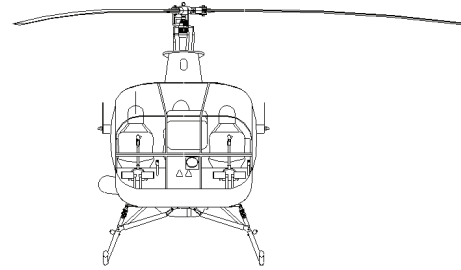


# 269D/SHU-40 ALERT

## SERVICE BULLETIN

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DB-042

Basic Issue ▪ February 13/12

**SUBJECT: DRIVE TRAIN - Tail Rotor Drive Shaft Splined Fittings – Perform a One-Time Inspection and Implement a Recurring Inspection for Wear**

#### Section 1. PLANNING INFORMATION

- A. **Effectivity** All Schweizer model 269D configuration “M” and “MB” helicopters.  
All Schweizer model SHU-40A and SHU-40B helicopters.
- B. **Purpose** To perform a one-time inspection of tail rotor drive shaft splines for wear and to implement a recurring visual inspection of the tail rotor drive shaft splines.
- C. **Description** The tail rotor drive shaft splines are cleaned, inspected and lubricated. Splined components that exceed wear limits are removed from service and returned to Sikorsky Aircraft Corporation.

Excessive spline wear in the forward and aft tail rotor drive shaft splined fittings can lead to decoupling of the tail rotor drive shaft. A one-time inspection is required to check for excessive spline wear and to assure the drive shaft is properly lubricated. Follow-on 100 hour periodic inspections of these components are required in accordance with HMI Appendix B, Table B-2.

The implementation of the recurring inspection shall be accomplished subsequent to the one-time inspection.

- D. **Compliance** Compliance is essential. The one-time inspection outlined herein shall be accomplished within 100 flight hours or 60 days from issue date of this Alert Service Bulletin (ASB), whichever occurs first.
- E. **Approval** The technical aspects of this ASB are FAA approved.

ONE-TIME  
INSPECTION

IMPLEMENT  
RECURRING  
INSPECTION

DRIVE TRAIN

Section 1. PLANNING INFORMATION (Continued)

F. Manpower (Estimated)

<u>Task</u>	<u>No. of Men</u>	<u>No. of Hours</u>	<u>Man-Hours*</u>
Remove tail rotor drive shaft	2	.25	.50
Clean/inspect spline cavities	1	.50	.50
Lubricate spline cavities	1	.25	.25
Install tail rotor drive shaft	2	.30	<u>.60</u>
Total Man-Hours			1.85

\*Estimate does not include time required to prepare helicopter or return it to flight status.

G. Material

None.

H. Tooling

(1) Lubrication Tool (locally fabricated)

I. Weight and Balance

Not affected.

J. Electrical Load Data

Not affected.

K. Software Load Data

Not applicable.

L. References

- (1) S300 model 269D configuration "M" Basic HMI.
- (2) S-434M™ model 269D configuration "MB" Basic HMI.
- (3) SHU-40A/SHU-40B customer-supplied maintenance manual.

M. Publications Affected

None.

N. Attachment

None.

Section 2. MATERIAL INFORMATION

A. Basis for Material Data

Per helicopter.

B. Bill of Material

None.

C. Consumable Material



OBSERVE ALL CAUTIONS AND WARNINGS ON CONTAINERS WHEN USING CONSUMABLES. WHEN APPLICABLE, WEAR NECESSARY PROTECTIVE GEAR DURING HANDLING AND USE. IF A CONSUMABLE IS FLAMMABLE OR EXPLOSIVE, MAKE CERTAIN CONSUMABLE AND ITS VAPORS ARE KEPT AWAY FROM HEAT, SPARK AND FLAME. MAKE CERTAIN FIREFIGHTING EQUIPMENT IS READILY AVAILABLE PRIOR TO USE. FOR ADDITIONAL INFORMATION ON TOXICITY, FLASHPOINT AND FLAMMABILITY OF CHEMICALS, CONSULT YOUR MEDICAL PEOPLE OR THE MANUFACTURER OF THE CONSUMABLE.

