TH-73A Preflight

This is a preflight guide created to help students know and be able to ID aircraft components. This is a combination of maintenance gouge, TH-73A CAI's, and NATOPS. This is a helpful tool and you should be reviewing this before your FAM-0. Recommend preflighting the static aircraft in the maintenance hangar at least two times prior to your FAM-0.

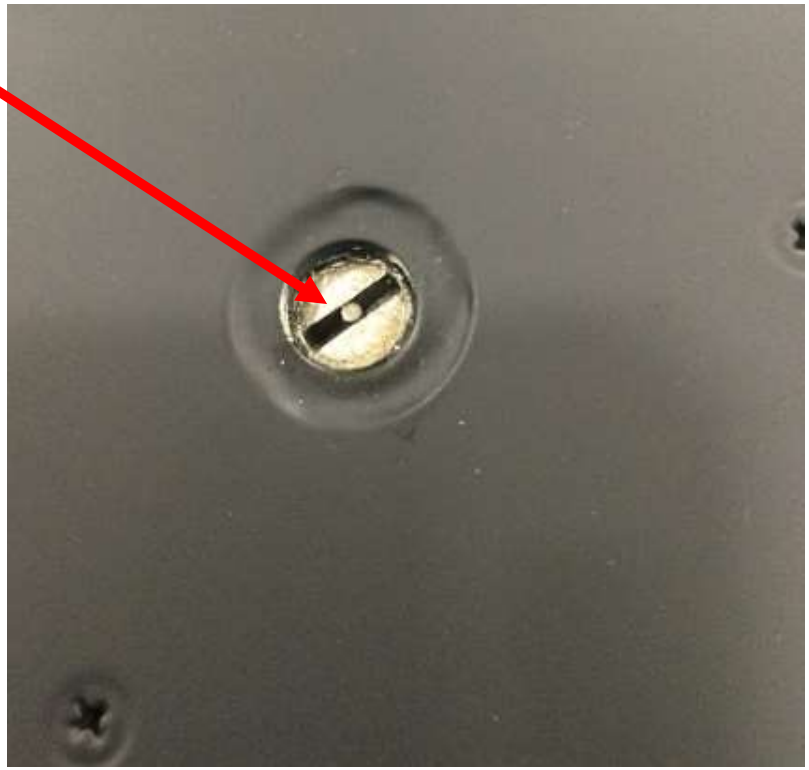
Foreword

- This slideshow is **GOUGE** (live by it, die by it)
- Photos were taken by the author and from the Preflight CAI on TSHARP
- Any red text boxes or 

on the photo are from the author
- Accuracy to NATOPS chapter 2 and 7 was priority #1 while writing this, but there is a *small* chance things will be mislabeled/incorrect
- Again, this is **GOUGE** – trust but verify, feel free to reach out if you find any errors

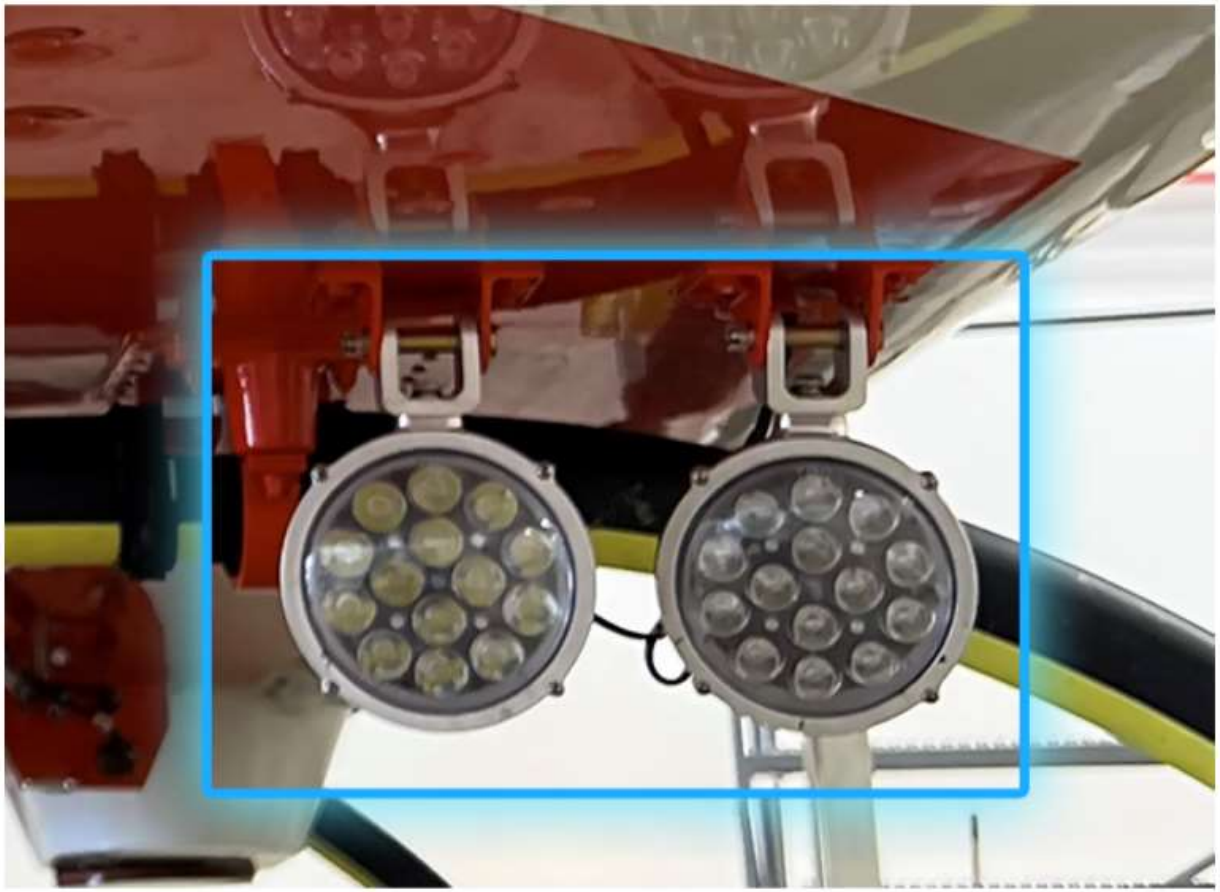
Nose Compartment Access Door

Check the condition and security of the nose compartment access door. Ensure the fastener security pin is out.



Landing and Taxi Lights

Check the condition of the landing and taxi lights. They should not be broken.



Cargo Hook Mirror (if installed)

The cargo hook mirror shall be removed or covered for NVG operations.

Ventilation Air Intake

Ensure the ventilation air intake is free of obstructions.

Door Jettison Handles and Safety Latches

Ensure the door jettison handles are in the correct position.

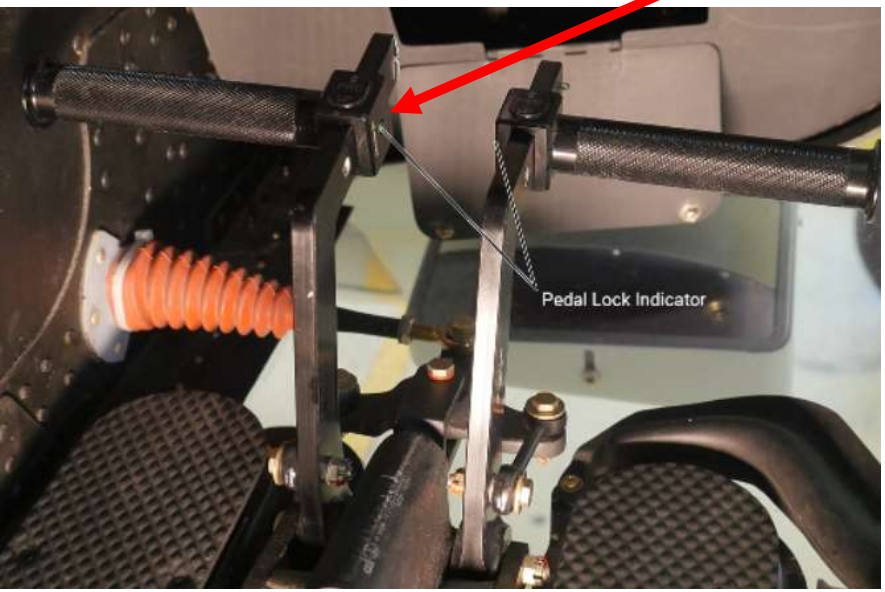
Handle pointed down, loop covering top

Flight Controls

Check the condition and security of flight controls. Ensure the flight controls are free from Foreign Object Damage (FOD).

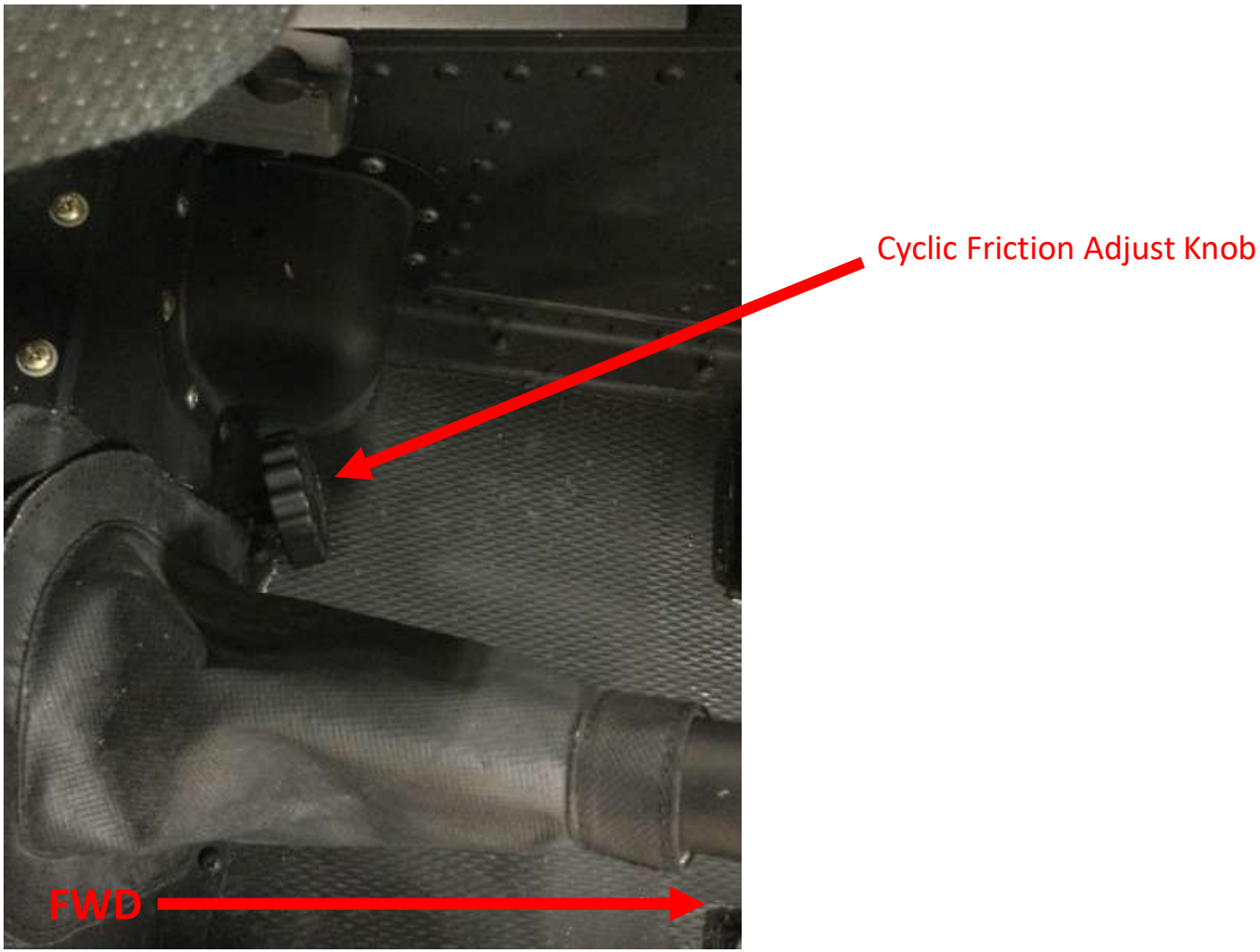
Tail Rotor Control Pedals

Adjust, as required, and check security. Verify pedal lock indicators are green.



Make sure metal tab behind this lug is up – used to adjust individual Foot Pedals Fore-Aft

Cyclic (pilot side)



Seatbelts and Harnesses

Check the condition and security of the seatbelts and harnesses.

-NOTE:
Portable Fire Extinguisher is clamped outboard of the pilot seat
(NOT in the cabin)

Cockpit Fire Extinguisher

Check the cockpit fire extinguisher to ensure it is current, sealed, and secured.

Switches and Circuit Breakers

Ensure all switches are in the OFF position and ensure all Circuit Breakers (CB) are pushed in.

Don’t forget Cyclic, Collective switches, Air Conditioning switches (by Rotor Brake handle)

Upper Console Switches

Air Cond
Circuit Breaker

Only AUX and PRI GEN
Switches should be centered,
The rest are AFT

Static Source, Heater Temp Ctrl, and Air Conditioner switches
(above pilot seat by Rotor Brake lever)

Static Source switch
NORM & Guarded

Heater Temp. Ctrl Knob
FULL DECREASE
(counterclockwise)

Air Conditioner Temp Ctrl Knob
FULL COLD
(counterclockwise)

Air Conditioner switch
OFF (centered)

AFT & FWD
Evaporator Blower switches
Both LOW (aft)

Center Console Switches

SERVO & AWG NORM,
TEST centered,
F-TRIM ON

SAS 1 and SAS 2 OFF
ATTD HOLD, AUTO TRIM, and COUPL:
ON, ON, COUPL

Fuel Pumps & Valve
All OFF and CLOSED

COVERT Lights Panel
VISIBL, NORM, OFF

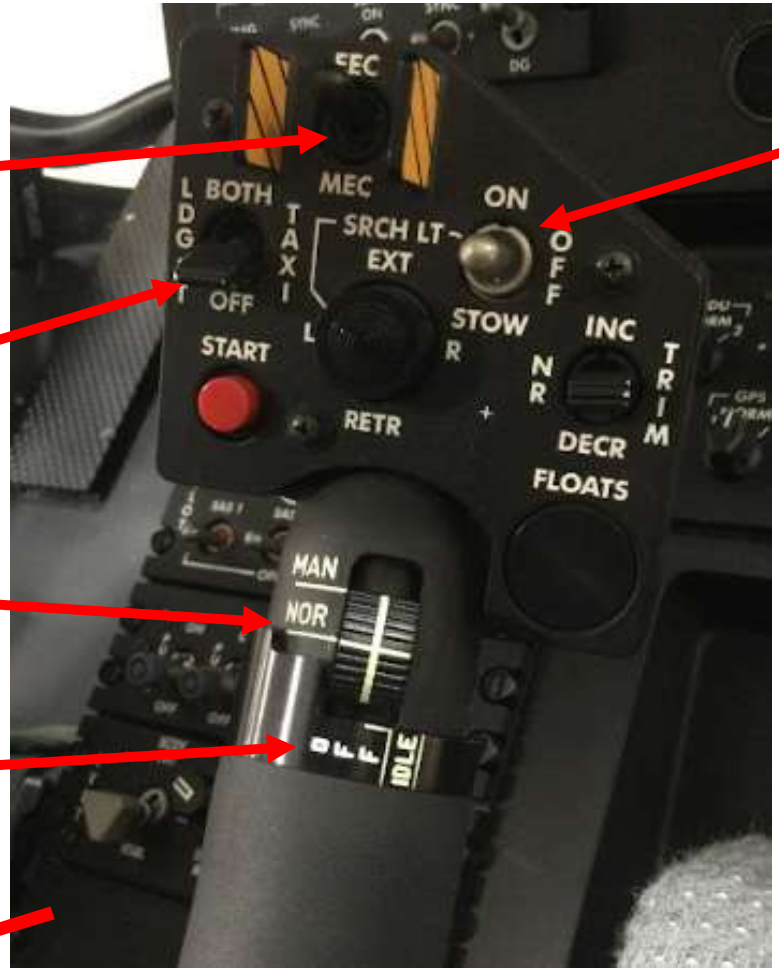
DC Relay Box Circuit Breakers (pilot side)

Cannot start aircraft if this is out

Cockpit Voice Recorder/Flight Data Recorder
(above pilot seat)

Cyclic Switches

Collective (pilot side)



EEC

OFF

OFF

NOR

OFF

(Friction Adjust Knob is between seats)

PFD and MFD

Ensure the slip indicator door of the PFD and MFD is closed and properly secured.

Note

If the slip indicator door is not secured the display unit will power up in the
Maintenance Mode and will not be usable for flight.

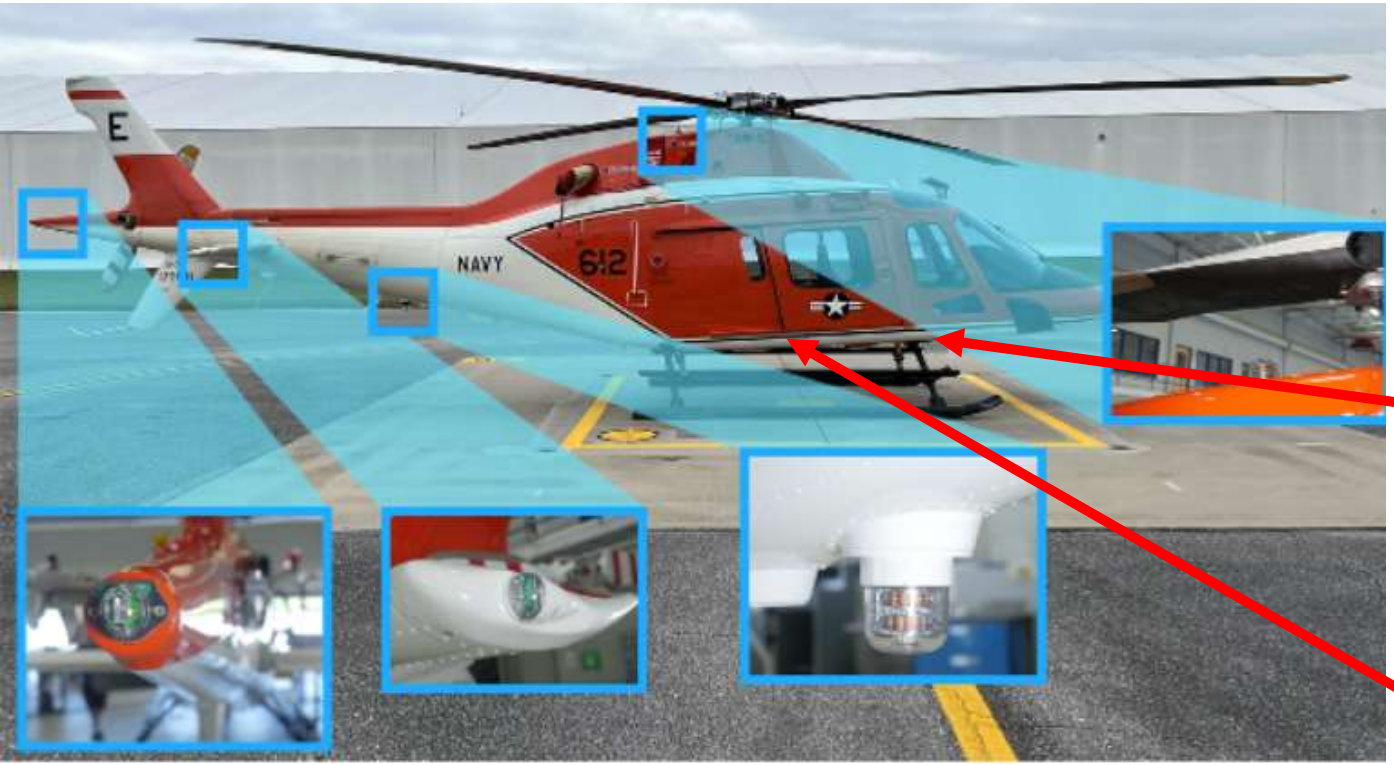
BAT switch – ON. Check voltage (NOTE: GPU req'd fpr start with battery voltage below 24 VDC)

External Lights – Check Operation as req'd (you'll need BUS switch – ON)

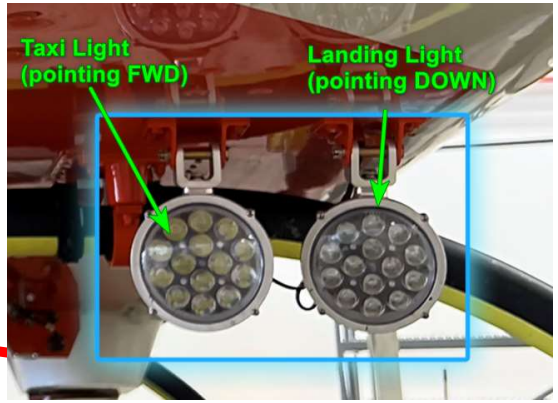
Turn off BAT and BUS switch when done checking lights

Technique: check that FUEL DRAIN switch at Port Maintenance Step Access Panel is OFF, if maintenance left it ON, you'll start pissing out fuel as soon as you turn on the Battery and Bus switches

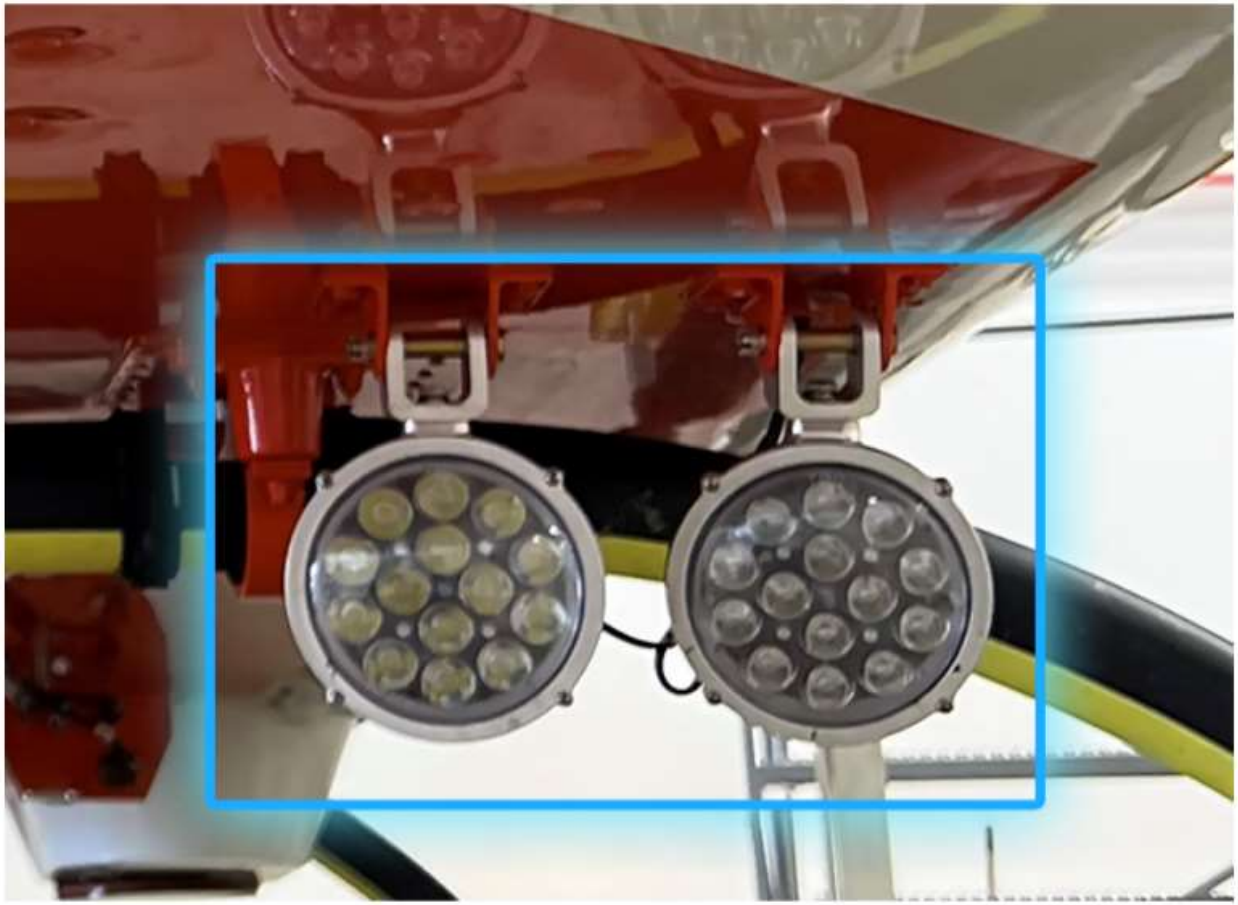
Check External Lights



Landing and Taxi Light



Searchlight (2 normal bulbs, 1 IR bulb)



Lateral Panel, Windshield, and Roof Transparent Panel

Check the condition of the lateral panel, windshield, and roof transparent panel for cleanliness.

Windshield Wipers

Check the condition and security of the windshield wipers.

