LUFTFARTSVERKET
Luftfartsinspektionen

LUFTVÄRDIGHETSDIREKTIV (LVD)

A. Helikopter
Robinson
LVD Nr 2629

Sektion 2. Utlandstillverkad flygmateriel

TITEL: **Inspektion och modifiering av huvudrotorväxel.**

GÄLLER: Modell R 22 med huvudrotorväxel med P/N A006-1 Rev A tom Z, tillverkade eller översedda efter 15 juni 1992.

ÅTGÄRD: Demontering, inspektion och modifiering av huvudrotorväxel.

TID FÖR ÅTGÄRD: Inom 25 flygtimmar räknat från detta LVD´s utgivningsdatum.

UNDERLAG: FAA AD 95-06-03. (Kopia bifogad)

REFERENS: FAA AD 95-06-03.

UTGIVNINGS-DATUM: 1995-07-06

LFS: 1995:39

Åtgärd enligt LVD utgör nödvändig förutsättning för ifrågavarende flygmateriels luftvärdighet. Referens BCL M 1.11. Anteckning om åtgärd, som vidtagits i enlighet med LVD, skall införas i teknisk journal för berörd flygmateriel med hänvisning till ifrågavarande LVD-nummer. Angivet underlag refererar till senaste gällande revision/utgåva. LVD utges i luftfartsverkets författningssamlingar LFS.

L 1563-1

Postadress	Gatuadress	Telefon nr	Telegram	Telex
		Nat 011 - 19 20 00	Civilair	
601 79 NORRKÖPING	Vikboplan 11	Int +46 11 - 19 20 00	Norrköping	64250

AIRWORTHINESS DIRECTIVE

REGULATORY SUPPORT DIVISION
P.O. BOX 26460
OKLAHOMA CITY, OKLAHOMA 73125-0460

U.S. Department
of Transportation
Federal Aviation
Administration

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Federal Aviation Regulations, Part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference FAR Subpart 39.3)

95-06-03 ROBINSON HELICOPTER COMPANY: Amendment 39-9276. Docket No. 94-SW-27-AD.

Applicability: Model R22 helicopters with main rotor gearbox (gearbox), part number (P/N) A006-1, Revisions A through Z, manufactured or overhauled prior to June 15, 1992, installed, certificated in any category.

NOTE 1: This AD applies to each helicopter identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For helicopters that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must use the authority provided in paragraph (b) to request approval from the FAA. This approval may address either no action, if the current configuration eliminates the unsafe condition, or different actions necessary to address the unsafe condition described in this AD. Such a request should include an assessment of the effect of the changed configuration on the unsafe condition addressed by this AD. In no case does the presence of any modification, alteration, or repair remove any helicopter from the applicability of this AD.

NOTE 2: The revision level (revision letter) of the gearbox can be found on the data plate next to the sight glass.

Compliance: Required as indicated, unless accomplished previously.

To prevent main rotor (M/R) separation and subsequent loss of control of the helicopter, accomplish the following:

(a) Within 25 hours time-in-service after the effective date of this AD, inspect and modify the gearbox in accordance with the following:

(1) Remove the gearbox in accordance with the applicable maintenance manual.

(2) Drain the gearbox by removing the chip detector housing.

(3) Perform the following inspection and torquing of the shaft retaining nuts.

NOTE 3: A special tool, a spanner nut socket, P/N MT124-1, may be obtained from Robinson Helicopter Company. If that tool is not available, individuals may propose using a different nut socket in accordance with paragraph (b) of this AD.

(i) Lay the gearbox on its side using care to prevent damage to the slider tube. Remove the eight NAS1291-4 nuts and two MS20074-04-10 hex head cap screws holding the sump in place.

(ii) Gently remove the sump and discard the O-ring, using care to keep all washer-shims on their respective bolts. With the bolts still attached to the sump, replace the sump nuts on the bolts to retain the washer-shims (the washer-shim stack is the same at each location). Hand-tighten the nuts.

(iii) Bend back the two lock washer tabs locking the lower nut, P/N A153-1. Insert an unserviceable M/R hub bolt or a 5/8-inch diameter bolt through the teeter hinge bolt hole in the M/R shaft to counteract torque. Clamp the unserviceable M/R hub bolt or the 5/8-inch diameter bolt in a vise or otherwise fasten it to a workbench. Do not clamp the M/R shaft. Remove the lower nut from the M/R shaft using a socket, P/N MT124-1, or an FAA-approved equivalent tool. Remove and discard the lower lock washer, P/N A269-1.

