

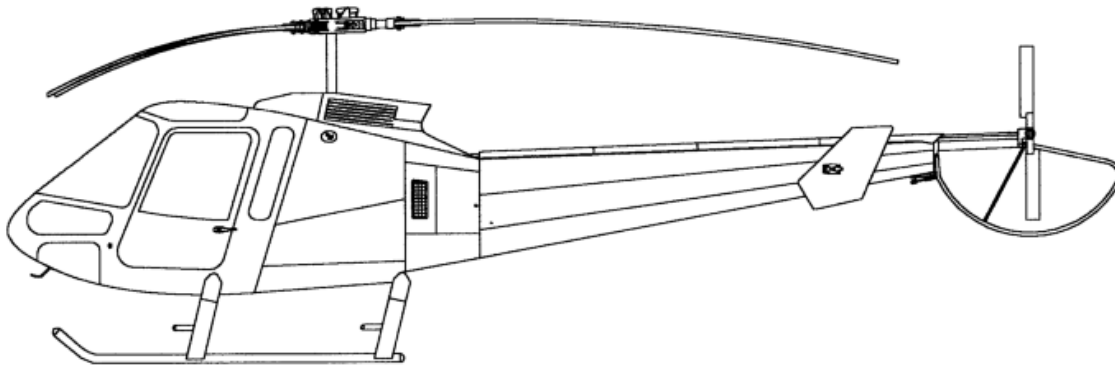


ENSTROM
HELICOPTER CORPORATION

ENSTROM TH-28/480 SERIES MAINTENANCE MANUAL

SUPPLEMENT 2

EMERGENCY POP OUT FLOATS



The Airworthiness Limitations Section is FAA approved and specifies inspections and other maintenance required under 14 CFR §§ 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

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ENSTROM TH-28/480 SERIES MAINTENANCE MANUAL SUPPLEMENT 2

RECOMMENDED CHANGE REPORT

This maintenance manual is prepared and distributed by The Enstrom Helicopter Corporation and is intended for use by personnel responsible for maintaining Enstrom TH-28, 480, and 480B helicopters. This manual is periodically revised. If, in the opinion of the user, any information has been omitted or requires clarification, please direct your comments to Enstrom via this form (duplicate) or other similar form. Send the recommended changes to:

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ATTN: Technical Publications

Manual Identification: Enstrom TH-28/480 Series Maintenance Manual Supplement 2

Manual Date: February 9, 2001

Revision Number and Date: _____

Aircraft Model: _____

Recommended Change:

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SECTION 1

INTRODUCTION

1-1. Aircraft Effectivity

A. The data presented in this TH-28/480 Series Maintenance Manual Supplement is applicable to Enstrom 480/B model helicopters equipped with the Emergency Pop Out Floats, Part Number [4220091](#).

1-2. Supplemental Changes and Revisions

A. Subsequent to the publication of the initial issue of this supplement, changes in the Partial Wide Instrument Panel, support concepts and procedures, as well as information developed by experience may affect the contents of this supplement. To ensure that coverage in the supplement continues to reflect such changes, revised information is released by one of the following methods:

1. Revision - A revision alters portions of the manual by replacement, addition, and/or removal of pages.
2. Reissue - A reissue of this supplement will occur when the amount of changes warrants complete reissue.
3. Service Information Letters (SIL) - Service Information Letters are used to transmit information, recommendations, and general service instructions to the aircraft owner/operator and maintenance personnel. [The information provided in the Service Information Letters will be incorporated into the maintenance manual as needed at a later date.](#)
4. Service Directive Bulletins (SDB) - Service Directive Bulletins are used to direct the owner/operator and/or maintenance personnel to make mandatory inspections, changes, or modifications to the aircraft. [The information provided in the Service Directive Bulletins will be incorporated in the maintenance manual as needed at a later date. At the time of incorporation, the Service Directive Bulletin is superseded by the maintenance manual, and accomplishment or sign-off of the Service Directive Bulletin in the maintenance records book is no longer required. A detailed entry should be made in the maintenance records to indicate that the Service Directive Bulletin is superseded by the maintenance manual.](#)

[Enstrom distributes maintenance manual reissues and revisions in hardcopy form via mail to owners and operators who are registered with Enstrom. Notice of recently released Service Information Letters and Service Directive Bulletins is provided via a postcard mailing. Service Information Letters and Service Directive Bulletins are available on the Technical Support page of the Enstrom Helicopter website.](#)

[Registration to receive publication mailings can be coordinated through Enstrom Product Support.](#)

1-3. Application of Warnings, Cautions, and Notes

A. Throughout this supplement, it is necessary to highlight or emphasize important points to avoid injury to personnel, damage to equipment, or unnecessary confusion while performing maintenance procedures. The terms “WARNING”, “CAUTION”, and “NOTE” are used to draw attention to instructions or information deserving special consideration.

B.

WARNING

Calls attention to use of materials, processes, methods, procedures, or limits that must be followed to avoid injury to personnel.

C.

CAUTION

Calls attention to methods and procedures that must be followed to avoid damage to equipment.

D.

NOTE

Calls attention to information essential to highlight for clarification of procedures or to make a task easier.

SECTION 2

GENERAL INFORMATION

2-1. System Description

A. The Emergency Pop Out Floats, Part Number 4220091-1 (480 only), 4220091-3, 4220091-5/4220091-7, and 4220091-9, are designed as an aerodynamic package that increases the operational capabilities of the aircraft. The system consists of six (6) pop out floats; one (1) reservoir cylinder; hoses, lines, and fittings to connect the reservoir to the pop out floats; and a cable assembly to activate the system. The pop out float assemblies and the reservoir cylinder are manufactured by APICAL INDUSTRIES, INC. 2608 Temple Heights Drive, Oceanside, CA 92056.

1. Part Number 4220091-5 consists of factory-installed float provisions only (excludes floats). Part Number 4220091-7 consists of the floats and remaining attachment parts for completing the installation in the field.
2. Part Number 4220091-9 provides an alternate supply line attachment method for aft landing gear legs not equipped with fairings.

B. The pop out floats, located on the skid tubes, are made from coated high strength fabric and have extremely good wear resistance and a very low maintenance requirement. The float assemblies are composed of multiple air chambers (compartments) each incorporating a pressure relief valve (PRV) to prevent over pressurization, and an inflate/deflate valve (Topping-Off Valve). This design minimizes the loss of buoyancy in the event of a puncture. The floats are attached to the skid tubes by a reinforced fabric attachment girt.

C. The reservoir cylinder, located under the cabin structure, is manufactured from composite materials and can be serviced with either nitrogen or dry air. The cylinder must be hydrotested every three (3) years and has a service life of fifteen (15) years. The valve assembly installed in the cylinder incorporates a pressure gauge and other components for safety (over pressurization), servicing the cylinder, and deploying the pop out floats.

