

Robinson Helicopter Company

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MANDATORY SERVICE BULLETIN #14

DATE: October 14, 1981

TO: All Owners and Operators of Robinson R22 helicopters

SUBJECT: Failure of the A041-2 damper clip

ROTORCRAFT AFFECTED: R22 helicopters, Serial Numbers 0002
thru 0220

TIME FOR COMPLIANCE: Within the next 25 hours time in service

BACKGROUND: There have been two reported incidents of Tail Rotor drive shaft damper clips (part number A041-2) fracturing in flight after suspected overspeeds. The fractured damper clips allowed the drive shaft to whip inside the tailcone. Safe landings were made. However, a fracture of the damper clip could cause failure of the Tail Rotor drive shaft and loss of directional control.

CORRECTIVE ACTION:

- a) Within the next 25 hours or sooner, replace the aluminum A041-2 damper clip with the enclosed steel A041-2, Rev H, damper clip.
- b) Following any suspected rotor overspeed or hard landing, immediately inspect the Tail Rotor drive shaft for excessive run-out per Robinson Service Letter #14. Also inspect the Tail Rotor drive shaft damper clip and bracket for possible bending.

REPLACEMENT PROCEDURE:

1. Disconnect the forward Tail Rotor flexplate from the tail rotor drive shaft and mark the parts for reassembly in their original locations.

Place a 4" wooden block under the forward end of the Tail Rotor drive shaft inside the tailcone.

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NOTE:

The wooden block will support the drive shaft when the damper is disconnected, preventing damage to the aft flexplate.

2. Disconnect the wiring to the tailcone by cutting the tie wraps at the steel tube structure and unplugging the connectors on each side of the tailcone. If there is an antenna on the tailcone it's wiring will also have to be disconnected. Remove the two bolts connecting the rod end bearings to the bellcranks at both ends of the long push pull tube.

DO NOT CHANGE THE LENGTH OF THE PUSH PULL TUBE.

3. Disconnect the five tailcone attach bolts and remove the tailcone from the helicopter. Place it on a padded table or saw horses.
4. Using a 3 ft. long extension and 3/8 socket, remove the two NAS1303-1 bolts attaching the Tail Rotor drive shaft damper to the tailcone attachment bracket.
5. Through the inspection holes on the side of the tailcone, determine the longitudinal alignment of the damper clip with the tailcone attachment bracket. If the clearance or the interference between the clip and the bracket is greater than .12 inches, contact the Customer Service Department at the factory.
6. Remove the safety wire and 4 bolts attaching the Tail Rotor gearbox to the tailcone casting.
7. Slide the Tail Rotor gearbox and drive shaft aft and disconnect the aft Tail Rotor flexplate from the Tail Rotor gearbox shaft. Mark the parts for later replacement in their original location.
8. Remove the Tail Rotor drive shaft from the tailcone.
9. Carefully disassemble and reassemble the damper per the following steps for the A041-2 clip replacement (see fig. 1).
 - a) Remove items 9 thru 15 in figure 1.
 - b) Remove the A041-2 aluminum clip and replace with the A041-2 steel clip enclosed with this bulletin.
 - c) Reinstall items 9 thru 15.

NOTE:

Be sure the small dowel pin is lined up with the holes in items 8, 9, and 10 before tightening nut.

- d) Torque the NAS679-A3 nut to 35 to 40 in-lbs. Hold the A041-3 arm (item 4) and attach a spring scale or dead weight to one bolt hole in the A041-2 clip (item 8). It should take 1 to 2 lbs. to move the clip.

If drag is less than 1 lb., check the A041-6 spring washer (item 9) and bend washer until it has a total height of .070 \pm .010 inch. If the spring washer is OK, but the drag is still too low, sand metal from the end of the A105-9 journal (item 7). If drag is greater than 2 lbs., flatten washer slightly.

C A U T I O N

DO NOT ADJUST THE DAMPER DRAG BY CHANGING THE BOLT TORQUE

- e) Retorque the NAS679A3 nut to 35 to 40 in-lbs., recheck the damper drag. Install the MS27151-7 palnut and torque stripe.
14. Reassemble using the reverse of Steps 1 through 8 of this procedure and the Robinson R22 Maintenance Manual, Section 8. Torque values are given in Section 12.
15. Each operator will be invoiced for a new A041-2 clip. After replacing the aluminum clip with the new steel part, return the old part to RHC for full credit. Return of the old parts is necessary to comply with FAA requirements to account for all aluminum parts.