(iv) Bend back the two lock washer tabs locking the upper nut, P/N A153-1. Remove the upper nut, measuring the torque required to break the nut loose. Remove and discard the upper lock washer, P/N A269-1.

(v) If the upper nut required more than 10 ft.-lb. torque to break loose, proceed to paragraph (a)(3)(vi). If the upper nut required 10 ft.-lb. torque or less to break loose, report within 5 days the M/R gearbox P/N and break-loose torque value to the Propulsion Manager, Los Angeles Aircraft Certification Office, 3960 Paramount Blvd., Lakewood, California 90712. Reporting requirements have been approved by the Office of Management and Budget and assigned OMB control number 2120-0056. Remove the gear carrier from the M/R shaft. Inspect the splines and clamping surfaces on both the shaft and gear carrier for pitting, galling, or scoring of surfaces. Replace any unairworthy parts. If the inspection revealed no pitting, galling, or scoring of surfaces, remove any paint from the clamping surface on the shaft using either paint remover or a plastic or wooden scraper, and ensure the surface is smooth and clean. Reassemble the gear carrier to the shaft.

(vi) Inspect the two dowels or roll pins in the gear carrier for damaged surfaces. Dowels or roll pins must protrude 0.045 to 0.055 inches for proper engagement with the lock washer, P/N A269-2. Also clean the nuts, M/R shaft threads, and sump, using methyl-ethyl-ketone (MEK) or Trichlorethane (1,1,1, TCE) before reassembly.

(vii) Install a lock washer, P/N A269-2. Apply anti-seize (Loctite Anti-seize 767), P/N A257-9, to the M/R shaft threads and to the chamfered-side face and threads of one nut and install the nut with the chamfered side against the lock washer. Verify that the dowels or roll pins are aligned with the holes in the lock washer. Torque the nut to between 170 and 200 ft.-lb., as required to align two lock washer tabs (tabs) with the nut. Do not untorque the nut to align the lock washer tabs with the nut. For the two tabs that are aligned with the recessed areas, bend down the tabs into the recessed areas of the nut and inspect the edges of the bent tabs for cracks.

(viii) Before installing the lock washer, P/N A269-1, note that the edges are sharp on one side and rounded on the other. De-burr the sharp edges on two opposite tabs (see figure 1). This will reduce the chance of cracking when these tabs are bent up. Install the lock washer with the rounded edges toward the installed nut.

(ix) Apply anti-seize, P/N A257-9, to the chamfered-side face and threads of the lower nut. Align the two de-burred tabs with the upper nut and install the lower nut with the chamfered side against the lock washer. Hand-tighten the nut to hold the washer in place. Bend the two de-burred tabs up to lock with the upper nut. Torque the lower nut to between 90 and 120 ft.-lb., as required to align the two additional tabs. Do not untorque the nut to align the lock washer tabs with the nut. For the two tabs that are aligned with the recessed areas, bend down the tabs into the recessed areas of the nut to lock the lower nut.

(x) Verify that all six bent tabs properly engage the nuts (four tabs to the upper nut and two to the lower nut), and inspect the edges of the bent tabs for cracks. Replace any cracked lock washers. Remove excess anti-seize compound.

(xi) Lubricate the O-ring, P/N A215-271, with oil, P/N A257-2, and install the O-ring on the sump. Clean and inspect the sealing surface of the gearbox housing for smoothness. Lightly lubricate the sealing surface with oil, P/N A257-2.

(xii) Reinstall the sump onto the gearbox housing using the same washer-shim stacks that were removed in accordance with paragraph (a)(3)(ii) of this AD. Torque the sump bolts and chip detector as follows:

(A) For the eight NAS1291-4 nuts on the AN4 bolts for the sump: 90 in.-lb. of torque (includes nut self-locking torque);

(B) For the two cap screws, P/N MS20074: 60 in.-lb. of torque and install safety wire;

(C) For the chip detector, P/N A7260, (large nut): 150 in.-lb. of torque and install safety wire;

(D) For the chip detector, P/N A7260, (small nut): 75 in.-lb. of torque and install safety wire.

NOTE 4: Be sure to install ground wires under the nut located aft of the forward right-hand mount.

(4) Reinstall the gearbox in accordance with the applicable maintenance manual.

(5) Fill the gearbox with oil, P/N A257-2, to the middle of the sight glass.

(6) Verify the M/R balance in accordance with the applicable maintenance manual.

(b) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used when approved by the Manager, Los Angeles Aircraft Certification Office, FAA. Operators shall submit their requests through an FAA Principal Maintenance Inspector, who may concur or comment and then send it to the Manager, Los Angeles Aircraft Certification Office.