D. Enstrom 480 model aircraft equipped with the Increased Rotor Speed Kit, P/N 4230002, have additional fuel cell support structure and additional support struts installed in the pylon. These aircraft are also equipped with a dual tachometer, P/N ECD 4053, which allows for reduced turbine and rotor rpm under certain flight conditions.

Table 2-1. Float Characteristics

Material:	Urethane coated nylon
Ship Set Inflated Volume:	77.8 ft ³ /2.2 m ³
Ship Set Inflated Buoyancy:	4800 lbs/2182 kg
Operating Pressure:	2.25 PSI/15.5 kPa
Type of Inflation:	Compressed Nitrogen or Dry Air
Total Ship Weight:	100 lbs/45.5 kg (approximately)*

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- * Total Ship Weight is approximately 106 lbs/48.2 kg for Enstrom 480 model aircraft equipped with the Increased Rotor RPM Kit, P/N 4230002.

2-2. Equipment and Consumables

A. The following listed equipment is required for maintaining and servicing the pop out floats:

Table 2-2. Servicing Equipment

Description	Part Number	Quantity
Float Repair Kit*	HFRK206-100**	1 Each
Fill Adapter	546-F or 546-FV**	1 Each
Diffuser Cap	20322**	1 Each
Bleed Fitting	546-BF**	1 Each
Detent	306D**	1 Each
Tag	306T**	1 Each

- * This kit includes: four (4) 5.0 inch/12.7 cm diameter repair patches, four (4) 4.0 inch/10.2 cm X 12.0 inch/30.5 cm repair patches, two (2) cans of adhesive with brushes, one (1) adhesive information sheet, one (1) Valve Wrench - B-51025, one (1) Topping Up Valve - B-51209, one (1) PRV Valve - B-51019-5, one (1) instruction sheet, and one (1) Test Adapter - A-51219N.

- ** Obtain from: APICAL INDUSTRIES, INC.
2608 Temple Heights Drive
Oceanside, CA 92056.
www.dartaerospace.com

B. The following consumable items are required for properly maintaining and servicing the pop out floats:

Table 2-3. Consumable Items

Description	Part Number
Cleaning Solvent	Commercially Available
Methyl Ethyl Ketone (MEK)	Commercially Available
Stiff Bristle Brush	Commercially Available
Soft Bristle Brush	Commercially Available
Detergent Soap	Commercially Available
Talcum Powder	Commercially Available
Lubricant	DC-55 (DOW CORNING®)
Lubricant	DC-111 (DOW CORNING®)

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C. The following test equipment is required for properly maintaining the pop out floats:

Table 2-4. Test Equipment*

<u>Equipment</u>	<u>Description/Part Number</u>
Manometer	Scale increments not more than 0.10 psi. Range: 0.0-120 in. Hg.
Barometer	Scale increments not more than 0.10 in. Hg.
Stopwatch	Plain Timer, 0.10 second graduations
Thermometer	Scale increments not more than 1 degree F.

* Equipment shall be the type that can be certified/calibrated for assurance of accuracy.

2-3. Vendor Manuals

A. The emergency pop out floats shall be maintained, serviced, and inspected in accordance with the procedures found in this maintenance manual supplement and the Apical Industries, Inc. Maintenance/IPC manual and the installation/float repack manuals listed below.

1. Apical Industries Emergency Helicopter Float Assemblies Enstrom Helicopter TH-28/480, TM480-1, Latest Revision.
2. 480/TH28 Installation and Packing Instructions, II 480-100, Latest Revision.

B. Contact Apical Industries, Inc., for the manuals listed above.

Apical Industries, Inc.
2608 Temple Heights Drive
Oceanside, CA 92056
www.dartaerospace.com

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SECTION 3

AIRWORTHINESS LIMITATIONS

3-1. Airworthiness Limitations

A. The Airworthiness Limitations section is FAA approved and specifies maintenance required under 14 CFR §§ 43.16 and 91.403 unless an alternative program has been FAA approved.

B. The following components of the pop out float system require mandatory retirement at the retirement life listed for the components.

<u>COMPONENT</u>	<u>PART NUMBER</u>	<u>RETIREMENT LIFE</u>
Reservoir Cylinder	20368	15 years from original test date marked on manufacture's label

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SECTION 4

SERVICING AND PERIODIC INSPECTIONS

4-1. Servicing

4-2. Reservoir Cylinder

WARNING

Ensure that the diffuser cap, P/N 20322, is installed on the outlet port and the pull cable detent with warning tag, P/N's 306D and 306T, is installed in the pull cable housing during recharge of the cylinder and during all movement of the charged cylinder.

NOTE

Servicing of the reservoir cylinder shall be accomplished in accordance with Compressed Gas Association, Inc. (CGA) pamphlet number C-6.2. Each reservoir cylinder must be hydrotested every three (3) years and has a service life of fifteen (15) years. The tester's identification number and date shall NOT be steel stamped in the cylinder neck. It shall be embossed on aluminum foil or equivalent, and bonded to the cylinder exterior with a thin epoxy adhesive, such as Devcon 5 minute-clear epoxy or equivalent.

NOTE

The reservoir cylinder can be serviced with either nitrogen or dry air.

- A. Remove the fill plug and install the fill adapter, P/N 546-F or 546-FV.
- B. Connect the servicing equipment to the fill adapter and charge the reservoir to the pressure shown in Figure 4-1.
- C. Allow reservoir cylinder to cool down to ambient temperature and compare pressure charge to requirement on Figure 4-1. Adjust the pressure charge as required.
- D. Use the bleeding fitting, P/N 546-BF, to bleed down an over charged cylinder.
- E. Reinstall fill plug after reservoir cylinder is properly charged.

NOTE: Serviceable pressure range is ± 50 psig (345 kPa) for corresponding ambient temperature.