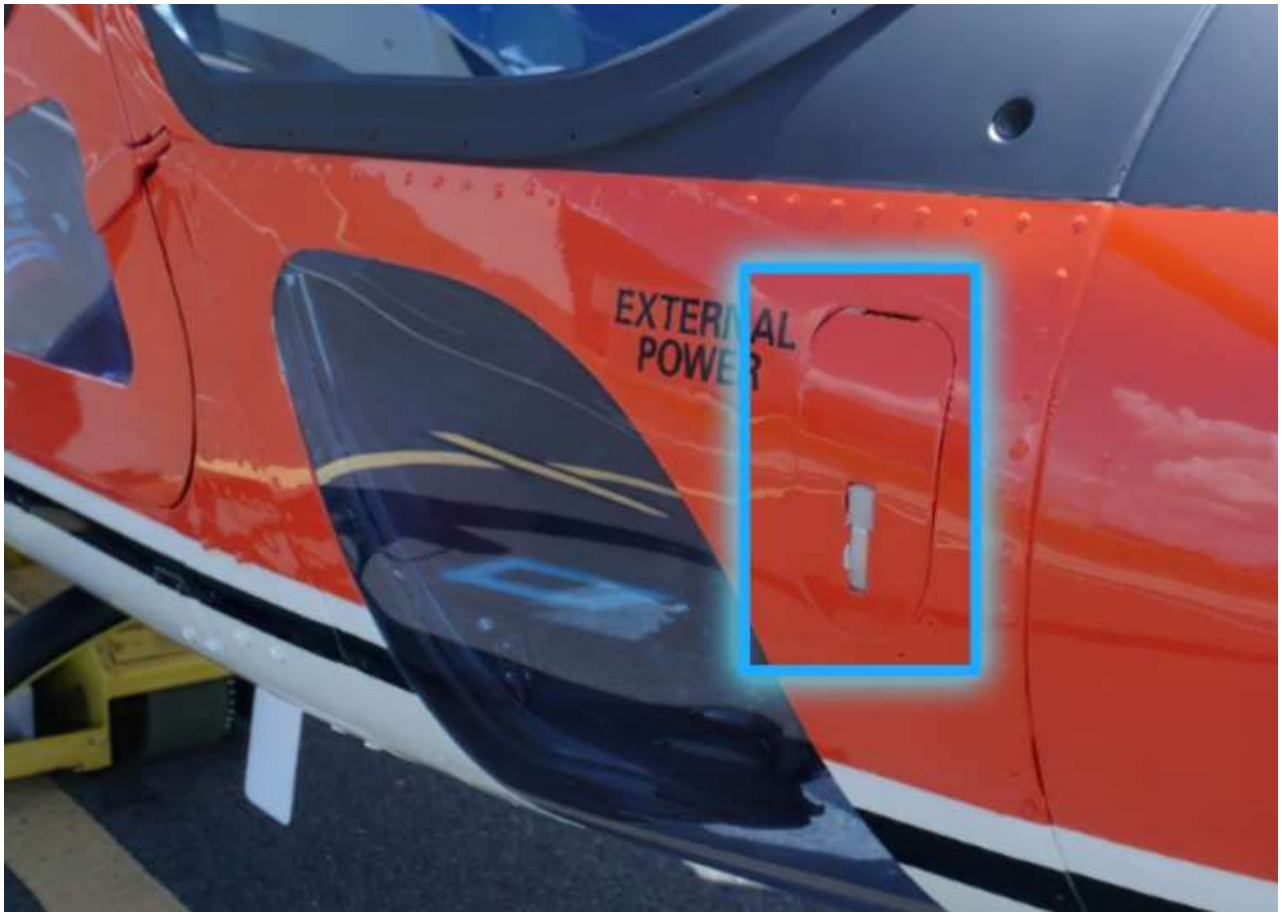
Observation:
There is usually 2 safety wires and a cotter key here

Pitot Tube and Static Port

Remove pitot tube covers.

External Power Receptacle

Ensure the external power receptacle door is secured.



Pilot Door

Check the condition of the pilot door, window, and sliding window for cleanliness and proper security.

Outside Air Temperature Probe

Check the condition of the Outside Air Temperature (OAT) probe. Ensure it is not damaged or corroded.

Drain and Vent Lines

Check the drain and vent lines for leaks.

Landing Gear and Skid Shoe

Check the condition of the landing gear and skid shoe for excessive wear. Ensure the security of the retaining bolts.

Inspect the airframe above the aft skid cross tube for bending or warping. Deformation of the fuselage above the skid cross tube may indicate that the previous flight had a hard landing.

Landing Gear Hydraulic Damper

Check the landing gear hydraulic damper for any leaks. You can rock the aircraft to see the damper extend slightly, but it should not display excessive travel.

-Note: the FWD skid cross-tube does not have a hydraulic damper

Cargo Hook

Check the condition and security of the cargo hook (if installed).

Searchlight

Check the condition of the searchlight for cleanliness and security.

Fuselage Exterior

Check the condition of the fuselage exterior. Look for any dents, large scratches, or other obvious damage to the aircraft's exterior.

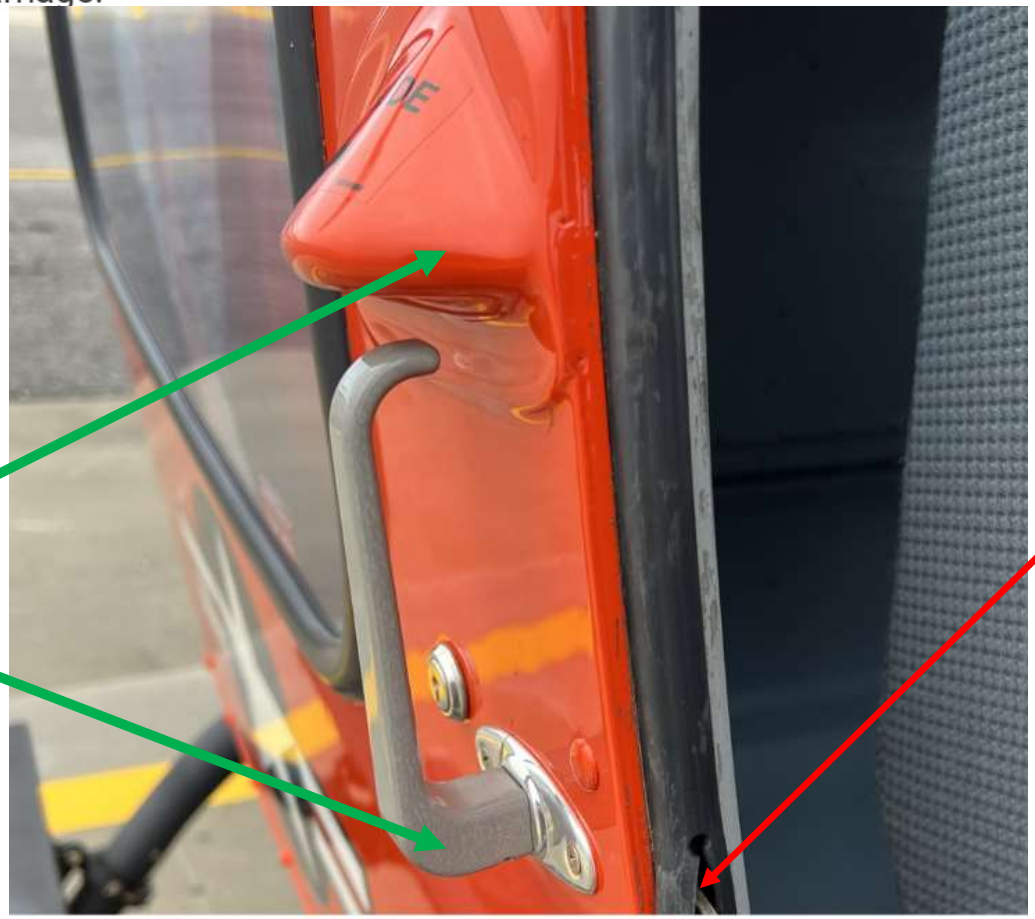
Cabin Door and Jettison Window

Check the condition of the cabin door and jettison window for cleanliness and proper security.

Ensure the red strap is secured.

Cabin Door Lock

Check the cabin door lock for dents, bending, or any other sign of damage.



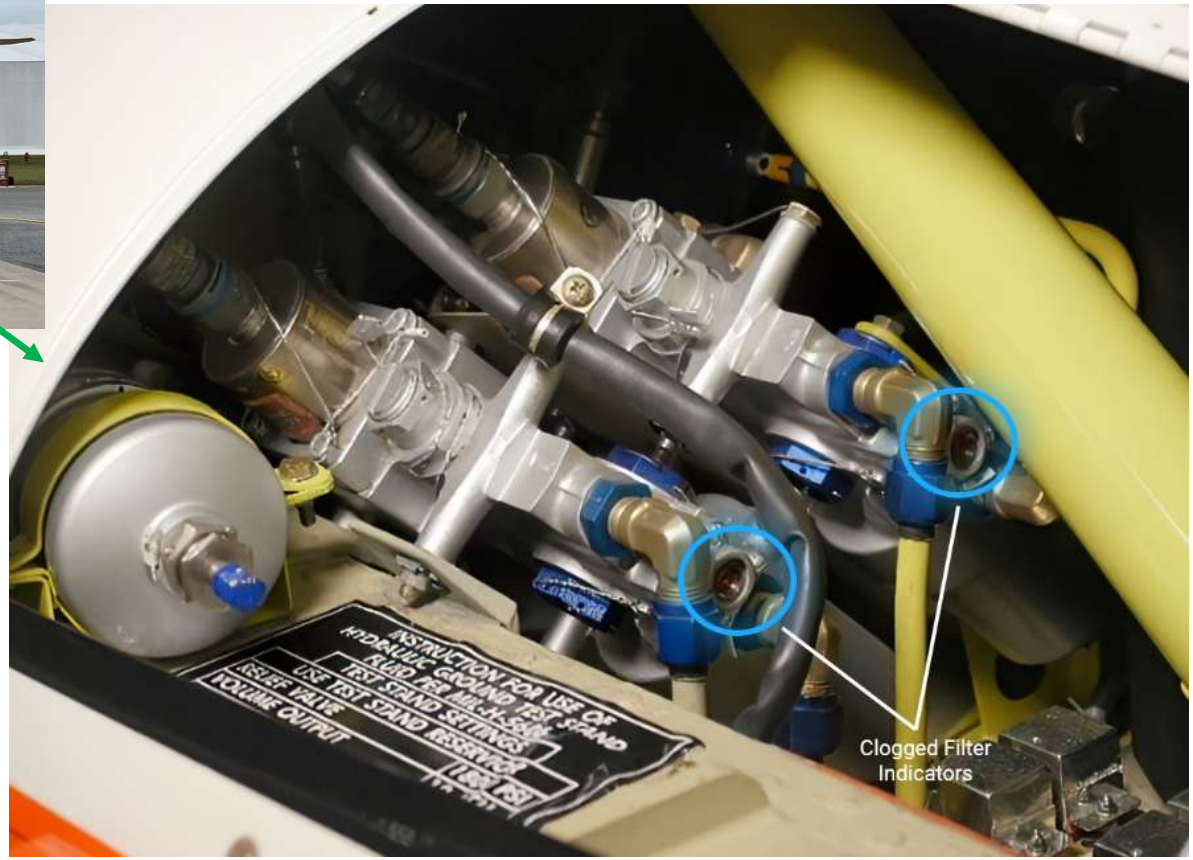
Push here or on bottom of handle To check that door is closed Properly when finished (usually the culprit of **DOOR OPEN** Cautions, don't ask how I know…)

Door Latch Hook is seen here but cut off in picture, make sure it's not bent or door won't close properly

Hydraulic Servo System Valves and Filter Groups

Check the hydraulic servo system valves and filter group for leakage and ensure the bypass indicator is not extended.

A visible red button indicates a clogged filter.



Hydraulic System Reservoirs

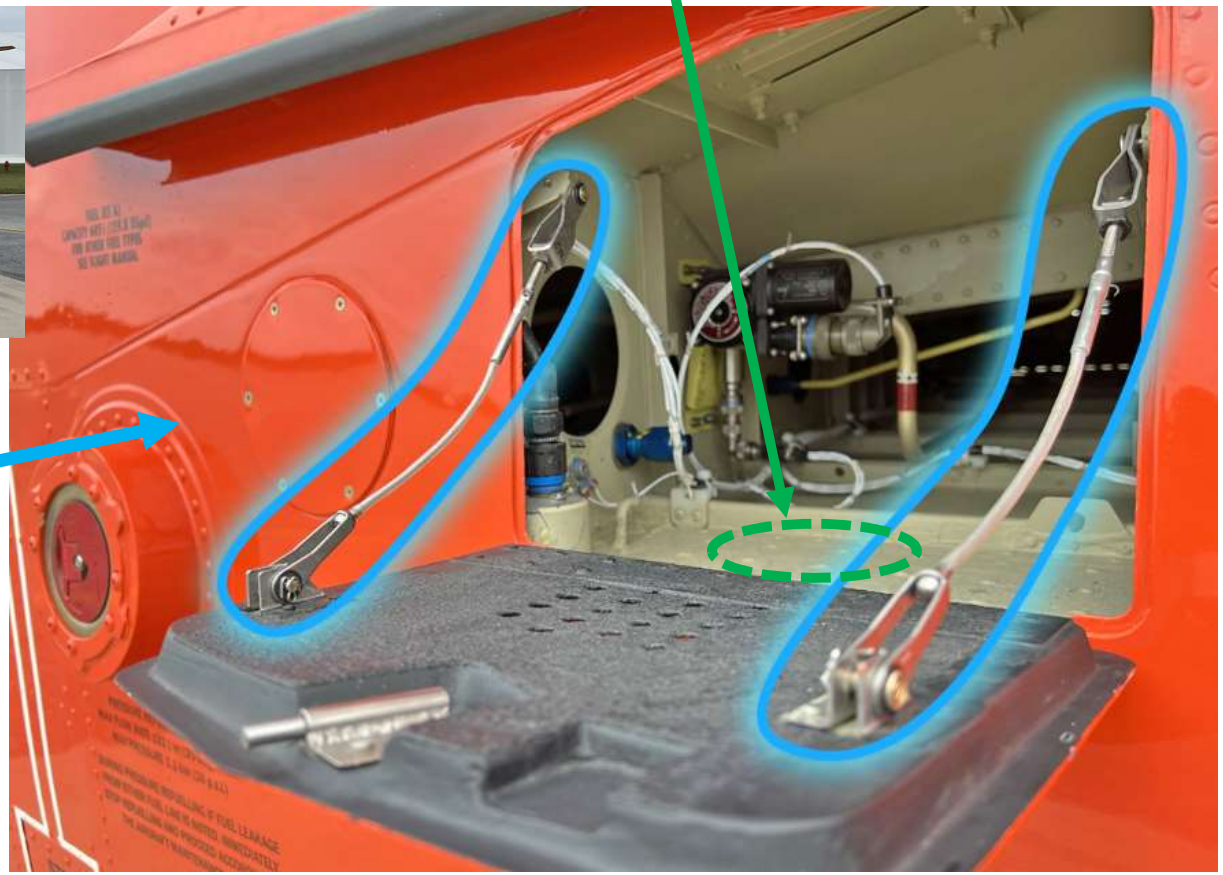
Check the hydraulic reservoirs for proper fluid level and ensure the filler cap, quick disconnect return lines, and door are secured. The fluid levels should be between the MIN and MAX indications.

You may ensure cap security by lining up a black arrow on the cap and black line.

This is incorrect, the arrows do NOT need to be aligned, just make sure it’s secured

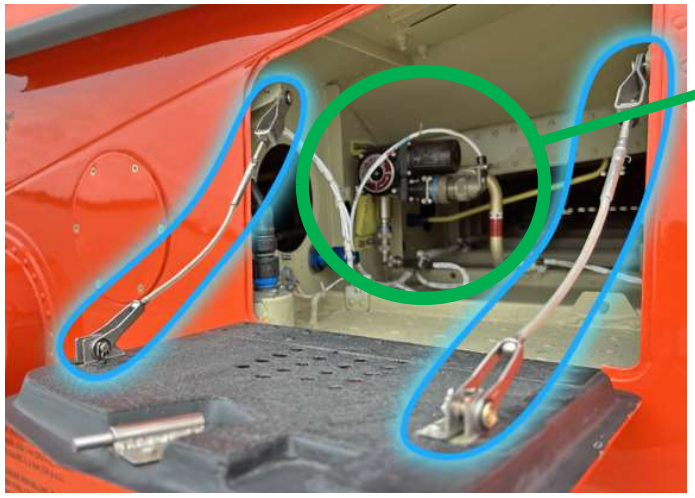
Right Side Maintenance Door Cables

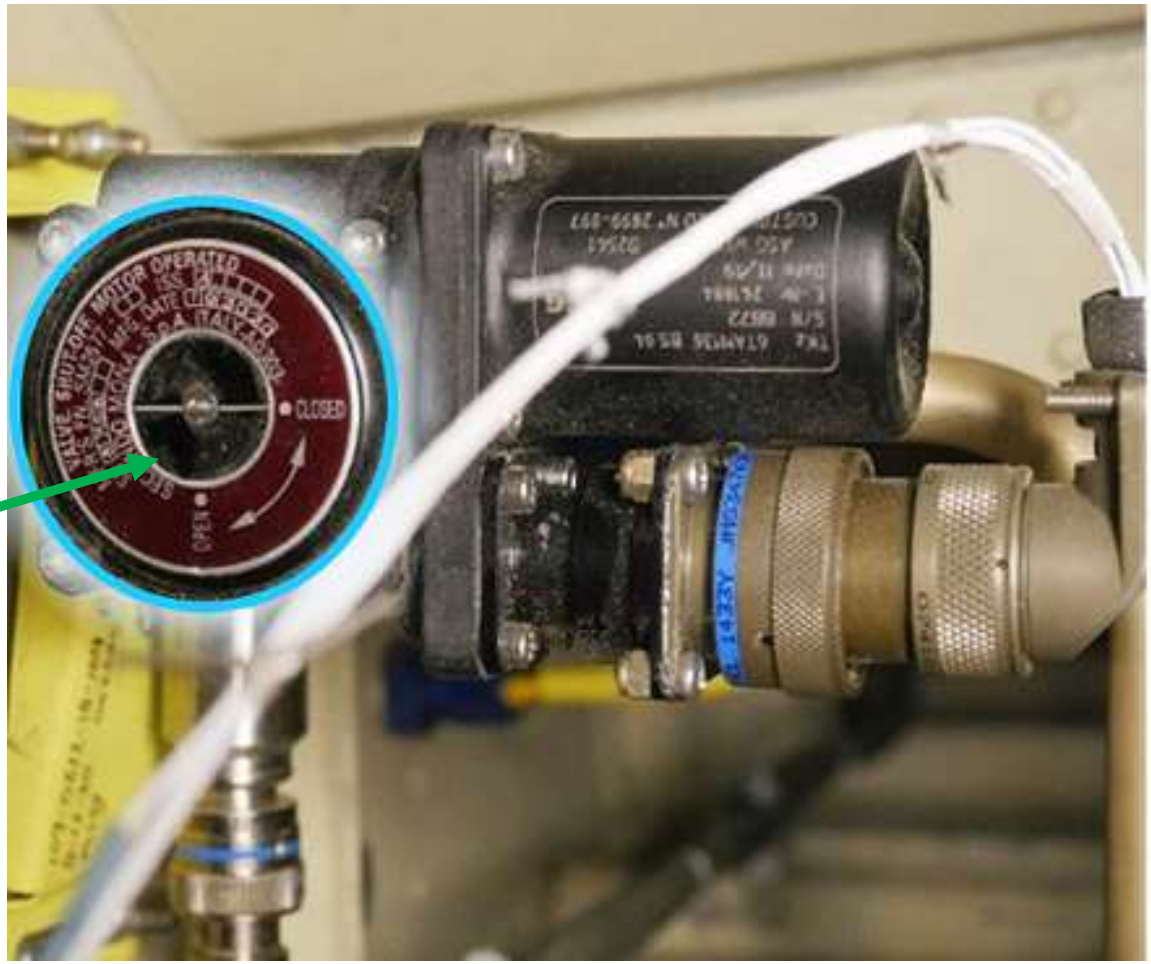
Check the condition and security of the right side maintenance door cables. You should not open the cabin door when the maintenance step is open. When utilizing the step, keep your body weight on the inboard portion of the step.



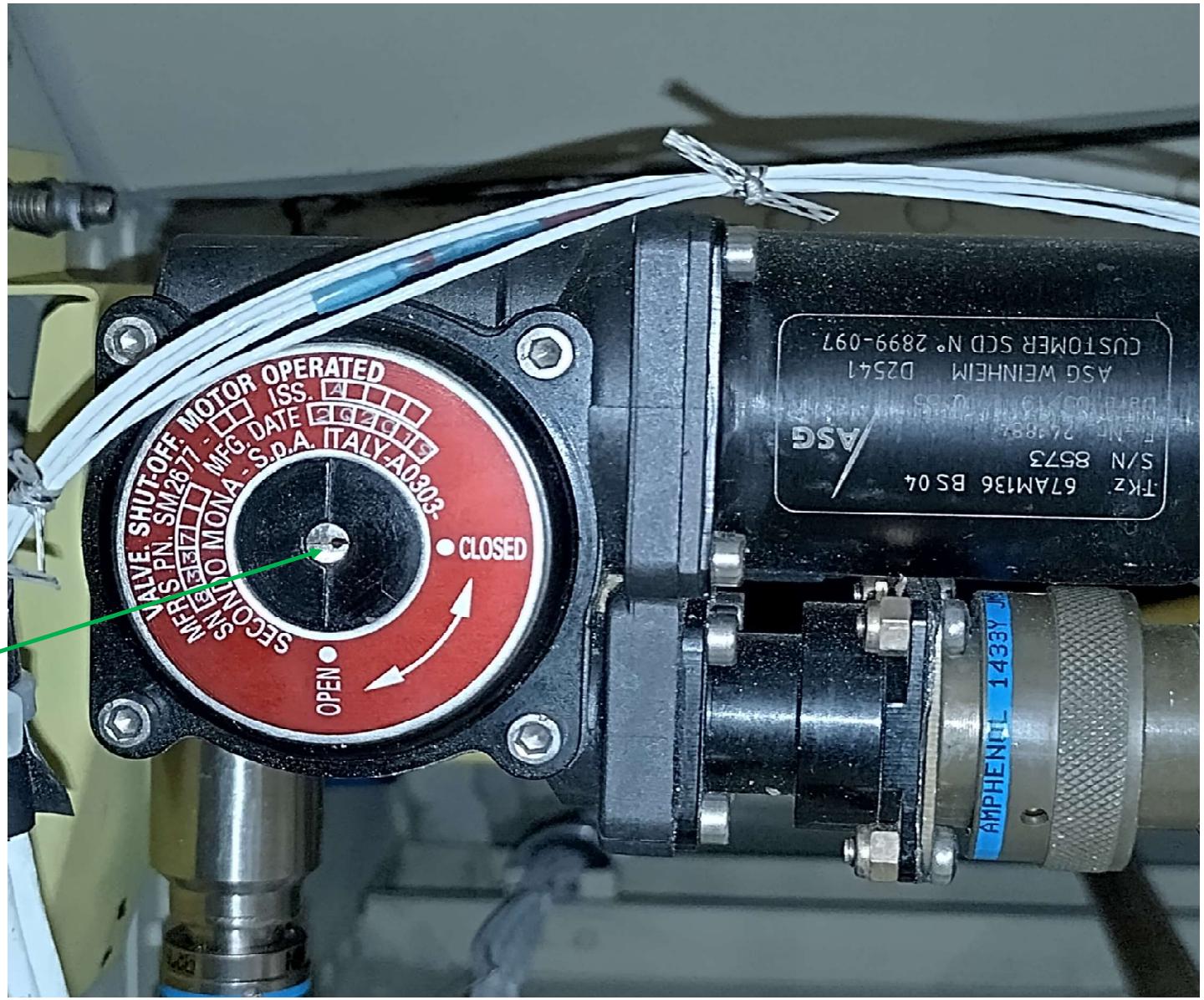
Fuel Shutoff Valve

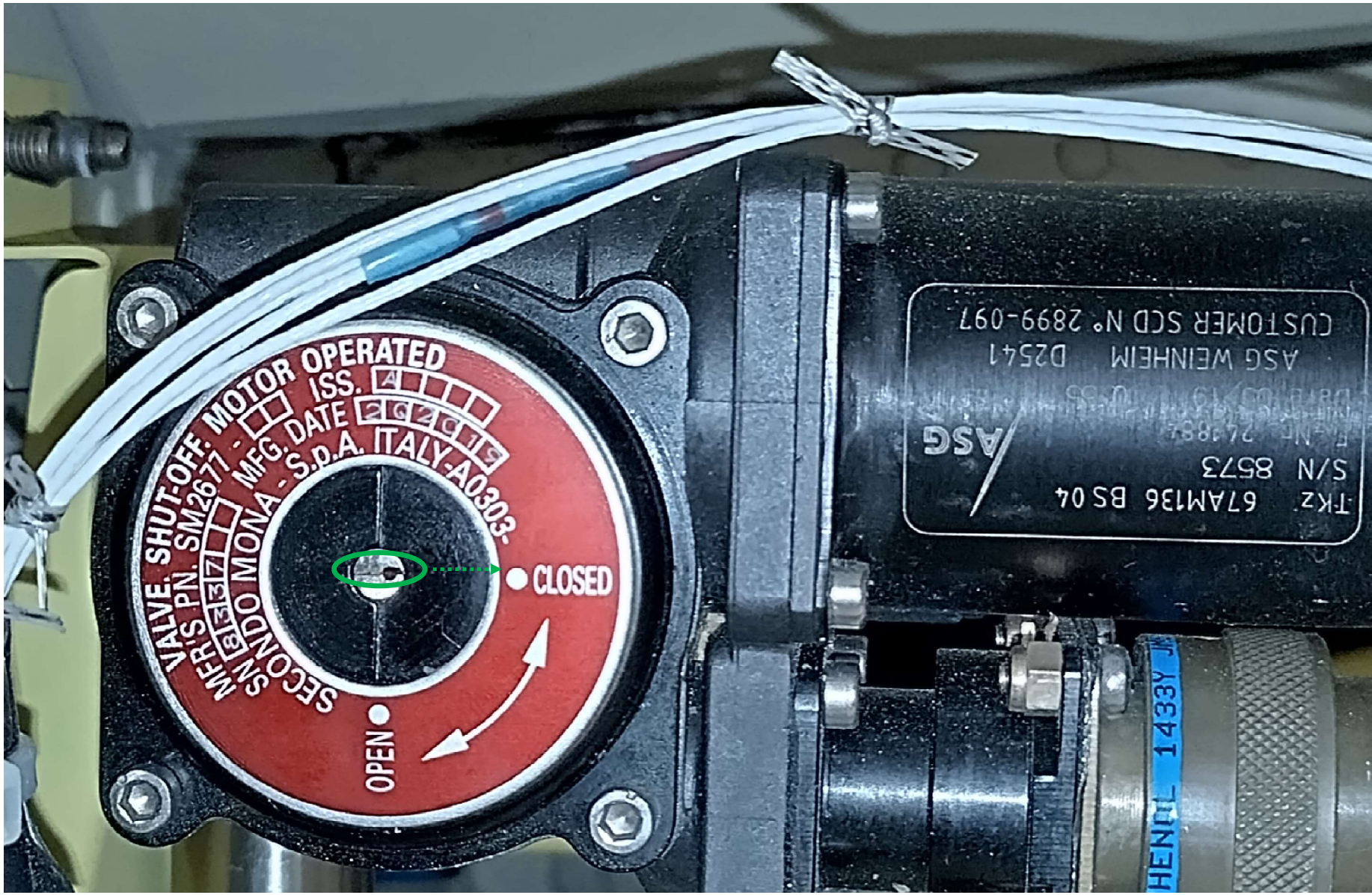
Ensure the shutoff valve matches the cockpit switch position and the door is secured.





