



SERVICE BULLETIN

DATE: 12 OCTOBER 1982
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MANDATORY

NEW SHIMMING PROCEDURE FOR TAIL ROTOR DRIVE SHAFT FORWARD FLEXIBLE COUPLING, PN 369A5501 OR 369H92564, WITH FAILSAFE DEVICE INSTALLED

1. PLANNING INFORMATION

A. Models Affected:

All 500 Model 369H Series Helicopters

B. Preface:

The information given in this Service Information Notice lists instructions for a revised shimming procedure to be used, to ensure that minimum shims are installed between the forward flexible coupling and the main transmission output shaft, thus precluding bottoming of the coupling and/or coupling bolt on the output shaft.

The information given in this Notice is to be considered as part of the HMI and will be incorporated at the next scheduled revision of the below referenced handbooks.

C. Time of Compliance:

Shall be accomplished at next 300-Hour Periodic Inspection Interval, or at next removal of tail rotor drive shaft assembly whichever is sooner.

D. Reference:

500 Model 369H Series Basic HMI (CSP-H-2), Reissued 15 September 1981

500 Model 369H Series Basic HMI Appendix B (CSP-H-4), Reissued 15 April 1981; Revision No. 1, 15 January 1982

500 Model 369H Series Basic HMI Appendix A (CSP-H-3), Reissued 15 December 1974.

Hughes Service Information Notice No. HN-173, dated 2 November 1981

E. Weight and Balance Data:

Weight and balance not affected

F. FAA Approval:

The resultant alteration to the affected helicopters described by the shimming procedure in this Notice has been shown to comply with Federal Aviation Regulations and is FAA Approved.

G. Parts/Supplies:

| REPLACEMENT PARTS/SUPPLIES | | | |
|-----------------------------|-------------|------|--------|
| Nomenclature | Part No. | Qty. | Source |
| Shim – 0.010 inch thickness | 369A5516–9 | AR | HHI |
| Shim – 0.020 inch thickness | 369A5516– 7 | AR | HHI |

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| REPLACEMENT PARTS/SUPPLIES (Cont.) | | | |
|------------------------------------|------------|------|--------|
| Nomenclature | Part No. | Qty. | Source |
| Shim – 0.010 inch thickness | 369A5516–5 | AR | HHI |
| Shim – 0.060 inch thickness | 369A5516–3 | AR | HHI |

H. Materials:

| MATERIAL | |
|---|---|
| Nomenclature | Source |
| Grease MIL–G–81322 Mobil Grease 28 AeroShell 22 Lubriplate 930–AA | Mobil Oil Shell Oil Fisk Bros. Toledo, OH |
| Anti–Seize Compound MIL–A–907 | Commercial |
| Lockwire MS20995C | Commercial |
| Primer, Zinc Chromate TT–P–1757 | Commercial |

I. Tools and Equipment:

| TOOLS AND EQUIPMENT | |
|--------------------------------------|------------|
| Nomenclature | Source |
| Torque wrench – 0 to 500 inch–pounds | Commercial |
| Feeler gage | Commercial |

2. SHIMMING PROCEDURE – FORWARD FLEXIBLE COUPLING

- (1). Remove and inspect tail rotor drive shaft (Section 9, HMI – Vol I) .
- (2). Remove and inspect flexible couplings (and disc brake components, if rotor brake is installed) on main and tail rotor transmission gear shafts. (Refer to Section 9, Basic HMI, and HMI – Appendix A. Rotor Brake Instructions if applicable.)

NOTE: Retain 369A5516 shims for reinstallation.

- (3). Install one 0.010 inch shim aft of flexible coupling on tail rotor transmission input shaft. Coat coupling splines with grease and coupling bolt with anti–seize compound before assembly. Install coupling and tighten coupling bolt to 250 to 300 inch–pounds.
- (4). Perform the following to determine shim thickness required at forward flexible coupling:



Bottom the flexible coupling by holding at the 1.370 inch OD of coupling (see Figure 1). Do NOT bottom coupling by pushing on drive shaft attach flange; doing so may damage coupling.

- (a). Bottom forward coupling on main transmission output shaft.

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- (b). Measure gap between end of flexible coupling and shoulder of output shaft. Add 0.005 inch to gap measured. This is the minimum 369A5516 shim thickness required at the forward coupling, to prevent coupling from bottoming on output shaft. (See Figure 1.)
- (c). Install minimum 369A5516 shim thickness on main transmission output shaft.
- (d). Measure step between aft end of output shaft and shoulder of flexible coupling, by bottoming coupling against 369A5516 shims. (Refer to CAUTION above.)

NOTE: Step between aft end of output shaft and coupling shoulder must be at least 0.010 inch, to prevent coupling bolt from bottoming on output shaft.

- (e). As required, install additional 369A5516 shims to maintain 0.010 inch minimum step.
- (5). Position new 369D25531 'socket on aft face of forward coupling so that three of the nine holes are indexed to the three nutplates of the coupling in such a way that maximum clearance is obtained between the bolt key and socket as shown in View C-C. Visually verify proper clearance before installing tail rotor drive shaft.
- (6). Reinstall tail rotor drive shaft per Basic HMI, except tighten attach bolts fingertight only at forward coupling and socket.
- (7). Obtain 0.010 to 0.020-inch gap between forward flange of tail rotor drive shaft and aft end of socket, using the following procedure.
 - (a). Back off three attach bolts on forward flange of tail rotor drive shaft assembly 0.050 to 0.100 inch.
 - (b). Push and hold tail rotor output shaft of main rotor transmission forward (into transmission) to remove end play. If rotor brake is installed, make certain that brake pucks do not restrict axial travel of tail rotor output shaft.
 - (c). Remove end play in tail rotor transmission by applying force to tail rotor blades in opposite direction of operational rotation (while still holding tail rotor transmission output shaft to prevent rotation). Do not push tail rotor drive shaft fore or aft.
 - (d). Measure gap between socket and flange of tail rotor drive shaft (socket flange must be in full contact with flange of flexible coupling).
 - (e). Add required number of shims behind flexible coupling at main transmission end of tail rotor drive shaft, to obtain specified gap of 0.010 to 0.020 inch.