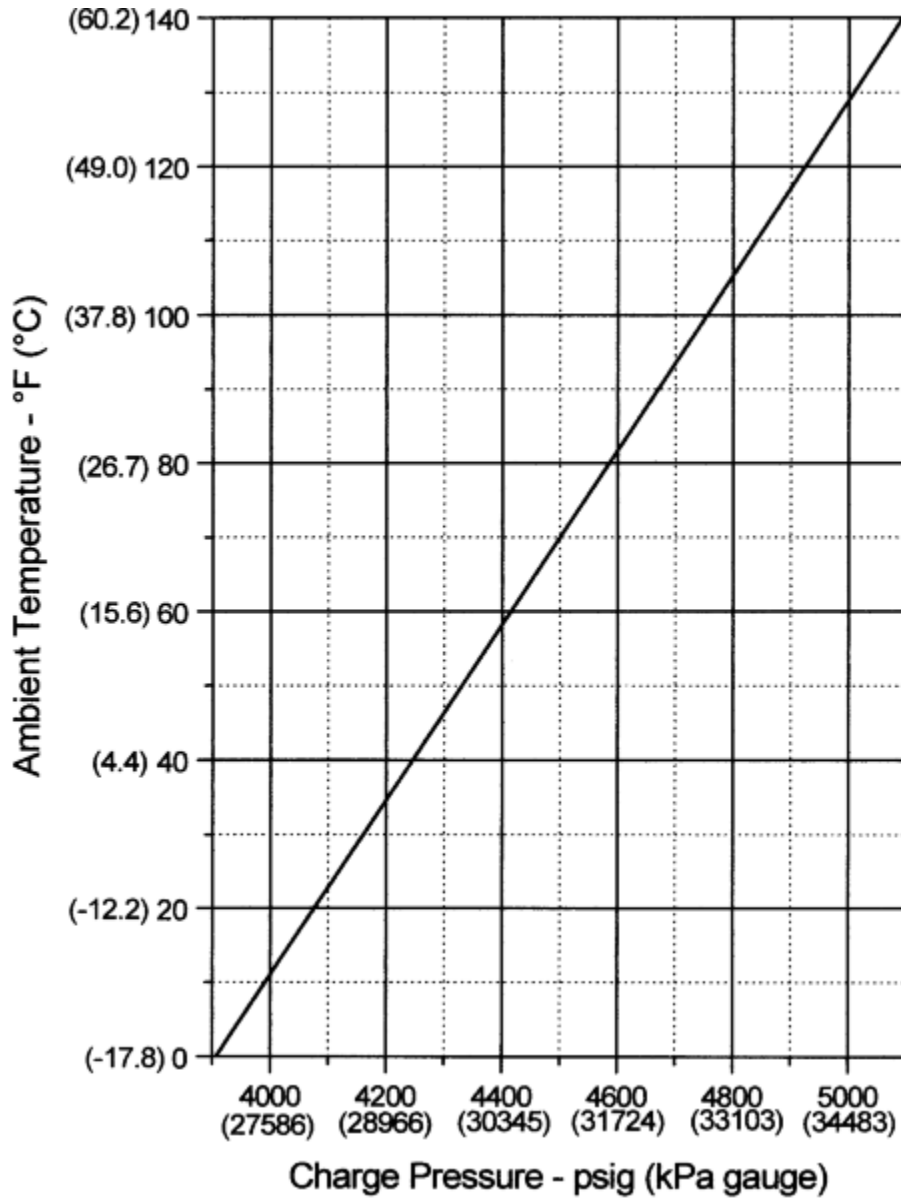


Figure 4-1. Reservoir Cylinder Charge

4-3. General Maintenance

4-4. Testing

NOTE

Following the repair/overhaul of float assemblies, perform a float pressure test before returning the equipment to service. The relief valve and topping-off valve tests may be performed in conjunction with troubleshooting information in the case of unscheduled removals, or as part of the float pressure test if replacement or repair of those components was accomplished during repair/overhaul.

4-5. Test Setup

A. Testing of components is accomplished on the float assembly with all components assembled as an operational system. Special fixtures and test benches are not required.

B. Attachment of inflation shop air source or manometer testing equipment to the float assembly is accomplished using the topping-off valves and adapter, P/N A-51219N. This does not apply to the activation test every 3 years or to the inflation test in paragraph 4-6, A and B.

C. Testing equipment used shall be certified/calibrated to assure accuracy of test results.

4-6. Float Pressure Test

NOTE

This test should be performed in a hangar or in an area shaded from the sun. Do not perform this test when the ambient temperature exceeds 100°F/38°C.

NOTE

Unsnap and unlace the float covers if performing the annual inspection/test.

NOTE

If performing the activation test required every three (3) years, ensure that the area around the aircraft is clear before activating the floats with the float activation cable. Measure the pressure in each float compartment after inflation. The pressure shall be a minimum of 1.5 psig/10.3 kPa at 70°F/21°C.

CAUTION

Cap and plug all open lines and fittings to prevent contamination of the system.

A. Disconnect the hose(s) for the float(s) at the fitting located at the landing gear leg if not already accomplished.

B. Connect a source of dry filtered shop air to the hose(s) and inflate all the compartments in the float(s) to 2.0 psig/13.8 kPa. Measure the pressure in each compartment with a mercury manometer or gage calibrated in increments not greater than 0.1 psi/0.7 kPa connected to the topping-off valve.

C. Allow the inflated float(s) to stand for one (1) hour after initial inflation; then check and readjust the pressure in each compartment, if necessary, to 2.0 psig/13.8 kPa.

D. Record the ambient temperature and barometric pressure.

E. Allow the float(s) to remain undisturbed for eight (8) hours; the maximum allowable pressure drop is 0.5 psig/3.4 kPa (or, allow to stand for twenty four (24) hours, the maximum allowable pressure drop is 1.0 psig/6.9 kPa) after correction for temperature and barometric pressure variations.

F. Record the compartment pressures, the temperature and barometric reading at the end of the pressure test.

- 1) Correct for temperature variations by subtracting 0.1 psig/0.7 kPa for every 3° F/1.7°C rise in temperature, or adding 0.1 psig/0.7 kPa for every 3° F/1.7°C drop.
- 2) Correct for barometric conditions by adding 0.1 psig/0.7 kPa for every 0.2 inches of mercury that the barometric pressure has increased, or subtract 0.1 psig/0.7 kPa for every 0.2 inches of mercury that the barometric pressure has fallen.

G. If the corrected pressure falls below specified limits, inflate the float to 2.0 psig/13.8 kPa and check for leaks by swabbing the float(s) with a leak solution (detergent soap and water) using a soft bristle brush.

H. Repair/Replace the float assemblies if required.

I. Repack the float assemblies.

4-7. Topping-Off Valve Leakage Test

NOTE

Use the following test procedures to also inspect inlet check valves for proper operation while inspecting for leaks.

NOTE

This test may be performed as a part of the float pressure test while the floats are inflated to 1.5 psig/10.3 kPa after the activation test.

A. Apply leak solution (detergent soap and water) with a soft bristle brush at the mounting patch on the float. If bubbles indicate a leak, the float assembly must be returned to the factory for replacement of the valve flange/base.

B. If leakage is due to the valve not seating properly, check the threads in the base and on the valve. If the base is damaged, return the float assembly to the factory for replacement of the valve flange/base. If the valve threads are damaged, replace the valve.

4-8. Pressure Relief Valve Test

NOTE

Perform this test following the completion of the float pressure test.

A. Fill the relief valve aperture with clean water. Slowly raise the compartment pressure and observe for bubbles indicating the valve opens. Slowly reduce pressure observing for a cessation of bubbles.

