

## SERVICE BULLETIN

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**Subject:** Cargo Hook enhanced safety.

**Helicopters Affected:** Robinson R22 and R44 aircraft with 12 volt electrical systems and an Onboard Systems 3.5K Keeperless Hook, part number 528-023-00, installed.

**Compliance:** Optional

### **Description:**

The cargo hook, based on reports from the field, has exhibited inconsistent re-latching of its internal release mechanism. The problems have been traced to an internal spring, which is used to retract the release mechanism and manual release cable after a load is released. Upon further investigation it has been concluded that due to manufacturing inconsistencies some of the springs do not provide an adequate retract force or have a tendency to work their way out of their optimal operating position. In the event of this occurrence, the result may be an incomplete locking of the mechanism. This could lead to an inadvertent load release.

This service bulletin contains instructions for replacing the existing spring with a new spring and spring retainer. The new spring is of a design that provides a higher retract force. The spring retainer ensures that the spring is maintained in its proper position.

The actions required by this service bulletin are described below.

**Approval:** The engineering design aspects of this bulletin are FAA/DER approved.

**Manpower:** Replacement of the spring will require 1.0 man-hours. Man-hours are based on hands-on time and may vary with personnel and facilities available. No machining operations are required. Installation consists of removing and replacing parts and re-identifying the cargo hook as a 528-023-03.



**Required Material:** The following material is required for accomplishment of this bulletin and may be obtained from Onboard Systems:

Qty 1 P/N 514-057-00 Spring

Qty 1 P/N 290-819-00 Spring Retainer

Qty 2 P/N 510-115-00 Cotter Pin

.032" Lockwire

**Special Tools:** Not required

**Weight and Balance:** Not affected

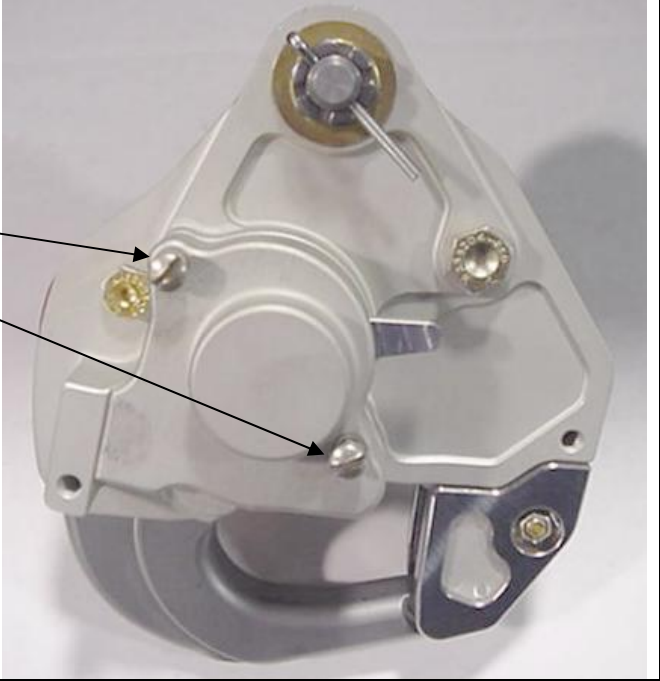
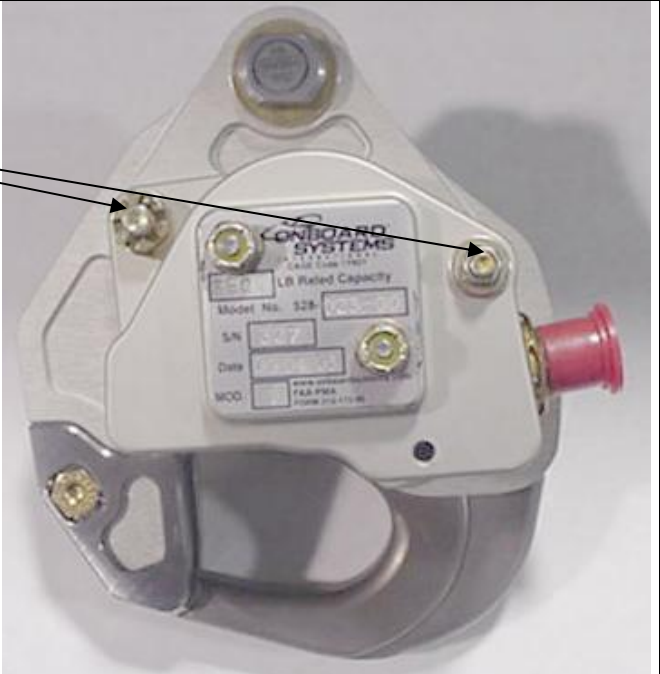
**Electrical Load Data:** Not affected

**Publications Affected:** None

**Accomplishment Instructions:**

To be accomplished within 60 days of the release of this service bulletin.