The small, dark line with a dent in the middle of the stainless steel center points to the current valve position; only the stainless steel center rotates with valve position changes




VALVE, SHUT-OFF, MOTOR OPERATED
MFR'S PN. SM2677 - ISS.
MFG. DATE
SECONDO MONA - S.p.A. ITALY-A0303-
CLOSED
OPEN
ASG WEINHEIM D2541
CUSTOMER SCD N° 2899-097
TKZ 67AM136 BS04
S/N 8573
ASG
HENDL 1433Y

Hoist, Hoist Cowling, and Mount

Check the condition of the hoist, hoist cowling, and mount for security and oil leaks.

Ensure the wiring is connected.

Hoist Hook and Rubber Bumper

Check the condition of the hoist hook and rubber bumper for security and freedom of rotation.

Ensure the rubber bumper is not crushed.

Landing Gear Skid Protection

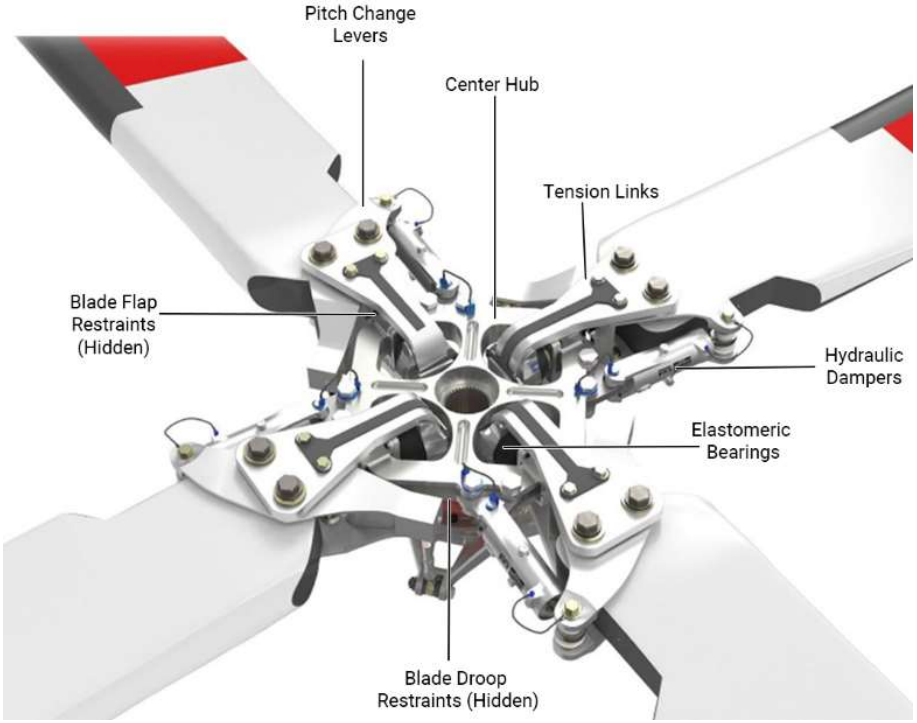
Check the condition of the landing gear skid protection. Look for any large scrapes or other damage.

Main Rotor Head and Blades

Check the condition of the main rotor head and blades for proper security.

Inspect the rotor blades for general damage, such as dents, nicks, and delamination.

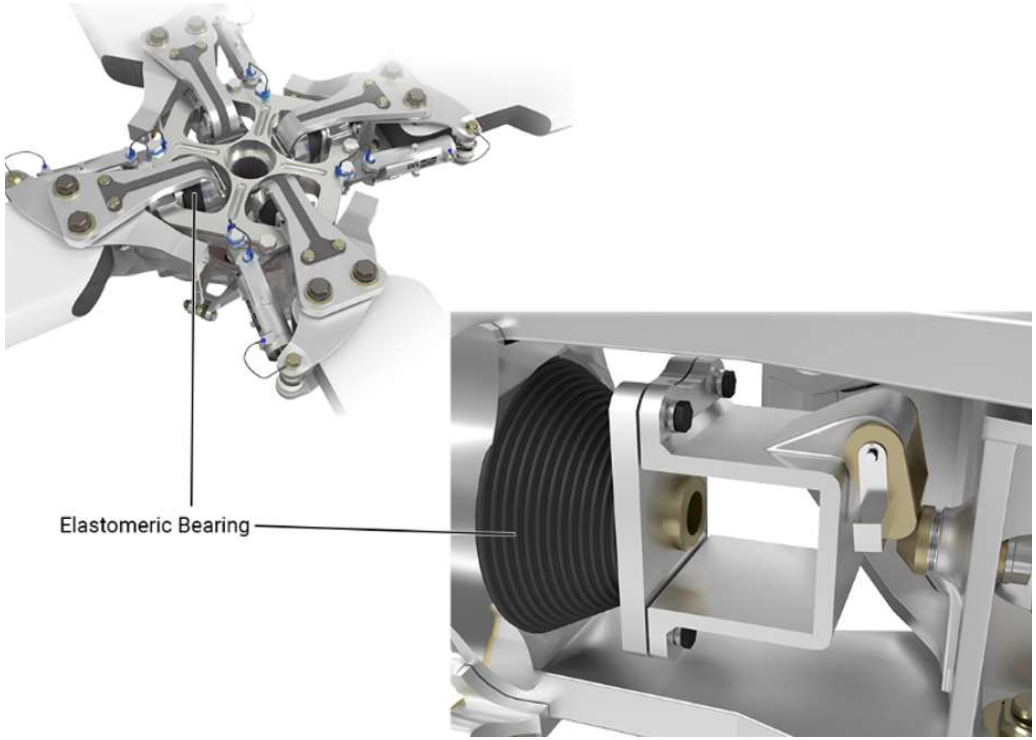
Ensure there are no voids at the tip cap attachment area.



Elastomeric Bearings

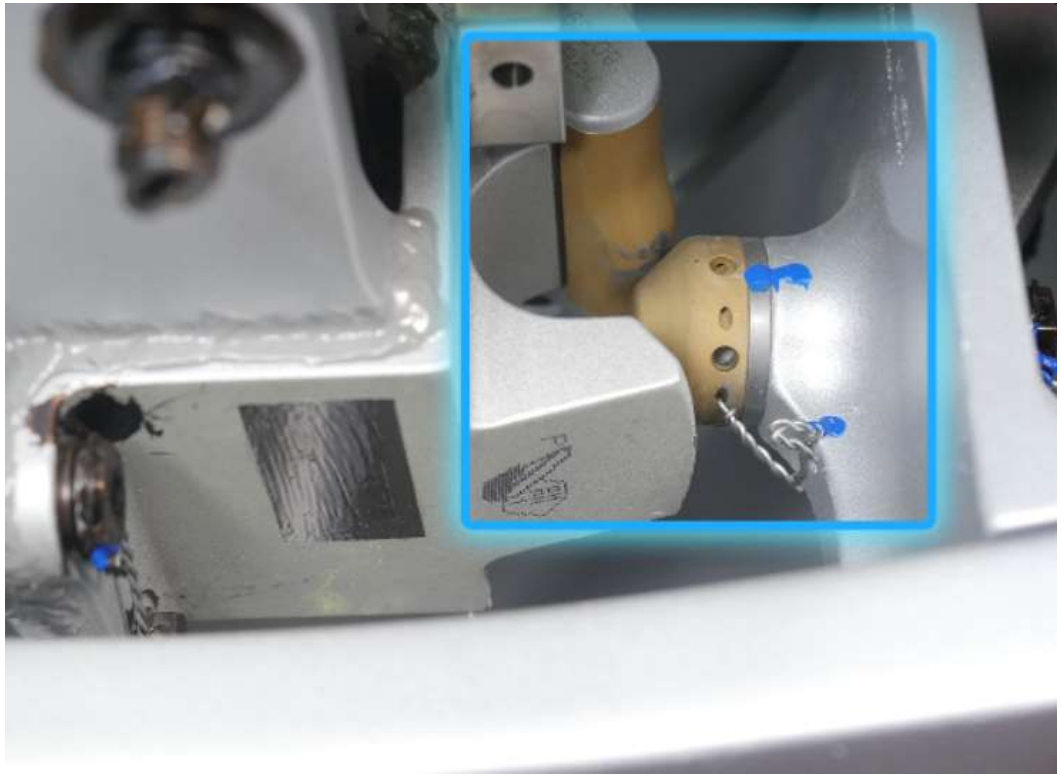
Check the condition of the elastomeric bearings for deterioration, cracking, blowing, crumbing, powder, or exposed metal.

Ensure proper alignment of the mould lines.



Flap Restraint Assembly

Check the condition of the flap restraint assembly. Look for any damage or signs of excessive wear.

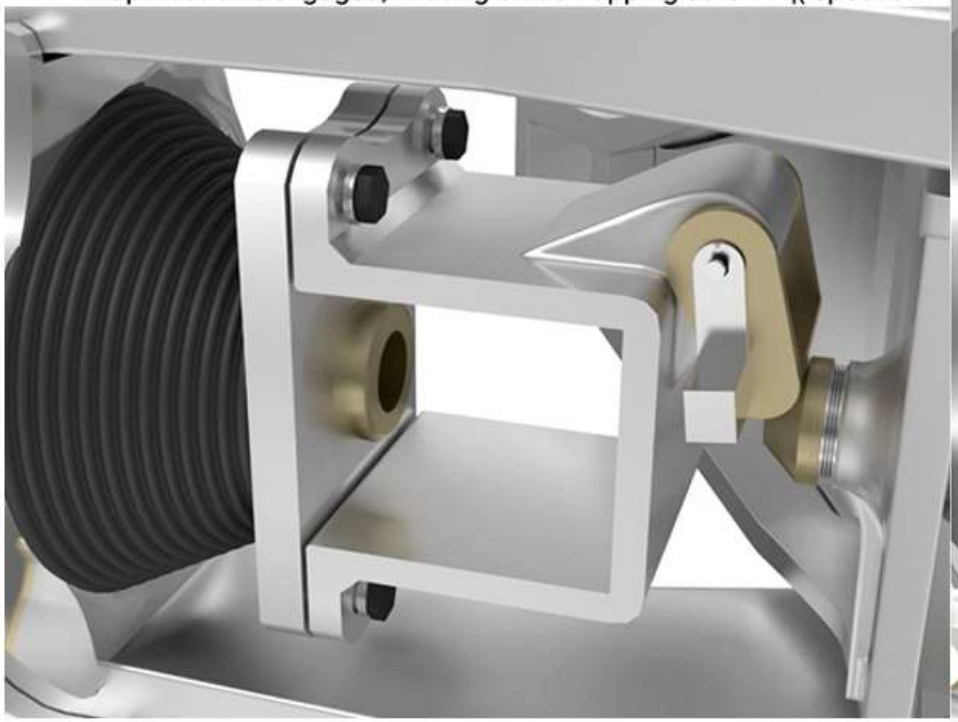


-Picture is taken from below, you should be able to flick flap restraint upward

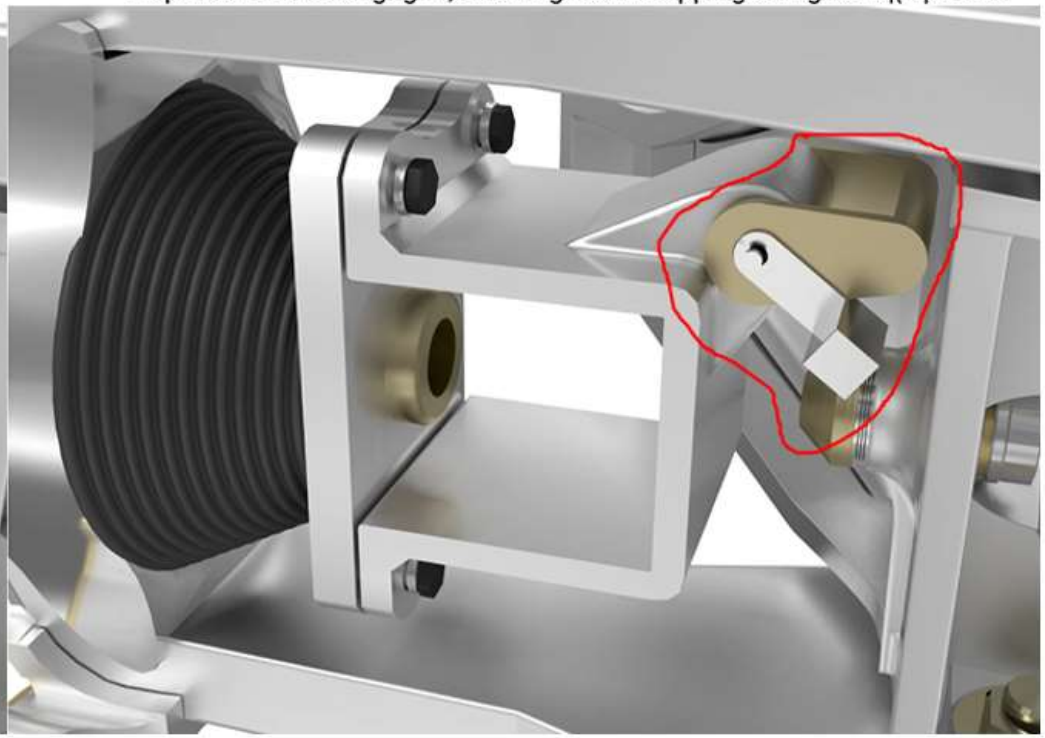
Flap Restraint Assembly

Check the condition of the flap restraint assembly. Look for any damage or signs of excessive wear.

Flap Restraint engaged, limiting blade flapping at low N_R speeds.

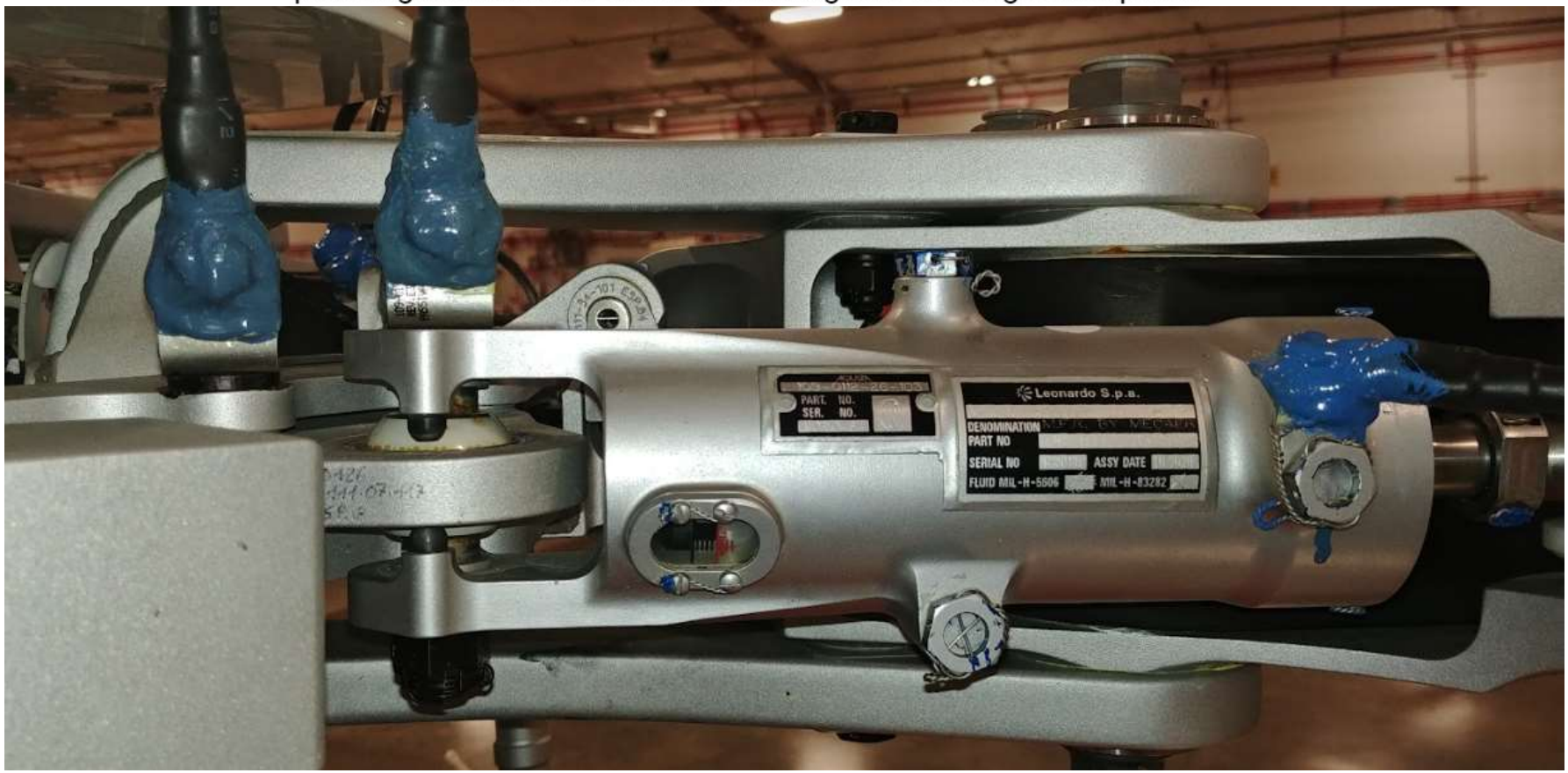


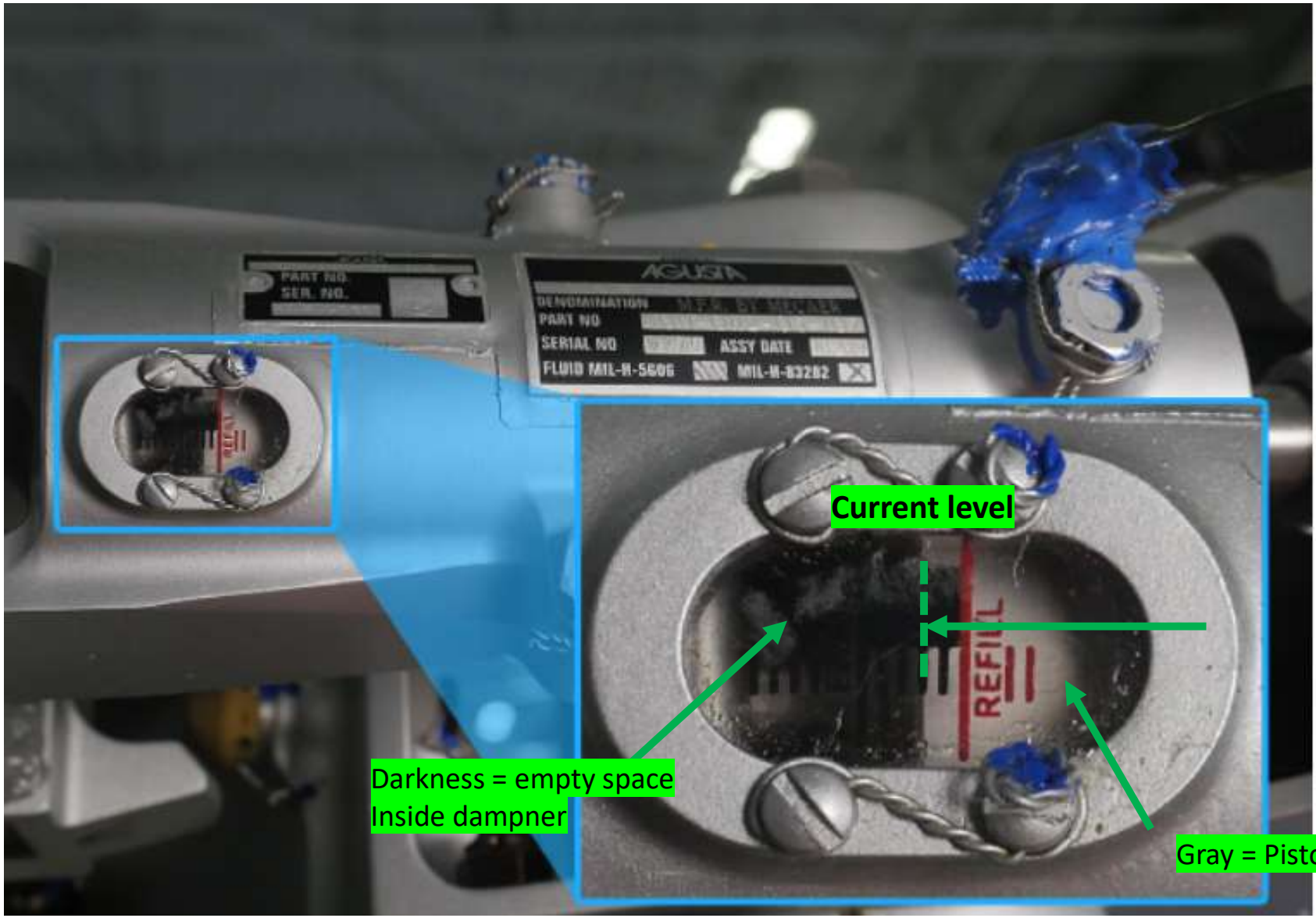
Flap Restraint disengaged, allowing blade flapping at higher N_R speeds.



Main Rotor Dampers

Check that personnel is clear. Then, turn the blades counterclockwise at least one full turn and ensure the correct fluid level is in each main rotor damper. Keep your hands away from the rotating rotor blades to prevent pinching between the airframe cowling and rotating swashplate.




PART NO.
SER. NO.
AGUSTA
DENOMINATION
PART NO
SERIAL NO
ASSY DATE
FLUID MIL-H-5606
MIL-H-83282
REFILL
Current level
Darkness = empty space
Inside dampner
Gray = Piston

Bonding Wires

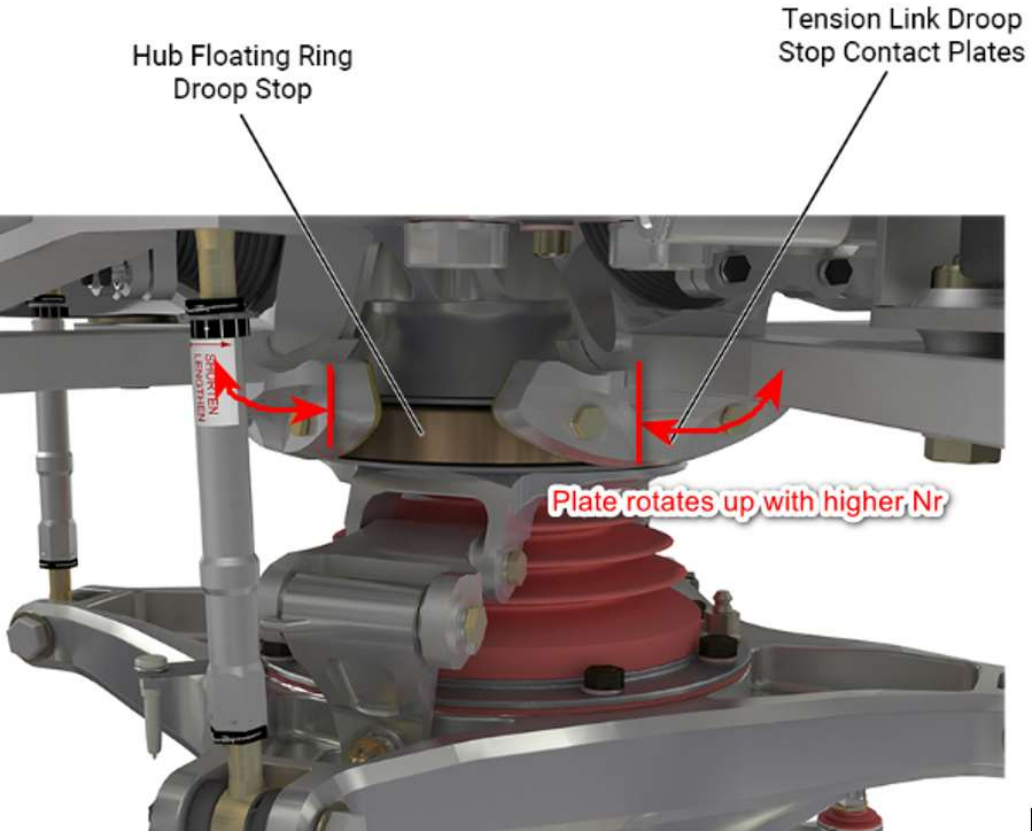
Check the condition and security of the bonding wires.

Main Rotor Pitch Change Links

Check the condition and security of the main rotor pitch change links.