B. The valve should open at 5.0 psig/34.5 kPa \pm 0.25 psig/1.7 kPa and close by 4.0 psig/27.6 kPa \pm 0.25 psig/1.7 kPa.

C. If valve operates improperly, apply leak solution (detergent soap and water) in aperture of valve. If bubbles indicate a leak at this location, remove the valve from the vase flange and check the threads in the base flange and on the valve. If the threads in the flange are damaged, return the float assembly to the factory for repair/replacement. If the threads on the valve are damaged, replace the valve.

4-9. Cleaning

4-10. Float Assembly – Cleaning

A. Clean the float assembly fabric surfaces with a detergent soap and water solution or cleaning solvent.

B. Apply cleaning solvent with a clean soft cloth or soft bristle brush for local areas of oil, dust, or dirt. Immediately remove excess solvent with a clean soft cloth and dry using dry filtered shop air.

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4-11. Troubleshooting

<u>TROUBLE</u>	<u>PROBABLE CAUSE</u>	<u>REMEDY</u>
Float will not maintain operating pressure	Hole in fabric	Patch hole
	Tear in fabric	Patch tear
	Leaking PRV	Check valve and base threads
	Leaking Topping-Off valve or Inlet check valve	Check valve and base threads

4-12. Periodic Inspections

A. The following inspection checklist is intended for aircraft operating under normal conditions. More frequent inspections may be required should adverse operating conditions be encountered.

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4-13. Periodic Inspection Checklist

AIRCRAFT REGISTRATION NUMBER:		SIGNATURE:	
AIRCRAFT SERIAL NUMBER:		DATE:	
HOURS:	Engine:	Flight:	
CYCLES (Start Counter):			
EMERGENCY POP-OUT FLOATS PERIODIC INSPECTION CHECKLIST			
INITIAL EACH ITEM AFTER ACCOMPLISHMENT			INITIAL
<p>INSPECT THE FOLLOWING ITEMS EVERY 100 HOURS OR ANNUALLY</p> <ol style="list-style-type: none"> 1. Inspect the pop out float assemblies, reservoir cylinder, lines, hoses, fittings, and actuating cable for security of installation and damage. 2. Inspect for correct pressure in reservoir cylinder (Refer to Figure 4-1). 3. Inspect the pylon support struts for security of installation, damage, and proper torque (Refer to paragraph 5-27). (Only Enstrom 480 model aircraft equipped with Increased Rotor RPM Kit, P/N 4230002) 4. Inspect the dual tachometer for proper operating limitation markings. (Only Enstrom 480 model aircraft equipped with Increased Rotor RPM Kit, P/N 4230002). 			<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>INSPECT THE FOLLOWING ITEMS ANNUALLY</p> <ol style="list-style-type: none"> 1. Inspect and test the floats in accordance with (I/A/W) paragraphs 4-4 through 4-8. 			<p>_____</p>
<p>INSPECT THE FOLLOWING ITEMS EVERY 3 YEARS</p> <ol style="list-style-type: none"> 1. Activate the pop out floats using the float activation cable. <p style="text-align: center;">NOTE</p> <p>Ensure the area around the aircraft is clear before activating the pop out floats.</p> <ol style="list-style-type: none"> 2. Inspect and test the floats I/A/W paragraphs 4-4 thru 4-8. 3. Hydrotest reservoir cylinder. 			<p>_____</p> <p>_____</p> <p>_____</p>

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4-14. Recommended Overhaul Cycles

A. The following components of the pop out float system have a recommended overhaul cycle.

<u>COMPONENT</u>	<u>PART NUMBER</u>	<u>OVERHAUL CYCLE</u>
Valve Assembly	20306-2	3 years to coincide with hydrotesting of reservoir cylinder or after valve activation

NOTE

Overhaul of the valve assembly is mandatory after every valve activation.

SECTION 5
SYSTEM MAINTENANCE

NOTE

Disassembly of components as described in this section is subjective and when routine periodic inspections are due. The decision to disassemble detail assemblies should be based on the presence of leaks, visible damage, or functional discrepancies discovered during testing procedures. When disassembly is necessary, replacement of items should be guided by sound inspection criteria.

5-1. Float Assembly

5-2. Removal – Float Assembly

NOTE

The following maintenance procedures are typical for all the float assemblies.

CAUTION

Cap and/or plug all open lines and fittings to prevent contamination of the system.

- A. Disconnect the hose for the float assembly at the fitting located at the landing gear leg.
- B. Remove the clamps securing the hose to the landing gear skid.
- C. Remove the hardware securing the float assembly to the skid tube and remove the float assembly.

5-3. Inspection – Float Assembly

- A. Visually inspect the floats and covers for abrasion, chafing, and worn spots. When the floats are inflated inspect for obvious punctures and tears.
- B. Visually inspect the attachment channels and girt for damage.

5-4. Repair – Float Assembly

- A. The following repair procedure is limited to patching punctures, tears, and/or holes not greater than 3 inches/7.6 cm in diameter or 2 inches/5.1 cm by 10 inches/25.4 cm. The damaged area must not be within 1 inch/2.5 cm of a bulkhead installation, girt attachment,

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seam, valve installation reinforcement, or other structural attachment. Repair patches may not overlap. Repair of the attachment girt is not authorized.

1. Using a clean cloth, dry the surface to which the patch is to be applied.

NOTE

The patches supplied in the float repair kit, P/N HFRK206-100, allow for 1 inch/2.5 cm overlap from the maximum damage allowed for repair. These patches may be trimmed as required for smaller damage areas but the patches should overlap the damage area by 1 inch/2.5 cm.

2. Thoroughly clean one side of the patch and 2 inches/5.1 cm around the damaged area of the float.
 3. Clean buffed area of the patch and the damaged area of the float with a clean dry cloth. Ensure the repair surfaces are completely dry.
 4. Apply two even coats of adhesive (supplied with float repair kit, P/N HFRK206-100) to the patch and the float using the brush applicator supplied with the adhesive. Allow the adhesive to dry a minimum of ten (10) minutes or until the adhesive is tacky. Surfaces are considered tacky when checked by using the knuckle of your hand. If the adhesive does not transfer to your knuckle, the surfaces are considered ready for bonding.
 5. Apply the cemented patch to the cemented repair area after reactivating the adhesive with MEK. Using a smooth edge putty knife, start at the center of the patch and push out any air bubbles or wrinkles. Use caution in pushing the edge of the patch to prevent the edges from lifting.
 6. After the patch has dried (cured) for approximately two (2) hours, the repaired area may be inflated to a maximum of 1.0 psig/6.9 kPa. After the repairs have dried (cured) for twenty four (24) hours, the float may be inflated to 2.0 psig/13.8 kPa and tested for leaks.
- B. Return the float assembly to the manufacture for damage that exceeds the limits in paragraph 5-4, A.
- C. Replace the attachment channels and/or hardware if unserviceable.
- D. Replace leaking PRV, Topping-Off, or Inlet check valves following the procedure in paragraph 5-5.
- E. Replace worn and/or damaged float covers.