Remove existing spring and replace with spring and retainer per included instructions beginning at step one.

|  |  |
|--|--|
| <p>Step 1</p> <p>Remove manual release cover by cutting and removing lock wire if present and removing two screws.</p> |   |
| <p>Step 2</p> <p>Remove solenoid assembly by removing cotter pin, nuts, and washers.</p>                               |  |

Step 3

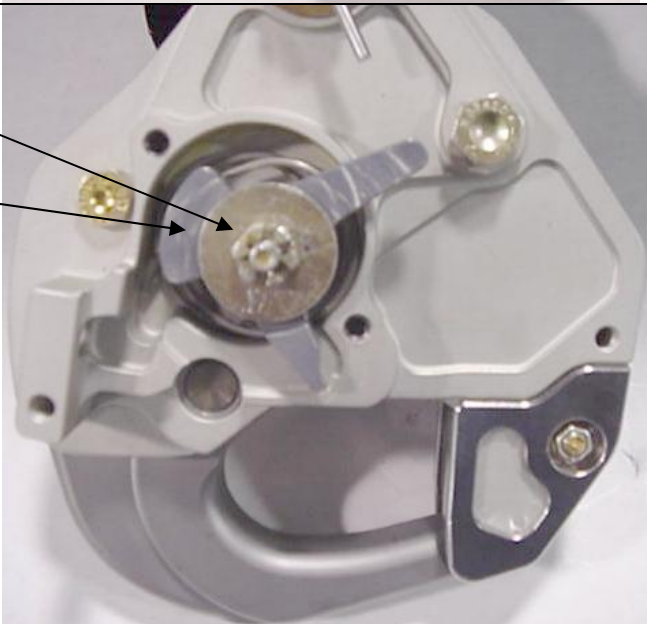
Step 2 is necessary to allow access to head of this bolt.



Step 4

Remove cotter pin, nut, and washer from bolt.

Then remove manual release lever.



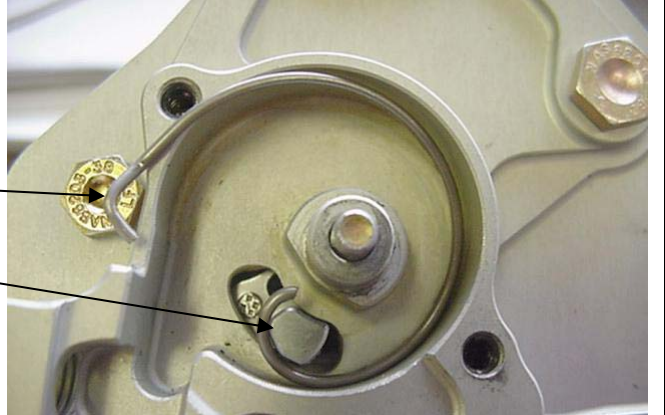
Step 5

Remove and discard old spring.



Step 6  
Place end of new spring around cam as shown.

Spring  
Cam



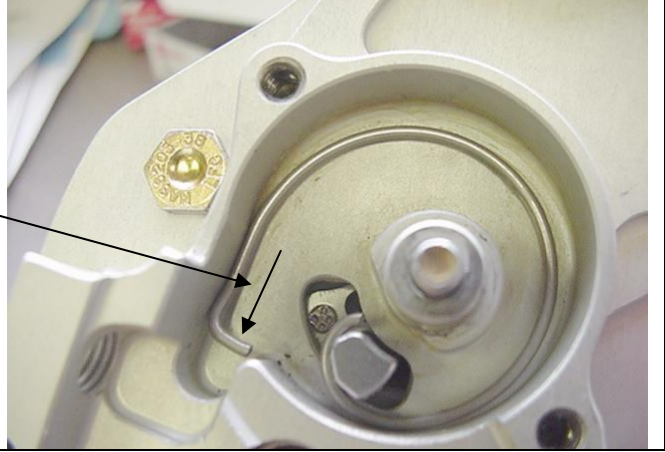
Step 7  
Apply gentle pressure as shown to insert spring into pocket.

