



SERVICE DIRECTIVE BULLETIN

SERVICE DIRECTIVE BULLETIN NO. T-060

Revision 1
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DATE: September 5, 2018

1. SUBJECT: Fiberglass Procedure for Upper Plenum/Air Inlet Hand Holds and Nutplate Rivets
2. MODEL: 480 and 480B
3. EFFECTIVITY: S/N 5226 and prior
4. BACKGROUND:

Enstrom has determined that on some aircraft, there may be a risk of material inside the upper plenum/air inlet coming loose. Any loose material in this area will cause Foreign Object Damage (FOD) to the engine. Enstrom has established preventive measures to ensure fabrication components and material used in the assembly of the upper plenum/air inlet do not loosen and enter into the engine system. These measures include fiberglass patches in the area of the hand hold drain holes and around the rivets used to secure the nutplates.

This Service Directive Bulletin (SDB) requires inspecting the upper plenum/air inlet for material which may come loose and making modifications as defined in Paragraph 6.

Revision 1 provides definition on acceptable alternate materials and products for the plenum fiberglass procedure, and provides procedure clarifications.

5. COMPLIANCE:

Unless the following action has been completed in accordance with the earlier version of this SDB, at the next 100-hour/annual inspection, verify that the nutplate rivets and inner hand holds of the upper plenum/air inlet have been patched with fiberglass. If they have not been patched, remove the upper plenum/air inlet assembly and perform the fiberglass patch procedure on the upper plenum hand holds and on the rivets used to fasten the air particle separator assemblies in accordance with Paragraph 6.

NOTE

Perform all maintenance in accordance with the TH-28/480 Series Maintenance Manual (MM).

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6. PROCEDURE:

NOTE

The following steps address the plenum fiberglass procedure based on the Preferred Products List (see Table 1). Alternate materials and products may be used based on field availability. See Table 2 for guidance in choosing alternate materials and products.

In the event that alternate materials and products are used for the procedure, follow the manufacturer's recommended instructions for application. If alternate materials and products are used, the Enstrom Helicopter Warranty Policy is null and void. Enstrom Helicopter Corporation will not assume liability for the fiberglass procedure in the event that alternate materials and products are used.

- 6.1 Remove the upper plenum/air inlet in accordance with Paragraph 13-28 in the TH-28/480 Series Maintenance Manual.
- 6.2 Remove the air particle separators from the upper plenum/air inlet in accordance with Paragraph 13-33 in the TH-28/480 Series Maintenance Manual.
- 6.3 Cover and tape the roof of the upper plenum/air inlet with protective paper and turn the plenum onto its roof. Place on a prepared work space that has also been covered with a protective paper or similar (Figure 1).

NOTE

If the upper plenum/air inlet is equipped with the upper LED beacon light (optional), take care in ensuring the light is well-protected throughout the procedure.



Figure 1. Upper plenum/air inlet position

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Figure 2. Inside corner hand holds (prior to preparation)

6.4 Fiberglassing the upper plenum/air inlet hand holds:

- 6.4.1 Prepare the inside upper aft corners of the hand holds including all surrounding material using a dye grinder with a 1/4 inch rasp or equivalent until any sharp edges have been removed and the surface has a rough finish (Figure 3).

CAUTION

Do not cut into the fiberglass surface any more than necessary. Do not cut through more than one layer of fiberglass. Failure to comply may affect the structural integrity of the upper plenum assembly.



Figure 3. Inside corner hand hold and material (prepared for fiberglass)

- 6.4.2 Cut two oval-shaped pieces of 5.8 oz. fiberglass cloth (approximately 6.5 inch/165 mm in diameter) (Figure 4) for hand hold application (one for each hand hold).

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Figure 4. Fiberglass patch

NOTE

Steps 6.4.3 through 6.4.5 must be completed as one operation.

6.4.3 Per manufacturer's instructions, mix Luperox DDM-9 methyl ethyl ketone peroxide (MEKP) with 3M fillet putty and apply the catalyzed mixture to the prepared inner hand hold surface (Figure 5). Ensure the putty entirely covers the rough material surface.

NOTE

The fillet putty is used only to obtain a smooth surface in the area of the hand holds to ensure that the fiberglass patch does not form air bubbles underneath. Use only the minimum amount of fillet putty necessary for this step.

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Figure 5. Fillet putty/DDM-9 MEKP mixture applied to material and inner hand hold

- 6.4.4 Lay the 5.8 oz. fiberglass patch flat in place over the inner hand hold and surrounding material surface (Figure 6).



Figure 6. Fiberglass patch in place

- 6.4.5 Prepare the FR 7704-00 polyester resin per manufacturer's instructions.