<u>Qty</u>	<u>Nomenclature</u>	<u>Part No.</u>	<u>Source</u>
As Req'd	Solvent	Stoddard Solvent, MIL-PRF-680, Type I, or equivalent (Alternate) Varsol, MIL-PRF-680, Type II, or equivalent	(1)
As Req'd	Grease	Anderol 786, or equivalent (Alternate) Syn-Tech NS-3913-G1, or equivalent	(2)
As Req'd	Polypropylene Plastic Sheet, 0.125-inch thick	Commercial grade or equivalent	(3)
As Req'd	PVC Pipe, 0.75-inch diameter	Commercial grade or equivalent	(3)
As Req'd	PVC Adhesive	Commercial grade or equivalent	(3)

(1) Stoddard solvent is available from [www.sciencestuff.com](http://www.sciencestuff.com).  
Varsol is available from [www.exxonmobilechemical.com](http://www.exxonmobilechemical.com).

(2) Anderol is available from [www.anderol.com](http://www.anderol.com).  
Syntech is available from [www.syn-techlube.com](http://www.syn-techlube.com).

(3) Procure from local supply.

Section 3. ACCOMPLISHMENT INSTRUCTIONS

- A. Prepare helicopter for inspection:
  - (1) Turn off all helicopter electrical power.
  - (2) Remove tail rotor drive shaft from helicopter. Reference Applicable Basic HMI, Section 10.
  - (3) Using cleaning solvent, remove all grease from spline cavities of tail rotor drive shaft forward and aft end fittings and main rotor transmission pinion splined drive sleeve and driven spline adapter of tail rotor transmission. Blow dry with clean, compressed air.
- B. Perform tail rotor drive shaft splined fitting inspection as follows:

- (1) Visually inspect internal splines of forward and aft drive shaft fittings for excessive wear, galling, spalling, chipping, distortion, corrosion, heat discoloration or any defect that indicates inadequate spline engagement or lack of lubricant.
  - (a) Measure internal splines of fittings for excessive wear. Reference Basic HMI, Section 10.

NOTE: The main transmission pinion drive spline sleeve and the tail rotor transmission driven spline have identical external spline dimensions. The overall pin dimension inspection applies to both.

- (2) Visually inspect external splines of drive sleeve on main rotor transmission pinion and external splines of driven spline on tail rotor transmission input shaft for excessive wear, galling, spalling, chipping, distortion, corrosion, heat discoloration, or any defect that indicates inadequate spline engagement or lack of lubricant.
  - (a) Measure for excessive wear over two 0.1200 inch diameter gage pins placed 180° apart in external splines. Reference HMI, Section 10.
- (3) If tail rotor drive shaft is equipped with grease fittings, inspect grease fittings for security, presence of check balls inside fittings, and for proper operation and seating of check balls. Replace any grease fittings that are loose, are missing check balls, or are suspected of improper operation.
- (4) If wear is found in splines of drive shaft fittings, splined drive sleeve or splined adapter which meets serviceable limits, copy and fill out the Customer Reply Form and mail to address shown on form. Proceed to step B.7.

NOTE: On the tail rotor drive shaft, remove the splined drive fittings from the ends of the shaft and ship only the fittings to HSI.

- (5) Remove from service any components that exceed wear limits and send to Helicopter Support Inc. (HSI). Fill out Component Return Form and place in shipping container and ship components to address shown on form.

(6) Service drive shafts as follows:

(a) Service drive shafts that are not equipped with grease fittings as follows:

1. Fabricate and assemble Lubrication Tool(Figure 1 Sheet 1 and Sheet 2).



**DO NOT MIX GREASE TYPES**

2. Apply grease (Anderol 786 or Syn-Tech NS-3913-G1 grease or equivalent) to drive shaft fitting (Figure 1, Sheet 2.)



**DO NOT MIX GREASE TYPES**

(b) Service drive shafts equipped with grease fittings with grease (Anderol 786 or Syn-Tech NS-3913-G1 grease or equivalent). Grease aft fitting first and avoid aft preloading by alternately greasing fittings at both ends. Reference Basic HMI, Section 10.

