

Supplement to H-58-09-MIM-006
Approved Change to TM 1-1520-248-23 Requiring NDI of Tail Rotor Gearbox Support

DA Form 2028 DCN 09A01762, Web Reference Number 090430120

Make the following Changes to TM 1-1520-266-23

TAIL ROTOR GEARBOX SUPPORT ASSEMBLY (OH-58D) (ET).

4.9.1 Description: The tail rotor gearbox support assembly attaches the tail rotor gearbox to the tail boom.

4.9.2 Defects: Cracks may occur at various locations throughout the Tail Rotor Gearbox Support Structure, pay particular attention to the mounting holes and guide pin holes. No cracks are allowed.

4.9.3 Primary Inspection Method. Eddy Current.

4.9.3.1 NDI Equipment and Materials. (Refer to TM 1-1520-266-23 Appendix B.)

- a. Eddy Current Inspection Unit, Nortec 2000D or equivalent
- b. Probe, straight, shielded surface, 100KHz-500KHz
- c. Probe, right angle, shielded surface, 100KHz-500KHz, 90° 1/2 inch drop
- d. Cable Assembly
- e. Reference Block, three-notched aluminum (0.008", 0.020", and 0.040" EDM notches)
- f. Teflon Tape (refer to TM 1-1520-266-23 Table 1-8)
- g. Aircraft Marking Pencil (refer to TM 1-1520-266-23 Table 1-8)

4.9.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance in accordance with the applicable technical manuals listed in TM 1-1520-266-23 Table 1-1.

4.9.3.3 Access. Remove the tail rotor gearbox and support assembly access door to allow inspection of the interior part of the assembly IAW applicable manuals listed in TM 1-1520-266-23 Table 1-1.

4.9.3.4 Preparation of Part. The assembly and area shall be thoroughly cleaned. Refer to TM 1-1520-266-23, Preparation of Part or Area for NDI, paragraph 1.4.4.

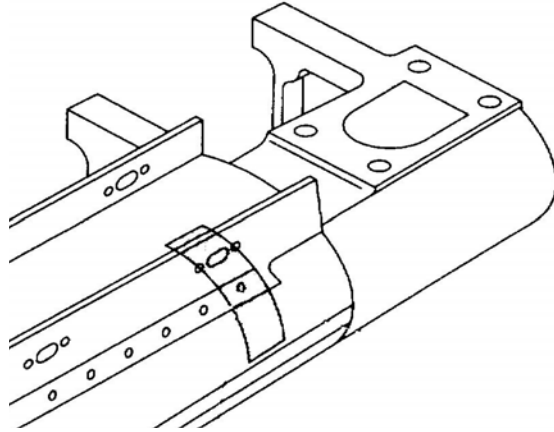


Figure 1. Tail Rotor Gearbox Support Area

4.9.3.5 Coating Lift-Off Compensation. The lift-off caused by paint thickness affects sensitivity and requires compensation during instrument standardization.

4.9.3.6 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit

MAIN MENU		FILTER MENU		DISPLAY MENU	
FREQ	200KHz	LP FILTER	100	H POS	80%
ANG	89 ⁰	HP FILTER	0	V POS	20%
H GAIN	57dB				
VGAIN	69dB				
PROBE DRIVE	Mid				

b. Determine lift-off compensation as follows:

1. Place the probe on a bare section of the test block and press NULL.
2. Utilize the ANGLE function to achieve horizontal lift-off. Reference Figure 2A.
3. Set up a 5 division vertical response from the 0.040” EDM notch on test block.
4. Place a .002" non-conductive shim over the 0.040” EDM on the test block and slide the probe over the notch.
5. Repeat step 4 utilizing a .005" and a .010" shim. Reference Figure 2B.
6. Place the probe on the material to be tested, note the horizontal deflection. Reference Figure 2C.
7. Lift-off may be slightly different due to the conductivity differences between the test block and the material being tested.
8. Non-conductive coatings less than .003" do not require lift-off compensation. If the coating is greater than .003" utilize the appropriate non-conductive shim during set up below.

CAUTION

Coating thickness greater than .010 inch (10 mils) SHALL be removed prior to conducting Eddy Current inspections. Coating thickness on the inspection surface greater than .010 inch thick will significantly reduce inspection sensitivity and can result in the failure to detect cracks.