5-5. Valve Removal/Replacement – Float Assembly

A. Use the following procedure to remove/replace the PRV and Topping-Off valves and Inlet Check valve base.

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1. Using the valve wrench, P/N B-51025, remove the valve by turning counter-clockwise.
 2. Check the threads on the valve and in the flanged fitting for damage. Replace the valve if the threads are damaged. Replace the float assembly if the threads in the flange are damaged.
 3. Insert the valve into the threads of the fitting and turn clockwise by hand to ensure the threads are not cross threaded. Continue to turn by hand until the valve is seated. Attach the valve wrench and torque to 30-40 in-lb/3.4-4.5 Nm.
- B. Use the following procedure to remove/replace the Inlet Check valves.
1. Remove the valve retainer and pivot using a 1/4" hex wrench. Remove the O-rings.
 2. Remove, inspect, and install the inlet valve base following the procedure in paragraph 5-5, A.
 3. Install new O-rings and insert the valve retainer into the pivot.
 4. Install the valve retainer and pivot into the valve base and carefully turn the retainer by hand to ensure the threads do not cross.
 5. Using a 1/4" hex wrench, tighten the valve retainer while positioning the pivot connection towards the hose connection. Tighten the retainer until the pivot is snug and does not turn.

5-6. Cover Replacement – Float Assembly

- A. Remove the float assembly from the aircraft.
- B. Remove the nuts and washers from the attachment channels and remove the covers (Refer to Figure 5-1).

NOTE

Ensure the covers for the aft float assemblies are installed with the openings on the inboard side of the skid tubes.

- C. Install the new covers and the attachment channels. Torque the nuts to 35-45 in-lb/4.0-5.1 Nm starting at the front and working to the rear.
- D. Reinstall the float assembly and repack as required.

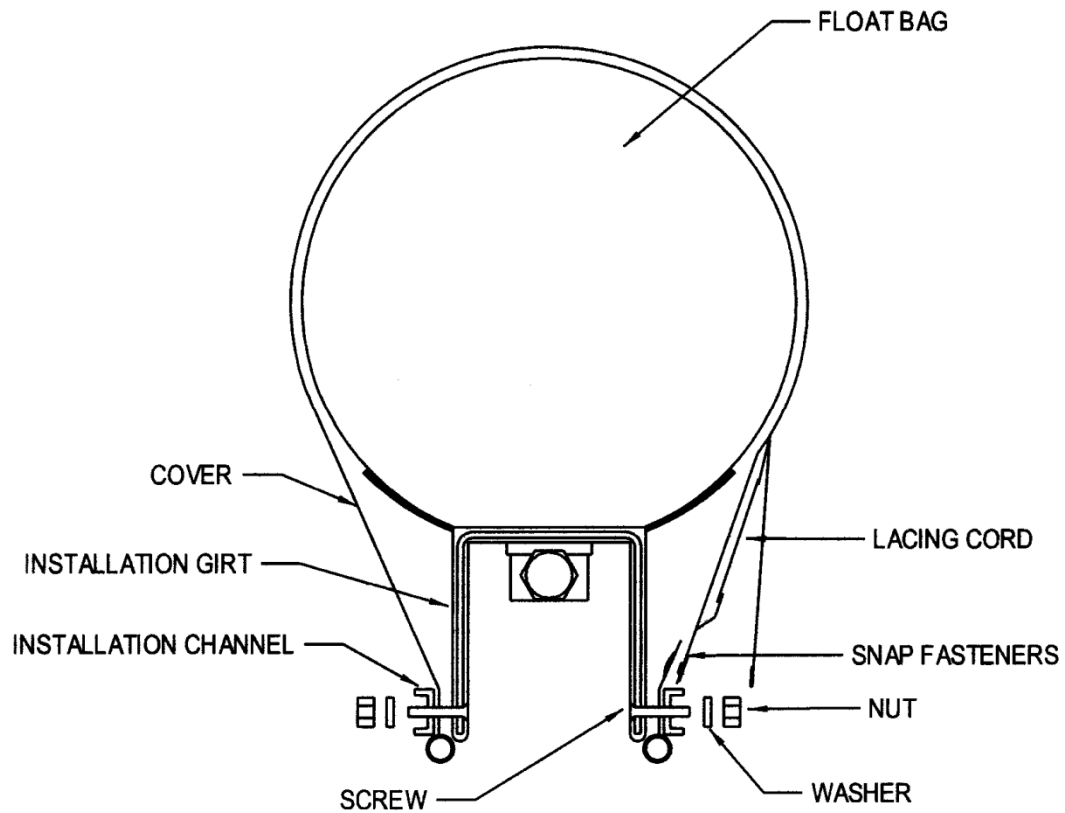


Figure 5-1. Float Cover Installation

5-7. Installation – Float Assembly

A. Install the chamber interconnect hose if it was removed from the float assembly. Torque the fittings to 215-245 in-lb/24.4-27.8 Nm.

B. Install the supply hose if it was removed from the float assembly. Torque the fitting to 460-510 in-lb/52.3-58.0 Nm.

NOTE

Ensure that the forward and middle float assemblies are installed with the pointed end of the float forward and the opening of the cover outboard. Install the aft float assemblies with the pointed end aft and the cover opening inboard.

C. Position the float assembly on the skid tube and install the bolts, washers, and nuts. Torque to 35-40 in-lb/4.0-4.5 Nm.

D. Connect the supply hose to the fitting at the bottom of the landing gear leg and torque to 460-510 in lb/52.3-58.0 Nm.

E. Install the hose clamps to secure the supply hose onto the skid tube.

5-8. Packing – Float Assembly

A. Collapse the float and spread out on the outboard side of the skid tube.

B. Vacuum down each chamber of the float for at least 15 minutes to get as much air out of the floats as possible.

C. Lightly talc the entire float as well as the inside of the covers.

D. Fold the rounded end of the float forward until the fold line reaches the girt.

E. Fold the pointed end of the float back until the fold line reaches the girt, then fold it forward again until the end cap lines up with the front end of the girt.

F. Roll the float from the outer edge toward the skid tube as tightly as possible.

G. Hold the float on top of the skid tube and install the cover around the float.

H. Secure the inside hook fasteners and snap fasteners on the cover to the corresponding pile and snap fasteners on the girt on the outboard side.

I. Install the lacing cord through the grommets in the cover using the crossover method. Pull taut and tie close the gap in the cover. It will take several tightenings to get the float as firmly packed as possible.

J. Tuck in the loose ends of the lacing cord. Close out the side hook and pile fasteners along the length of the cover and close the end flaps with the hook and pile fasteners.

