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Instructions for Continued Airworthiness Talon LC Keeperless Cargo Hook Kit

For the

Bell 206L Series & 407

System Part Number
200-260-01

STC SR00850SE

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RECORD OF REVISIONS

Revision	*Date*	*Page(s)*	*Reason for Revision*
0	03/02/10	All	Initial Release
1	02/16/16	Section 5 Section 25 page 4	Updated definition of "hours of external load operations", expanded 100 hour/annual inspection, Updated storage instructions to refer to Cargo Hook CMM.

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Tables

Section 0
Introduction

0.4 Scope

The following information is necessary to carry out the service, maintenance, and inspection of the Cargo Hook Kit P/N 200-260-01. Cargo Hook Kit P/N 200-260-01 is a replacement cargo hook kit (see Section 25.2 for detailed kit description) which uses the existing Bell suspension including trolley and the Bell fixed provisions including internal wiring and manual release cable. Refer to appropriate Bell maintenance documentation for those components which interface with the P/N 200-260-01 cargo hook kit.

0.5 Purpose

The purpose of this Instructions for Continued Airworthiness (ICA) manual is to provide the information necessary to service, maintain and inspect the P/N 200-260-01 Cargo Hook Kit in an airworthy condition.

0.6 Arrangement

This manual contains instructions for the service, maintenance, inspection and operation of Cargo Hook Kit P/N 200-260-01 on Bell Model 206L series and 407 helicopters.

The manual is arranged in the general order that maintenance personnel would use to maintain and operate the cargo hook in service. The arrangement is:

Section 0 Introduction.
Section 4 Airworthiness Limitations (None apply to this cargo hook kit).
Section 5 Inspection and overhaul schedule.
Section 25 Equipment and Furnishings.

0.7 Applicability

These instruction for Continued Airworthiness are applicable to Cargo Hook P/N 528-029-00 installed as part of Kit P/N 200-260-01 on the following Bell helicopters:

Model	Serial Numbers
206L	45001-45153
206L-1	45154 and on
206L-3	51001 and on
206L-4	52001 and on
407	All

0.9 Abbreviations

FAA Federal Aviation Administration
ICA Instructions for Continued Airworthiness
CFR Code of Federal Regulations

0.12 Precautions

The following definitions apply to precaution labels used in this manual.

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

Draws the reader's attention to important or unusual information not directly related to safety.

Used to address practices not related to personal injury.

0.19 Distribution of Instructions for Continued Airworthiness

Before performing maintenance ensure that the Instructions for Continued Airworthiness (ICA) in your possession is the most recent revision. Current revision levels of all manuals are posted on Onboard Systems Int'l web site at www.onboardsystems.com. Also a Documentation Update Service is available on the web site. Registering for this service provides an e-mail or fax notification when a manual has been revised. Hard copies of all manuals are available from the factory, contact the factory at 800-275-0883 to request a copy.

Section 4
Airworthiness Limitations

The Airworthiness Limitations section is FAA approved and specifies maintenance required under 14 CFR §§ 43.16 and 91.403, unless an alternative program has been FAA approved.

No airworthiness limitations are associated with this type design change.

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Section 5
Inspection and Overhaul Schedule
5.1 Cargo Hook Kit Inspection

The scheduled inspection interval(s) presented below are maximums and are not to be exceeded. If the cargo hook is subjected to unusual circumstances, extreme environmental conditions, etc., it is the responsibility of the operator to perform the inspections more frequently to ensure proper operation. Refer to cargo hook Component Maintenance Manual (CMM) 122-017-00 for damage and wear tolerances and for additional procedures.

Annually or 100 hours of external load operations*, whichever comes first, inspect the cargo hook kit per the following.

NOTICE

*Hours of external load operations should be interpreted to be **(1)** anything is attached to the primary cargo hook (whether or not a useful load is being transported) and **(2)** the aircraft is flying. If these conditions are **NOT** met, time does **NOT** need to be tracked.*

1. Activate the electrical system and press the Cargo Release button to ensure the cargo hook electrical release system is operating correctly. The cargo hook must release. Reset the cargo hook by hand after release.

CAUTION

Actuating the electrical release switch continuously in excess of 20 seconds will cause the cargo hook release solenoid to overheat, possibly causing permanent damage.

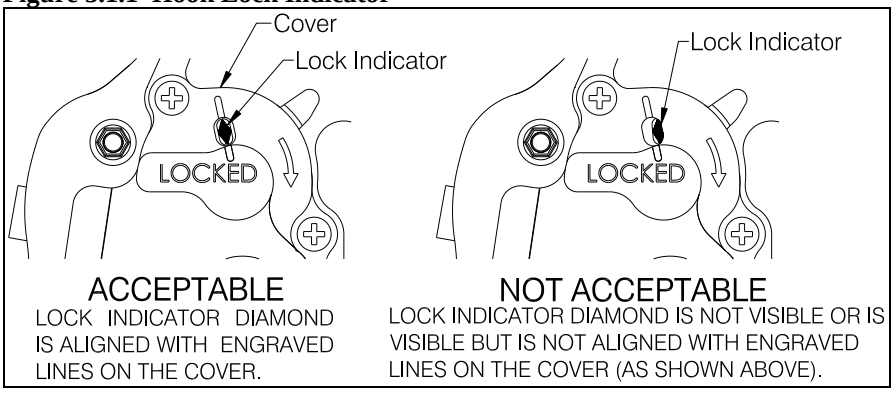
2. Activate the manual release system by pulling the release lever in the cockpit. The cargo hook must release. Reset the cargo hook by hand after release. Verify that the hook lock indicator on the side of the hook returns to the fully locked position. If the hook does not release or re-latch, do not use the unit until the problem is resolved.

