

**HUGHES
SERVICE INFORMATION
NOTICE**

NOTICE NO. HN-86

DATE 28 April 1975

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FAA APPROVED

SUBJECT: TAIL ROTOR DRIVE SYSTEM INSPECTIONS - INSTALLATION OF TAIL ROTOR DRIVE SHAFT PN 369A5518-601 AND BUNGEE ASSEMBLY ASSOCIATED WITH METAL TAIL ROTOR BLADES AND INDEXING OF ALL HELICOPTER TAIL ROTOR DRIVE SHAFTS.

MODELS AFFECTED: All 369 Series Helicopters equipped with metal tail rotor blades and all 369 Series Helicopters with drive shafts not previously indexed.

TIME OF COMPLIANCE: Part I - Shall be accomplished within the next 100 hours of helicopter operation.

Part II - Shall be accomplished at each 100 hour periodic inspection.

PREFACE: Part I - Establishes a one time check for tail rotor drive shaft indexing or application of index stripping on all helicopters and an inspection for torsional twist. In addition, requirements for a one time check of helicopters equipped with metal tail rotor blades for a PN 369A5518-601 tail rotor drive shaft and controls bungee spring installation is established.

Part II - Provides a tail rotor drive shaft torsional twist inspection for all helicopters.

References

369 Series - Basic HMI, Issued 10 October 1972, Revision No. 4, 15 December 1974

369 Series - HMI Appendix B, Issued 1 October 1972, Revision No. 3, 1 August 1974

Service Information Notice, HN-52.1, dated 9 April 1973

PARTS LIST
(To Be Procured if Required)

| <u>Nomenclature</u> | <u>Part Number</u> | <u>Qty</u> | <u>Mfr</u> |
|-------------------------------------|--------------------|------------|----------------------|
| Shaft Assembly, Tail Rotor Drive | 369A5518-601 | 1 | Hughes |
| Spring | 369A7521 | 1 | Hughes |
| Fitting | 369A7522 | 1 | Hughes |
| Bearing | 369A7951-51 | 1 | Hughes |
| Eyebolt | AN42B-C3A | 2 | Hughes or Commercial |
| Washer | AN960-10L | 3 | Hughes or Commercial |
| Washer | HS1551-279 | 1 | Hughes or Commercial |
| Rivet | MS2C470AD3 | 1 | Hughes or Commercial |
| Nut | MS21042-3 | 2 | Hughes or Commercial |

MATERIALS

| <u>Nomenclature</u> | <u>Qty</u> | <u>Mfr</u> |
|----------------------|------------|------------|
| Paint - Glossy white | A/R | Commercial |

PART I

- A. Check for Application of Tail rotor Drive Shaft Indexing stripes (All Helicopters).

NOTE

Factory helicopters delivered after November 30, 1974 have indexed tail rotor drive shaft systems installed at time of manufacture.

1. At the left forward side of the tail rotor gearbox, check for a white paint stripe; then rotate the tail rotor drive shaft and observe that a corresponding paint stripe on the drive shaft coupling aligns with the stripe on the gearbox. If stripes are not present, accomplish the next step and proceed with step 4. following.

2. Remove the tail rotor bellcrank access door at the forward left side of the fuselage boom fairing and observe the area where the tail rotor drive shaft passes through the fairing forward bulkhead. If no paint stripe is present on the bulkhead and further rotation of the tail rotor drive shaft does not show striping, proceed with step 4. following.
3. If index striping is present according to 1. and 2. above, perform a tail rotor drive shaft torsional twist inspection according to Part II of this notice.
4. If index striping is not present or is incomplete, proceed with the following steps.
 - a. Remove the tail rotor drive shaft, tail rotor transmission and tail rotor assembly as an assembly and inspect drive shaft for evidence of torsional twist or buckling (Basic HMI). If drive shaft is damaged, observe replacement criteria in the Basic HMI.
 - b. Before installation of assembled drive system, paint a white stripe (1/8 inch wide by 1-1/4 inch long) on tail rotor transmission housing input flange radiused out from the center of the shaft at the 2 o'clock position looking aft. Paint a corresponding white strip on the tail rotor drive shaft rotating coupling body at the end of the identification plate.
 - c. With the drive system installed, align the indexing stripes at the tail rotor transmission end. Paint a white stripe (1/8 inch wide by 1/2 inch long) on the boom fairing bulkhead radiused out from the center line of the shaft as it passes through the bulkhead. Paint a corresponding joining index stripe on the tail rotor drive shaft.