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Encls: 1 ea. A041-2, Rev H Clip
5 ea. TY523M Ty-Rap
1 ea. NAS679A3 Nut
1 ea. MS27151-7 Palnut
9 ea. NAS679A4 Nut (5 for tailcone attach and 4 for flex couplings)
9 ea. MS27151-13 Palnut (5 for tailcone attach and 4 for flex couplings)

NOTE: Above parts are to be replaced on installation of A041-2.

A041 Damper Assembly

- 1. NAS1303-8 Bolt
- 2. AN960-10L Washer
- 3. A141-18 Washer
- 4. A041-3 Arm
- 5. A041-5 DU Washer
- 6. A041-4 Spacer & Dowel Pin
- 7. A105-9 Journal
- 8. A041-2 Clip
- 9. A041-6 Spring Washer
- 10. A041-5 DU Washer
- 11. A141-15 Washer
- 12. A141-18 Washer
- 13. AN960-10 Washer
- 14. NAS679A3 Nut
- 15. MS27151-7 Pal Nut

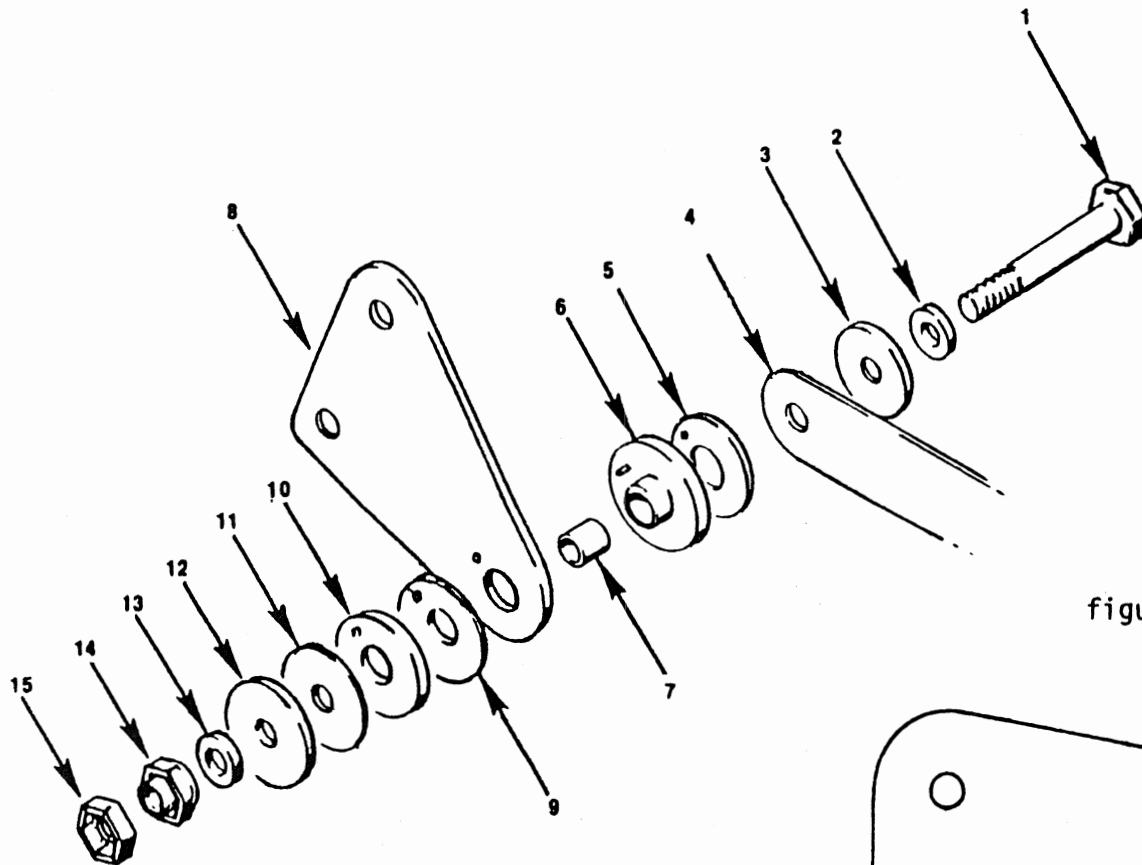


figure 1