5-9. Reservoir Cylinder

5-10. Removal – Reservoir Cylinder

WARNING

Install the pull cable detent with warning tag, P/N's 306D and 306T, in the pull cable housing before performing any maintenance on the reservoir cylinder.

A. Ensure the pull cable detent is installed. Remove the bolt from the activation cable clevis and remove the valve lanyard from the clevis.

WARNING

Install the diffuser cap, P/N 20322, anytime the hose is disconnected from the outlet port.

CAUTION

Cap and/or plug all open lines and fittings to prevent contamination of the system.

B. Disconnect the hose from the valve outlet and install the diffuser cap, P/N 20322.

C. Remove the hardware securing the mounting clamps to the bottom of the aircraft and remove the reservoir cylinder.

D. If removing the mounting clamps from the reservoir cylinder, index mark the position of the clamps using a felt tip marker. Loosen the clamp hardware and remove the clamps.

5-11. Inspection – Reservoir Cylinder

A. Inspect the reservoir cylinder for obvious damage and security of installation.

B. Inspect for the correct pressure charge (Refer to Figure 4-1).

C. Inspect that 3 years have not elapsed since the last hydrotest.

5-12. Repair – Reservoir Cylinder

A. Replace the mounting clamps, brackets, and/or hardware if unserviceable.

B. Replace reservoir cylinder if damaged.

- C. Hydrotest reservoir cylinder every 3 years.
- D. Service reservoir cylinder with correct pressure charge.
- E. Overhaul reservoir valve assembly after activation or 3 years.

5-13. Valve Overhaul – Reservoir Cylinder

WARNING

Ensure the reservoir cylinder has been discharged before performing any maintenance on the reservoir cylinder valve.

NOTE

Replace the bayonet, puncture disk, and safety disk if overhauling the valve assembly after activation of the pop out floats. Replace the puncture disk and safety disk if overhauling the valve assembly for other reasons than pop out float activation.

- A. Remove the valve assembly from the reservoir cylinder.
- B. Remove all component parts from the valve assembly (Refer to Figure 5-2).

CAUTION

Do not scratch metal surfaces when removing the o-rings.

- C. Remove and discard all o-rings.
- D. Clean all parts with isopropyl alcohol and blow dry with filtered air.

NOTE

Keep parts and replacement o-rings clean and free of dirt and lint.

E. Install a new O-ring (3) in the safety disk port. Lightly coat both sides of a new safety disk (4) with DC-111 lubricant and install in the safety disk port. Install the safety disk retainer (5) and torque to 15 ft-lb/20.5 Nm.

F. Install a new O-ring (6) in the puncture disk port. Lightly coat both sides of a new puncture disk (7) with DC-111 lubricant and install in the safety disk port. Install the puncture disk retainer (8) and torque to 15 ft-lb/20.5 Nm.

G. Lightly lubricate a new O-ring (10) with DC-55 and install it on the fill fitting piston (9). Install a new O-ring (11) on the fill fitting body (12). Install the fill fitting piston, fitting body and torque the fill fitting plug to 30 ft-lb/40.9 Nm. Install a new O-ring (13) on the fill fitting plug (14) and install the plug, torque to 10 ft-lb/13.6 Nm.

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H. Install new o-rings (15,17) on the fusible plug adapter (16) and the fusible plug (18). Install the adapter and torque to 30 ft-lb/40.9 Nm. Install the fusible plug and torque to 25 ft-lb/34.1 Nm.

I. Install a new O-ring (19) on the pressure gauge (20). Install the pressure gauge and torque to 30 ft-lb/40.9 Nm.

J. Install a new O-ring (21) on the outlet fitting (22). Install the outlet fitting and torque to 30 ft-lb/40.9 Nm.

K. Lightly lubricate a new O-ring (25) with DC-55 and install it on the pull cable piston (24). Install the pull cable ball (23) and the piston. Insert the pull cable lanyard (26) into the housing (27). Install the pull cable housing and torque the screws (28) to 15-20 in-lb/1.7-2.3 Nm. Install the pull cable detent with warning tag.

L. Carefully align the bayonet (29) with the bayonet bore and insert the bayonet into the bore. Install the bayonet spring (30). Install a new O-ring (31) onto the spring retainer cap (32) and install the retainer cap, torque to 30 ft-lb/40.9 Nm.

M. Install a new O-ring (2) on the valve assemble (1). Install the valve assembly onto the reservoir cylinder and torque to 40 ft-lb/54.5 Nm.

N. Service the reservoir cylinder.

5-14. Installation – Reservoir Cylinder

WARNING

Ensure the pull cable detent with warning tag, P/N's 306D and 306T, is installed in the pull cable housing before performing any maintenance on the reservoir cylinder.

NOTE

Torque the reservoir cylinder clamping hardware after the cylinder has been charged.

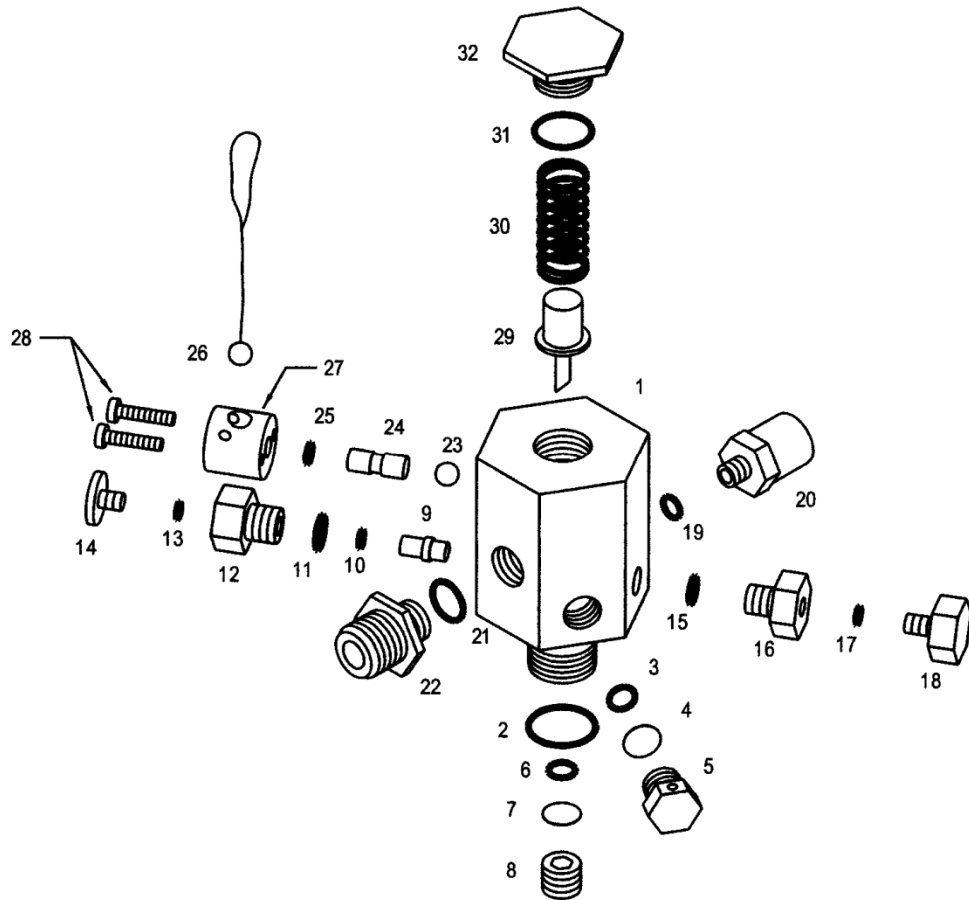
A. If the mounting clamps are removed from the reservoir cylinder, install the clamps and position using the index marks. Torque the clamping hardware to 50-60 in-lb/5.7-6.8 Nm.