NOTE

Any time the associated tail rotor drive units are removed or replaced, an indexing check and reapplication of index marks shall be required.

- d. Record compliance with Part I, A of this Service Information Notice in Compliance Section of helicopter Log Book.

B. Check for PN 369A5518-601 Tail Rotor Drive Shaft Used on Helicopters With Metal Tail Rotor Blades.

1. Determine the part number of installed tail rotor drive shaft. The following information may be helpful in locating the part number.

- a. All 369A5518 Series tail rotor drive shafts are limited life parts and are listed in the helicopter Log Book on all factory delivered helicopters.
 - b. The tail rotor drive shaft identification plate is located on one end of the shaft just behind the end attachment flange.
 - c. Observe the main transmission drive shaft end after removal of the cargo compartment main gear box access cover. If the identification plate is not evident, the plate is at the aft end of the drive shaft and the drive shaft must be removed for identification.
2. If 369A5518-601 tail rotor drive shaft is installed and indexing stripes are present, no further maintenance action is required.
 3. If a 369A5518 tail rotor drive shaft is installed, remove the shaft and replace with a 369A5518-601 tail rotor drive shaft (Basic HMI).

NOTE

Reindexing of replacement tail rotor drive shaft is required.

4. Record compliance with Part I, B of this Service Information Notice in Compliance Section of helicopter Log Book.
- C. Check for Tail Rotor Controls Bungee Spring Installation Used on Helicopters With Metal Tail Rotor Blades.
1. Check that pilot's left rudder pedal returns to the full forward position when pulled aft and then released. This indicates that the metal tail rotor blade controls bungee spring is installed and functioning.
 2. If in doubt, gain access to the forward side of the pilot's seat structure and observe the tail rotor controls bungee spring through the opening in the controls support bracket.
 3. If the bungee spring is not installed, remove access cover between pilot's seats and install the bungee according to the applicable section of Service Information Notice HN-52. 1.
 4. Record compliance with Part I, C of this Service Information Notice in Compliance Section of helicopter Log Book.

PART II

- A. Inspection of Tail Rotor Drive Shaft for Torsional Twist (All Helicopters). Perform the torsional twist check at next 100 hour inspection and at each 100 hour inspection thereafter. Perform the torsional twist check any time torsional damage to the tail rotor drive shaft is suspected, or if a tail rotor strike has occurred. It is noted that a tail rotor strike is less evident but can also occur in snow, mud or on float equipped helicopters operating in water.

The following inspection shall be considered a part of 500 Series, Appendix B, Table B3 Special Instructions, until such time as the inspection is incorporated.

1. Rotate tail rotor until paint stripe on aft coupling aligns with the corresponding stripe on tail rotor transmission housing.
2. Remove the tail rotor bellcrank access door at the forward left side of the fuselage boom fairing. With drive shaft in same position, visually inspect paint stripe on tail rotor drive shaft for alignment with corresponding stripe on boom fairing forward bulkhead.

NOTE

Misalignment of drive shaft and bulkhead stripe indicates possible torsional damage or twisting of the tail rotor drive shaft.

3. If misalignment is noted, remove the tail rotor drive shaft and inspect both the drive shaft and tail rotor according to Handbook of Maintenance Instructions.
4. Record compliance with Part II of this Service Information Notice in Compliance Section of helicopter Log Book.

WEIGHT AND BALANCE DATA

| <u>369 Series Helicopter Tail Rotor Drive Shaft</u> | <u>Weight (lb)</u> | <u>Arm</u> |
|---|------------------------|------------|
| 369A5518 | 5.6 | 197.8 |
| 369A5518-601 | 7.8 | 197.8 |