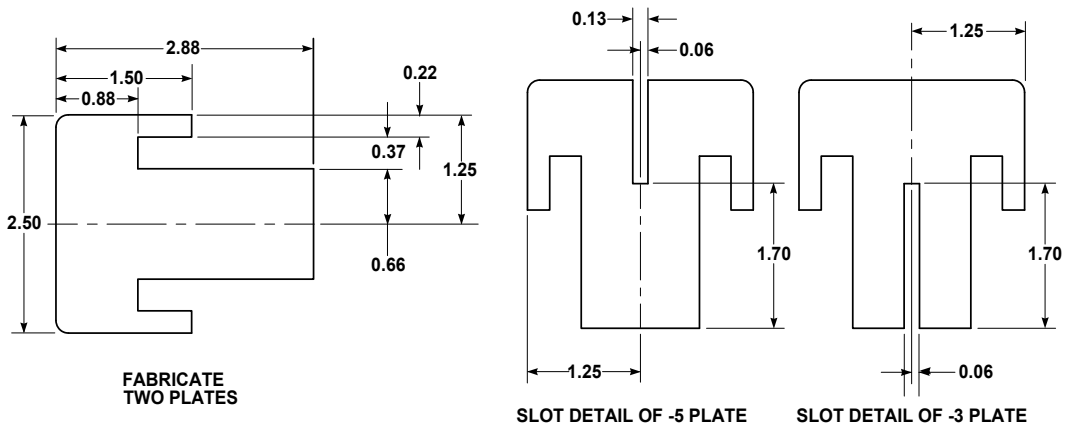
(7) Install tail rotor drive shaft in helicopter. Reference Applicable Basic HMI, Section 10.

C. Implement recurring tail rotor drive shaft inspection as follows:

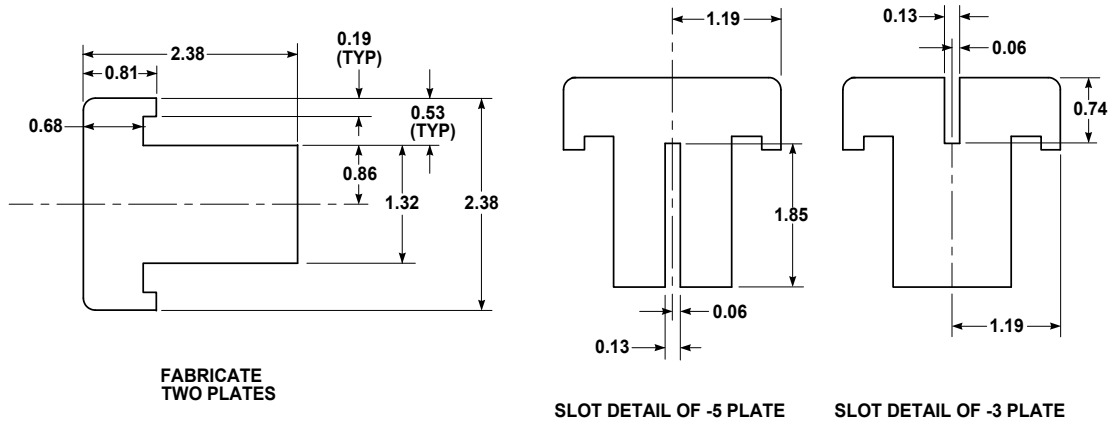
- (1) Review and comply with Applicable Basic HMI Appendix B, Table B-2.

D. Record of compliance:

- (1) Make an appropriate helicopter logbook or component log card entry to show compliance with this ASB.
- (2) Upon compliance with this ASB, complete attached ALERT SERVICE BULLETIN COMPLIANCE RECORD CARD and return it to Sikorsky Aircraft Corporation.



