



# TECHNICAL BULLETIN

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## INSTALLATION AND REPLACEMENT OF PROTECTIVE SLEEVE (SPEEDI-SLEEVE PN 084956) ON TAIL ROTOR TRANSMISSION OUTPUT GEARSHAFT

### 1. PLANNING INFORMATION

#### A. Models Affected:

All 500 Model 369H, 369HE, 369HM and 369HS Series Helicopters.

#### B. Preface:

Information given in this Service Information Notice provides procedures for installing and replacing a protective sleeve (Speedi-Sleeve PN 084956) on the, output gearshaft of 369A5400 series tail rotor transmissions. The protective sleeve will prevent gearshaft wear caused by the gearshaft rubbing against the output gearshaft cover oil seal lip. It can also be used to repair minor gearshaft wear caused by the seal rubbing against the shaft.

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

#### C. Time of Compliance:

At owners/operators discretion.

#### D. Reference:

Basic Handbook of Maintenance Instructions (CSP-H-2), Reissued 15 September 1981.

Basic Handbook of Maintenance Instructions, Appendix C (COM), Issued 1 April 1976; Revision No. 3, 15 March 1981.

#### E. Weight and Balance:

Weight and balance not affected.

#### F. FAA Approval:

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

#### G. Parts/Supplies:

REPLACEMENT PARTS/SUPPLIES			
Nomenclature	Part No.	Qty.	Source
Speedi-Sleeve	084956	1	HHI

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## H. Materials:

MATERIAL	
Nomenclature	Source
Solvent, dry cleaning PD-680	Commercial
Plastic Steel Devcon A	Devcon Corp. Danvers, MA 01923
Lockwire CRES safety wire	Commercial
Petroleum jelly VV-P-236	Commercial

## I. Tools and Equipment:

TOOLS AND EQUIPMENT	
Nomenclature	Source
Heat gun or blow dryer	Commercial
Pipe/tubing, 1-inch ID, 8-10 inches length	Commercial

## 2. PROCEDURE

- (1). Remove tail rotor and pitch control assembly (Section 8, Basic HMI).
- (2). Drain lubricant from tail rotor transmission (Section 2, Basic HMI).
- (3). Remove safety wire, three bolts and washers attaching output gearshaft cover to housing; remove cover and clamp-up shim. Retain all hardware except safety wire for use at reassembly.
- (4). Using heat gun or blow dryer, heat output housing bore to  $275^{\circ} \pm 25^{\circ}\text{F}$  ( $135^{\circ} \pm 4^{\circ}\text{C}$ ); remove gearshaft and backlash shim. Retain backlash shim for use at reassembly.
- (5). Install Speedi-Sleeve as follows: (See Figure 1.)

**NOTE:** If shaft has been grooved from rubbing against lip of output gearshaft cover seal, and depth of groove exceeds 0.005 inch, shaft must be replaced. (Refer to Part III, HMI Appendix G.) If groove does not exceed 0.005 inch depth it may be repaired with Devcon A.



Do not allow any contaminants to enter shaft bearings. Dust and other contaminants can damage or shorten the service life of the bearings.

- (a). Wipe away dust particles and foreign material from gearshaft using a clean, lint free cloth, dampened by solvent.

**NOTE:** If shaft has been grooved by seal lip and groove does not exceed 0.005 inch depth, fill groove with Devcon A.

- (b). Apply light coat of plastic steel to shaft area to be covered by sleeve.

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- (c). Set gearshaft on end, roller bearings down, on hard clean, level surface. While Devcon A is wet, put sleeve on shaft, flange down, and press or tap in place using 1-inch tube or pipe bottomed on flange of sleeve. The unflanged end of sleeve must be even with outboard end of 0.9100 - 0.9108-inch diameter seal journal. Tap end of pipe with hammer or mallet as necessary to correctly position sleeve on shaft. Wipe any excess Devcon A from shaft using a clean, lint free cloth.
- (d). Clip flange of sleeve to notch line and peel from shaft.

