Robinson Helicopter Company
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MANDATORY SERVICE BULLETIN SB-9

DATE: March 4, 1981

TO: All Owners and Operators of Robinson R22 Helicopters

SUBJECT: Additional Inspection of Main Gear Box Yokes

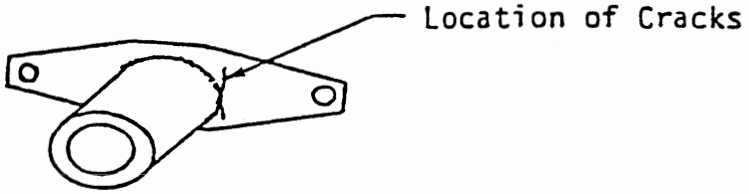
ROTORCRAFT AFFECTED: R22s Serial No. 0002 thru 0036
Serial No. 0038 thru 0061
Serial No. 0064 thru 0089
Serial No. 0093 and 0095

TIME FOR COMPLIANCE: Prior to next flight and every ten (10) hours thereafter.

BACKGROUND: A total of three A194 yokes have been found with cracked flanges. The affected aircraft had been in service 126, 127 and 155 hours. All three were from different production lots. Failure of this yoke in flight could be catastrophic.

MANDATORY INSPECTION: Prior to the next flight and every ten (10) flight hours thereafter, dye check the A194 yoke of the main gear box flex coupling. This inspection is required until the A194 yokes are replaced with parts from production Lot 18, or subsequent. It is recommended that the A192 yoke also be inspected when inspecting the A194 yoke. The primary area to be checked is shown in the sketch below.

INSPECTION PROCEDURE: The first inspection shall be accomplished according to the procedure given on pages 2 and 3 of this bulletin. After the first inspection, the yokes shall be dye checked without removal from aircraft. The area to be dye checked every ten (10) hours is shown below.



CORRECTIVE ACTION: If any indication of a crack is found, contact the factory immediately and return the defective part for examination. Defective A194 yokes must be replaced by parts from production Lot 18, or subsequent.

CAUTION: In two cases, an erratic drop in rotor RPM was observed just before the yoke failed. If the rotor tachometer shows an unusual drop in RPM, land immediately. Dye check the A194 yoke before flight is resumed.

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A192 AND A194 YOKE INSPECTION

Materials Required:

1. Portable dye penetrant inspection kit similar or equivalent to Uresco Model TT-101 spray can system. Penetrant method must be of the Post-Emulsified type per MIL-I-6866B (ASG), Type II visible dye, Method B.
2. Epoxy paint remover similar or equivalent to Tal Strip #2813.
3. Ten-power magnifying glass.
4. Zinc chromate primer.

Inspection Procedure:

1. Disconnect the A193-2 flex plate from the A197-1 tail rotor drive shaft by removing the two pal nuts and NAS679A4 nuts.
   Note: Using a magic marker, place an "X" on one ear of the flex plate and the adjacent ear of the tail rotor drive shaft. Be extremely careful on re-installation to install the bolts and washers exactly as removed, to prevent any shim change of the tail rotor drive line.
2. Disconnect the A193-1 flex plate from the A192 and A194 yokes. Remove the four pal nuts, NAS679A5 nuts, A559 washers and NAS1305-4 bolts. Rest the clutch shaft on the horizontal fire-wall.
3. Remove the cotter pin, castellated nut, and washer that attach the A194 yoke to the main rotor gearbox pinion shaft and remove the yoke.
4. Using the epoxy paint stripper, per the manufacturer's instruction, to remove the paint from the A194 and A192 coupling around the welded areas on both sides of the couplings. The paint should be stripped back at least one-half inch from the weld on the flange side of the joint.

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5. Using the dye penetrant kit, per the manufacturer's instructions, inspect the A194 and A192 yokes. Pay close attention to the flange area adjacent to the welds.

6. Clean and visually inspect the yokes in the areas described in Step 5 with a ten-power magnifying glass.

7. If no cracks are found, reinstall the yokes, using the reverse procedure in Steps 1 through 3. Re-torque stripe fasteners.

NOTE 1: Prime with zinc chromate prior to reinstallation (areas inspected in Step 6). If any cracks are found, the helicopter must not be flown until the defective yoke is replaced. Notify factory immediately.

NOTE 2: Magnaflux inspection may be substituted for dye penetrant.

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