SUBJECT: MAIN ROTOR HUB AND SHAFT INSPECTION AND NEW ASSEMBLY PROCEDURE

MODELS AFFECTED: ALL 269D (330) HELICOPTERS with PN 269A1002-11 Main Rotor System (Large diameter hub) Main Rotor Hub and Shaft part Number: 269A5305-139, -143, -145, -147

TIME OF COMPLIANCE

- **PART I**
  - ¤ Before further flight (up to 30 minute ferry flight acceptable if no vibrations reported) unless accomplished in accordance with Schweizer Faxed instructions of 27 Dec. 1997, or DB-004 (30 Dec 97), or DB.004.1 (8 Jan. 98) or DB-004.2 (26 Jan 98)
  - ¤ For shafts initially assembled in accordance with Basic HMI Paragraph 8-37 (revised 12 Jun 98) prior to 200 hours total time in service and thereafter at 100 hour intervals.
  - ¤ Any time the torque check in Procedure Part II is not acceptable.

NOTE

Compliance with current HMI procedures includes installation of three-piece retention fitting, higher torque of attach bolt, assembled with no lubricant, and application of zinc chromate primer between hub and shaft.

- **PART II**
  - ¤ At 50-Hour intervals.

REFERENCE: 269D Handbook Of Maintenance Instructions (HMI) (Issued 14 Jun 93, revised 12 Jun 98)

PREFACE

- Reports of cracking in the Main Rotor Drive Shaft have been received. Wear patterns indicate a possibility of parts looseness related to the original lubricated, oil filled hub and shaft assembly instructions. The HMI revision (dated 12 Jun 98) increases the hardware torque, eliminates the lubrication instructions, and emphasizes the requirement for assembly with zinc chromate primer. This Service Bulletin requires repetitive magnetic particle inspection of the subject driveshafts.
- Failure to comply with the instructions in this Service Bulletin may lead to loss of control of the helicopter and subsequent serious injury, death, and / or property damage.

(▌) Denotes portion of text added or revised

*Supersedes DB-004.2, dated 26 Jan 1998

PROCEDURE

WARNING

IF SUDDEN, UNUSUAL OR EXCESSIVE VIBRATIONS OCCUR DURING FLIGHT, LAND AS SOON AS PRACTICAL AND HAVE MAINTENANCE PERSONNEL INSPECT THE MR DRIVE SHAFT FOR CRACKS.

- **PART I**

1. Disassemble in accordance with the Basic HMI Section 8.
2. Clean and inspect the shaft and holes for cracks in the area of the 6 hub attach bolt holes. Use a 10X glass and strong light, if no cracks are found, inspect by Magnetic Particle Inspection method. See Attachment A for specifics. NO CRACKS ALLOWED.
3. Install serviceable drive shaft and assemble the rotor system in accordance with Basic HMI Sections 8 and 10 (revised 12 Jun 98, or subsequent revision).

NOTE

Compliance with current HMI procedures includes installation of three-piece retention fitting, higher torque of attach bolt, assembled with no lubricant, and application of zinc chromate primer between hub and shaft.

4. Record compliance with Part I of this Service Bulletin in the aircraft records.
5. After each inspection, complete the attached compliance card and mail or fax to Schweizer Aircraft Corp.

- **PART II**

WARNING

IF TORQUE IS LOWER THAN 350 IN.-LBS., DISASSEMBLE AND INSPECT THE MAIN ROTOR DRIVE SHAFT AND BOLT HOLES FOR CRACKS. NOTIFY SCHWEIZER AIRCRAFT CORP. OF LOW TORQUE AND/OR CRACKED DRIVE SHAFTS.

1. Remove safeties and clean the exterior of the bolts prior to torque check.
2. Unsafety and loosen droop stop nut.
3. Check the torque of the 6 attach bolts at 350 in.-lbs., if any bolt rotates perform Part I.
4. Apply 390 to 410 in.-lbs. torque to all 6 bolts and resafety.
5. Torque and safety the droop stop nut (Basic HMI, Section 2 Table 2-32, Part V).
6. Seal the exterior of the hub bolts and washers with a corrosion preventative compound.
7. Record compliance of Part II of this Service Bulletin in the aircraft records.

WEIGHT AND BALANCE

Weight and Balance are not affected.

ATTACHMENT A

Magnetic Particle Inspection Procedure For Service Bulletin DB-004.3

Inspect by Magnetic Particle methods per ASTM Standard No. E1444 using either direct or indirect magnetization according to following:

Those areas to be inspected and in direct contact with magnetizing unit must be free of paint films, contaminates and residual magnetic fields. Solvent clean and demagnetize as necessary.

1. DIRECT MAGNETIZATION

Use AC, DC or AC/DC wet continuous method with fluorescent or non fluorescent particles

a. CIRCULAR (Head Shot) - 1100 amperes

Look for Longitudinal cracks

b. LONGITUDINAL (Coil shot) - Because of variations in coil design only length to diameter ratio based on effective diameter and inspection region length are provided.

Effective Diameter- 1.279 inches

Length - 6.00 inches

L/D Ratio - 5

Look for circumferential cracks

2. INDIRECT MAGNETIZATION

Use alternating (AC) current Electromagnetic Yoke (Magnaflux Product No. Y-6 or Equivalent)

Set spacing and angle to suit the external diameter of the shaft. Magnetize each of quantity of 6 hole areas by applying the yoke circumferentially across the hole. During each magnetization apply dry color contrasting particles to the inspection area and look for circumferential cracks propagating from holes. Demagnetize and repeat the inspections with poles of yoke positioned longitudinally across each hole group looking for circumferential cracks

Demagnetize and solvent wash inspection areas to remove residual particles.

Protect area as needed.

COMPLIANCE REPORT

PLEASE ANSWER THE QUESTIONS BELOW AFTER COMPLETION OF THE INSPECTION REQUIRED BY DB-004.3 AND RETURN TO:

SCHWEIZER AIRCRAFT CORP.
P.O. BOX 147
ELMIRA, NY 14902
USA
Attn: Customer Service Department

FAX 607-739-3931

Shaft Serial Number _____ Currently installed in Aircraft Serial Number _____

Time in Service of Shaft _____ Time since last inspection _____

Results of Magna Flux_____

Bolt torque before removal

top #1_____ #3_____ #5_____

bottom #2_____ #4_____ #6_____

COMPLIANCE REPORT

PLEASE ANSWER THE QUESTIONS BELOW AFTER COMPLETION OF THE INSPECTION REQUIRED BY DB-004.3 AND RETURN TO:

SCHWEIZER AIRCRAFT CORP.
P.O. BOX 147
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