(6). Replace installed sleeve, if damaged or grooved, as follows and as shown in Figure 1.



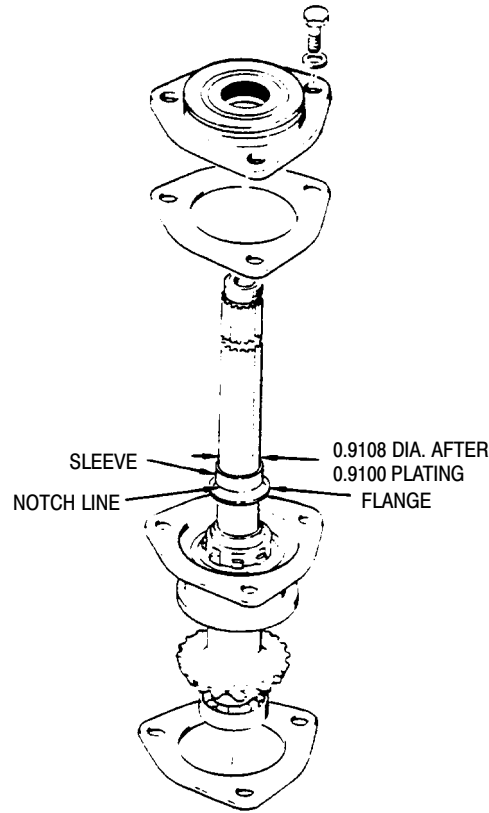
Use care not to cut into or damage gearshaft when removing damaged sleeve from gearshaft. Do not allow filings or other contaminants to enter shaft bearings.

- (a). Use file or other suitable instrument to cut through edge of sleeve; carefully pry cut edge away from shaft.
  - (b). Grasp raised edge with pliers and peel damaged sleeve off shaft..
  - (c). Remove any Devcon residue from shaft using dry cleaning solvent; dry shaft with clean, lint free cloth.
  - (d). Install replacement sleeve on shaft per paragraph (5).
- (7). Reassemble tail rotor transmission.
- (a). Apply heavy coating of petroleum jelly to roller bearings on end of gearshaft.

**NOTE:** If backlash shim removed at disassembly is not reused, complete reassembly per Section 5, Part III, HMI Appendix C.

- (b). Install backlash shim removed at disassembly, and gearshaft in housing. Heat output housing bore using heat gun or blow dryer until gearshaft bearing retainer assembly fits easily into housing.
  - (c). Install clamp-up shim removed at disassembly and output gearshaft cover assembly (Section 5, Part III, HMI Appendix C).
- (8). Install tail rotor and pitch control assembly (Section 8, Basic HMI).
- (9). Fill tail rotor transmission with approved lubricant (Section 2, Basic HMI).
- (10). Record compliance with this Notice in Compliance Record of Helicopter Log Book.

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**NOTES:**

**REPAIRABLE**

**DAMAGED SHAFT**

1. FILL GROOVED AREA AND BOND SLEEVE TO SHAFT WITH DEVCON A.
2. CLIP FLANGE AND PEEL FLANGE OFF SHAFT AT NOTCH LINE.

**UNDAMAGED SHAFT**

1. BOND SLEEVE TO SHAFT WITH DEVCON A.
2. CLIP FLANGE AND PEEL FLANGE OFF SHAFT AT NOTCH LINE.

**SLEEVE REPLACEMENT**

1. CUT EDGE OF DAMAGED SLEEVE WITH FILE AND PEEL BACK.
2. PEEL SLEEVE FROM SHAFT.
3. CLEAN WITH PD-680; DRY WITH CLEAN, LINT FREE CLOTH.
4. PRESS SLEEVE ONTO SHAFT USING DEVCON A.
5. CLIP FLANGE AND PEEL FLANGE OFF SHAFT AT NOTCH LINE.

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**Figure 1. Speedi-Sleeve (PN 084956) Installation/Replacement**