

R44

SERVICE BULLETIN SB-13

Page 1 of 4

**DATE:** 26 December 1995

**TO:** All R44 Owners, Operators, and Service Centers

**SUBJECT:** Collective Spring Assembly and Spring Assembly Support Replacement

**ROTORCRAFT AFFECTED:** PART A: R44 S/N 0001 thru 0063, not including 0038, 0044, 0058, and 0061

PART B: R44 S/N 0038, 0044, 0058, 0061, and 0064 thru 0225, not including 0211 and 0222

**TIME OF COMPLIANCE:** Within 100 flight hours or by 31 March 1996, whichever occurs first.

**BACKGROUND:** RHC has received reports of guide rods in the collective spring assembly becoming bent or broken, resulting in stiffness in the collective control. RHC has redesigned the assembly with stronger guide rods. In addition, the collective spring assembly upper support was redesigned to improve the effectiveness of the spring.

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**COMPLIANCE PROCEDURE:**

**PART A:**

- 1) Order Kit KI-97A from RHC.
- 2) When replacement parts are available, remove vertical center panel between aft seat backs.
- 3) **CAUTION:** Compressed spring is potentially dangerous. Use extreme caution when handling to prevent accidental release.

Place collective in full down position. If MT544-1 tool is available, place tool over collective spring with upper and lower rod ends resting in V-notch of tool. If MT544-1 tool is not available, rotate spring as necessary until spring guide rods extend from lower spring assembly cap a minimum of 0.125 inch. Wrap 0.032 inch diameter minimum safety wire from nut end of guide rod to opposite bare end of guide rod as shown in Figure 1. Wire all three rods as shown.

- 4) Lift collective slightly to put spring tension on safety wire or tool.  
**CAUTION:** Check to ensure that rods do not retract enough to release safety wire. Remove collective spring assembly lower attach bolt, moving collective slightly as necessary to allow bolt removal.
- 5) Disconnect spring assembly upper attach bolt and remove collective spring assembly.
- 6) Remove rod end from both ends of spring assembly, retaining lower rod end's jam nut and palnut. Note: Rod end on top has left hand thread. Discard spring assembly.

(OVER)

**COMPLIANCE PROCEDURE (cont'd):**

- 7) Assemble new spring assembly by first lightly lubricating guide rods with A257-1 grease or equivalent. Install new spring between caps received from RHC per Figure 2. Align holes with rods and place in vise or press as shown in Figure 3. Compress spring until grooved end of guide rods extend beyond cap.
- 8) Install 3 MS16633-2018 retaining rings in grooves on guide rods. Carefully release spring tension until retaining rings contact cap.
- 9) Install rod ends in caps per Figure 2. Thread both rod ends fully in, but do not tighten.
- 10) Remove aft seat backs per R44 Maintenance Manual (MM) Section 15.220. Replace C427 support using existing MS27039C1-06 screws with heads outboard and torque nuts to 37 in.-lb (includes self locking torque). Install seat backs per R44 MM Section 15.220.
- 11) Extend upper and lower rod end an equal number of turns until rod ends align with attachment points on aircraft with collective full down.
- 12) Install spring assembly in aircraft with left-hand threaded rod end at top. Torque upper and lower mount bolts per Section 1.320 of R44 MM. **Caution:** Do not raise collective at this time.
- 13) Place weight over collective grip to ensure collective does not rise. Rotate spring assembly (counter-clockwise when viewed from above) to further compress spring and remove load from retaining rings. Remove 3 retaining rings from guide rods and save for future re-use when removing spring assembly.
- 14) Install vertical center panel between aft seat backs. Test fly aircraft. Adjust collective spring per R44 MM Section 8.223

**PART B:**

- 1) Order Kit KI-97B from RHC.
- 2) When replacement parts are available, remove vertical center panel between aft seat backs.
- 3) **CAUTION:** Compressed spring is potentially dangerous. Use extreme caution when handling to prevent accidental release.

Place collective in full down position. If MT544-3 tool is available, place tool over collective spring with upper and lower rod ends resting in V-notch of tool. If MT544-3 tool is not available, rotate spring as necessary until spring guide rods extend from lower spring assembly cap a minimum of 0.125 inch. Wrap 0.032 inch diameter minimum safety wire from nut end of guide rod to opposite bare end of guide rod as shown in Figure 1. Wire all three rods as shown.

- 4) Lift collective slightly to put spring tension on safety wire or tool.  
**CAUTION:** Check to ensure that rods do not retract enough to release safety wire. Remove collective spring assembly lower attach bolt, moving collective slightly as necessary to allow bolt removal.
- 5) Disconnect spring assembly upper attach bolt and remove collective spring assembly.
- 6) Remove rod end from both ends of spring assembly, retaining lower rod end's jam nut and palnut. Note: Rod end on top has left hand thread.