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- 6.4.6 With a brush, apply the FR 7704-00 resin to the fiberglass patch until the entire patch is completely saturated (Figures 7a-7d). Ensure the patch is adhered completely to the plenum surface.

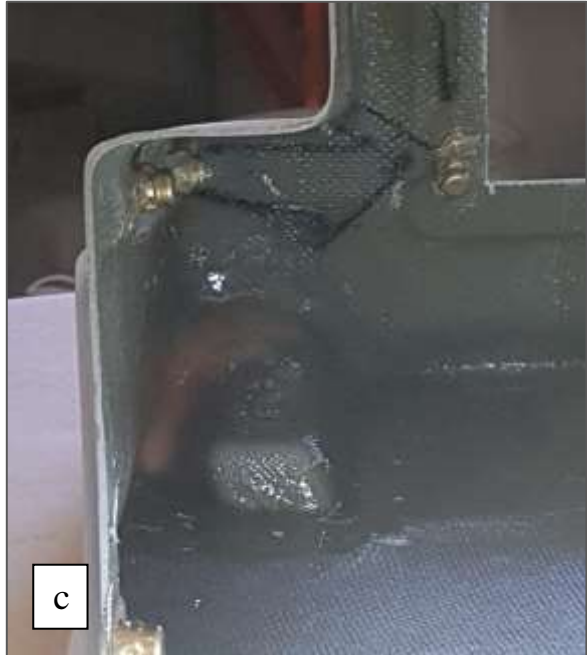
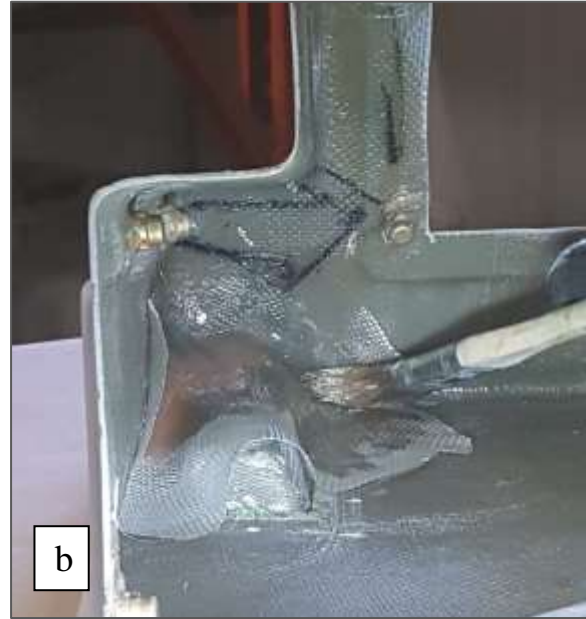
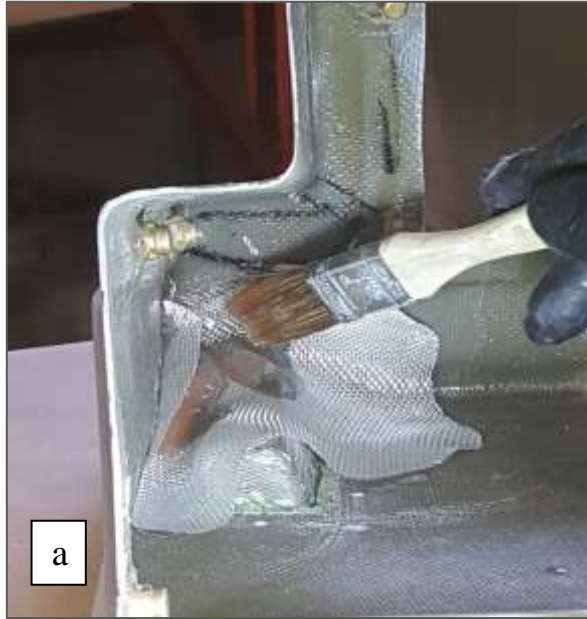


Figure 7. FR 7704-00 polyester resin applied to fiberglass patch

- 6.4.7 Repeat the procedure for other plenum hand hold.

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6.5 Fiberglassing the nut plate rivets:

6.5.1 Prepare the fiberglass surface surrounding each nutplate using a dye grinder with a 1/4 inch rasp or equivalent until the surface has a rough finish.

CAUTION

Take care not to touch the nutplate or rivets with the dye grinder while preparing the surface. Do not cut through more than one layer of fiberglass. Failure to comply may affect the structural integrity of the upper plenum assembly.

6.5.2 Cut a rectangular piece of 5.8 oz fiberglass cloth (approximately 1 inch/25 mm x 2 inch/51 mm) for each nutplate (Figure 8a). Cut a small "X" in the middle of the patch to enable fit over the nutplate anchor nut as shown in Figure 8b.