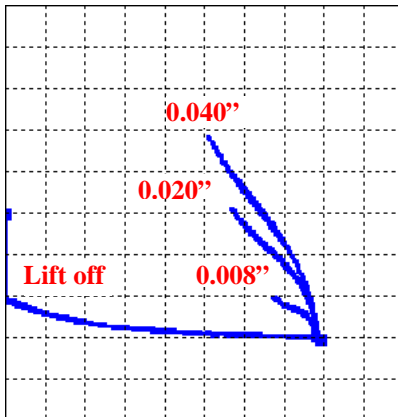


Figure 2A

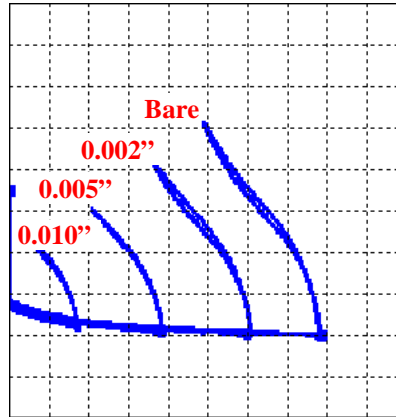


Figure 2B

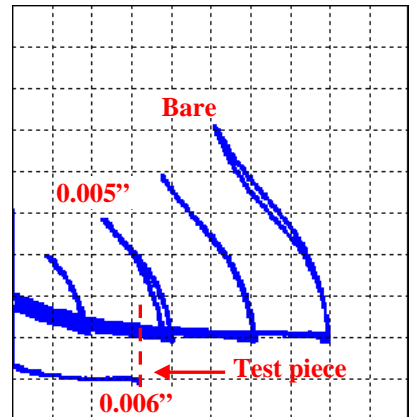


Figure 2C

c. Set up on the test block as follows:

1. Determine non-conductive coating thickness on the test material IAW paragraph 9 b.
2. Null the probe on the test block with the appropriate thickness of non-conductive shim between the probe and the reference standard. The shim should be large enough to cover all three EDM notches.
3. Adjust phase as required to obtain horizontal lift-off.
4. Move probe over all three notches in test block. Adjust gain to obtain a five block vertical signal when probe is passed over 0.040 inch notch in test block. Figure 2A.

4.9.3.7 Inspection Procedure:

- a. With the instrument standardized for the appropriate lift off compensation, place the probe on a good area of the part near the inspection area and press NULL. Adjust phase as required to obtain a horizontal lift-off.
- b. Inspect entire area of interest 100% in two directions, 90 degrees apart. Eddy current scan passes should overlap slightly for optimum small flaw detection.
- c. Verify instrument sensitivity by passing the probe over the reference standard at a maximum interval of 10 minutes.
- d. Any signal similar to the notches in the test block is cause for rejection.
- e. Perform post inspection sensitivity verification per the Post Inspection Standardization paragraph below.

NOTE

Pay particular attention around the holes. These areas are susceptible to cracking at the hole and propagating outward. (Refer to Figure 3)

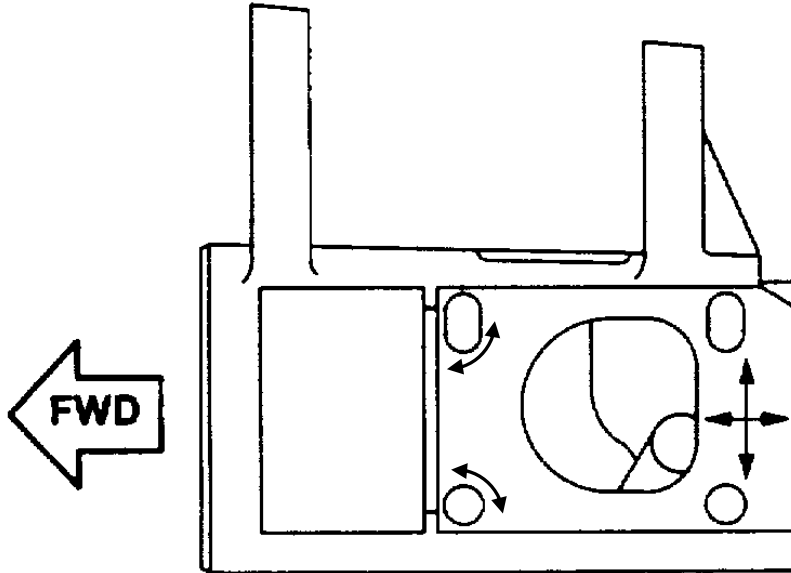


Figure 3

4.9.3.8 Indication Evaluation. Any vertical signal that is distinguishable (separated) from the background noise and not caused by geometry or conductivity shall warrant further investigation and rescanning in the area of interest.

4.9.3.9 Post Inspection Standardization.

- a. Place the probe on the reference standard and press NULL.
- b. Slide the probe over the 0.040" EDM notch and verify the vertical response is between 60% and 80% FSH.
- c. If the vertical response from the 0.040" notch is less than 60% FSH all inspections performed since the last standardization SHALL be repeated. If the response is greater than 80% FSH, all suspect indications identified shall be re-evaluated.

4.9.3.10. Marking and Recording of Inspection Results. Mark and record as required by TM 1-1520-266-23 paragraph 1.3.

4.9.4 Backup Method. Fluorescent Penetrate.

4.9.5 System Securing. The removed tail rotor gearbox and access door requires installation in accordance with the applicable technical manual listed in TM 1-1520-266-23 Table 1-1.