NOTE 5: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Los Angeles Aircraft Certification Office.

(c) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the helicopter to a location where the requirements of this AD can be accomplished.

(d) This amendment becomes effective on June 29, 1995, to all persons except those persons to whom it was made immediately effective by Priority Letter AD 95-06-03, issued March 8, 1995, which contained the requirements of this amendment.

FOR FURTHER INFORMATION CONTACT: Ms. Elizabeth Bumann, Aerospace Engineer, FAA, Los Angeles Aircraft Certification Office, 3960 Paramount Blvd., Lakewood, California 90712, telephone (310) 627-5265, fax (310) 627-5210.

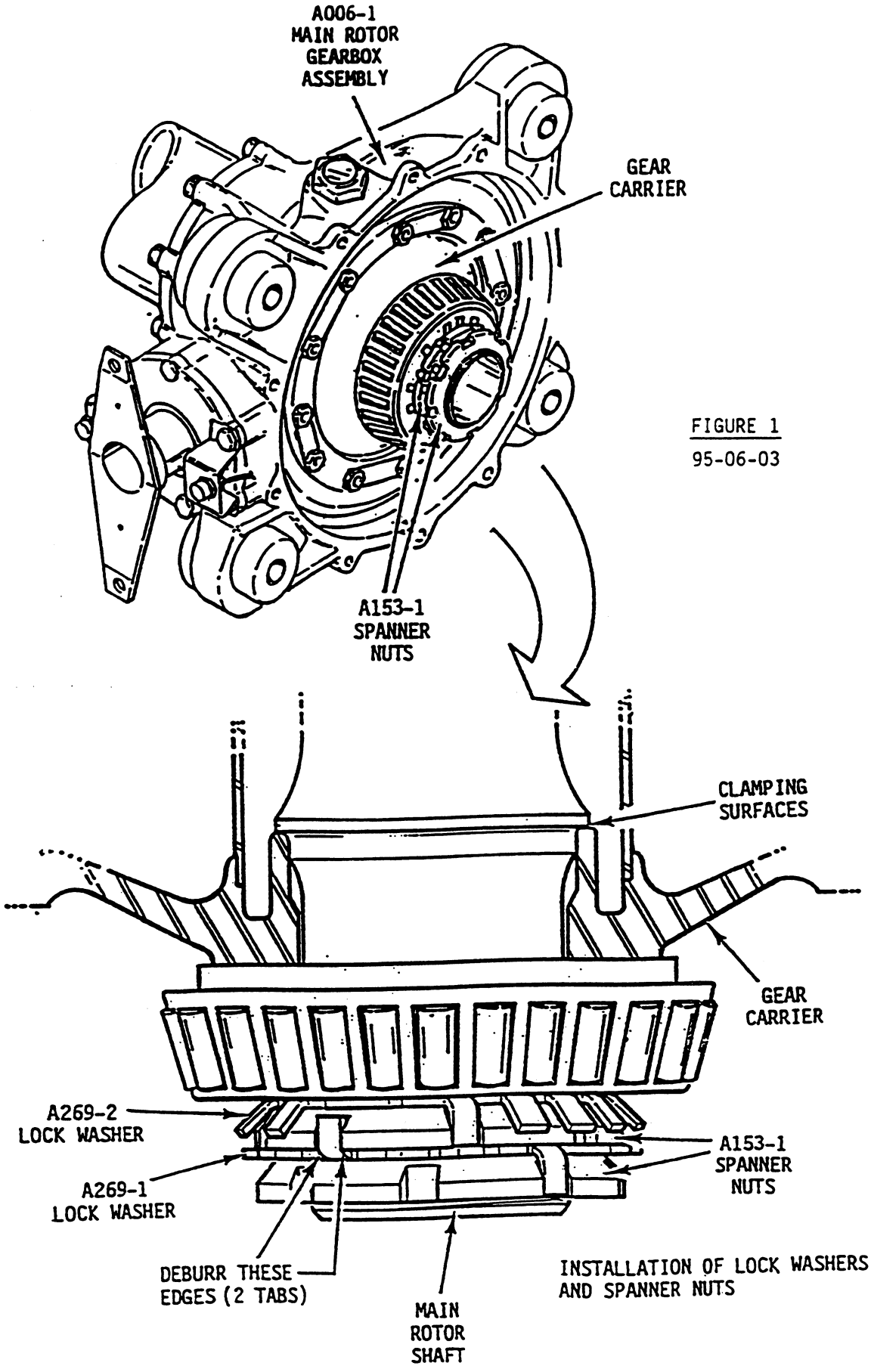

FIGURE 1

95-06-03