B. Install the reservoir cylinder and install the mount hardware. Torque the hardware to 50-60 in-lb/5.7-6.8 Nm.

C. Remove the diffuser cap and connect the hose to the valve outlet fitting. Torque to 460-510 in-lb/52.3-58.0 Nm.

D. Ensure the activation cable handle is fully seated and the guard is installed over the handle. Position the pull cable lanyard in the activation cable clevis and install the hardware. Adjust the activation cable sheath so that there is no slack between the pull cable and the activation cable.

E. Remove the pull cable detent after the system is returned to service.



- | | | | |
|-----|------------------------|-----|---------------------|
| 1. | Valve Body | 17. | O-Ring |
| 2. | O-Ring | 18. | Fusible Plug |
| 3. | O-Ring | 19. | O-Ring |
| 4. | Safety Disk | 20. | Gauge |
| 5. | Safety Disk Retainer | 21. | O-Ring |
| 6. | O-Ring | 22. | Outlet Fitting |
| 7. | Puncture Disk | 23. | Pull Cable Ball |
| 8. | Puncture Disk Retainer | 24. | Pull Cable Piston |
| 9. | Fill Fitting Piston | 25. | O-Ring |
| 10. | O-Ring | 26. | Pull Cable |
| 11. | O-Ring | 27. | Piston Housing |
| 12. | Fill Fitting Body | 28. | Screw |
| 13. | O-Ring | 29. | Bayonet |
| 14. | Fill Fitting Body | 30. | Bayonet Spring |
| 15. | O-Ring | 31. | O-Ring |
| 16. | Adapter | 32. | Spring Retainer Cap |

Figure 5-2. Reservoir Cylinder Valve Assembly

5-15. Activation Cable

5-16. Removal – Activation Cable

WARNING

Install the pull cable detent with warning tag, P/N's 306D and 306T, in the pull cable housing before performing any maintenance on the activation cable.

A. Ensure the pull cable detent is installed. Remove the bolt from the activation cable clevis and remove the valve lanyard from the clevis.

NOTE

Note the activation cable routing and support attachments before removing the cable.

B. Remove the supporting clamps from the cable.

C. Remove the jam nuts from the mounting bracket on the pylon bay tube and remove the end of the cable from the mounting bracket.

D. Remove the cable mounting bracket from the cyclic stick and remove the cable from the aircraft.

5-17. Inspection – Activation Cable

A. Inspect the cable assembly for security of installation, kinks, and/or other damage.

B. Inspect cable handle guard for security of installation and damage.

5-18. Repair – Activation Cable

A. Replace the cable assembly if kinks cause rough operation of the cable.

B. Replace damaged installation hardware/clamps.

5-19. Installation – Activation Cable

A. Install the cable assembly following the routing noted during removal.

B. Attach the mounting bracket to the cyclic stick.

C. Install the end of the cable assembly through the mounting bracket installed on the pylon bay tube.

D. Install the mounting clamps and secure the cable.

E. Ensure the activation cable handle is fully seated and the guard is installed over the handle.

WARNING

Ensure the pull cable detent with warning tag, P/N's 306D and 306T, is installed in the pull cable housing.

F. Position the pull cable lanyard in the activation cable clevis and install the hardware. Adjust the activation cable sheath so that there is no slack between the pull cable and the activation cable (Refer to Figure 5-3). Secure the jam nuts.

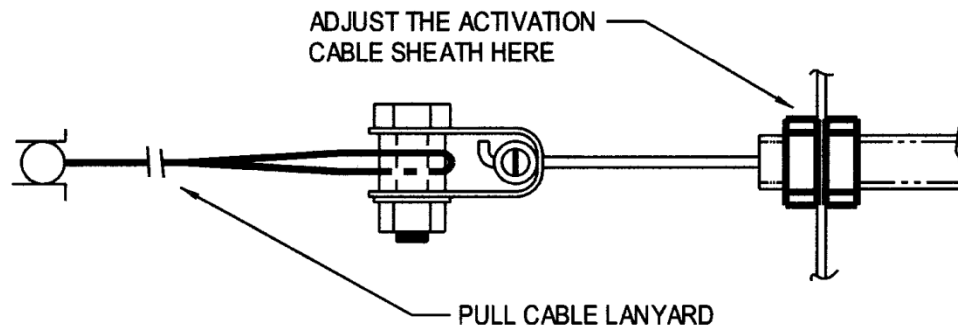


Figure 5-3. Activation Cable Rigging

5-20. Hoses, Lines, and Fittings

5-21. Removal – Hoses, Lines, and Fittings

WARNING

Install the pull cable detent with warning tag, P/N's 306D and 306T, in the pull cable housing before performing any maintenance on hoses, lines, and fittings for the pop out float system if the reservoir cylinder is installed.

NOTE

Note the routing and support attachments for the hoses, lines, and fittings before removal.

A. Open or remove cowling, fairings, and/or access panels as required to remove the hoses, lines, and fittings.

CAUTION

Cap and/or plug all open lines and fittings to prevent contamination of the system.

NOTE

Always use a backing wrench when tightening or loosening fluid line connections.

B. Remove the hoses, lines, and fittings as required.

5-22. Inspection – Hoses, Lines, and Fittings

A. Inspect the hoses, lines, and fittings for damage and security of installation.

5-23. Repair – Hoses, Lines, and Fittings

A. Repair hoses, lines, and fittings I/A/W AC 43.13-1B. Replace hoses, lines, and fittings if damaged beyond the limits found in AC 43.13-1B.

B. Replace damaged or missing hardware and support clamps.

5-24. Installation – Hoses, Lines, and Fittings

A. Install the hoses, lines, and fittings in the aircraft following routing noted before removal.

NOTE

Always use a backing wrench when tightening or loosening fluid/pneumatic line connections.