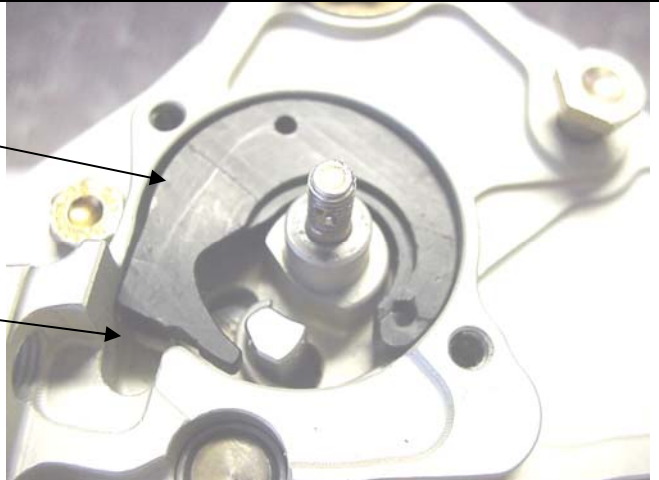
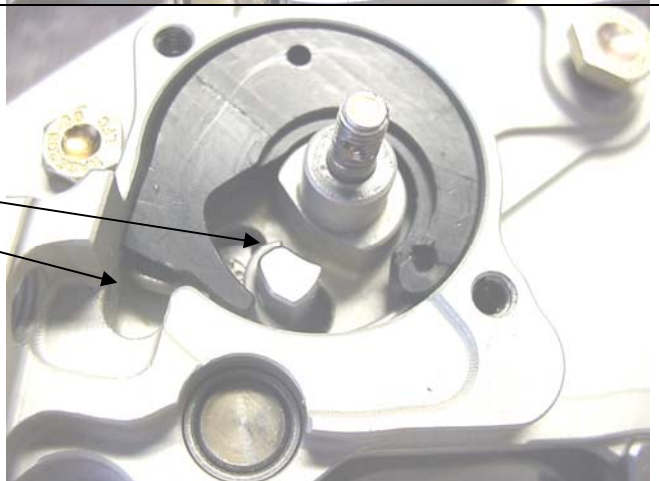
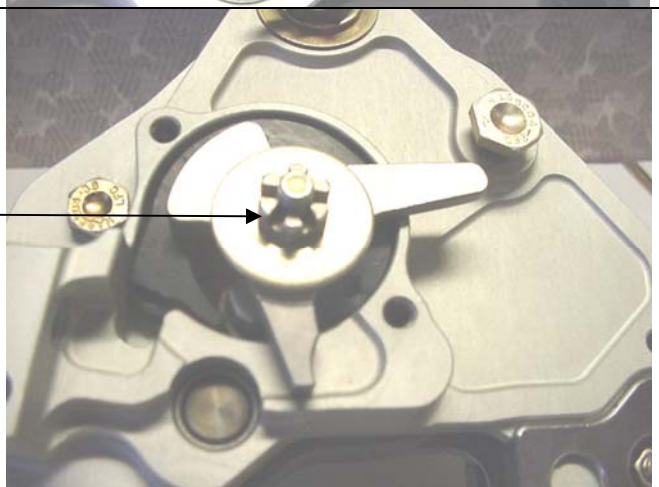


Step 8  
After insertion the spring assembly should retain itself in a position as shown at right.



Step 9  
Pre-load spring assembly by pulling end down within the spring cavity.



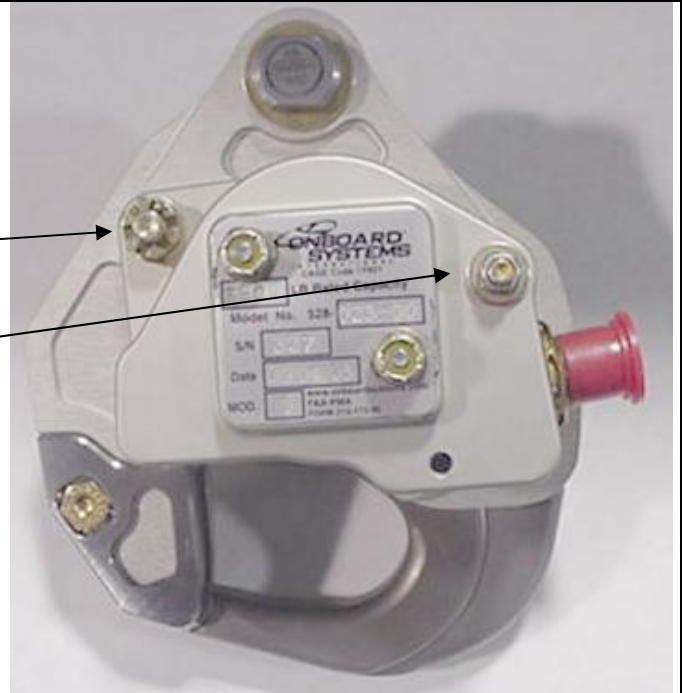
|   |  |
|---|--|
| <p>Step 10</p> <p>Place spring retainer over spring.</p> <p>If spring retainer does not lay flat, verify that the spring leg has been pulled down far enough. End of spring should be visible below retainer.</p> |    |
| <p>Step 11</p> <p>Visually check the position of the spring.</p>  |   |
| <p>Step 12</p> <p>Install manual release lever and secure with washer, nut, and cotter pin. Tighten nut finger tight and then rotate to next castellation to insert cotter pin.</p>                               |  |

Step 13

Fasten solenoid assembly onto side plate with washers, nut, and cotter pin.