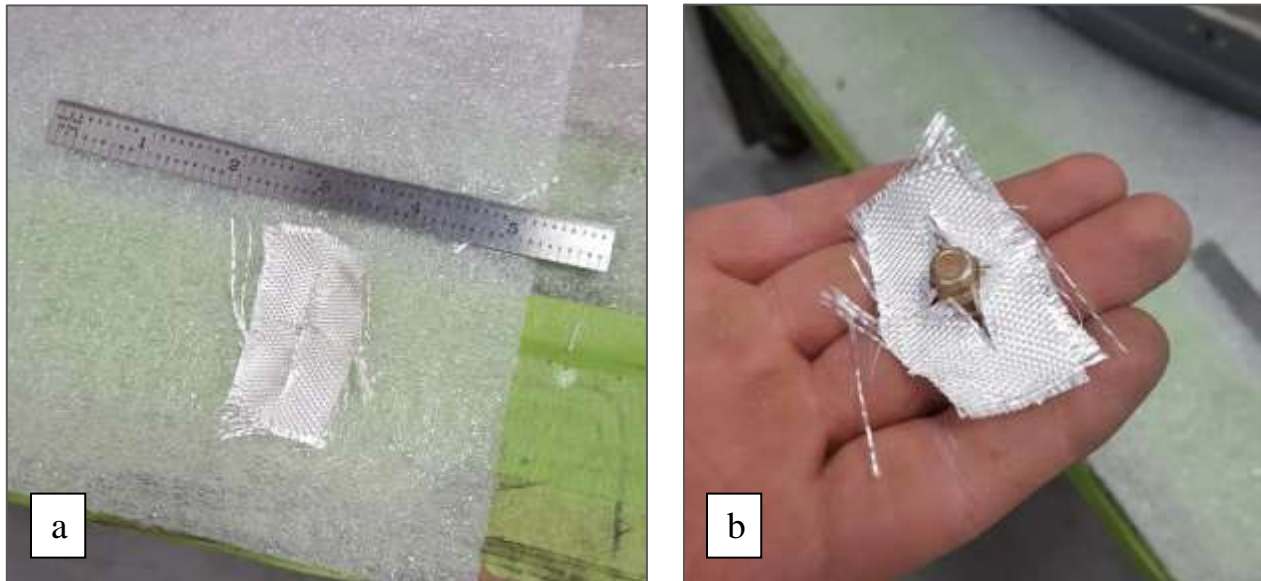


Figure 8. Fiberglass patch for nutplates

NOTE

For the exterior nutplate assembly (two places) shown in Figure 9, cutting an "X" in the fiberglass patch is not necessary as this patch only covers the rivets on the inside of the upper plenum/air inlet (Figure 12b).

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Figure 9. Exterior nutplate

- 6.5.3 Place the 5.8 oz. fiberglass patch over the nutplate and lay flat against the nutplate base, ensuring it covers both rivets (Figure 10).



Figure 10. Fiberglass patch applied to nutplate

- 6.5.4 Prepare the FR 7704-00 polyester resin per manufacturer's instructions.

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- 6.5.5 With a brush, apply the FR 7704-00 resin to the fiberglass patch until the entire patch is completely saturated. Ensure the patch is adhered completely to the nutplate base and plenum wall (Figure 11).



Figure 11. FR 7704-00 polyester resin applied to fiberglass patch

- 6.5.6 Repeat this procedure for each nutplate.

- 6.5.7 Trim off any excess fiberglass with a utility knife.

- 6.6 Once the hand holds and all nutplates have been patched, allow the polyester resin to set for a minimum of 12 hours before handling. Full cure is achieved in 48 hours.