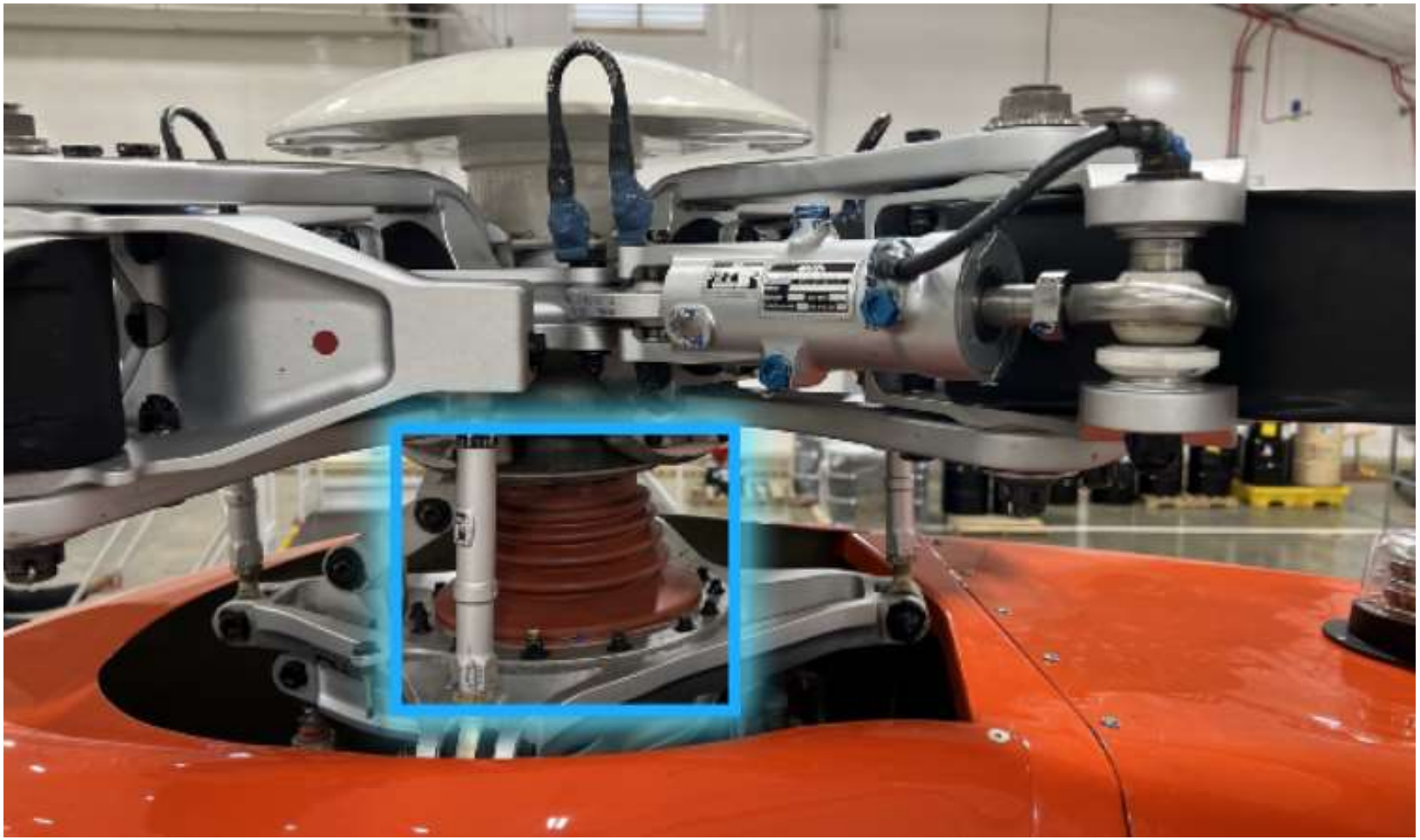
Droop Restraint Assembly and Floating Ring

Check the condition of the droop restraint assembly and floating ring.
Ensure the area is greased and there are no signs of damage.



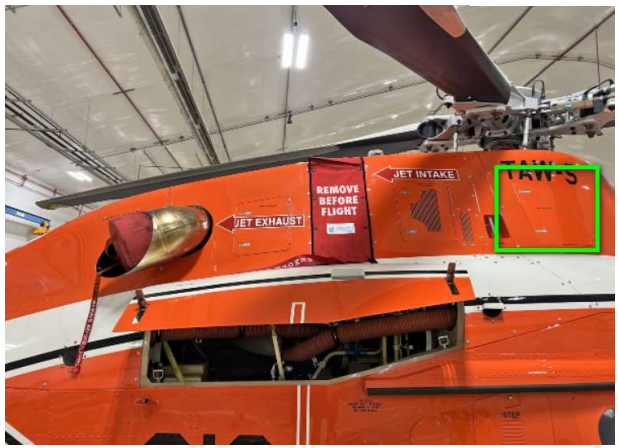
Swashplate Assembly and Rubber Boot

Check the condition and security of the swashplate assembly and rubber boot.



Hydraulic Servo Actuators

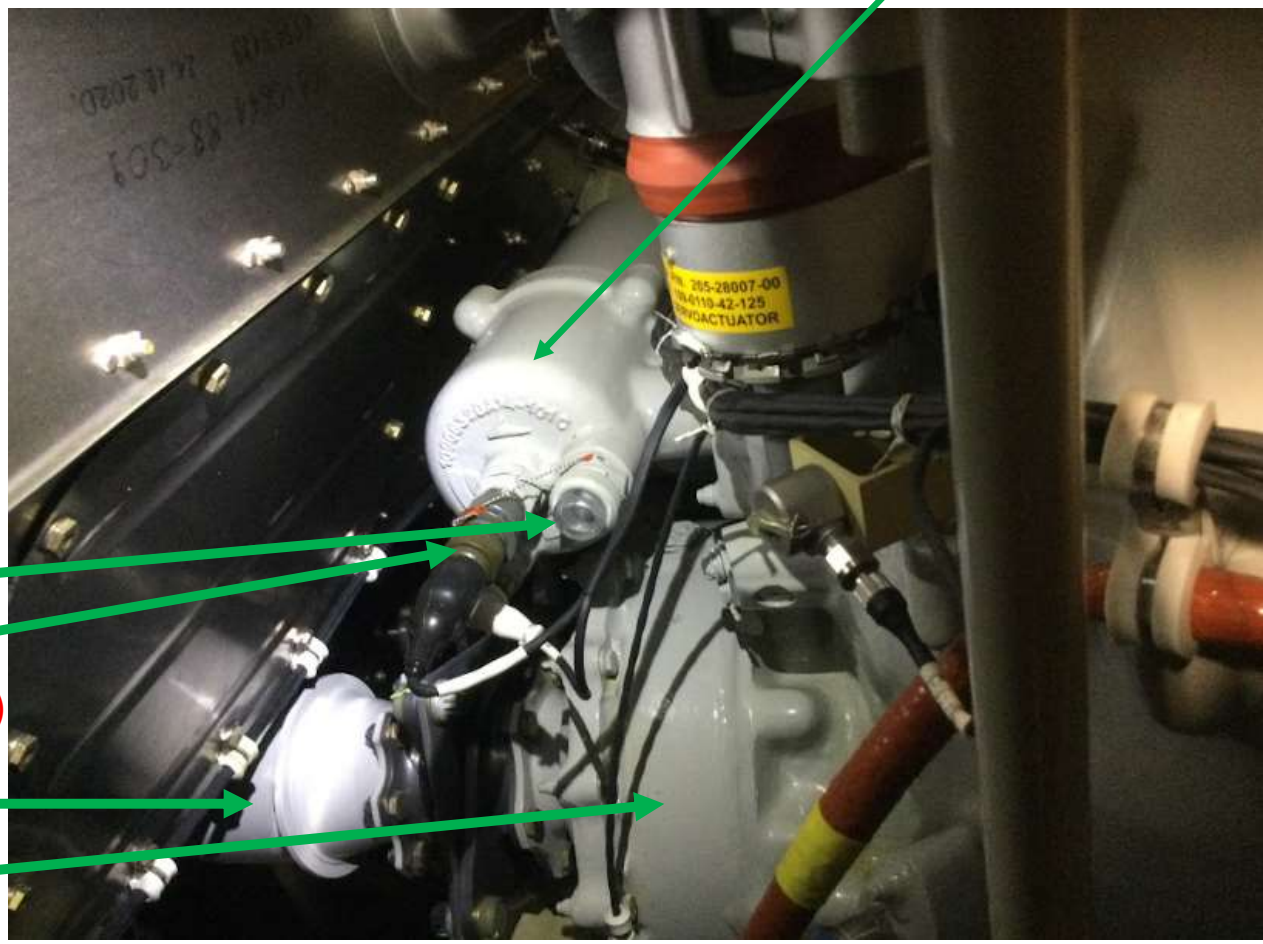
Check the condition of hydraulic servo actuators for leaks.



Hydraulic Reservoi

Transmission External Oil Filter

Check the transmission external oil filter to ensure the bypass indicator is not extended. A visible red button indicates a clogged filter. Ensure the door is secured.



ENG AGB

Starter Generator

Upper Anti-Collision Light

Check the condition and security of the upper anti-collision light.

IBF Bypass Door

Ensure the IBF bypass door is closed.

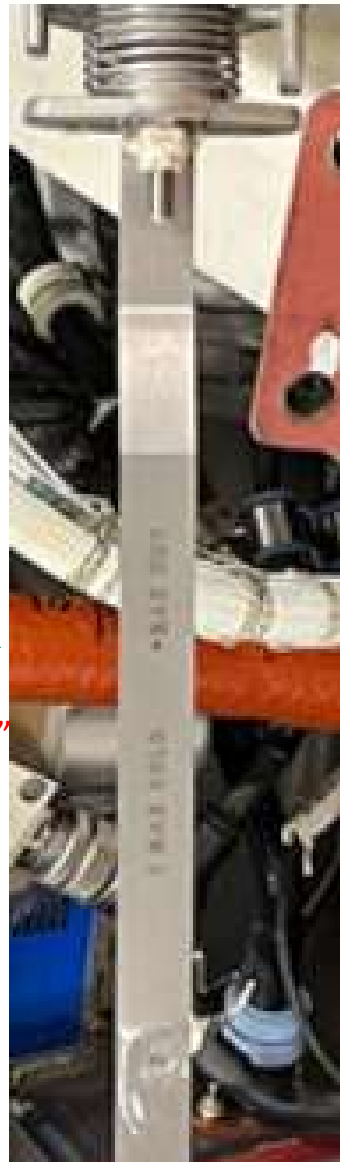
Right Engine Air Intake Screens

Remove the covers of engine air intake screens and plenum chamber to ensure they are free of foreign matter.

Engine Oil Cap

Check that the engine oil level is correct and the engine oil cap is secured.

“MAX HOT”
“MAX COLD”

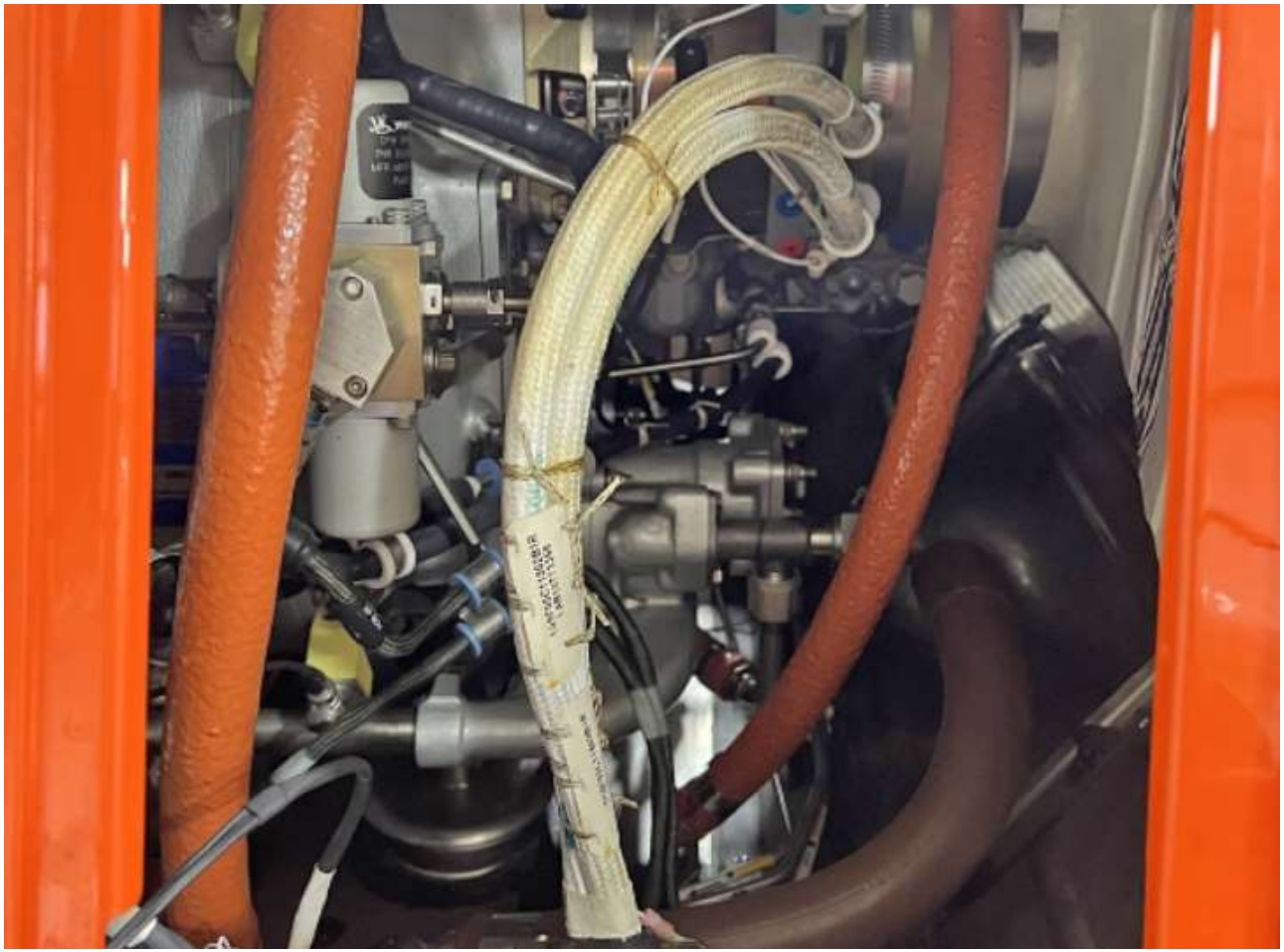


Reads how many quarts of oil below full,
If cold: subtract 1 (i.e. says ‘2’ on cold-go preflight means it is 1 quart below full)

Per R&I 43: Normal HOT oil level is between the 3 and MAX HOT mark on dipstick. Normal COLD oil level is between 3.5 (halfway between the 3 and 4 marks) and the MAX COLD mark on the dipstick.

Engine Area

Check the engine area for fuel and oil leaks.

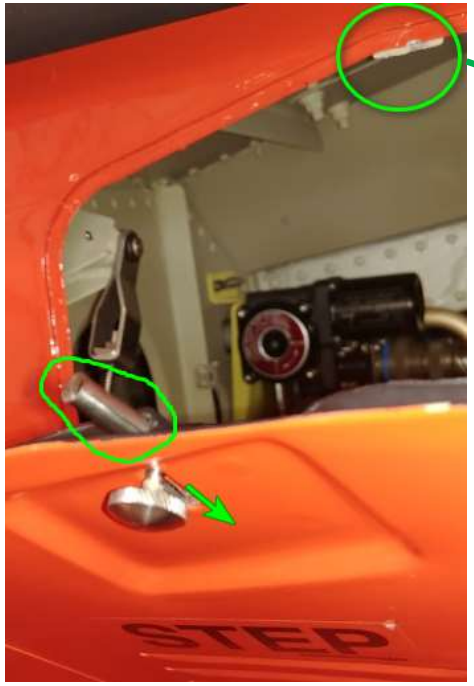


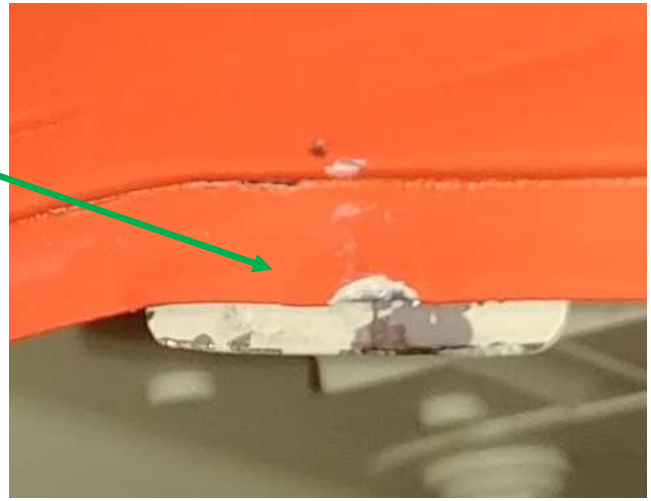
Maintenance Step

Ensure the maintenance step is secured.

When closing the maintenance step, ensure the latch mechanism is behind the small bracket with the tension knob snug for proper security.

Do not open the cabin door when the maintenance step is open.



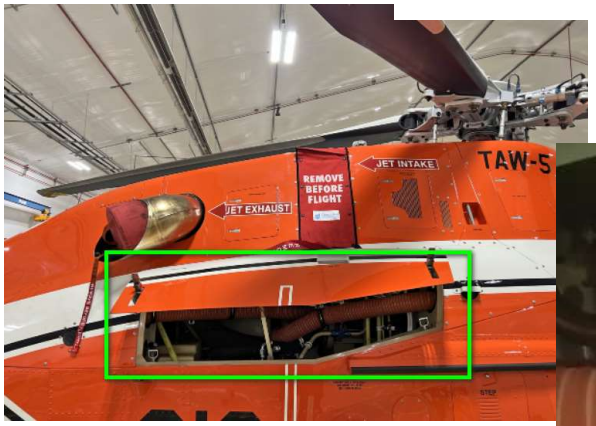


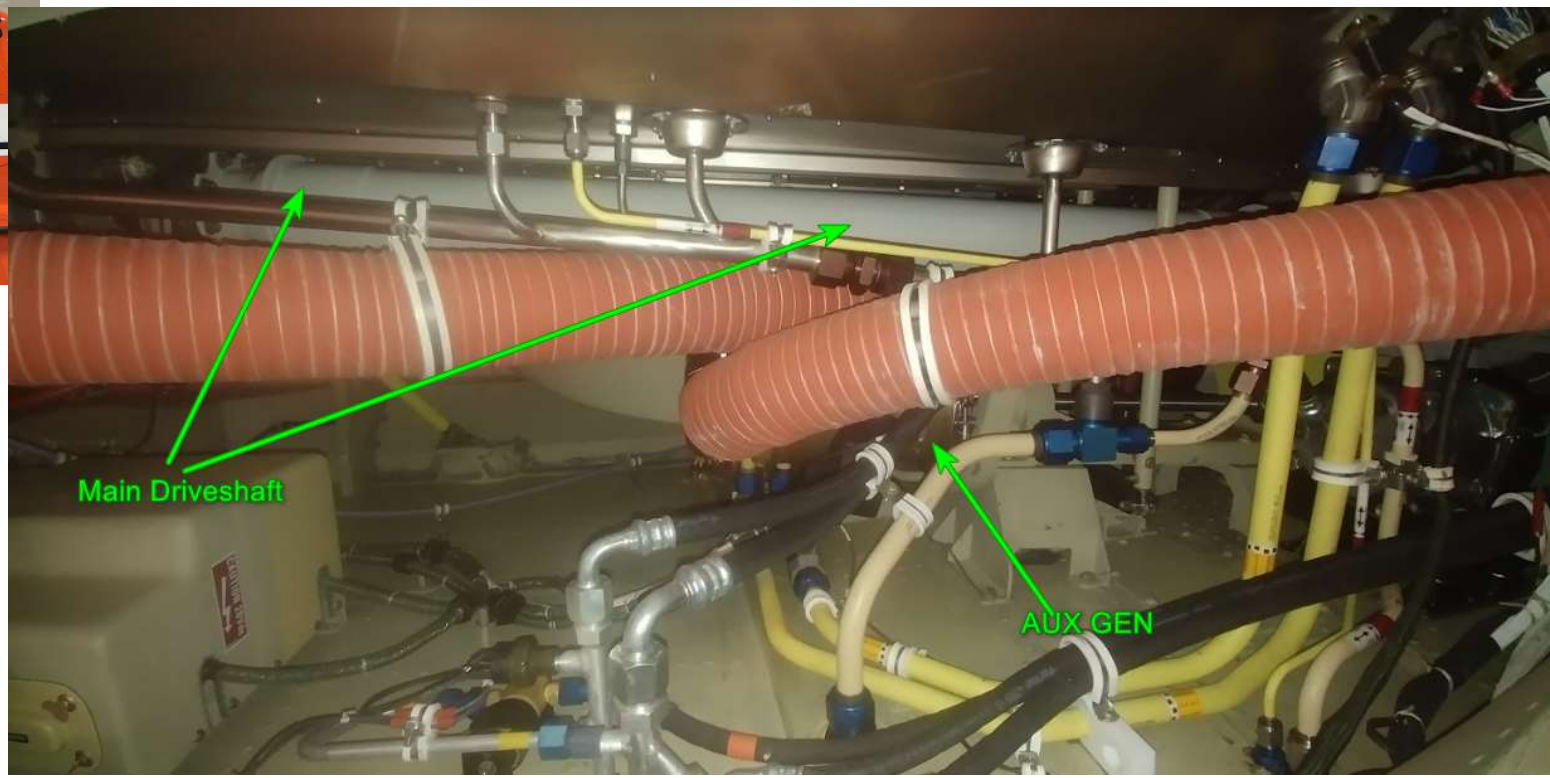
-Don't just try to slam this door shut without pulling down on the button, the plunger has to go behind the keeper before the door can shut; this aircraft has minor damage already

-Make sure the button snaps back up after closing the door and give it a "love tap", these doors are prone to come open in flight

Main Driveshaft

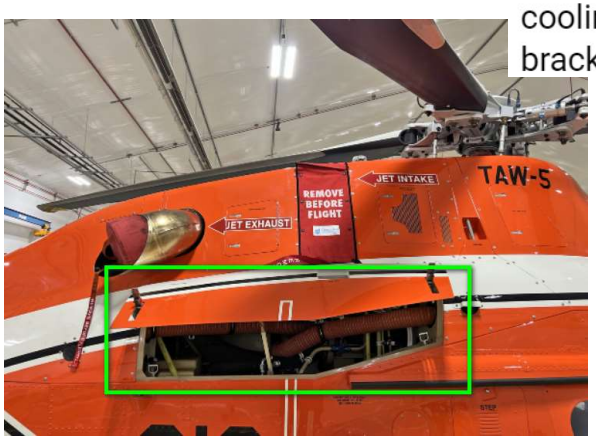
Check the condition and security of the main driveshaft.

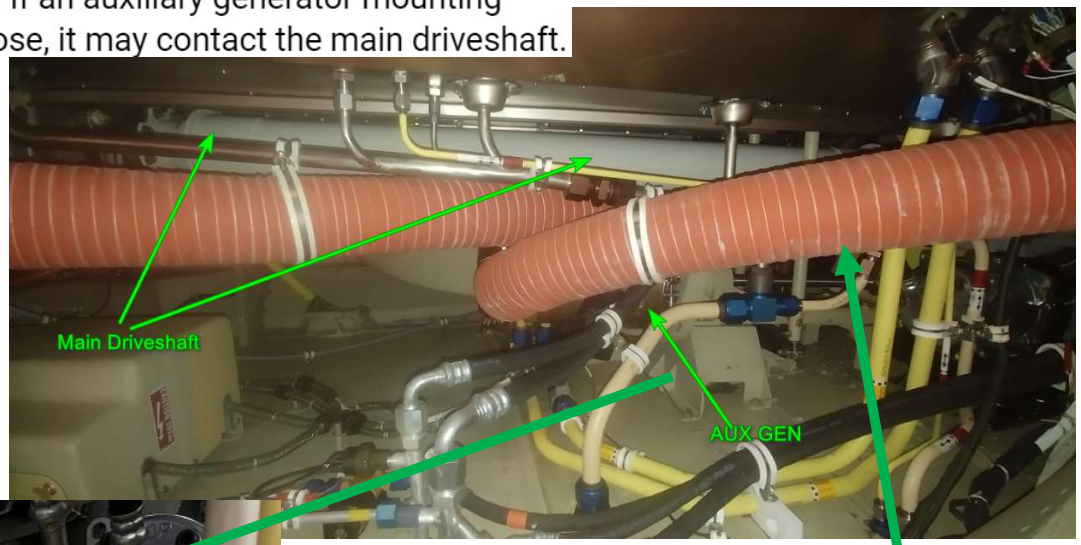


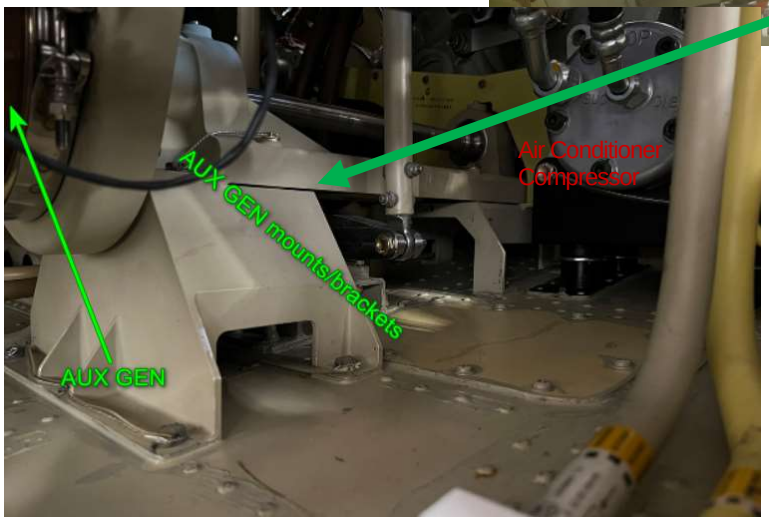


Auxiliary Generator Brackets, Drive Belt, and Cooling Ducts

Check the condition of auxiliary generator brackets, drive belt, and cooling ducts for proper security. If an auxiliary generator mounting bracket or hardware becomes loose, it may contact the main driveshaft.



