitot heat is inoperative or the CP PROBE HT switch is OFF

The following **ADVISORY** indications are on the MACAWS:

- **NO ICE**: Ice detector probes are no longer icing

**Electrical System**

Two bus switching units (BSU1 and BSU2) provide continuous no-break power transfer to the essential and main avionics AC buses for critical avionics systems. BSU1 supplies the ESSENTIAL AVIONICS AC bus and BSU2 supplies the MAIN AVIONICS AC bus. Each BSU receives AC power from 3 aircraft AC busses, a primary, alternate, and when on external power.
Each BSU monitors electrical system status including engine generator line contactors, APU generator contactor, and the AC external power contactor, and from this information is able to anticipate impending bus transfers. The BSUs also monitor voltage, frequency, and current and defaults to the primary AC bus, provided the outputs are within limits.

The BSUs are powered by 28 V DC and have ON/OFF switches on the overhead electrical panel. When OFF or depowered, the BSU reverts to a bypass condition and supplies power to its respective avionics bus from the its primary AC bus. If the BSU is in bypass mode, MACAWS BSU 1 or BSU 2 OFF lights will illuminate.

The MEL requires that BSU 1 be operational for flight.

The following CAUTION indications are on the MACAWS:
    GEN 1, 2, 3, 4: Indicates over/undervoltage, over/underfrequency, or ground fault. Check frequency, voltage, and load of affected generator.
    BRG FAIL Cautions: When illuminated, generator must be disconnected
    L AC, ESS AC, MAIN AC, R AC: Indicates possible AC bus power failure.
    ESS AV: Essential avionics bus failure.

**WARNING**

When essential Avionics Bus power is not available, the INUs cannot provide pitch, roll, or heading signals to the flight instruments.

MAIN AV: Main avionics bus failure
AC INV: If the AC INST & ENG FUEL CONT switch is in the DC position, the AC INST & ENG FUEL CONT inverter/bus has failed. If the AC INST & ENG FUEL CONT switch is in the AC position, the AC INST & ENG FUEL CONT bus has failed.

BAT DSCH: Failure of the reverse current relay connecting the essential and isolated DC buses.

The following ADVISORY indications are on the MACAWS:
    BSU 1/2 OFF: BSU 1/2 is in the bypass mode
DISC 1, 2, 3, 4: Generator disconnect mechanism has been fired or test switch is in the TEST GEN DISC position.

Fuel System

If any fuel indicator displays an error code of E6, E8, or E9, or the indicator display goes completely blank or is illegible, pull the associated fuel quantity circuit breaker. Do not reset until proper inspection and repairs have been made.

The following CAUTION indication is on the MACAWS:
FUEL P 1, 2, 3, 4: Fuel pump pressure below 8.5 psi

The following ADVISORY indications are on the MACAWS:
- L EXT FP: Fuel pressure in the left external tank is below 23 psi
- L AUX FP: Fuel pressure in the left auxiliary tank is below 23 psi
- R AUX FP: Fuel pressure in the right auxiliary tank is below 23 psi
- R EXT FP: Fuel pressure in the right external tank is below 23 psi

Hydraulic System

The rudder boost pressure gages have been removed and replaced with a RUD BST MACAWS caution light. The RUD BST light functions as a disagree light; and will illuminate if the flaps are 0-15% with over 1475 psi or flaps are between 15 and 100% with less than 1375 psi. Each rudder system has a direct reading gage on the diverter.
valve panel. These gages are located above the cargo door aft hinge in the very back of the aircraft.

The following CAUTION indications are on the MACAWS:
- HYD 1, 2, 3, 4: Engine driven hydraulic pump pressure less than 1000 psi.
- U SUCT: Utility suction boost pump pressure less than 20 psi
- B SUCT: Booster suction boost pump pressure less than 20 psi
- RUD BST: Illuminates if the flaps are 0-15% with over 1475 psi or flaps are between 15 and 100% with less than 1375 psi
- CTL BST: One or more of the control boost switches are in the OFF position

**Landing Gear**
The landing caution light formerly located in the landing gear handle is located on the bottom of the pilots and copilot’s mode advisory panels.

The H3 has 3,000 psi brakes. Use caution to avoid inadvertent brake application from foot placement on the rudder pedals. Lightly riding the brakes, especially during landing, will quickly overheat the brakes. Ensure your heels are on the floor prior to landing.

The following CAUTION indication is on the MACAWS:
- ANTI-SKID: Anti-skid is not operating as an integral part of the brake system. Illuminated when emergency brakes are selected or parking brake is ON (in park).

The following ADVISORY indications are on the MACAWS:
- LA SKID: During test, indicates anti-skid control box would have properly responded to an actual skid for the left aft wheel
- LF SKID: During test, indicates anti-skid control box would have properly responded to an actual skid for the left front wheel.
- RA SKID: During test, indicates anti-skid control box would have properly responded to an actual skid for the right aft wheel
- RF SKID: During test, indicates anti-skid control box would have properly responded to an actual skid for the right the forward wheel
**Radar**
The radar is a APN-241 low power color weather radar. The pilots share a single channel, so any changes will affect both pilot and copilot. Pilots and navigator can share alternate sweeps of the radar. When the pilot is in windshear (WS), the pilots get two sweeps and the navigator gets one. If you are flying with a navigator, coordinate radar settings.

The self-contained navigation system (SCNS) flight plan, TCAS, and SKE can be overlayed onto the radar display.