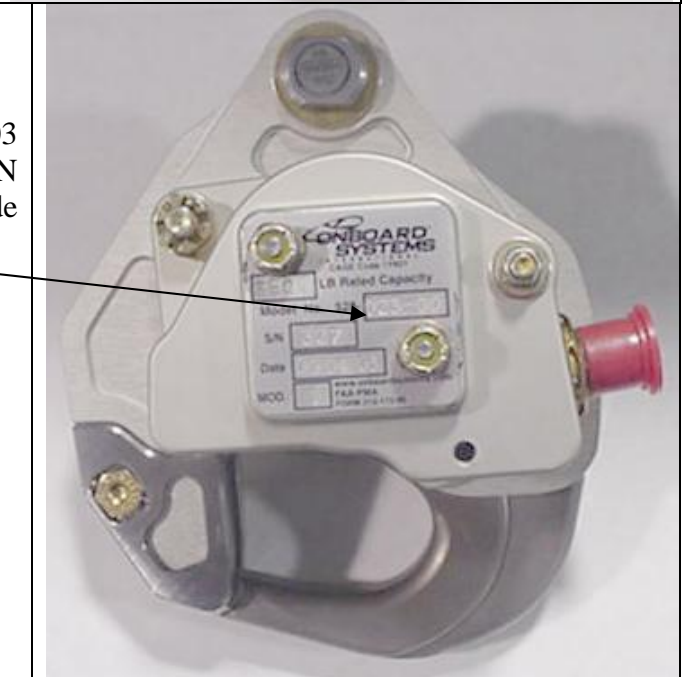
Torque first nut to 15 in-lbs. and rotate to next castellation to insert cotter pin.

Torque second nut to 20-25 in-lbs.



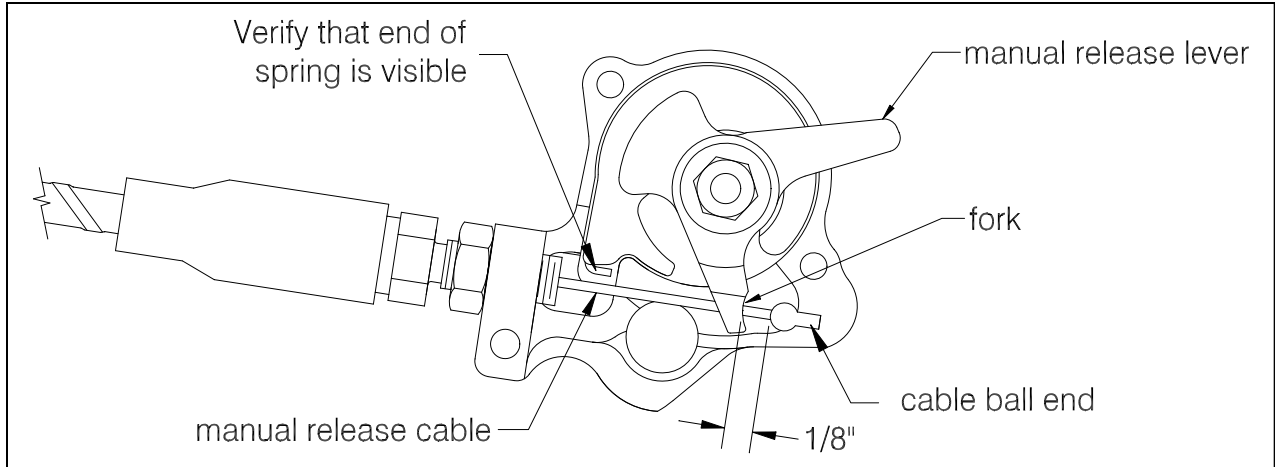
Step 14

Re-identify the cargo hook as P/N 528-023-03 by steel stamping a “3” over the last 0 in the P/N on the identification plate located on the outside of the solenoid assembly.



Reinstall Cargo Hook on aircraft per hook Owner's Manual instruction or ICA.

Place the cable into the fork on the manual release lever as illustrated. Verify correct setting per the following. Move the manual release lever in the clockwise direction until free play is removed. Measure the cable ball end free play with the manual release handle in the cockpit in the non-release position. The gap should measure approximately 1/8".



Record compliance with this service bulletin in the aircraft logbook as appropriate.