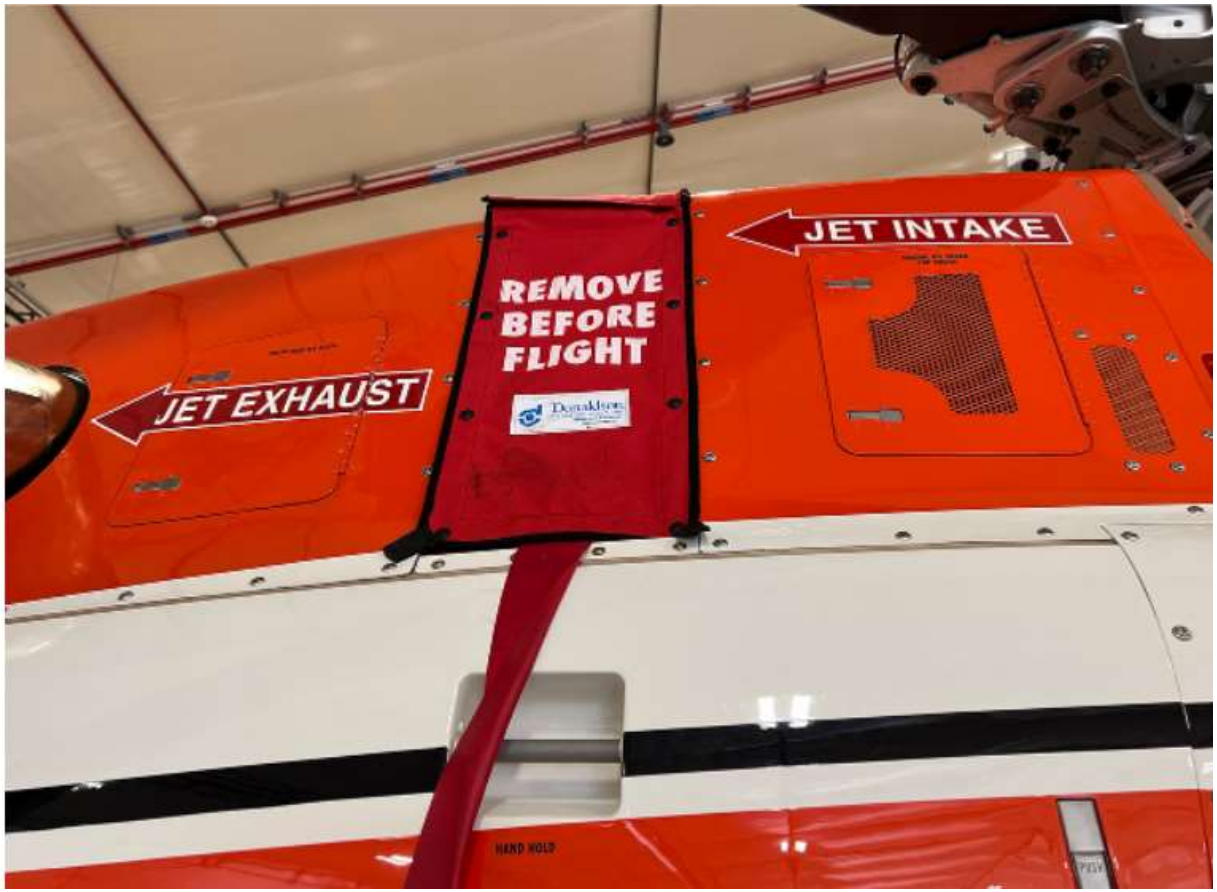




-Cooling Duct

Engine Cowling

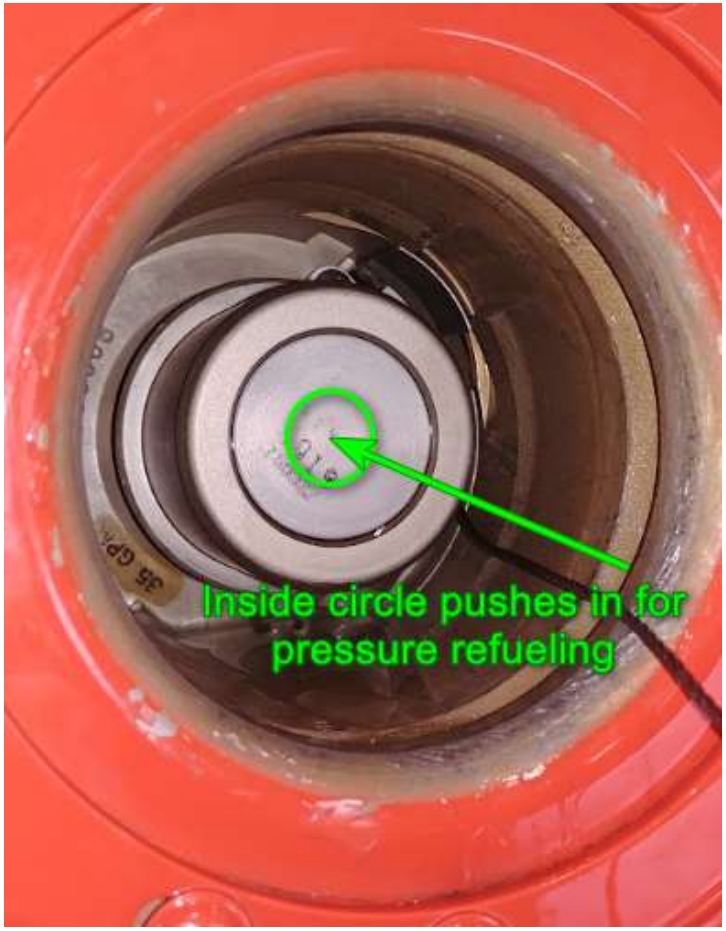
Check the condition of the engine cowling and ensure the door is secured.



Fuel Filler Cap

Check the condition and security of the fuel filler cap.

Pressure Refueling



Gravity Refueling

(the FBO fuelies probably won't know how to gravity refuel the helicopter without your help)

Tail Boom Exterior

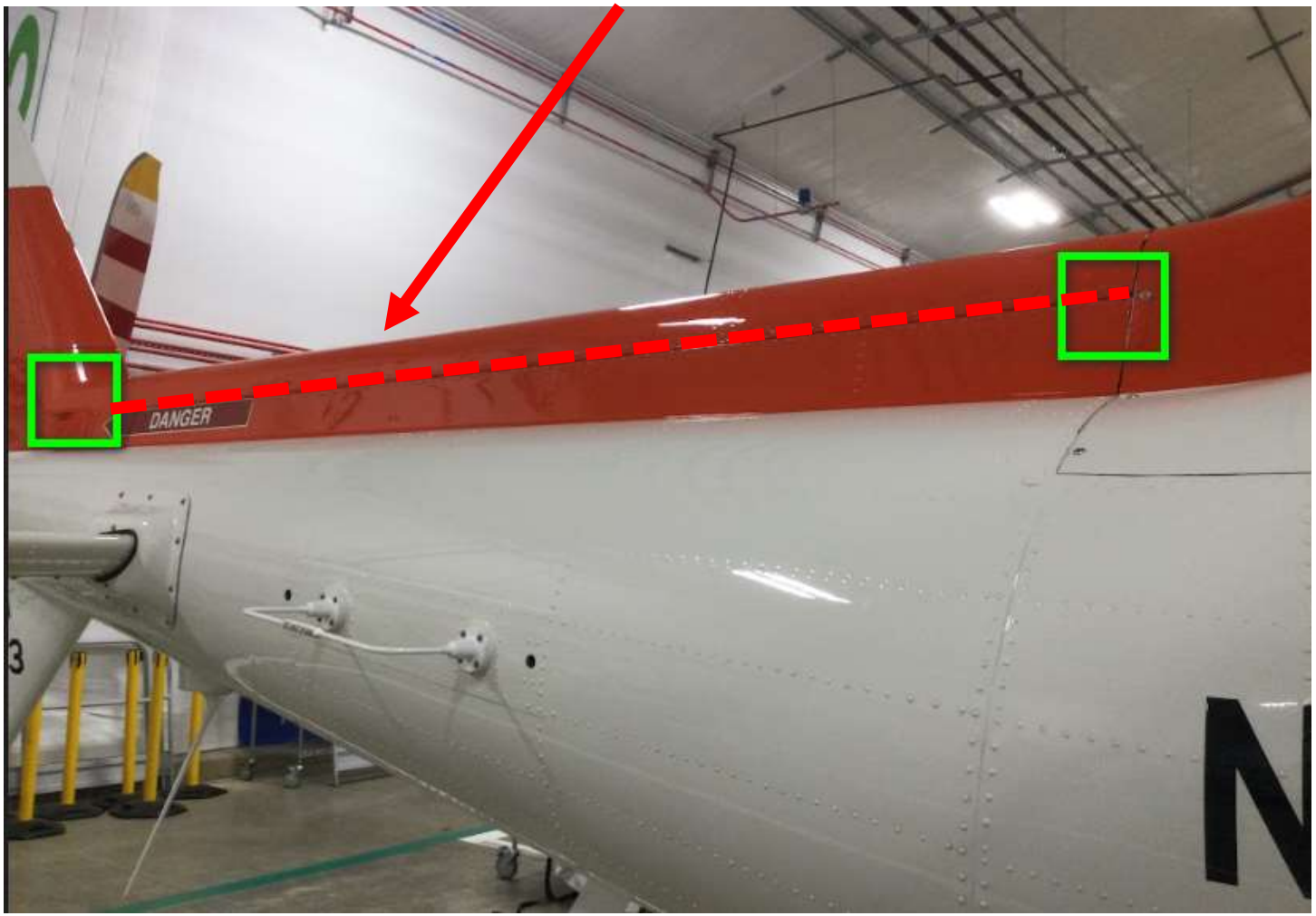
Check the condition of the tail boom exterior. Look for any dents, deformations, or other signs of damage to the tail boom.

Driveshaft cowling hinge pin — Ensure seated correctly.

CAUTION

If hinge pin backs out, it may wrap around the tail rotor driveshaft.

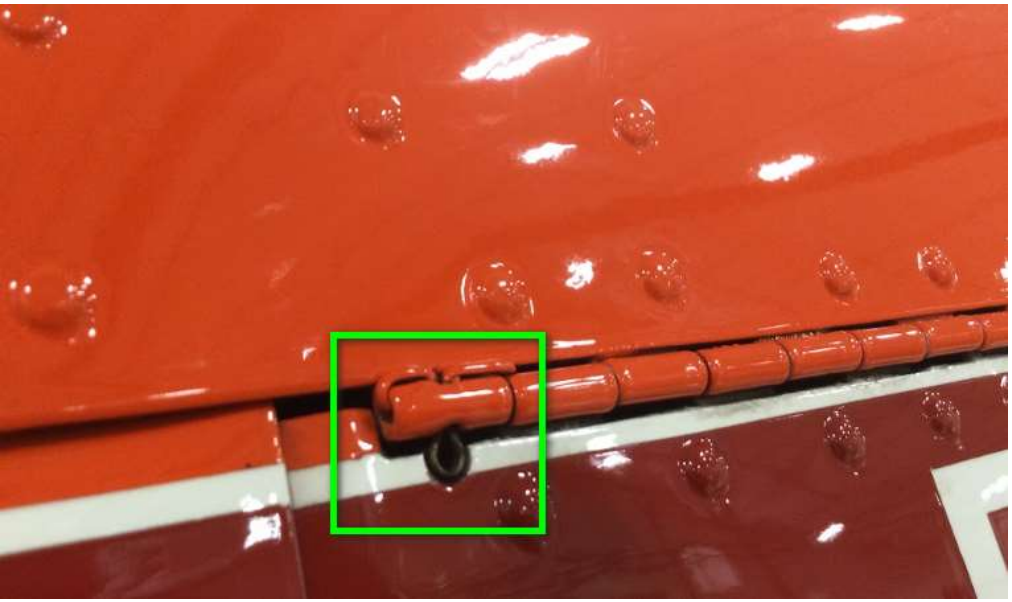
-There's a very long pin in the spine
of the hinge that can slip out and go straight into your
Tail Rotor if the hinge pin cotter keys aren't in place

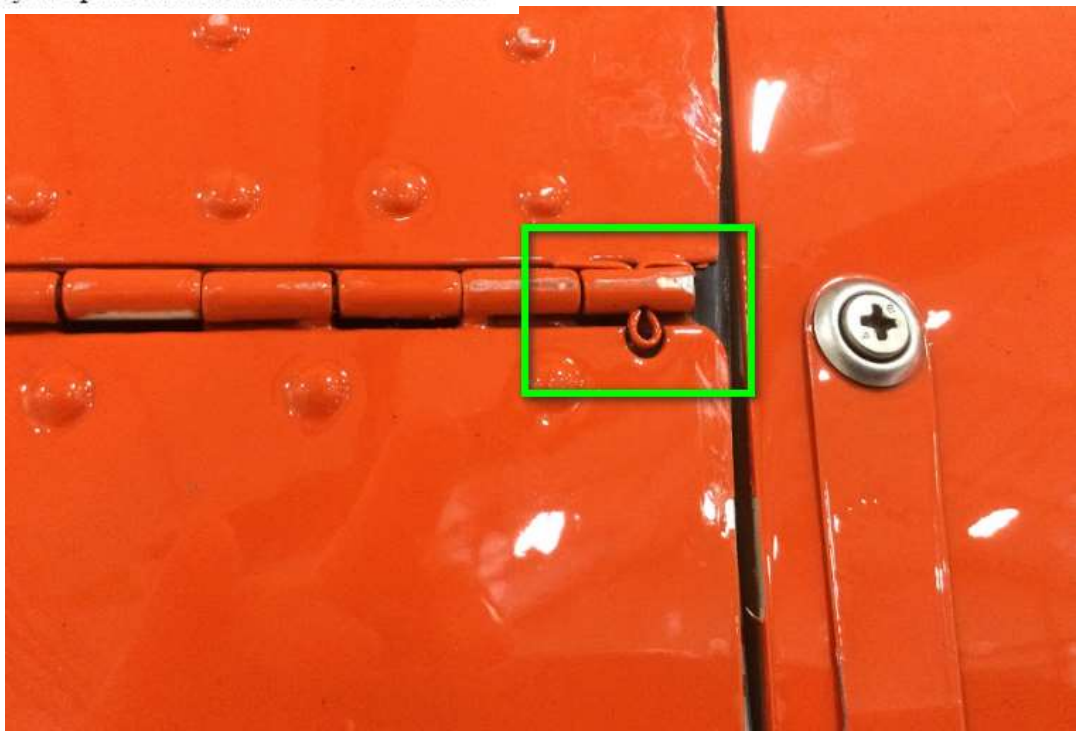


Driveshaft cowling hinge pin — Ensure seated correctly.

CAUTION

If hinge pin backs out, it may wrap around the tail rotor driveshaft.





Lower Anti-Collision Light

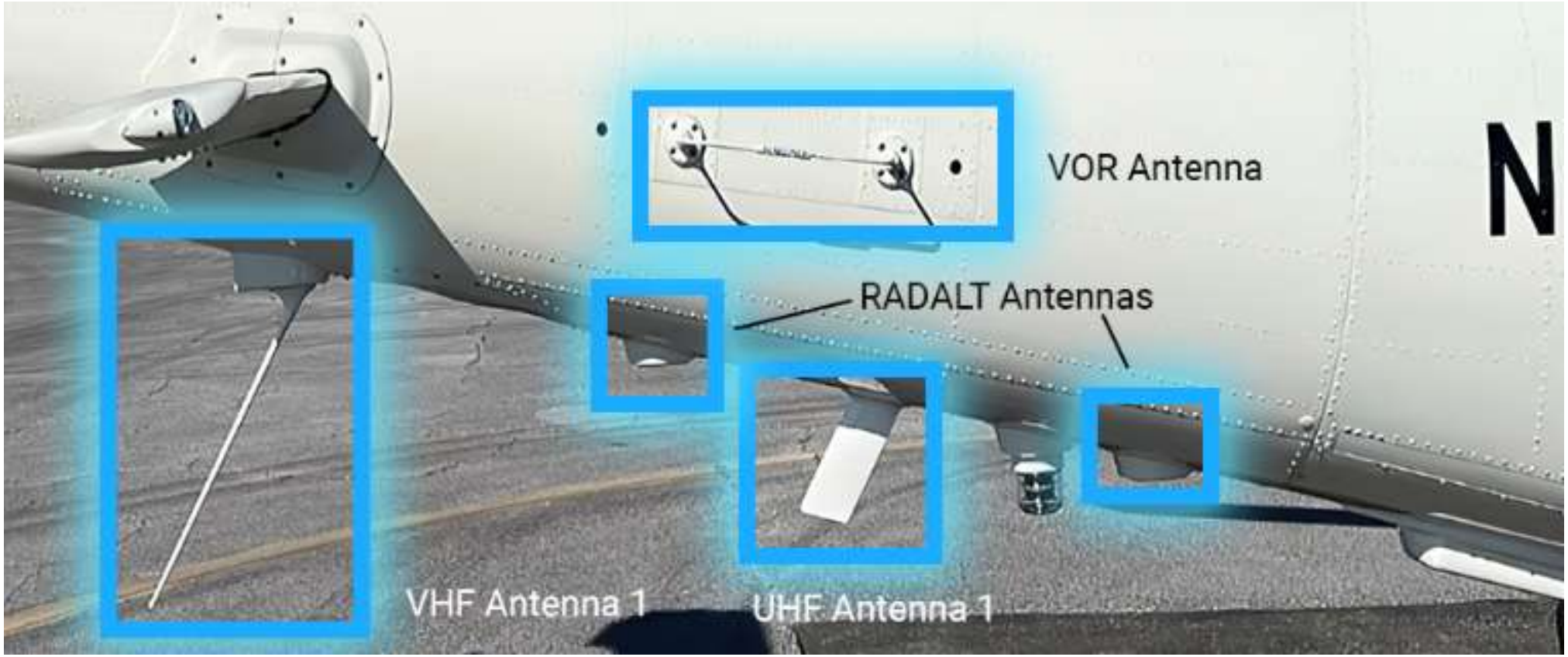
Check the condition and security of the lower anti-collision light.

Infrared Formation Light

Check the condition and security of the infrared formation light.

Antennas

Check the condition and security of the antennas.



Horizontal Stabilizer and Protective Fairing

Check the condition and security of the horizontal stabilizer and protective fairing.

-Not in the CAI, but obviously check the port side's horizontal stab and protective fairing as well

Position Light

Check the condition and security of the position light.

Return to previous

Bearing Housing and Pitch Change Lever Assembly

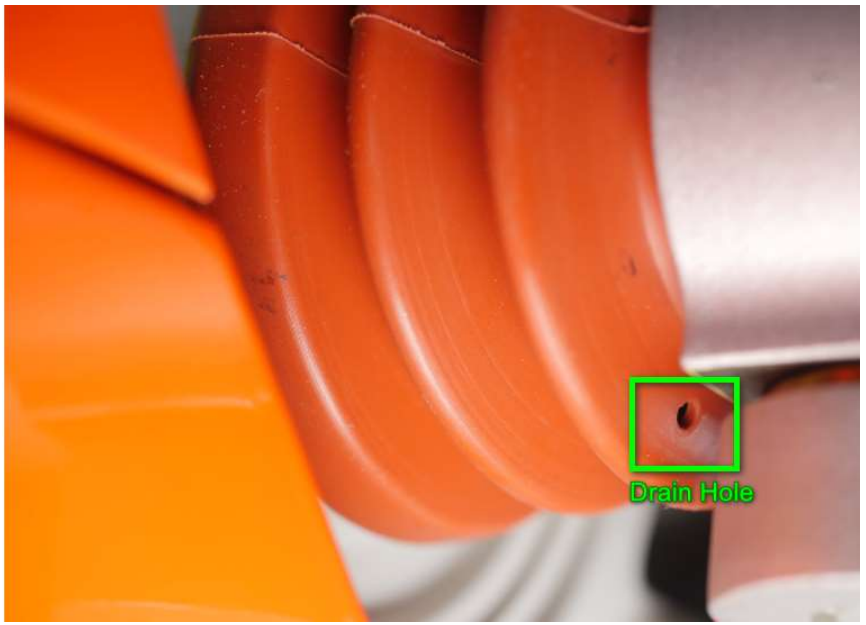
Check the condition and security of the bearing housing and pitch change lever assembly.

Return to previous

Internal Control Rod Rubber Boot

Press the internal control rod rubber boot to verify fluid or water does not drip from the drain hole.

-Usually has grease ooze out, grease is OK

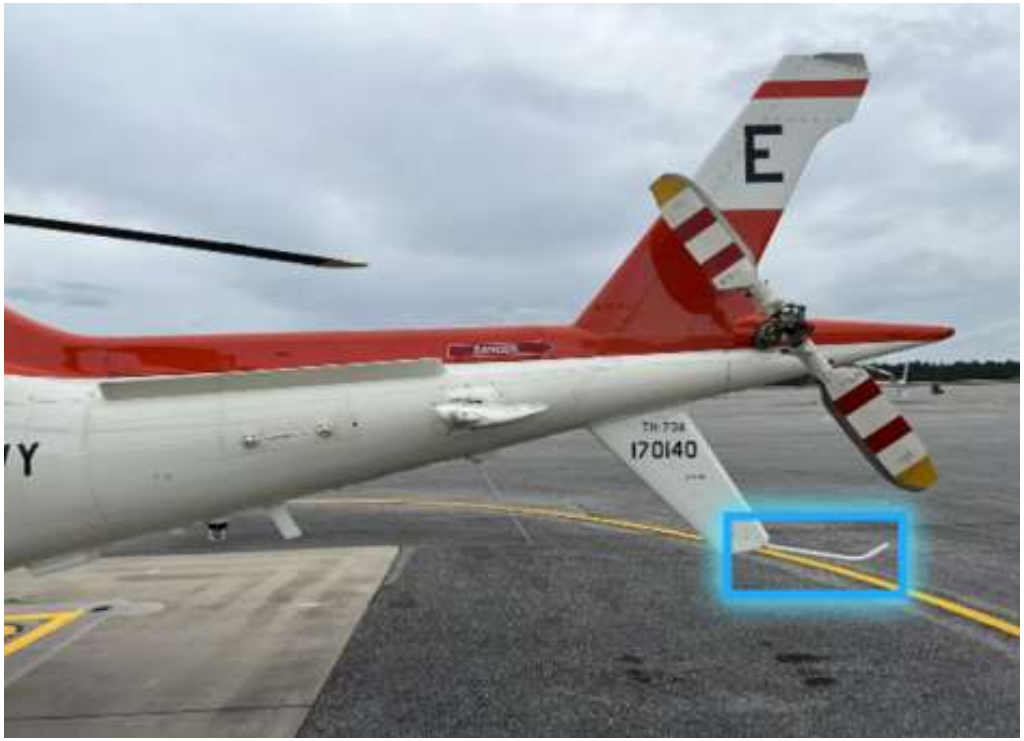


Tail Boom Exterior

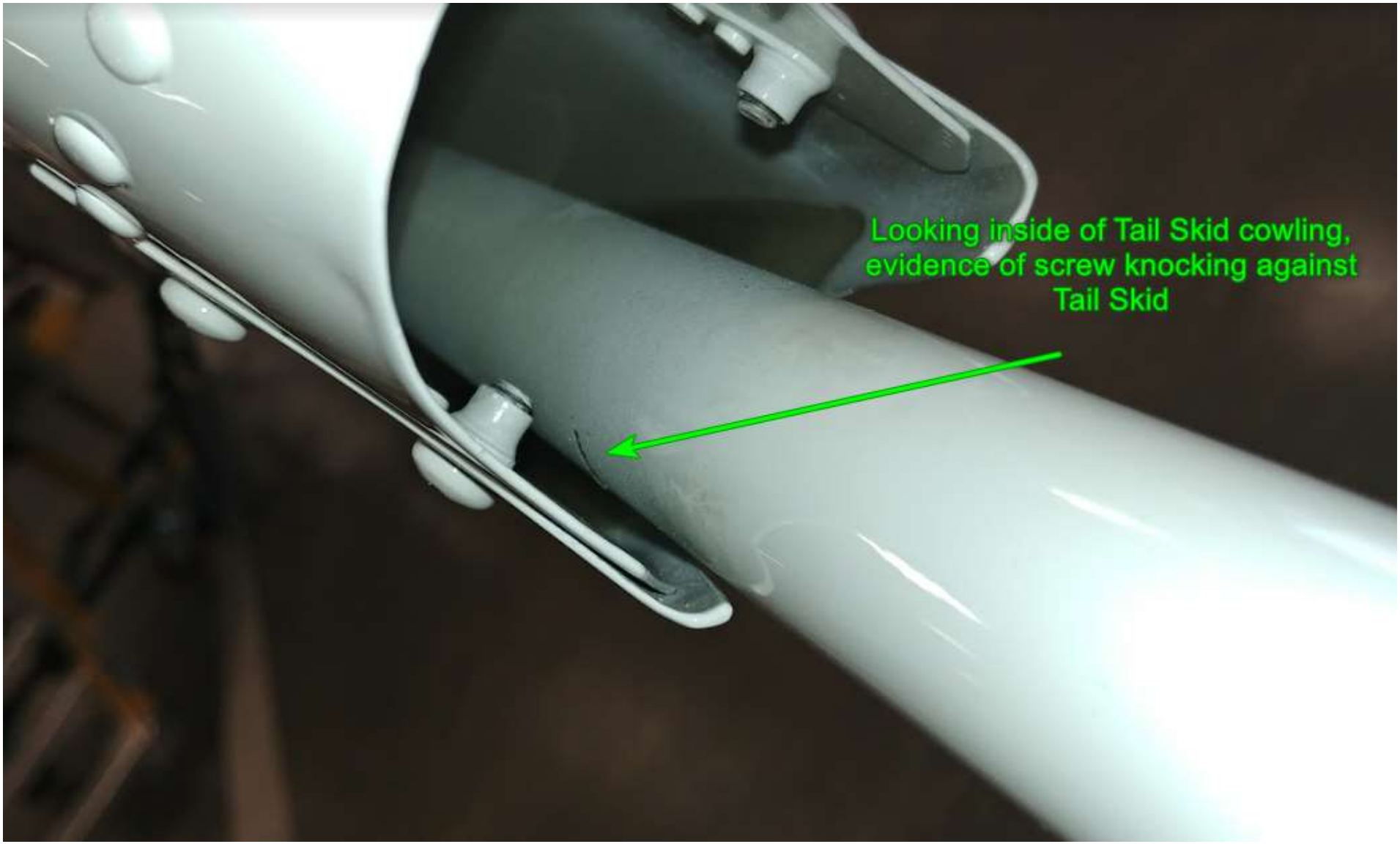
Check the condition of the tail boom exterior. Look for any dents, deformations, or other signs of damage to the tail boom.

Tail Skid

Check the condition and security of the tail skid. Look for damage or crumpling of the vertical stabilizer.