**LUBRICATION TOOL DETAILS FOR FORWARD SPLINED FITTING**



**LUBRICATION TOOL DETAILS FOR AFT SPLINED FITTING**

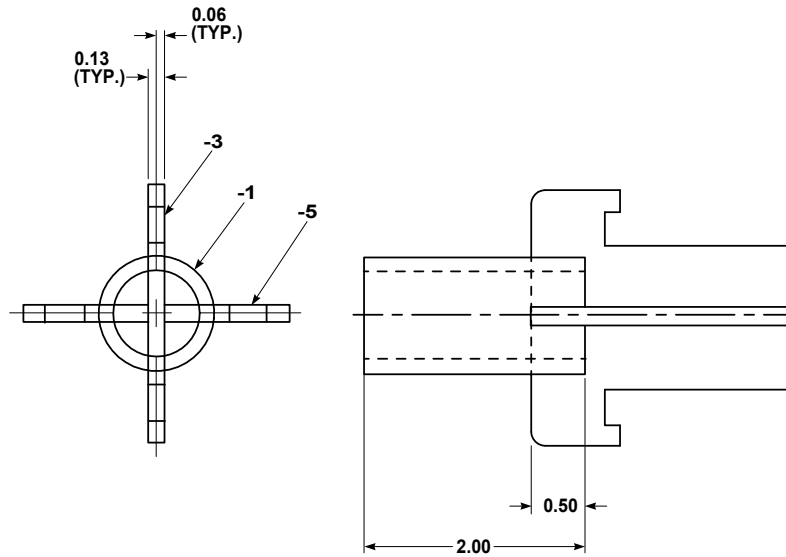
**NOTES**

1. SUGGESTED MATERIAL IS 1/8 INCH THICK POLYPROPYLENE PLASTIC SHEET AND 3/4 INCH PVC PIPE. ANY SUITABLE MATERIAL MAY BE USED.
2. FABRICATE - 1 PVC PIPE HANDLE AS SHOWN IN SHEET 2 WITH SLOTS 90° APART. SLOT WIDTHS ARE TO MATCH MATERIAL THICKNESS.
3. ASSEMBLE PARTS AS SHOWN IN SHEET 2 AND BOND ASSEMBLY TOGETHER USING APPROPRIATE ADHESIVE FOR PVC PIPE.

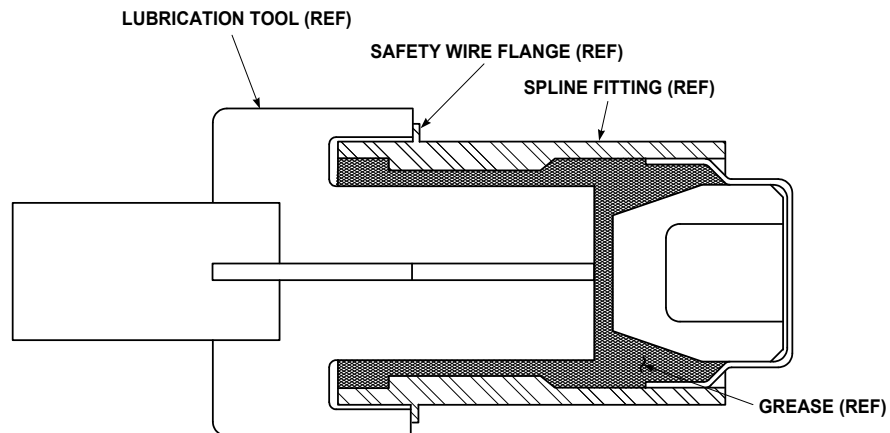
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LUBRICATION TOOL – FABRICATION OF DETAIL PARTS  
FIGURE 1 (SHEET 1 OF 2)

DRIVE TRAIN	IMPLEMENT RECURRING INSPECTION	ONE-TIME INSPECTION
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**ASSEMBLY OF LUBRICATION TOOL  
 FOR AFT SPLINED FITTING SHOWN**



**NOTE**

USE OF LUBRICATION TOOL FOR FORWARD SPLINE FITTING IS SHOWN. TO ADJUST GREASE VOLUME, INSERT TOOL UNTIL LEGS OF PLATES BOTTOM AGAINST SAFETY WIRE FLANGES ON EXTERIOR OF SPLINED FITTING. AFTER TOOL IS INSERTED, REMOVE EXCESS GREASE BY ROTATING TOOL A MINIMUM OF 180°. VERIFY GREASE COVERAGE AND DEPTH AS REQUIRED IN HMI.

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**LUBRICATION TOOL – ASSEMBLY AND USE  
 FIGURE 1 (SHEET 2 OF 2)**

ONE-TIME INSPECTION	IMPLEMENT RECURRING INSPECTION	DRIVE TRAIN
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## COMPONENT RETURN FORM

Customer Name: \_\_\_\_\_ Helicopter Model: \_\_\_\_\_

Customer Address: \_\_\_\_\_ Helicopter Serial N<sup>o</sup>: \_\_\_\_\_

\_\_\_\_\_ Component Time: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Ship To: Helicopter Support Inc.  
124 Quarry Rd.  
PO Box 11068  
Trumbull, Connecticut, 06611 USA  
Attn: Customer Service  
Fax: (203) 416-4291 Telephone: (203) 416-4000  
HSI Website: [www.HSIUS.com](http://www.HSIUS.com)

