

REPORT NO:

TITLE: Instructions for Making Repairs to 3M 8681HS Blade Tapes
Installed on Enstrom Helicopter Blades.

MODEL NO: All

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1. SCOPE

This specification defines the procedures for making small repairs to the 3M 8681HS tape when installed on Enstrom 28-14100 series main rotor blades

2. QUALIFICATION

These procedures are based on the best practice recommendations of the tape manufacture.

3. MATERIALS

- 3.1 Protective tape, 3M P/N 8681HS
- 3.2 Adhesion Promoter, 3M P/N 86A
- 3.3 Pre-Wetted # 86A Adhesion Promoter Wipes, 3M
- 3.4 Wetting Solution: Mix 70% water with 30% Isopropyl alcohol in a one pint spray bottle. Add 4 drops of a non-ionic liquid dishwashing detergent such as JOY to the spray bottle. DO NOT USE SOAP. Shake well.
- 3.5 Epoxy Adhesive, 3M P/N DP190
- 3.6 Masking tape
- 3.7 3M 218 or 471 Fine Line Tape, or equivalent
- 3.8 Solvent, acetone, MEK or Toluline, or equivalent

4. MAIN ROTOR BLADE CONDITION

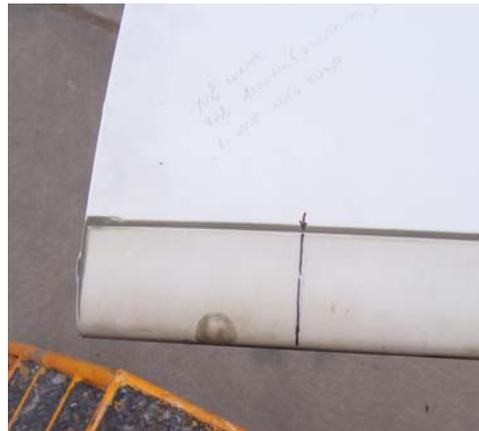
The blade must be inspected and certified to be in airworthy condition prior to repair of the tape. The area where the tape will be applied must be smooth and clean. Any and all corrosion in the leading edge or spar must be removed prior to tape application. The area to be taped will be coated with MIL-C-23377 epoxy primer or equivalent or quality top coat paint such as Sherman-Williams "Acry Glo" or similar. The area shall be sanded smooth with 400 grit sandpaper. Tape repair pieces can be cut to any length necessary to make the repair but must be installed full width.

5. PROCESS

- 5.1 Mark a line on the blade on either side of the damaged section at right angles to edge of the tape line.

- 5.2 Use a razor blade to cut the tape along this line.

NOTE: Use extreme care not to cut into or nick the blade under the tape when cutting out the damaged section of tape.



- 5.3 Carefully remove the section of tape between the cut lines.

Examples of common tape repairs

- 5.4 Use sandpaper to remove any corrosion on the blade and treat IAW section 9-37 paragraphs F through I, or section 4 of this instruction.





5.5 Use a sharp blade or knife to scrape the gray epoxy edge sealer from the top and the bottom of the blade tape line. Take care not to damage the paint on the blade.

5.6 Stretch a piece of masking tape along the forward edge of the epoxy tape sealer on the top of the blade.

5.7 Cut a repair piece of tape from the supplied 8681HS tape that is a total of 1/8 inch (.318cm) shorter than the area of the tape that has been cut out for repair.

NOTE:

This is the same procedure for installing the tapes that is outlined in section 5 of 28-SP-158, Instructions for Application of 3M 8681HS Tape to main Rotor Blade

5.8 Butt the top edge of the 8681HS tape against the forward edge of the already installed masking tape and apply a second length of masking tape along the aft edge of the patch to form a soft hinge.

5.9 Fold the 8681HS tape back onto the top of the blade.

5.10 Apply the 3M Adhesion Promoter # 86A to the entire area of the blade that will be covered by the 87681HS tape. Use pre-wetted wipes (Ref 3.3) or the adhesion promoter P/N 86 A (Ref 3.2) and clean cheese cloth and rubber gloves to protect your hands. Apply only enough to wet the surface so it appears shiny. Wipe off any excess to insure no runs or drips. Allow to dry for 10 to 20 minutes or until the surface does not appear shiny.

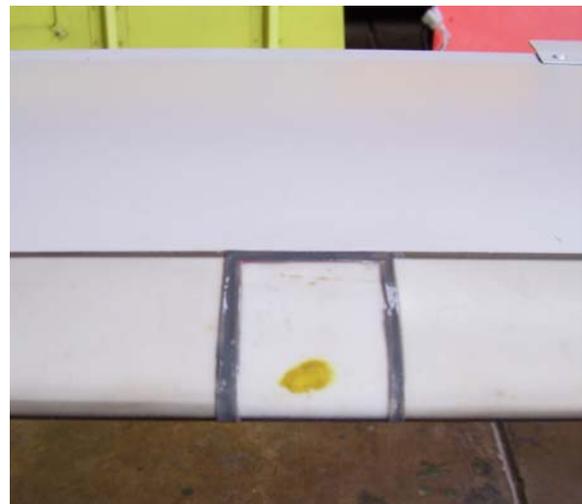
5.11 Remove the protective liner from the adhesive surface of the blade tape and spray the adhesive surface of the tape and the treated area of the blade with the previously prepared solution of water, isopropyl alcohol, and detergent. (See paragraph 3.4.)

- 5.12 Fold the 8681HS tape down onto the blade and allow it to float into position. The top and bottom of the tape should be butted against the line where the epoxy adhesive 3M P/N DP190 has been scraped off. There should be approximately a 1/16 inch (.157cm) gap between both sides of the patch and the already installed leading edge tape.
- 5.13 Remove the “hinge tape” on the top edge and use a soft plastic squeegee to force the liquid out from behind the tape, starting at the leading edge and working back towards the trailing edge on both the top and the bottom of the blade. Use a dry towel to mop up excess solution at the edges of the tape.

If you trap a bubble of liquid or air under the tape, pull the tape back up to free the bubble, re-spray the area and squeegee the tape back down to make it smooth and bubble free. DO NOT puncture bubbles to relieve entrapped air or liquid, especially on the leading edge.

- 5.14 Seal the space between the patch and the older pre-existing leading edge tape, and the trailing edges of the patch with the 3M DP190 epoxy adhesive using the following procedure.

- 5.15 Mask off both sides of the edge of the patch, all the way around the patch, with masking tape approximately 1/16 in (.157cm) from the edge of the patch. Use 3M fine line tape or equivalent.



- 5.16 .Apply sealant between the masked off area and use a stiff applicator, or your finger, to screed off the excess sealant. Immediately remove the strips of masking tape to allow the sealant to flow to a nice tapered edge. DP190 will gel in 90 minutes at 72° and full cure will be achieved in about 8 hours. It will cure faster in warmer temperatures and slower in colder temperatures.

- 5.17 After full cure check the sealant to see how much of a bulge remains. If the bulge is higher than the sealer at the aft edge of the original tape, use a sharp blade to scrape the top of the bulge down so it is level with the other sealer.

REFERENCES

1. 3M Report, " Wet Application Instructions-Draft- For Helicopter Blades
2. Enstrom Report , "28-SP-158 Instructions for Application of 3M 8681HS Tape to the Main Rotor Blade
3. Enstrom TH28/480 Series Maintenance Manual 2001 Edition, latest revision.

