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SERVICE BULLETIN #60A

DATE: 30 November 1988 REVISED: 13 Jan. 1989

TO: All R22 Owners, Operators and Service Centers

SUBJECT: Main Rotor Spindle Rework & Journal Replacement

ROTORCRAFT AFFECTED: All R22 helicopters S/N 0002 through 0912, with A158-1 Rev Q or prior Spindles installed.

TIME OF COMPLIANCE: By 31 March 1989. Until SB-60A is accomplished, inspect per SB-59 and replace NAS630-80 bolts after every 5th inspection.

NOTE: Compliance with this Service Bulletin will eliminate the repetitive 50-hour inspections required by SB-59.

BACKGROUND: As described in SB-59, a crack was found in an R22 Main Rotor Spindle. Examination of the crack indicated that it originated in a fretted contact area between the A158 Spindle and the edge of the A106 Stainless Steel Journal. Such fretting can significantly reduce the fatigue strength of the affected metal surface.

To eliminate this problem, all existing A106 Journals must be replaced with redesigned A106 Journals having a rounded or shallow chamfered edge and a hard chrome surface which is less prone to cause fretting. In addition, the mating surfaces on the A158 Spindles will be shot peened and polished to increase their fatigue strength and resistance to fretting.

COMPLIANCE PROCEDURE: Work to be performed by a qualified, licensed mechanic who has completed the factory maintenance course. Shot peening must be performed by a repair station which is approved by the FAA (or its foreign counterpart).

1. Remove both main rotor blades per Section 9.111 of the R22 Maintenance Manual. Clean, visually inspect with a 10X magnifying glass, and Dye Penetrant Inspect both bolt hole surfaces (see sketch). If any crack indication is found, immediately remove from service and notify the RHC factory. Visually inspect surfaces for nicks, scratches, pits, or excessive fretting. If surface defects greater than .0005 inch deep are found, Spindle must be returned to RHC for repair or replacement.

2. Polish bolt hole surfaces with 220, 320 and 400 grit abrasive paper to remove surface defects and all indications of fretting. Inspect with a 10X magnifying glass to insure that absolutely no fretting indications remain. The abrasive paper must be mounted on a flat block so the polished surface will remain perfectly flat.

(Over)

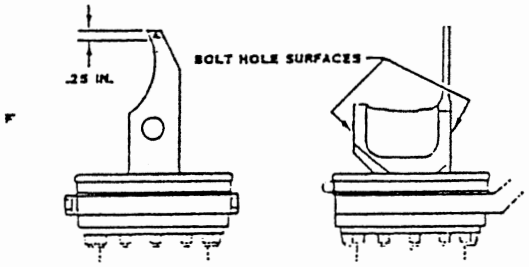
3. Without removing spindle from blade, shot peen both surfaces per AMS2430 to 98% minimum coverage, intensity .010A to .013A, with .019/.033 diameter steel shot. Mask with duct tape all areas and blade parts not to be peened. Overspray in the .625 dia bolt hole can be prevented by installing a .625 inch dia dowel or discarded bolt shank.

4. Polish peened surfaces using 220, 320 and 400 grit paper mounted on a flat block to keep surfaces perfectly flat. Do <u>not</u> remove all indications of shot peening, polish only until 95 to 98% of the surface appears polished and flat with only a few tiny pock marks from the shot peening still barely visible. Vibro-etch the letter "P" on the spindle as shown below. Caution: Remove all shot peen balls between the spindle and the boot.

5. Replace all six A106 Journals with new A106 Rev O or subsequent Journals obtained from the RHC factory after the date of this service bulletin. The new Rev O journals have yellow primed bores.

6. Rock the Spindle back and forth in the rotor blade to check for rough pitch change bearings per Section 2.540. Return to RHC for replacement if required.

7. Reinstall main rotor blades per Section 9.112 of the R22 Maintenance Manual, except the bolt stretch shall be increased to .016/.017 inches. Be sure the journal and spindle surfaces are clean and dry before assembling. Also, exercise <u>extreme caution</u> to insure that the bolts are stretched to exactly .016/.017 inches using tool MT 122 per Section 9.112. Track and balance the rotor as required per Section 10.200.



COST: All A106 Journals supplied by RHC as spares or delivered on new aircraft between 7 November 1987 and 29 November 1988 will be replaced under warranty without charge. Journals supplied by RHC as spares or delivered on new aircraft prior to 7 November 1987 (S/N 0716 and prior) will receive a 50% credit applied toward the cost of replacement Journals. Old Journals must be returned to RHC by 1 May 1989 to receive the credit. Normal Dealer discounts will apply.

Spindles may be shot peened locally, or the blades may be returned to RHC for peening. Spindles will be peened at RHC without charge for those still under warranty, and $60 per spindle for those not under warranty.

NOTE: All Journals supplied by RHC prior to 30 November 1988 must <u>not</u> be installed in any R22 helicopter and <u>must be returned to RHC.</u>