## COMPONENT RETURN FORM

Customer Name: \_\_\_\_\_ Helicopter Model: \_\_\_\_\_

Customer Address: \_\_\_\_\_ Helicopter Serial N<sup>o</sup>: \_\_\_\_\_

\_\_\_\_\_ Component Time: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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DRIVE TRAIN

IMPLEMENT  
RECURRING  
INSPECTION

ONE-TIME  
INSPECTION



## CUSTOMER REPLY FORM

Customer Name: \_\_\_\_\_ Helicopter Model: \_\_\_\_\_

Customer Address: \_\_\_\_\_ Helicopter Serial N<sup>o</sup>: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### COMPONENT:

Drive Shaft FWD Splined Fitting:

Wear: \_\_\_\_\_ Total Time: \_\_\_\_\_

Drive Shaft AFT Splined Fitting:

Wear: \_\_\_\_\_ Total Time: \_\_\_\_\_

Main Trans. Pinion Drive Splined Sleeve:

Dimensions: \_\_\_\_\_ Total Time: \_\_\_\_\_

Tail Gearbox Driven Spline Adapter:

Dimensions: \_\_\_\_\_ Total Time: \_\_\_\_\_

Mail To: Helicopter Support Inc.  
124 Quarry Rd.  
PO Box 11068  
Trumbull, Connecticut, 06611 USA  
Attn: Customer Service  
Fax: (203) 416-4291 Telephone: (203) 416-4000  
HSI Website: [www.HSIUS.com](http://www.HSIUS.com)

ONE-TIME  
INSPECTION

IMPLEMENT  
RECURRING  
INSPECTION

DRIVE TRAIN

(Fold over and tape closed)

SIKORSKY AIRCRAFT CORPORATION

**FACSIMILE NUMBER (860) 998-7565**

**EMAIL ADDRESS: [GPSIKSASProductSafet@utc.com](mailto:GPSIKSASProductSafet@utc.com)**

ATTENTION: SAS PRODUCT SAFETY MANAGER  
SIKORSKY AEROSPACE SERVICES



**IMPORTANT NOTICE**

Upon **COMPLIANCE** with the attached ASB, Sikorsky requests your cooperation in completing and returning this **ENTIRE PAGE** by **MAIL, FAX, or scan & EMAIL**.

*If you have internet access, you may go to [www.sikorsky.com](http://www.sikorsky.com) to record your compliance.*

Please fill in the requested information at the bottom of the page, so we may maintain proper records documenting the configuration of your aircraft. This information is useful when determining configuration and effectivity of issues affecting fielded aircraft.

This request is in keeping with our policy to assure that our customers receive the latest information applicable for the maintenance of your aircraft. Thank you.

**ALERT SERVICE BULLETIN:**            ASB No. DB-042            **Compliance Record Card**

**TITLE:** DRIVE TRAIN – Tail Rotor Drive Shaft Splined Fittings – Perform a One-Time  
Inspection and Implement a Recurring Inspection for Wear

**OWNER/OPERATOR:** \_\_\_\_\_

**SUBMITTED BY:** \_\_\_\_\_            **DATE:** \_\_\_\_\_

- FOLLOWING SERIAL NUMBERS ARE NOT AFFECTED BY THIS ASB**  
 **ASB HAS BEEN COMPLIED WITH ON THE FOLLOWING SERIAL NUMBERS**

\_\_\_\_\_  
\_\_\_\_\_

(Fold Up to Arrows)



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P.O. BOX 9729

6900 MAIN STREET

STRATFORD, CONNECTICUT 06615-9129 U.S.A.

MAILSTOP: **S328A**

ATTENTION: SAS PRODUCT SAFETY MANAGER

SIKORSKY AEROSPACE SERVICES

**Please complete the form on the reverse side and FAX to**

**FACSIMILE NUMBER (860) 998-7565**

**Or scan and email to:**

**EMAIL ADDRESS: [GPSIKSASProductSafet@utc.com](mailto:GPSIKSASProductSafet@utc.com)**

**or fold and return ENTIRE form to Sikorsky Aircraft Corporation**