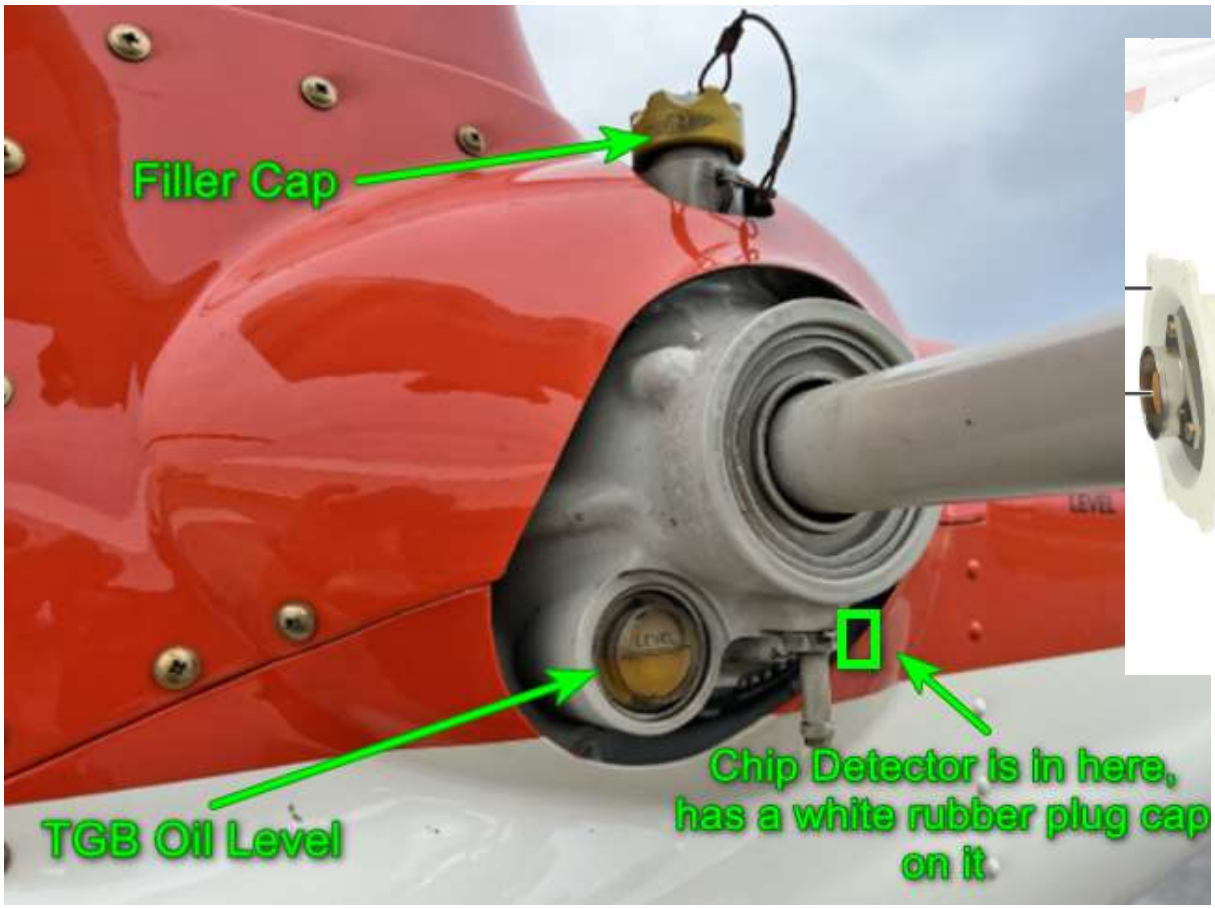


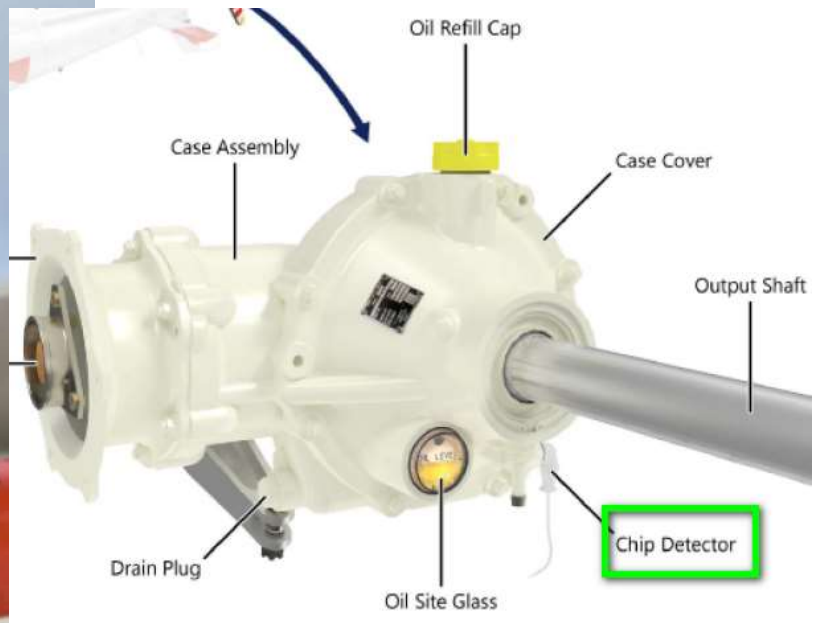

Look inside to see how much the screws have scratched the inside paint off
Check for popped rivets, screws, or any crumpling on the fairing
Check how much paint is missing on bottom


Looking inside of Tail Skid cowling,
evidence of screw knocking against
Tail Skid

Tail Rotor Gearbox

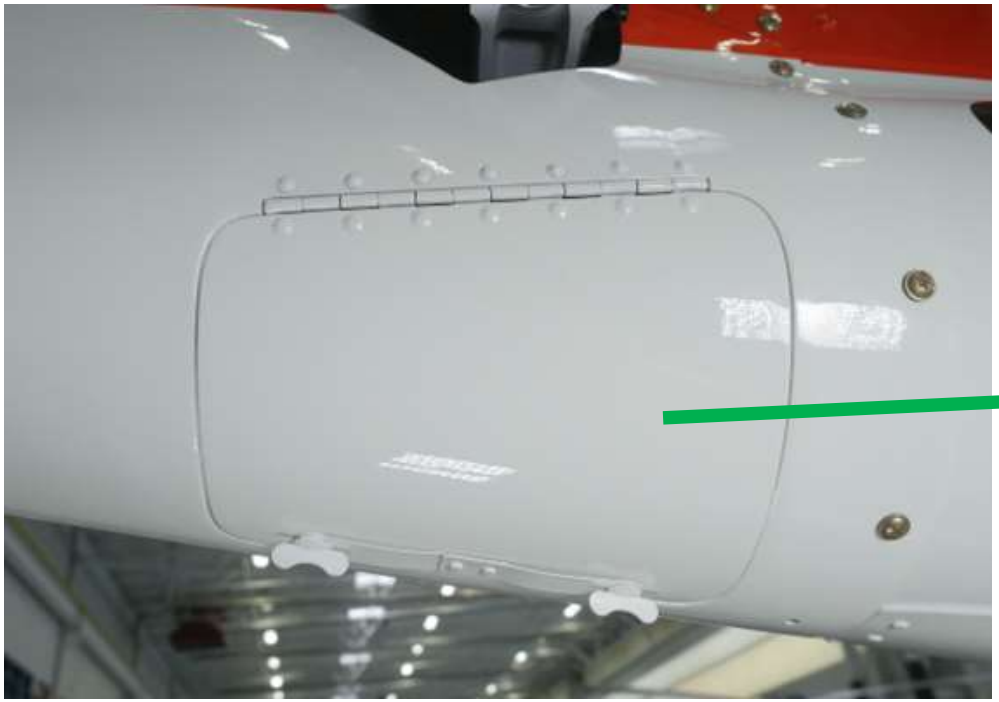
Check the tail rotor gearbox for oil level and leaks. Ensure the filler cap is properly secured.





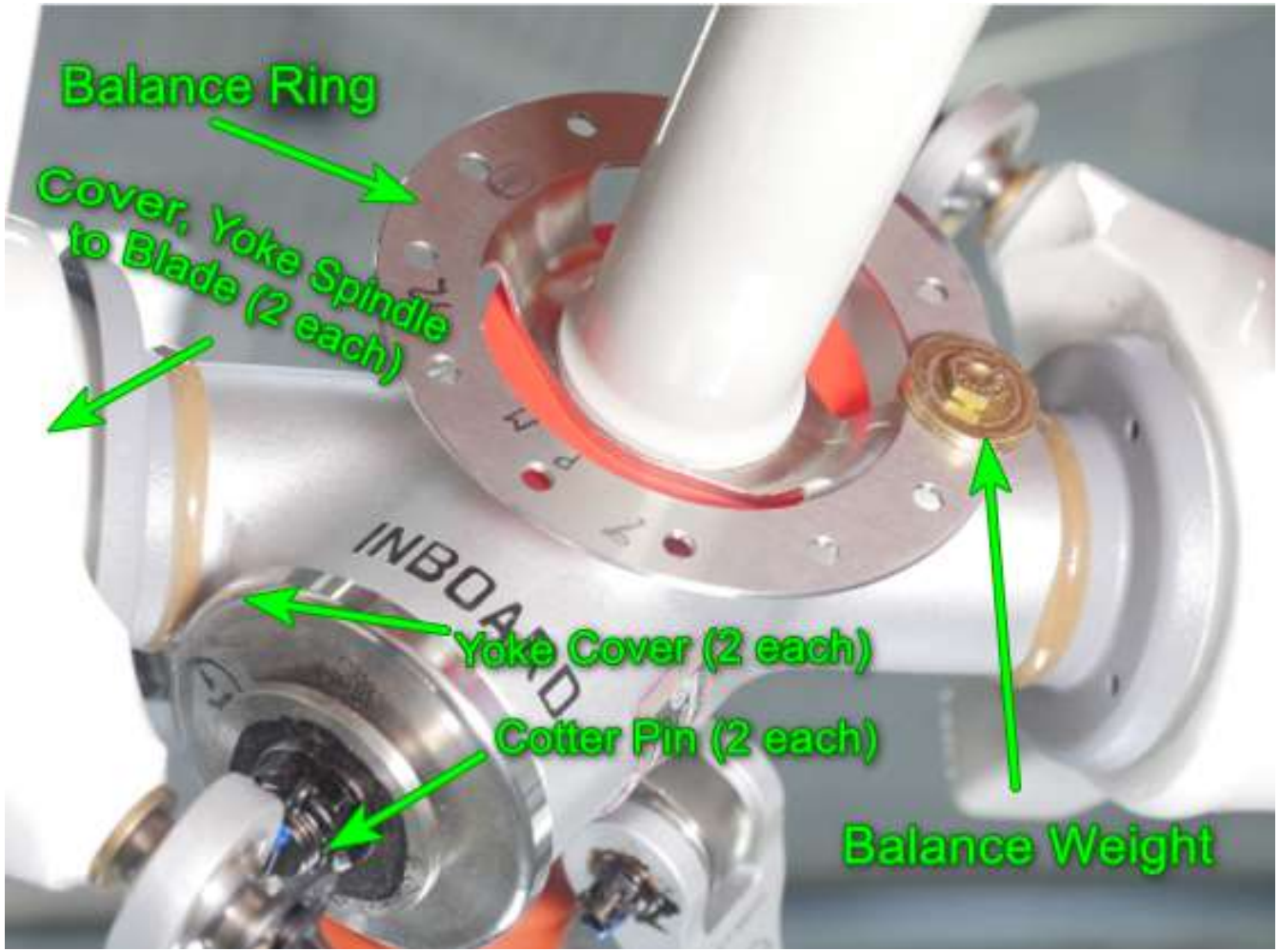
Access Doors

Ensure the access doors are properly secured.



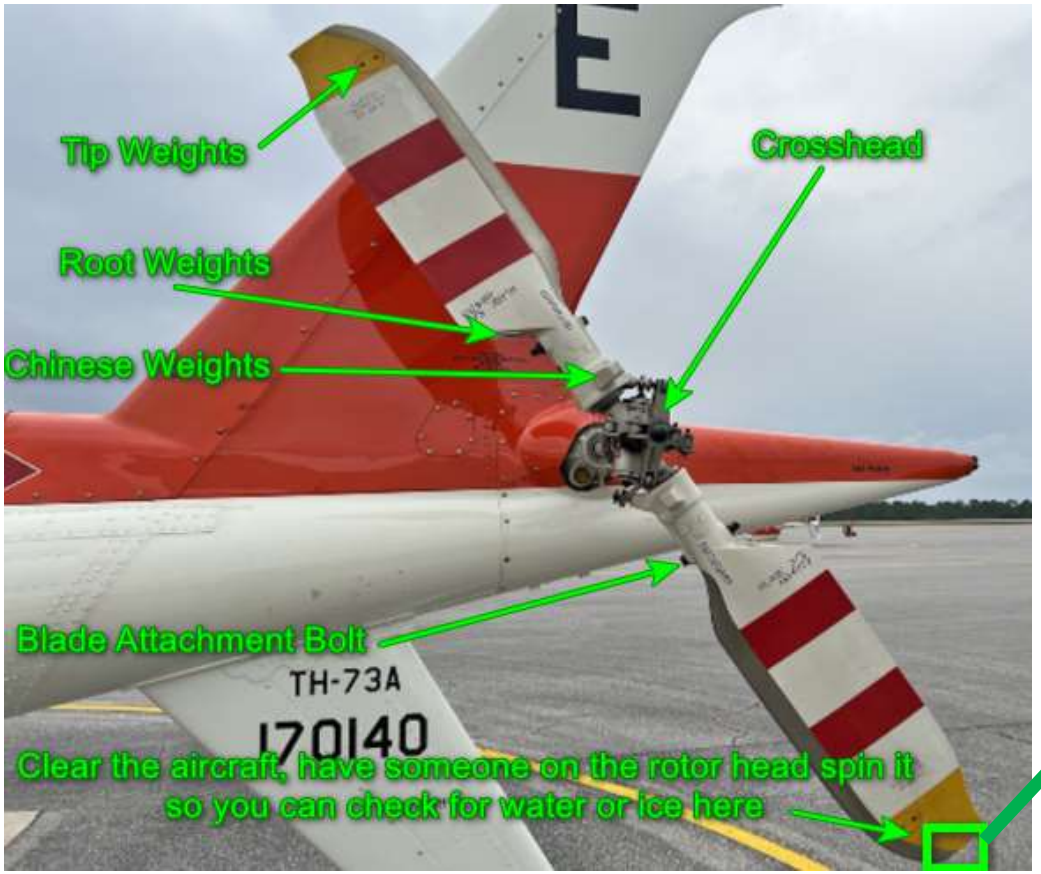
Tail Rotor Hub Assembly

Check the condition and security of the tail rotor hub assembly. Ensure that the hub assembly has the freedom to flap.



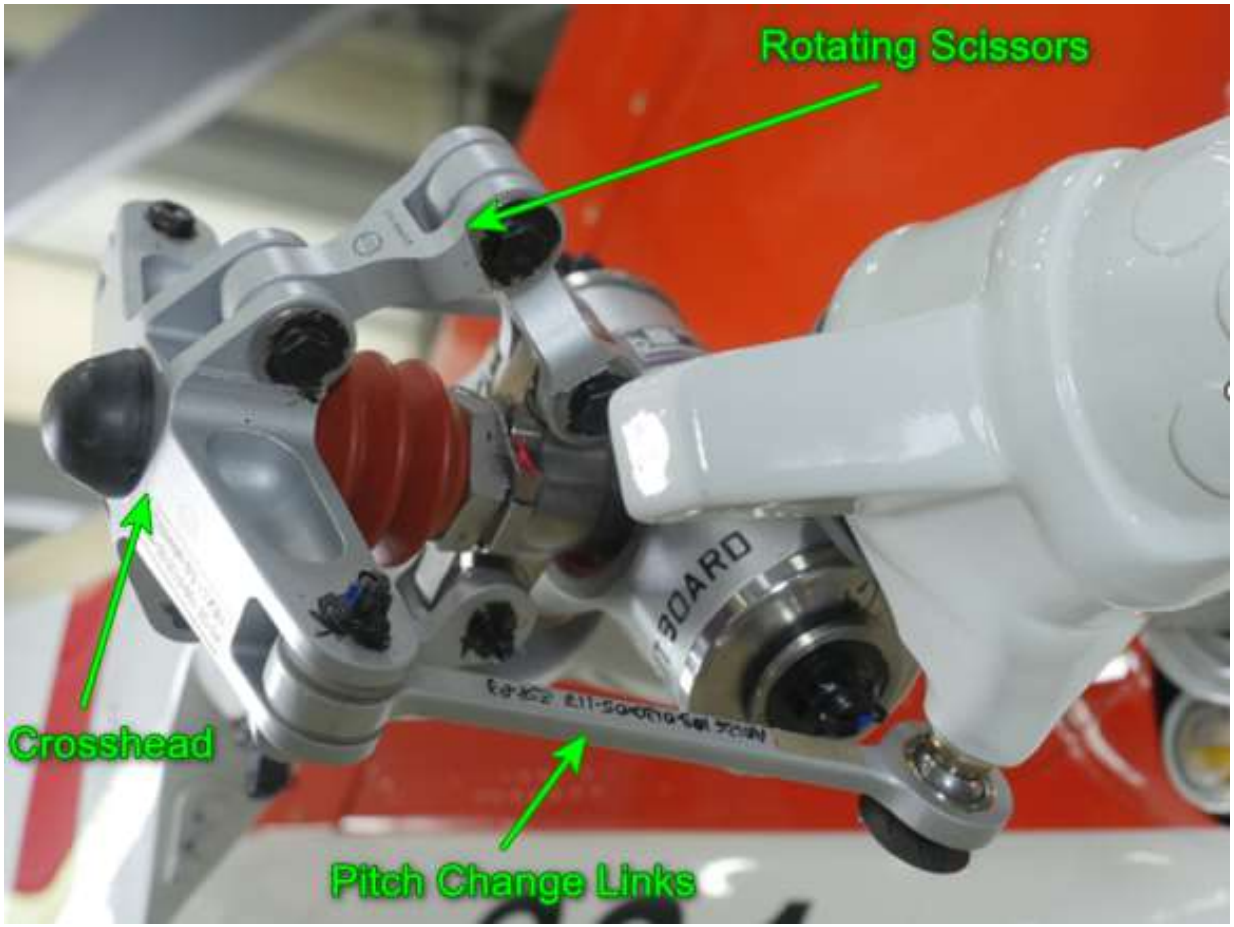
Tail Rotor Blades

Check the condition and security of the tail rotor blades. Water can pool in the tail rotor blades, so rotate the blades to drain the water through the hole in the tip of the blade.



Tail Rotor Pitch Change Mechanism

Check the condition and security of the tail rotor pitch change mechanism.



What Tail Rotor Control Pedal inputs look like:

Strake

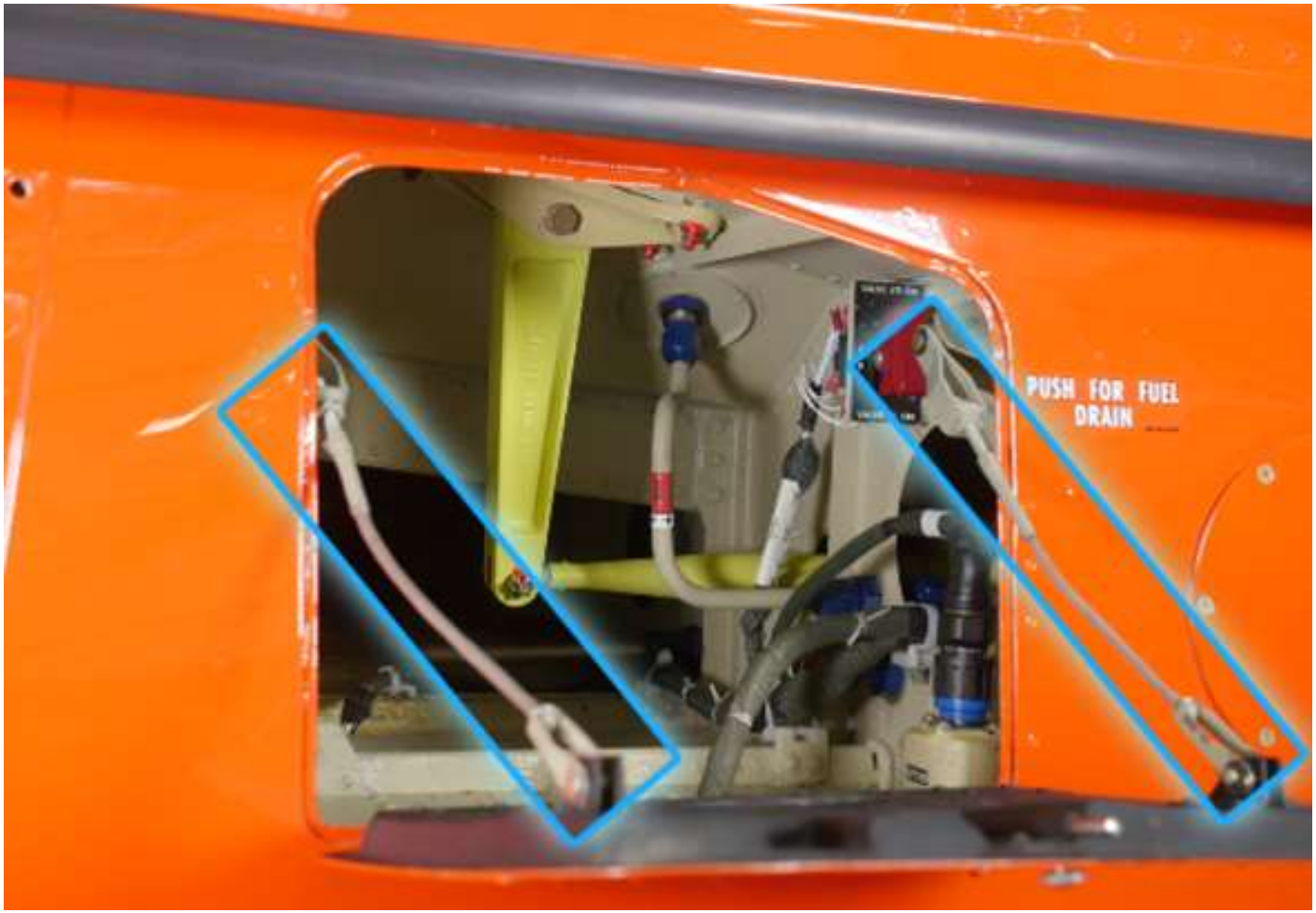
Check the condition of the strake. Ensure it is clear of FOD.

Baggage Compartment

Check the cargo, internal bulkheads, and door for security. Ensure there are no leaks from the tail rotor servo panel.

Left Side Maintenance Step Cables

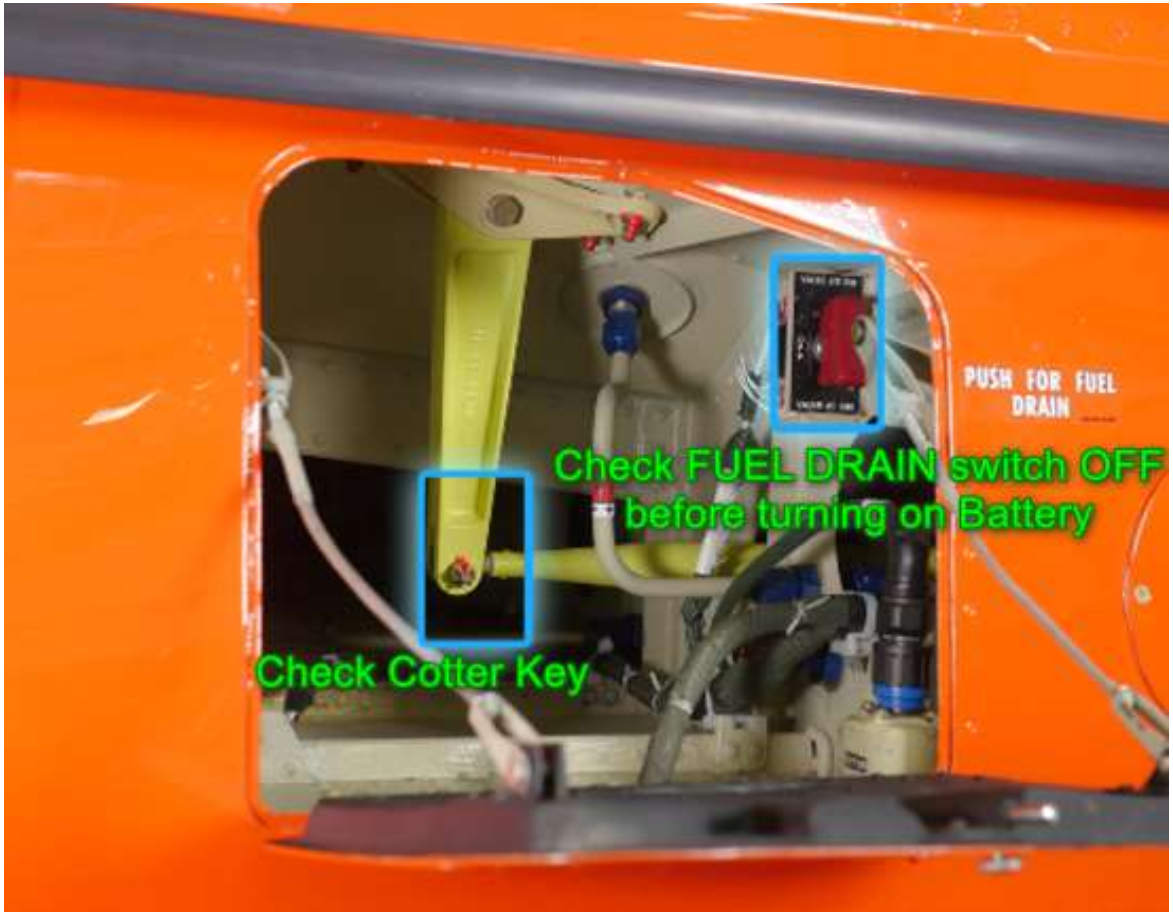
Check the condition and security of the left side maintenance step cables.



Maintenance Step Access Panel

Check the maintenance step access panel to ensure the cotter key on the bell crank is present and clear of FOD.