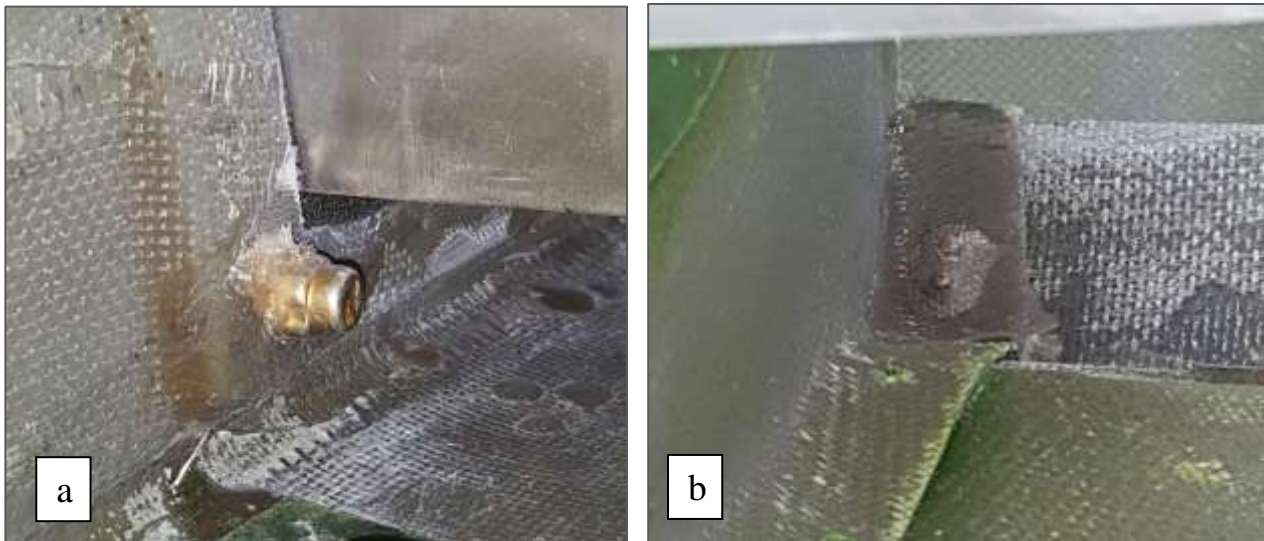


Figure 12. Completed fiberglass patch (interior and exterior nutplates)

- 6.7 Reinstall the air particle separators in the upper plenum/air inlet in accordance with Paragraph 13-36 of the TH-28/480 Series Maintenance Manual.

CAUTION

When installing the air particle separators, tighten screws until the screw heads make contact with the air particle separator. Overtightening the screws may result in damage to the nutplates.

CAUTION

Precautions must be taken to prevent the accumulation of foreign object debris from entering the air intake which could result in subsequent damage to the compressor. Ensure the surfaces are clear of debris prior to reinstalling the upper plenum/air inlet.

- 6.8 Reinstall the upper plenum/air inlet in accordance with paragraph 13-31 of the TH-28/480 Series Maintenance Manual.

7. PARTS:

Table 1: Preferred Products List*

<i>Consumable Materials</i>	<i>Description</i>	<i>Quantity</i>	<i>Reference Paragraph</i>
Fiberglass	5.8 oz. plain weave Hexcel 3733	A/R	6.4.2, 6.5.2
Fillet Putty	3M™ 16035	A/R	6.4.3, 6.5.3
Methyl Ethyl Ketone Peroxide (MEKP)	Arkema LUPEROX® DDM-9	A/R	6.4.3, 6.5.3
Polyester Resin	Reichhold DION® FR 7704-00	A/R	6.4.5, 6.5.5
Protection, Work Surface	Protective paper, clean cloth or felt, foam sheet pad, or equivalent	A/R	6.3
Tape	Masking tape, painter's tape, or equivalent	A/R	6.3

*Products utilized by Enstrom Helicopter Corporation during the manufacturing process, and ensured to meet the environmental requirements and service conditions of the aircraft.

Table 2: Acceptable Alternate Materials and Product Guidance**

<i>Consumable Materials</i>	<i>Acceptable Alternate</i>
Fiberglass	5-10 oz. fiberglass cloth
Polyester Resin	As recommended by the Fiberglass manufacturer and compatible with the Fillet Putty, suitable for the minimum conditions**
Fillet Putty	Compatible with the Fiberglass Cloth and Polyester Resin, per the manufacturer's recommendations, suitable for the minimum conditions**; including any additional hardener, etc. required for application

**Alternate materials may be utilized by the operator based on product availability in the field. Alternate products should be chosen based on their resistance to degradation due to environmental changes and service conditions (vibration, etc.); and their compatibility with each other. Refer to Paragraph 1-15 in the 480B Rotorcraft Flight Manual for environmental limits. The operator is advised to follow the chosen manufacturer's recommendations in regards to additional agents needed for the application.

WARNING

Degradation of the fiberglass patches, loosening of the material, etc. may lead to compressor damage and subsequent FOD entering the engine, causing a sudden, total power loss. Ensure the alternate materials and products chosen are suitable for the operating environment and service conditions.

8. SPECIAL TOOLS: N/A
9. MAN-HOURS: 4 hours
10. WARRANTY: Per Enstrom Helicopter Warranty policy
11. WEIGHT CHANGE: Negligible
12. LOG BOOK ENTRY: Enter compliance with this SDB in the aircraft maintenance records.
13. REPETITIVE ACTION: None