

**SERVICE BULLETIN #59**

**DATE:** 7 November 1988

**TO:** All R22 Owners, Operators and Service Centers

**SUBJECT:** Main Rotor Spindle Crack Inspection

**ROTORCRAFT AFFECTED:** All R22 helicopters with over 500 hours time-in-service.

**TIME OF COMPLIANCE:** Immediately and each 50 hours time-in-service thereafter (5 hours maximum ferry time permitted to reach nearest R22 Service Center).

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**BACKGROUND:**

A crack has been found in an R22 Main Rotor Spindle (A158-1) with 1,083 hours time-in-service. The crack was found by a mechanic after he encountered difficulty balancing the main rotor. The rotor would go in and out of balance for no apparent reason and did not respond to the balancing procedures given in the R22 Maintenance Manual. Finally, the mechanic removed the rotor blades and found a crack running from the Spindle bolt hole to the Spindle upper surface. The origin of the crack was in a badly fretted area at the outer edge of the journal contact area. Had the mechanic failed to find this crack, it would undoubtedly have resulted in a catastrophic failure of the Main Rotor. The pitch change bearings were also found to be very rough.

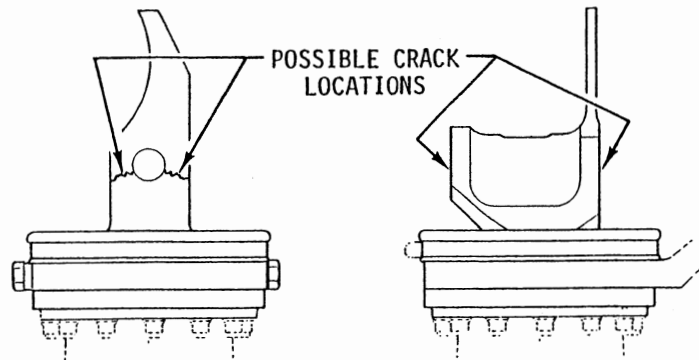
**COMPLIANCE PROCEDURE:**

Work to be performed by a qualified, licensed mechanic who has completed the factory maintenance course.

(Over)

COMPLIANCE PROCEDURE (Continued)

Remove both main rotor blades per Section 9.111 of the R22 Maintenance Manual. Clean and Dye Penetrant Inspect both bolt hole surfaces on the A158-1 Spindles as shown below. If a crack indication is found, immediately ground the aircraft and notify the RHC factory. Visually inspect surfaces for nicks, scratches, pits, or excessive fretting. If surface defects greater than .0005 deep are found, spindle must be returned to RHC for repair or replacement. Lightly polish surfaces with 400 or finer abrasive paper to remove superficial fretting and stains. Check journals for cracks and replace if any are found. Also, rock the spindle back and forth to check for rough pitch change bearings per Section 2.540.



Reinstall main rotor blades per Section 9.112 of the R22 Maintenance Manual. Be sure the journal and spindle surfaces are clean and dry before assembling. Also, exercise extreme caution to insure that the bolts are stretched to the limits specified in Section 9.112. Track and balance the rotor as required per Section 10.200.

Repeat this inspection after each 50 flight hours, or, **immediately** if there is a noticeable increase in the main rotor vibration level.

(Note: RHC may issue a corrective action to reduce or eliminate these inspection requirements just as soon as testing at the factory is completed.)