- B. Connect the hoses, lines, and fittings as required. Torque the "-6" size connections to 110-130 in-lb/12.5-14.8 Nm and the "-8" size connections to 230-260 in-lb/26.1-29.5 Nm.
- C. Reinstall fairings, access panels, and cowling as required.
- D. Remove the pull cable detent after the system is returned to service.

5-25. Pylon Support Struts Refer to Figure 5-4

NOTE

The pylon support struts are only installed in Enstrom 480 model aircraft equipped with the Increased Rotor Speed Kit, P/N 4230002. These struts may be either removed or remain installed when the float assemblies are not installed on the aircraft.

5-26. Removal – Pylon Support Struts

- A. Open the right or left side engine access panel.
- B. Loosen the jam nuts at the upper and lower fittings on the strut assembly.
- C. Shorten the strut assembly (decrease the torque load) until the strut is in the "neutral" position.
- D. Remove the hardware attaching the strut assembly to the pylon and remove the strut assembly.
- E. Repeat the procedure for the opposite side.

5-27. Inspection – Pylon Support Struts

- A. Inspect the support struts for bends, corrosion, cracks, dents, condition of the epoxy primer finish, and the security and condition of the attaching hardware.
- B. Inspect the pylon brackets for cracks, bending, and/or other damage.
- C. Inspect the rod end fittings for condition and damaged threads.
- D. Inspect the support struts for proper torque load using the following procedure:
 - 1. Loosen the jam nuts on the rod end fittings and shorten the strut assemblies (decrease the torque load) one half ($\frac{1}{2}$) turn.

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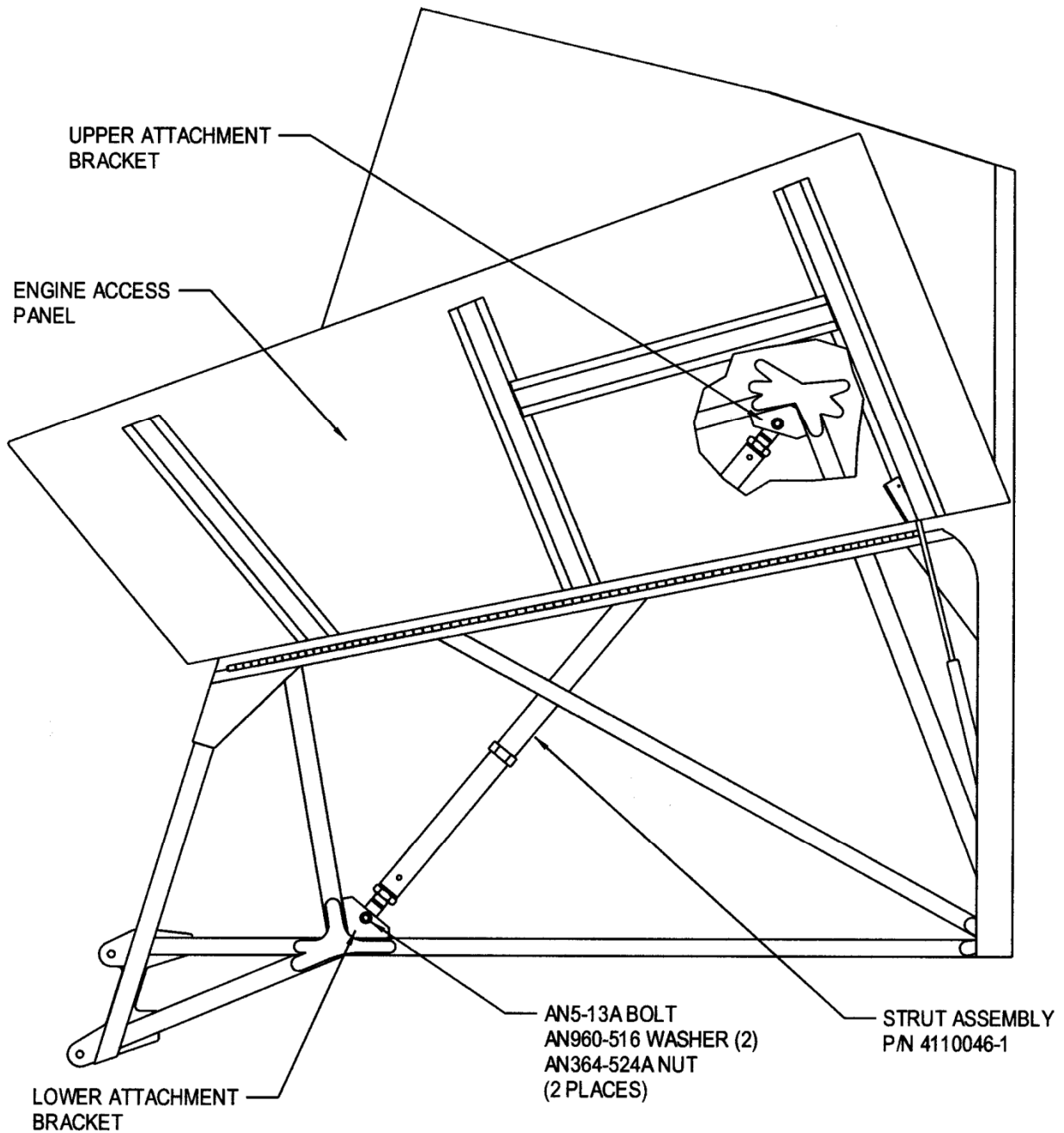
2. Alternating from side to side on the aircraft, evenly lengthen the strut assemblies (increase the torque load) in 100 in-lb/11.4 Nm increments until a 500 in-lb/56.8 Nm torque load is applied.
3. Tighten the jam nuts on the rod end fittings and slippage mark.

5-28. Repair – Pylon Support Struts

- A. Remove minor surface corrosion and paint the area using Courtaulds Aerospace 593X300 epoxy primer or equivalent.
- B. Touch up damaged areas of the epoxy primer using Courtaulds Aerospace 593X300 epoxy primer or equivalent.
- C. Repair damage to the pylon brackets in accordance with AC 43.13-1B.
- D. Replace the rod end fittings or rod assembly if the threads are unserviceable.
- E. Replace the strut assembly if economically unrepairable in accordance with AC 43.13-1B.

5-29. Installation – Pylon Support Struts

- A. Install the strut assemblies into the pylon, install the attaching hardware and torque to 60-85 in-lbs/6.8-9.7 Nm.
- B. Alternating from side to side on the aircraft, evenly lengthen the strut assemblies (increase the torque load) in 100 in-lb/11.4 Nm increments until a 500 in-lb/56.8 Nm torque load is applied.
- C. Tighten the jam nuts on the rod end fittings and slippage mark.



LEFT SIDE SHOWN
RIGHT SIDE OPPOSITE

Figure 5-4. Pylon Support Strut Installation

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