NOTE:

- Maintain minimum 0.010 inch step between coupling shoulder and output shaft. (Refer to step d.)
- Shim (0.010 inch) may be removed from AFT coupling if necessary.
- If less than specified gap (0.010 to 0.020 inch) exists under minimum shim requirements, install maximum of one HS 306-326 washer on each of the four tail rotor transmission mounting studs, between gearbox housing and boom fitting. Apply zinc chromate primer to both sides of washer at installation.
- After washer installation, repeat step (7).(a). through (7).(e). above. Also perform rigging of tail rotor controls, per Section 8 of Basic HMI.

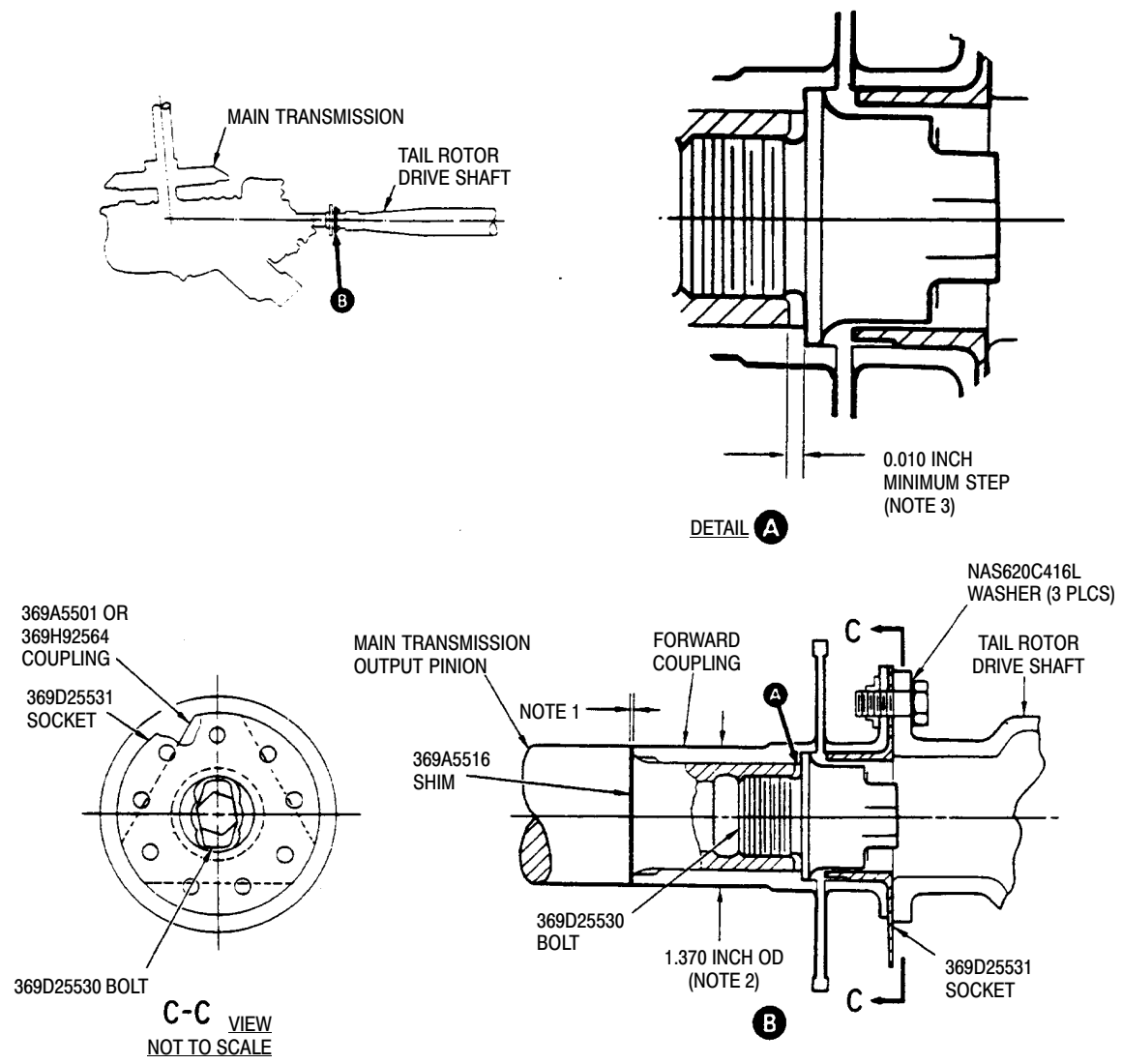
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- (8). Complete installation of tail rotor drive shaft assembly, and rotor brake components as applicable. (Refer to Basic HMI and Basic HMI Appendix A as applicable.)
- (9). Record compliance with this Service Information Notice in Compliance. Record of helicopter Log Book.



- NOTES:**
1. ADD 0.005 INCH TO MEASURED GAP FOR MINIMUM SHIM THICKNESS.
 2. HOLD COUPLING AT 1.370 OD ONLY, TO BOTTOM COUPLING.
 3. MINIMUM 0.010 STEP BETWEEN AFT END OF OUTPUT SHAFT AND SHOULDER OF FORWARD COUPLING.

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Figure 1. Shimming Procedure for Tail Rotor Drive Shaft Forward Coupling

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