Ensure the fuel drain valve switch is off.



Air Conditioner Condenser

Check the condition and security of the air conditioner condenser. Look for any FOD in the area or damage to the condenser.

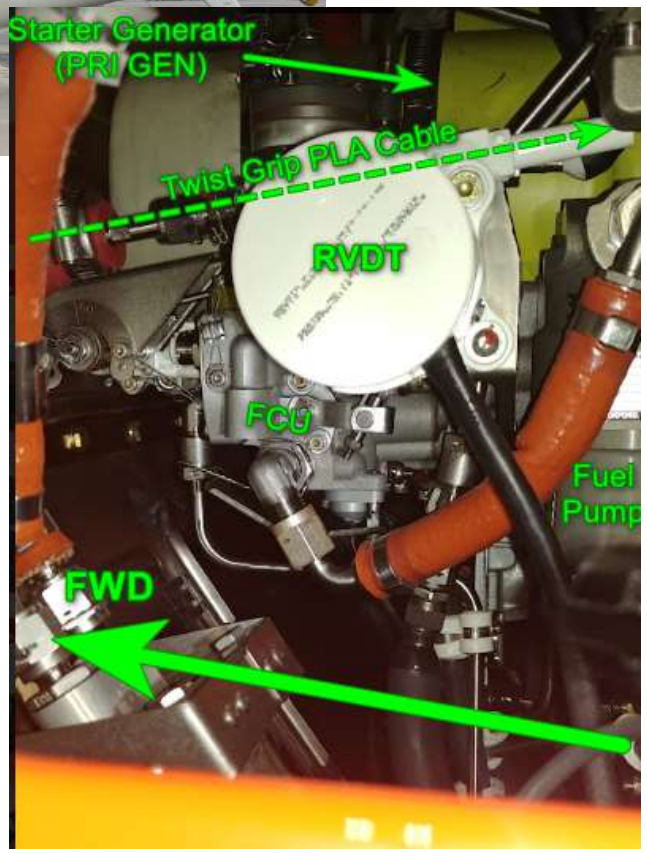
-On the CAI, not in NATOPS yet but good idea to check

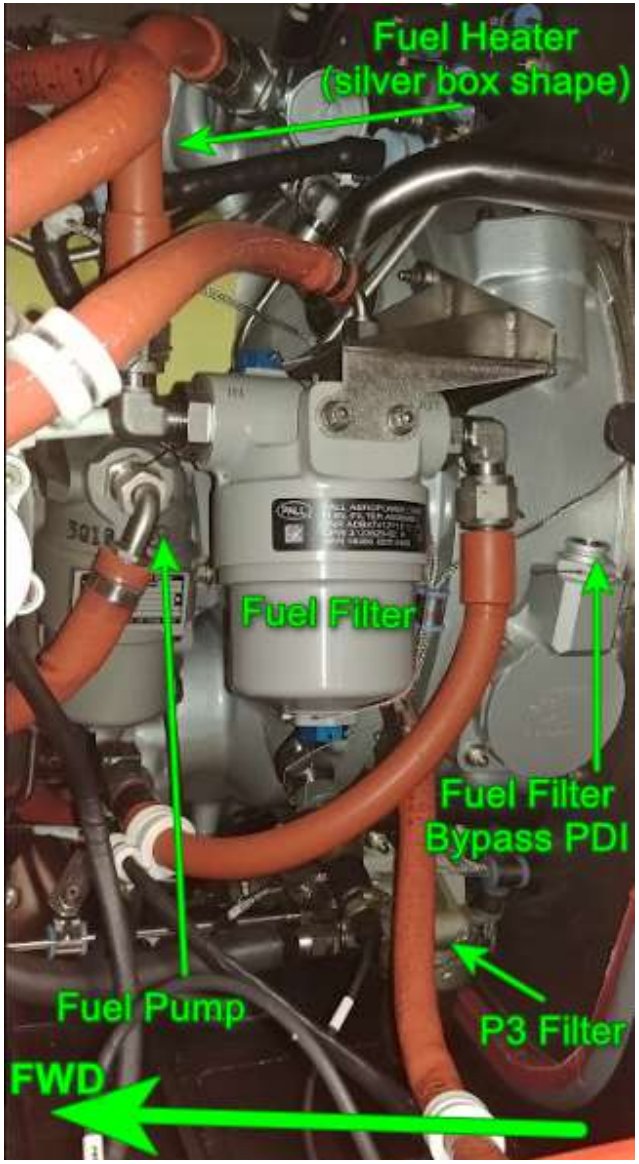
Drain and Vent Lines

Check the drain and vent lines for leaks.

Engine Area

Check the engine area for fuel and oil leaks.





Engine Oil Filter

Check the conditions of the engine oil filter and ensure the bypass indicator is not extended. A visible red button indicates a clogged filter.

IBF Maintenance Aid

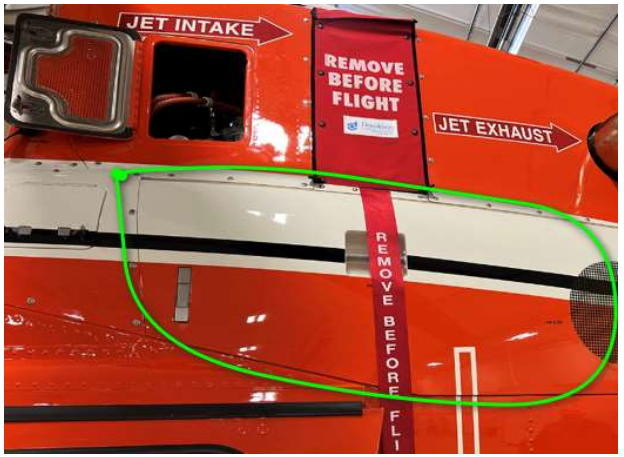
Check the status of the filters serviceability. Do not depress the yellow reset button unless otherwise directed by maintenance personnel.

Engine Cowling

Check the condition and security of the engine cowling.

Main Driveshaft

Check the condition and security of the driveshaft.

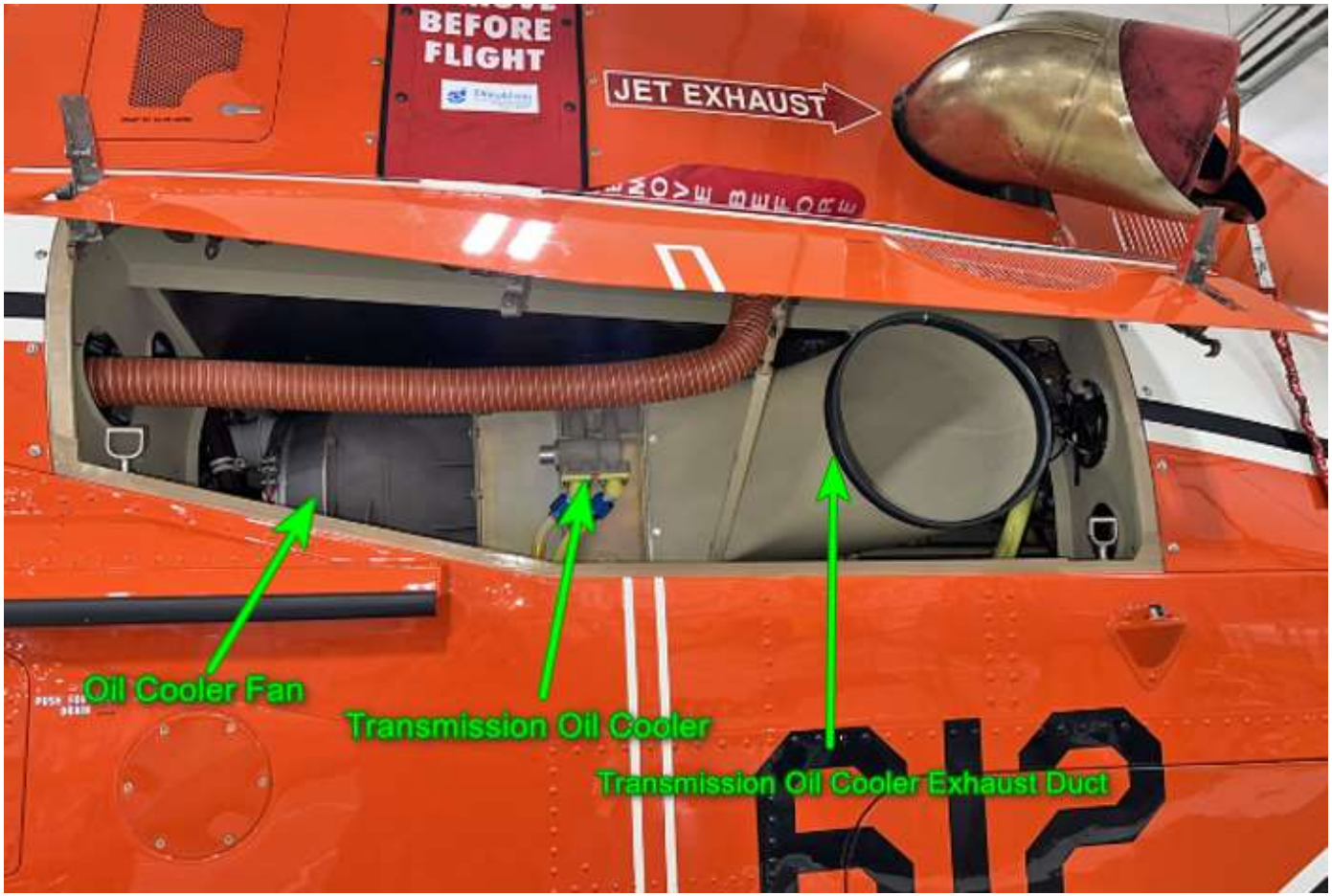


Engine Exhaust Duct

Remove the cover and check the condition of the engine exhaust duct. Look for any large dents, scrapes, or other indications of damage to the exhaust duct.

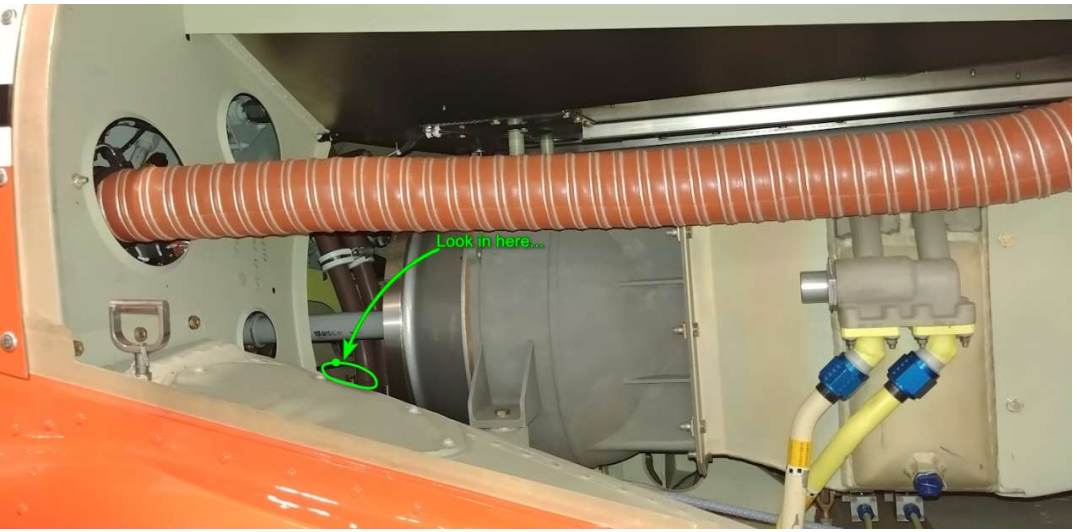
Transmission Oil Cooler Exhaust Duct

Check the condition of the transmission oil cooler exhaust duct and ensure it is free of foreign matter.

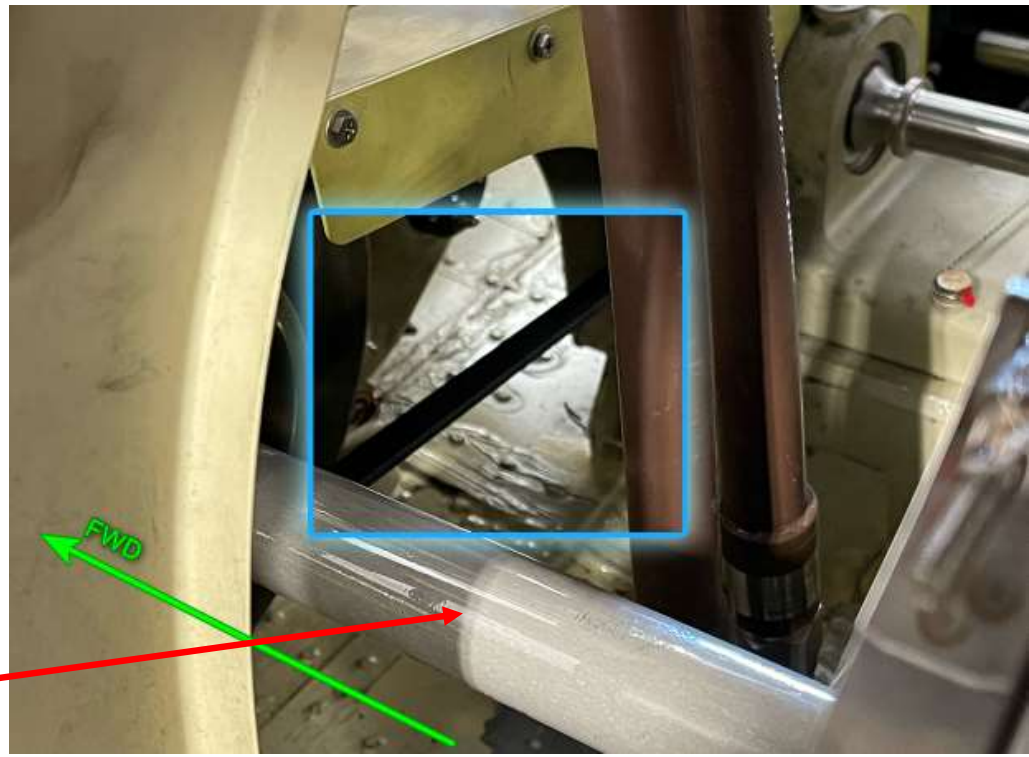


Air Conditioner Compressor

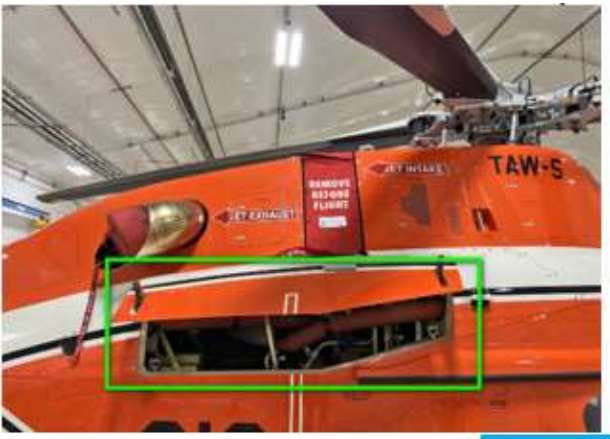
Check the belt tension.

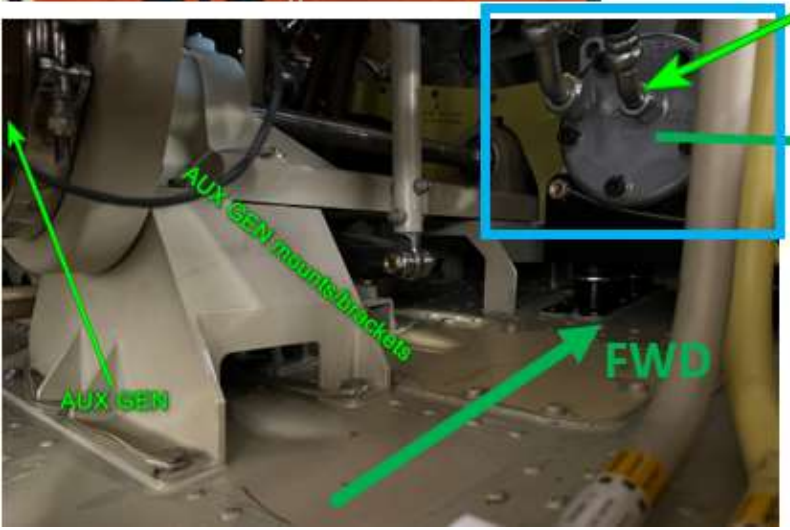


Check for freedom of fore-aft movement on Oil-Cooler driveshaft



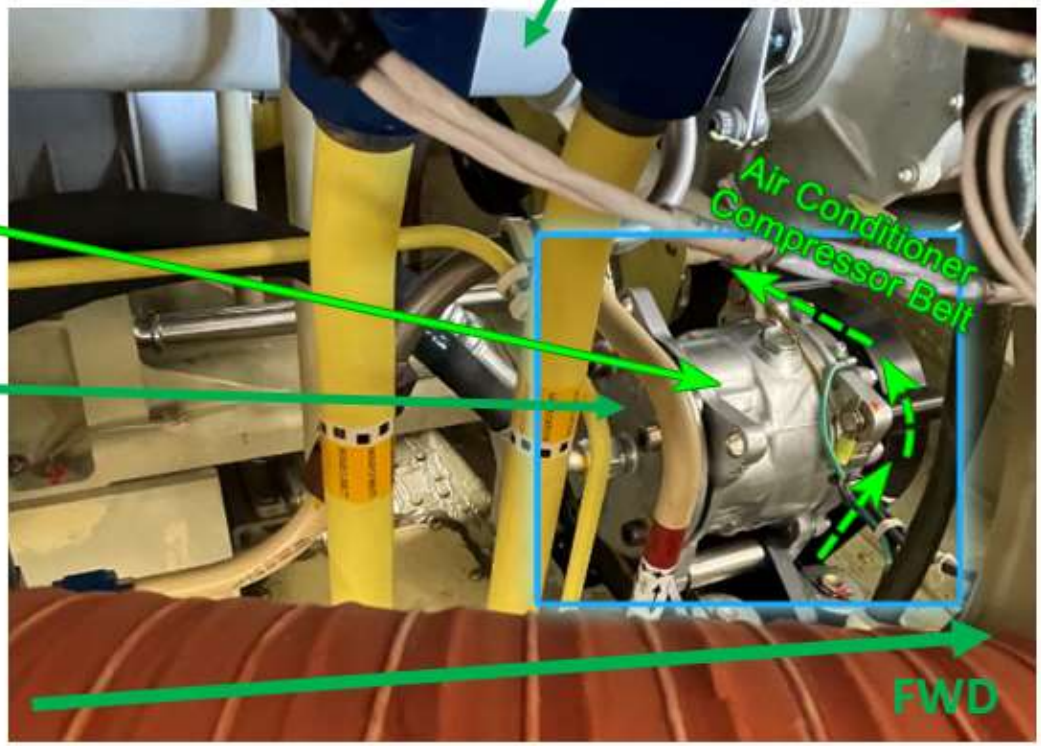
-This is looking at Air Conditioner from the Starboard side





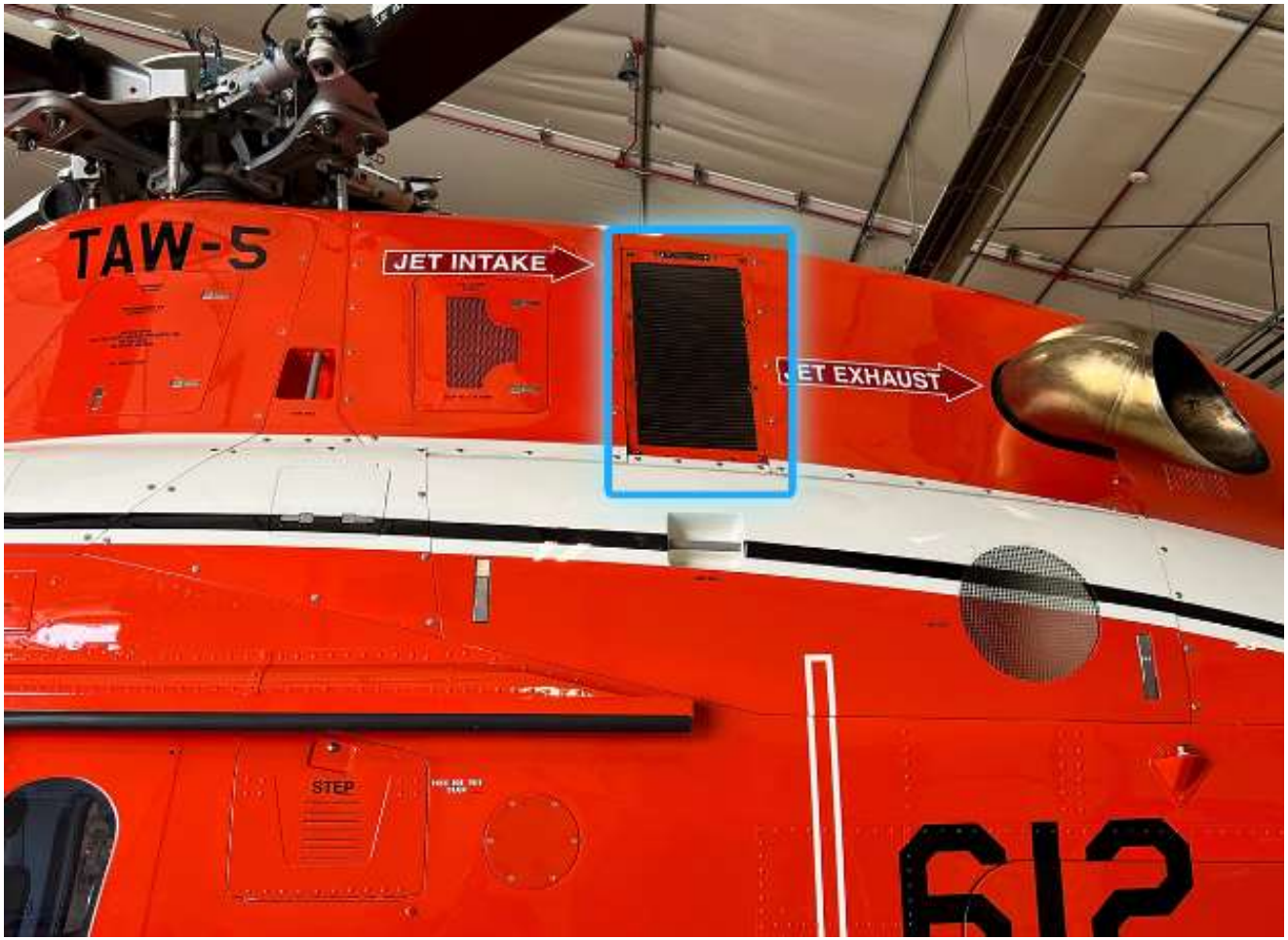
Air Cond. Compressor

Main Driveshaft



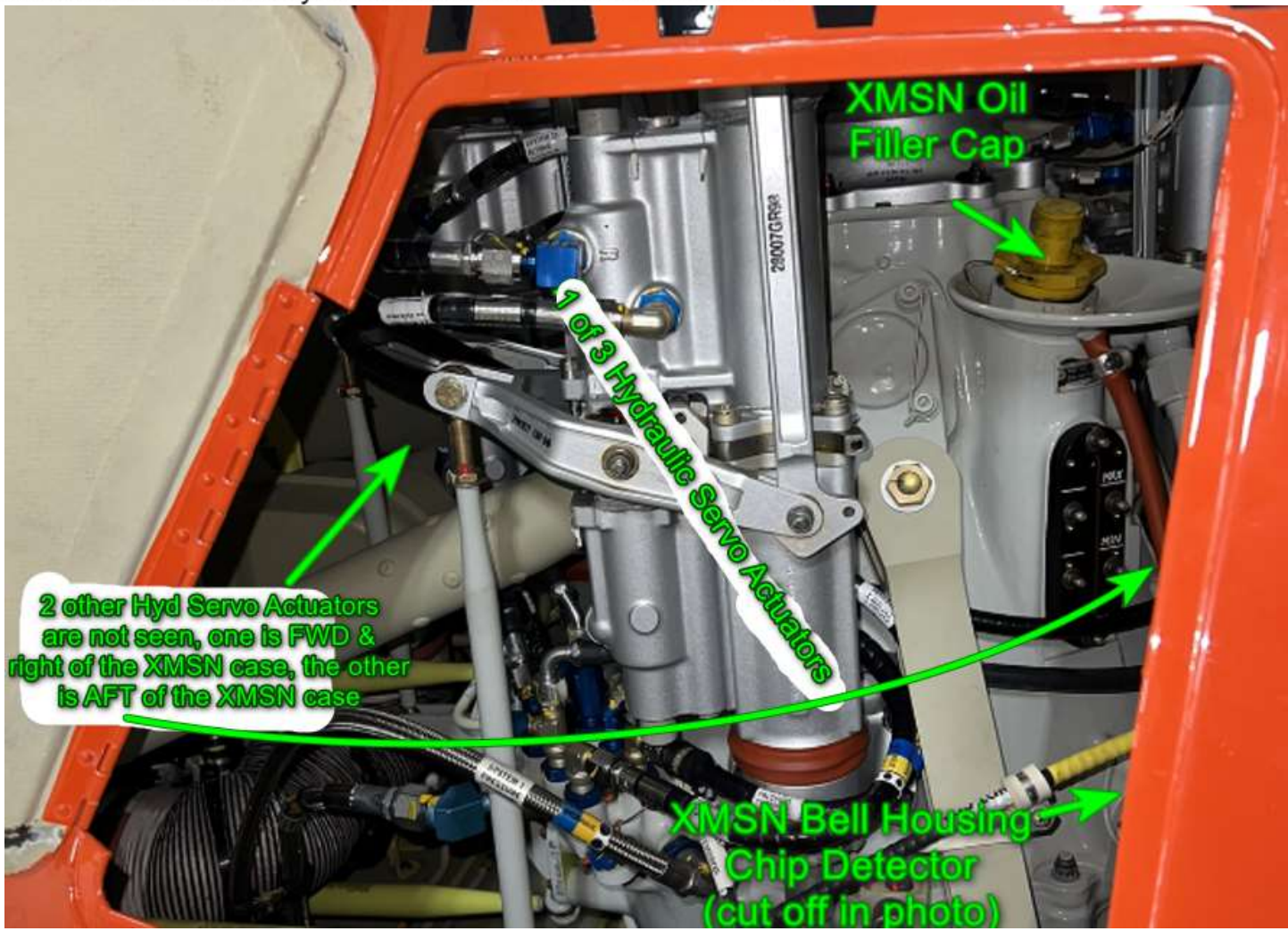
Left Engine Air Intake Screen

Ensure the cover is removed and that the intake screen and plenum chamber are free of obstructions.