(OVER)

**COMPLIANCE PROCEDURE (cont'd):**

- 7) Place spring assembly in vise or press as shown in Figure 3. Compress spring with vise and remove MT544-3 tool or safety wire. Slowly release spring tension and remove spring. Discard caps and rods.
- 8) Lightly lubricate guide rods with A257-1 grease or equivalent. Install spring between caps received from RHC per Figure 1. Align holes with rods and place in vise or press as shown in Figure 3. Compress spring until grooved end of guide rods extend beyond cap.
- 9) Install 3 MS16633-2018 retaining rings in grooves on guide rods. Carefully release spring tension until retaining rings contact cap.
- 10) Install rod ends in caps per Figure 2. Thread both rod ends fully in, but do not tighten.
- 11) Extend upper and lower rod end an equal number of turns until rod ends align with attachment points on aircraft with collective full down.
- 12) Install spring assembly in aircraft with left-hand threaded rod end at top. Torque upper and lower mount bolts per Section 1.320 of R44 MM. **Caution:** Do not raise collective at this time.
- 13) Place weight over collective grip to ensure collective does not rise. Rotate spring assembly (counter-clockwise when viewed from above) to further compress spring and remove load from retaining ring. Remove 3 retaining rings from guide rods and save for future re-use when removing spring assembly.
- 14) Install vertical center panel between aft seat backs. Test fly aircraft. Adjust collective spring per R44 MM Section 8.223.

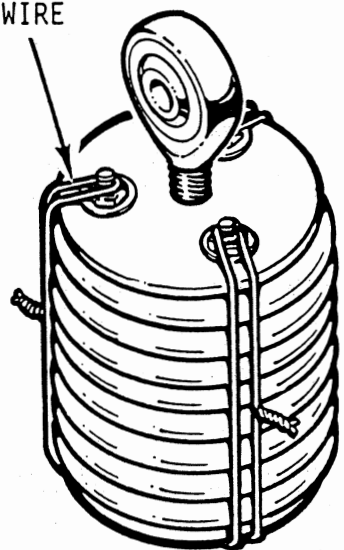
**Approximate Cost:**

Labor: 1.0 manhours

Parts: \$240 (discounted price of \$120 if ordered by 1 Mar 96)  
Warranty applies to S/N 0125 and on.

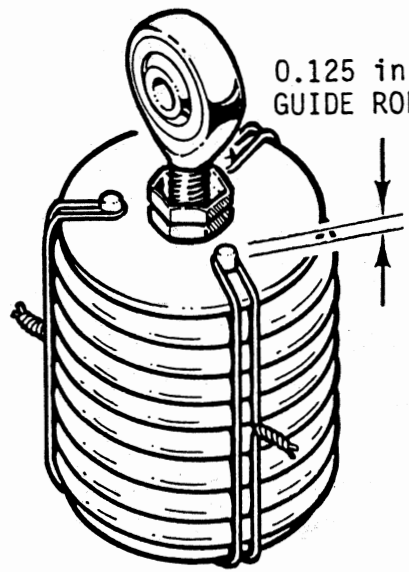
(Order must include helicopter serial number.)

0.032 in. dia (MINIMUM)  
SAFETY WIRE



TOP VIEW

0.125 in. MINIMUM  
GUIDE ROD PROTRUSION

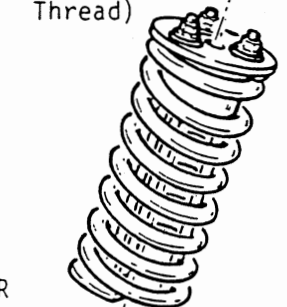


BOTTOM VIEW

FIGURE 1

B292-4  
ROD END  
(Left-Hand  
Thread)

TOP



AN316-4R  
NUT  
B330-13  
PALNUT  
A127-4  
ROD END

MS16633-2018  
RETAINING RING  
(3 Req'd; remove  
after installing  
spring assembly  
and before rais-  
ing collective.)

BOTTOM

FIGURE 2

PLATE

COLLECTIVE SPRING  
ASSEMBLY WITH ROD  
ENDS REMOVED

SOCKET  
OR  
SPACER

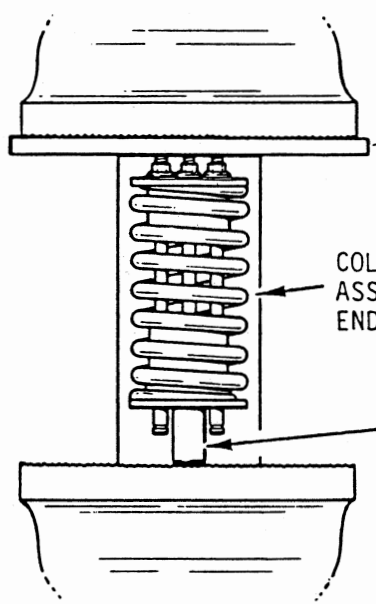


FIGURE 3