**Airdrop**
The following ADVISORY indication are on the MACAWS:
- AIR DEF: Air deflector doors are not closed
- TRP RDY (Red light)
- TRP JMP (Green light).
- ADS RDY: Cargo door is open and the ramp is in the airdrop position

**Miscellaneous Equipment**
The aircraft is equipped with NVG lighting glare shields. These are normally stored on the aft portion of the pilot’s and copilot’s side shelf glare shields:
Unfolding NVG Glareshield

NVG Glareshield Installed

**WARNING**

Ensure the glareshields are removed and stowed prior to landing. Egress from the pilot’s and copilot’s swing windows is blocked with the glareshields installed.
Normal Procedures unique to H3

BEFORE STARTING ENGINES

EFI and radar indicator PWR switches – “ON” (P, CP)

Standby Attitude Indicator Power Switch – ISO DC (P). On 92 models, this switch is near the top of the pilot’s instrument panel:

On later aircraft it is on the overhead electrical panel:

STARTING ENGINES

It is common practice to DIM the MACAWS after preflight to avoid heat buildup. Ensure the MACAWS is readable by placing BRT/DIM switch to BRT, if necessary, before engine start. The MACAWS BRT/DIM switch is located on the pilot’s side shelf on the PLT LTS panel:
Do not start the engines if the ST VLV caution light is illuminated prior to ENG START switch actuation.

If the ST VLV light does not illuminate within 5 seconds of start switch actuation, discontinue the start.

If the ST VLV light does not extinguish within 15 seconds after releasing the start switch, place the ENGINE BL AIR switch to OFF and shut down the engine. Maintenance action is required.

BEFORE TAXI
1. Standby Attitude Indicator – “Uncaged”
   Uncage only when the aircraft is completely stopped

2. Radios and Navigation equipment – “Set” (P, CP)
   a. Radios – ON
   b. Navigation radios – ON
   c. Radar Altimeter – ON, Checked

3. Instruments – “Checked”
   a. Attitude indicator – check alignment and ensure the warning flag(s) is not visible.
   b. Place flight director/flight control system(s)
      i. Place the navigation selector switch to the primary navigation aid to be used for departure.
      ii. Set heading marker for the most logical heading for takeoff
   c. Navigation equipment and instruments

12. Heading Indicators – “Checked, state heading” (N, P, CP)
    The pilot will compare headings with each other, the INU headings, and magnetic compass.

TAXI
With oil cooler augmentation, make more use of reverse thrust to minimize brake wear.

BEFORE TAKEOFF
6. ADI mode and NAV SEL panels – As required “Normal, <Navigation selector setting>”:
   a. Airspeed pointer [Technique]: Put airspeed bug on 2E VMCA
   b. Navigation select panel: To primary navaid for departure
   c. ADI select switch - For normal, non SKE takeoffs - NORM:
d. Flight Select panel: Flight director modes (ALT SEL, HDG, as required)
c. Altitude alerter/preselect: As required

7. VERT REF switches – “Set, as required” (P, CP)
   Normal settings are Pilot – INS-1, Copilot – INS-2

   **WARNING**
   Both pilots will have independent attitude references when flying in IMC.

**DESCENT**
7. Altitude Alerter (for instrument approaches only) – “MDA, set, state setting” (P,CP)

8. VERT REF switches – “Set, as required” (P, CP)
   Normal settings are Pilot – INS-1, Copilot – INS-2

   **WARNING**
   Both pilots will have independent attitude references when flying in IMC.

**BEFORE LANDING**
4. ADI mode and NAV SEL panels (for instrument approaches) – “Set, <Navigation selector setting>”:
   a. Airspeed pointer [Technique]: Put airspeed bug on approach speed
   b. Navigation select panel: To primary navaid for approach
   c. ADI select switch - For normal, non SKE takeoffs - NORM:

   ![ADI SEL](image)

   d. Flight Select panel: Flight director modes (ALT SEL, NAV LOC, as required)
c. Altitude alerter/preselect: As required

   **WARNING**
   Ensure NVIS glare shields are removed and stowed prior to landing. Egress from the pilots and copilot swing windows is blocked from the glare shield.
WARNING

Yaw damper may be in ENGAGED positions for autocoupled approaches, but must be DISENGAGED prior to landing. The ELEV TRIM switch may not disengage the yaw damper. The AUTOPILOT disconnect or YD DISENGAGE switch must be activated.

ENGINE SHUTDOWN
NTS lights cycle on then off quickly and are easy to miss, so make sure you are looking directly at them before moving condition lever to GND STOP. IF NTS lights do not illuminate when shutting down the engines from low speed ground idle, a recheck of the NTS system must be made before the next flight.

BEFORE LEAVING THE AIRCRAFT
To minimize heat build up
- Turn VVI to dim
- Lights to NVIS
Emergency Procedures Unique to H3

Engine Shutdown Procedure

1. Condition Lever – “Feather” (CP)
2. Fire Handle – “Pulled” (CP)
3. Agent – “Discharged” (For Fire) (CP)

**WARNING**

When operating with an engine(s) inoperative, the traffic advisory (TA) mode should be selected, because adequate airplane performance may not be available to follow resolution advisory guidance commands. In TA mode, no guidance commands are displayed and coordination for evasive maneuvers with other TCAS equipped airplanes is discontinued.

APU Emergency Shutdown (Inflight/ground)

1. Fire Handle – “Pulled” (E)
2. Agent – “Discharged” (For Fire) (E)

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