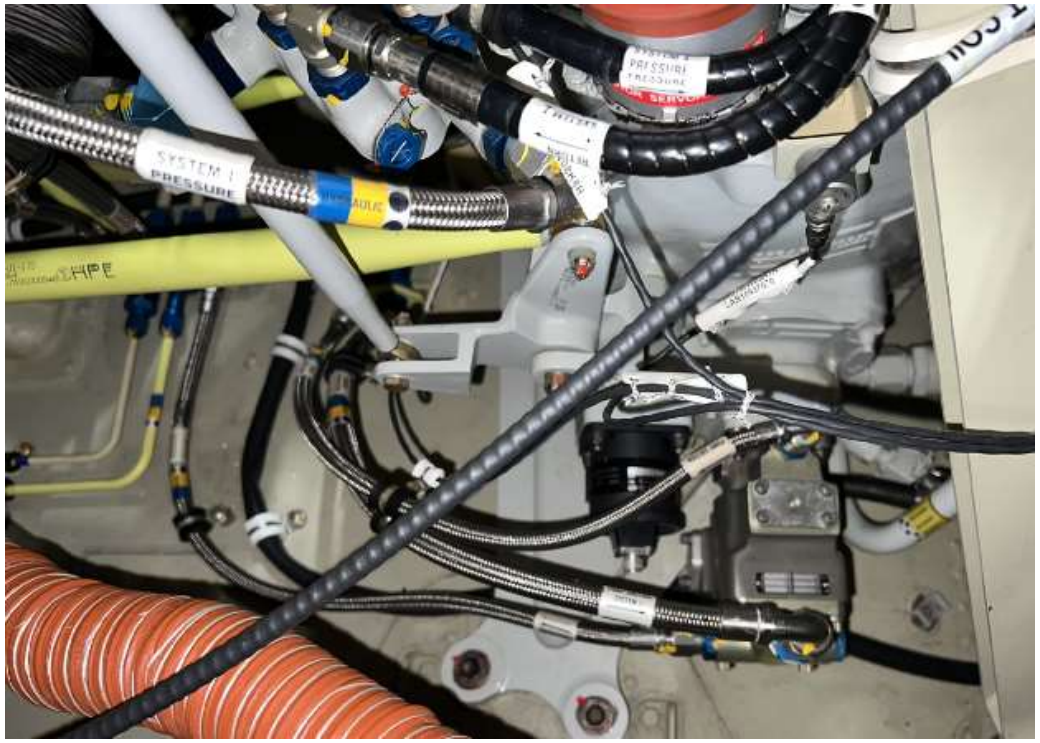
Hydraulic Servo Actuators

Check the condition of the hydraulic servo actuators for leaks.



Transmission and Accessories

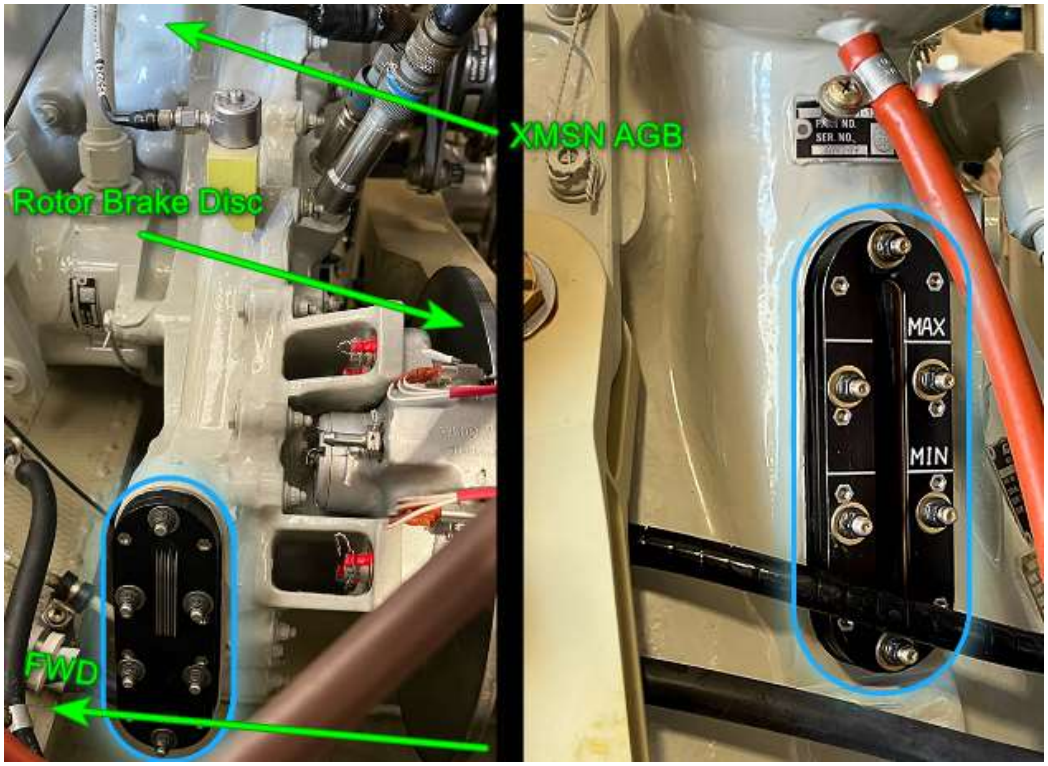
Check the condition of the transmission and accessories for leaks.



Transmission Oil

Check the transmission oil level. The oil level should be between the MIN and MAX lines on the sight gauge. If the rotor brake was used on the last shutdown, check the oil level in the Accessory Gearbox (AGB) sight gauge.

Per updated NATOPS: Oil level is acceptable as long as oil is visible in the pilot sight gauge on the accessory gearbox (also referred to as the lateral sight gauge).



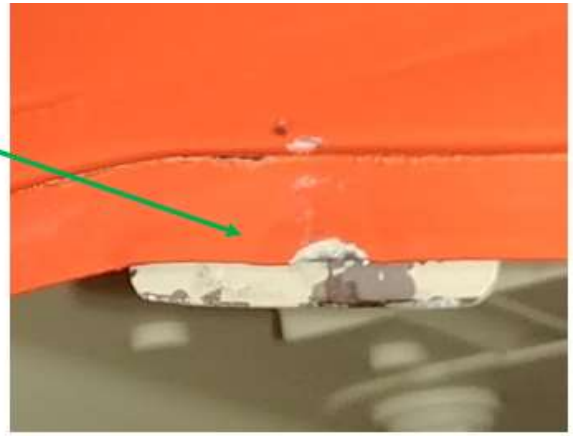
-View of Rotor Brake and Oil Cooler Fan from port Transmission Access Panel, looking AFT

Maintenance Step

Ensure the maintenance step is secured correctly.

When closing the maintenance step, ensure the latch mechanism is behind the small bracket with the tension knob snug for proper security.

***Picture is from Maintenance step on other side of aircraft



-Don't just try to slam this door shut without pulling down on the button, the plunger has to go behind the keeper before the door can shut; this aircraft has minor damage already

-Make sure the button snaps back up after closing the door and give it a "love tap", these doors are prone to come open in flight

Rotor Brake

Check the rotor brake fluid level and pressure. If the rotor brake is off, the pressure should be zero.

Cowlings and Fairings

Check the condition and security of the cowling and fairings.

Access Doors

Ensure the access doors are properly secured.

Landing Gear and Skid Shoe

Check the condition of the landing gear and skid shoe for excessive wear. Ensure the security of the retaining bolts.

Inspect the airframe above the aft skid cross tube for bending or warping. Deformation of the fuselage above the skid cross tube may indicate that the previous flight had a hard landing.

Landing gear hydraulic damper — Check for leakage.

Note

You can rock the aircraft to see damper extend slightly, but not excessive travel.

Cabin Interior

Check the cabin interior for security of equipment and cargo.

Cabin Seat Belts

Check the condition of cabin seat belts.

Flight operations with the passenger sliding doors open or removed require the removal of all cabin equipment, installations, and trim panel.

Passenger safety belts must be fastened if the seats are unoccupied.

First Aid Kit

Check the first aid kit to ensure it is current, sealed, and secured.

Cabin Door and Jettison Window

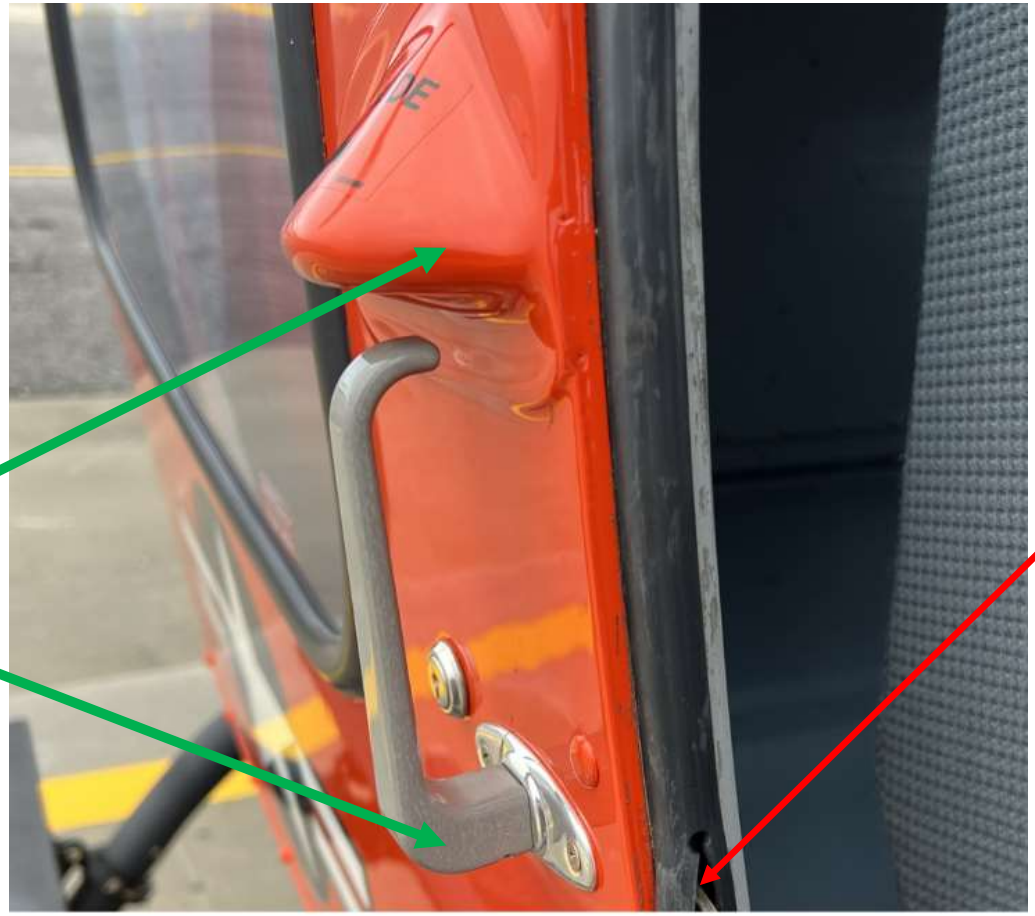
Check the condition of the cabin door and jettison window for cleanliness and proper security.

Ensure the red strap is secured.

Cabin Door Lock

Check the cabin door lock for dents, bending, or any other sign of damage.

***Photo from other side of aircraft



Push here or
on bottom of handle
To check that door is closed
Properly when finished
(usually the culprit of
DOOR OPEN Cautions,
don't ask how I know…)

Door Latch Hook is seen here
but cut off in picture, make sure
it's not bent or door won't close
properly

Lateral Panel, Windshield, and Roof Transparent Panel

Check the condition of the lateral panel, windshield, and roof transparent panel for cleanliness.

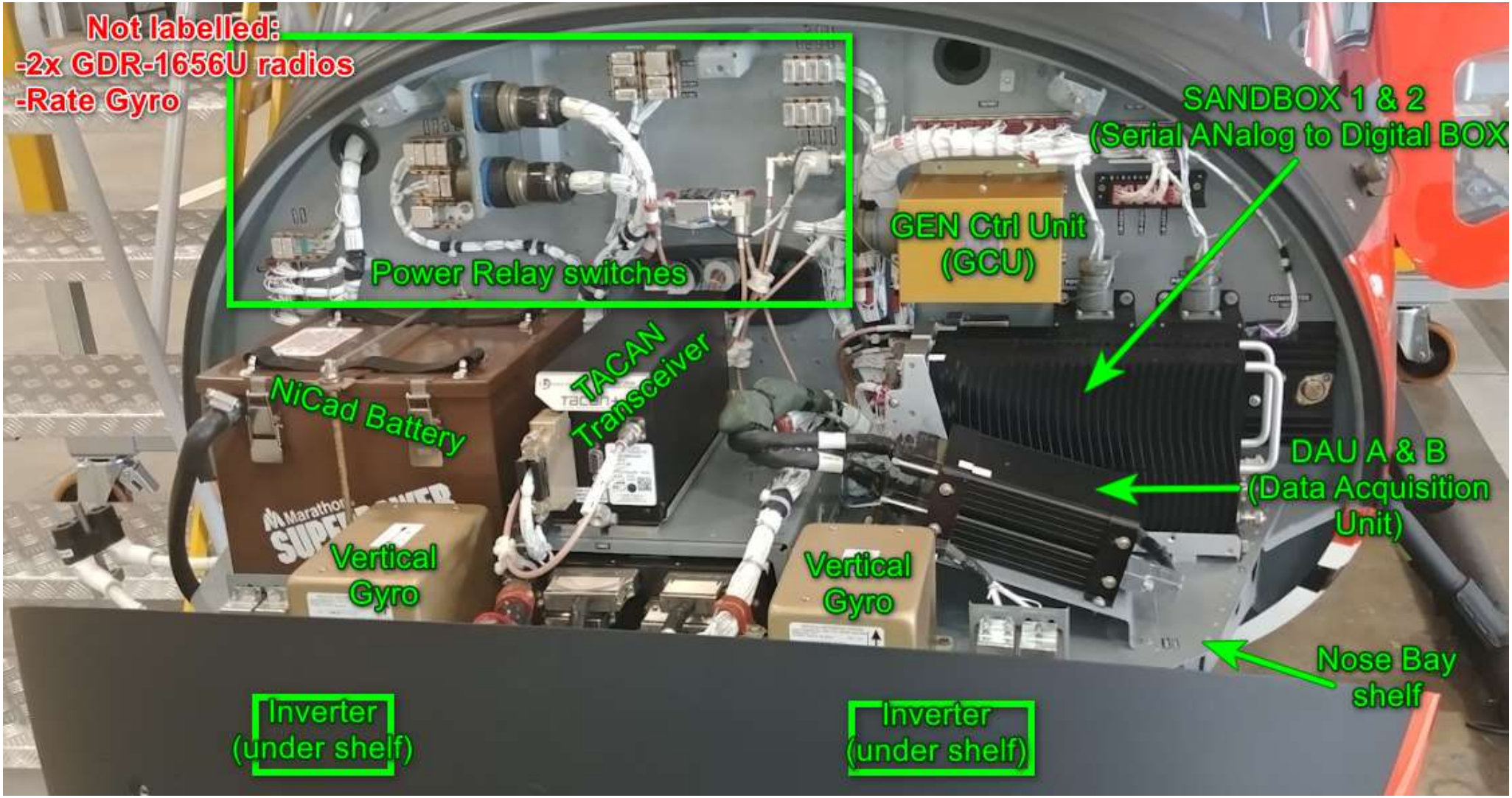
Pilot Door, Window, and Sliding Window

Check the condition of the pilot door, window, and sliding window for cleanliness and proper security.

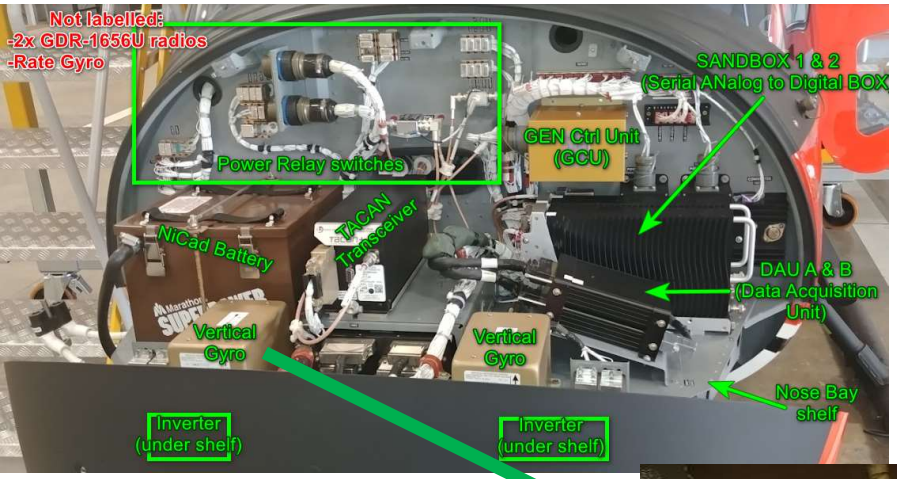
Extra Stuff

Nose Compartment (uncovered)

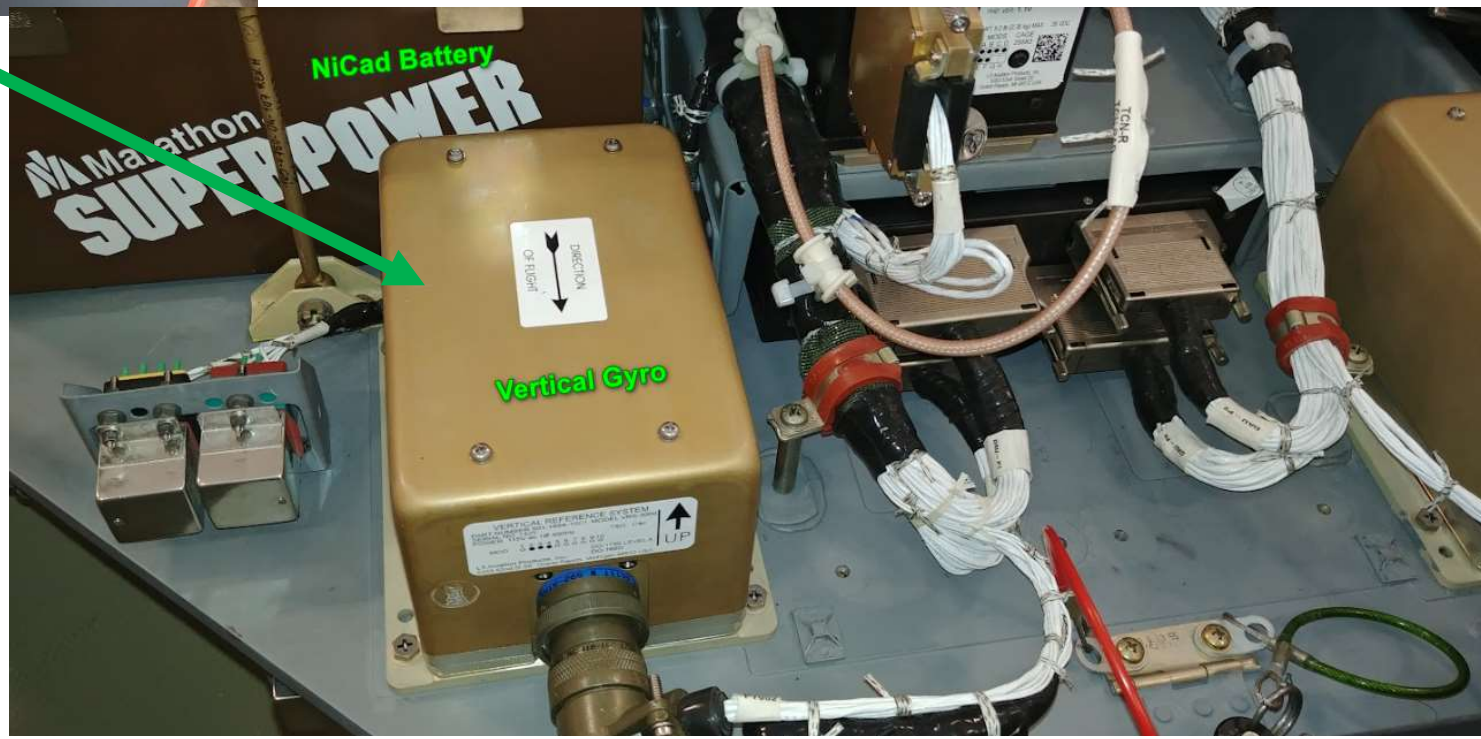
Nose Compartment (uncovered)

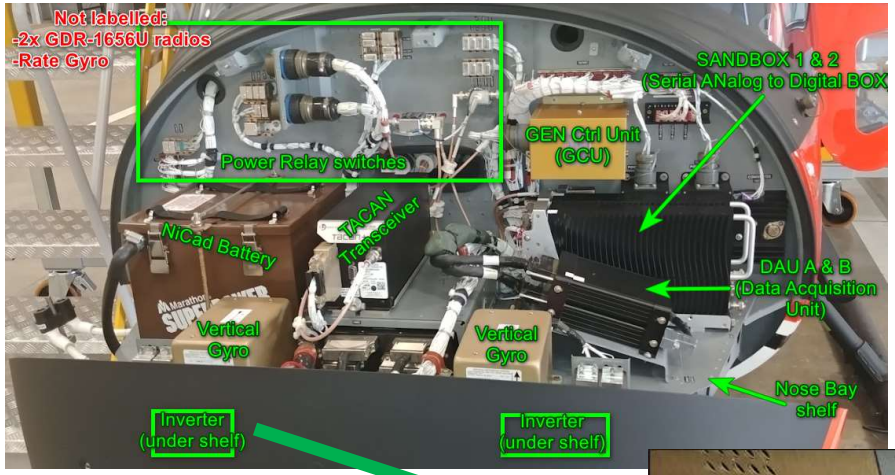


Battery is now Sealed Lead Acid Battery
(SLAB)

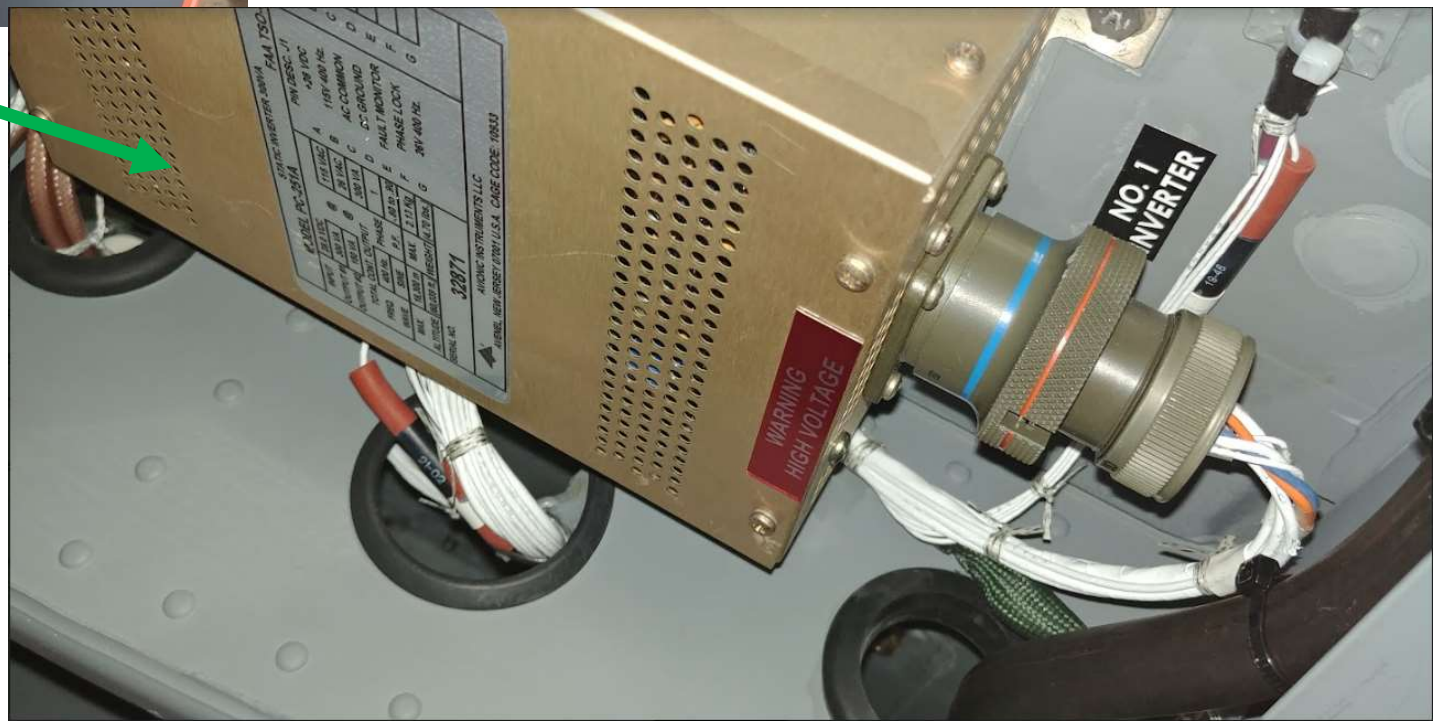


-View looking down on battery and STBD Vertical Gyro





-No.1 Inverter from under the nose Shelf (No.2 Inverter looks identical)



Pitot, Intake, and Exhaust Covers

If conditions require, install pitot, intake, and exhaust covers. You must wait at least 5 minutes after pitot heat has been switched off before installing pitot tube and static port covers. You must wait at least 30 minutes after engine shutdown before installing engine exhaust duct covers.