⚠ WARNING

In the fully locked position the hook lock indicator must align with the lines on the manual release cover (see Figure 5.1.1).

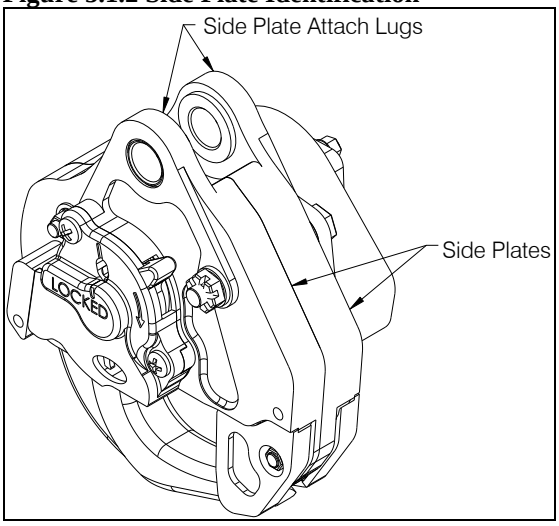
5.1 Cargo Hook Kit Inspection continued

Figure 5.1.1 Hook Lock Indicator



3. Visually inspect for corrosion on the exterior of cargo hook. Corrosion on the cargo hook side plates is cause for immediate overhaul. Additionally, any exfoliation corrosion in the upper attach lug area of the cargo hook is cause for immediate replacement of the side plate.

Figure 5.1.2 Side Plate Identification

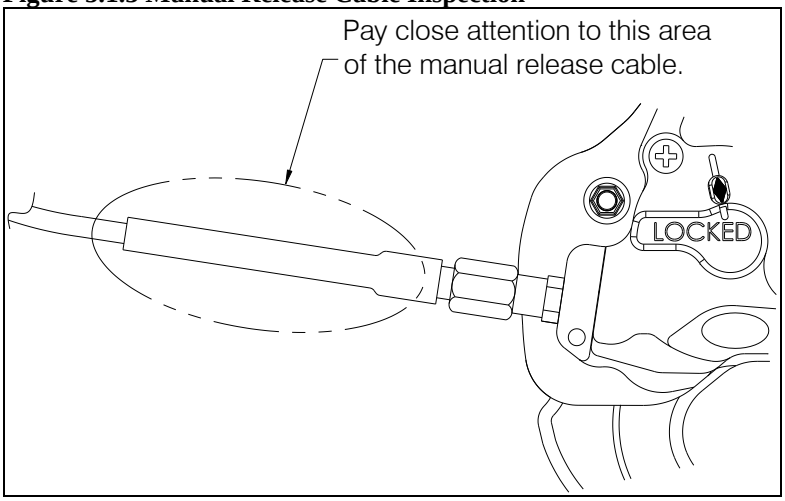


4. Move the cargo hook throughout its full range of motion to ensure the manual release cable and electrical harnesses have enough slack. The manual release cable or electrical harnesses must not be the stops that prevent the cargo hook from swinging freely in all directions.
5. Visually inspect for presence and security of fasteners and electrical connection.
6. Visually inspect the cargo hook side plates and covers for damage including cracks, gouges, and nicks.
7. Visually inspect the cargo hook load beam for damage including cracks, wear, gouges, and nicks.

5.1 Cargo Hook Kit Inspection continued

8. Visually inspect the manual release cable for damage, paying close attention to the flexible conduit at the area of transition to the cargo hook end fitting (refer to Figure 5.1.3). Inspect for splitting of the outer black conduit in this area and separation of the conduit from the steel end fitting.

Figure 5.1.3 Manual Release Cable Inspection

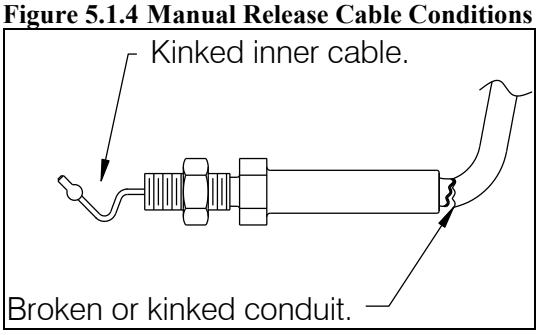


9. Remove the manual release cover from the cargo hook and inspect the visible section of the inner cable for kinks or frays.

CAUTION

Manual release cables are wearable items and must be replaced as condition requires. Broken or kinked conduit, inner cable kinks (ref Figure 5.1.4), frays, or sticky operation are each cause for immediate replacement.

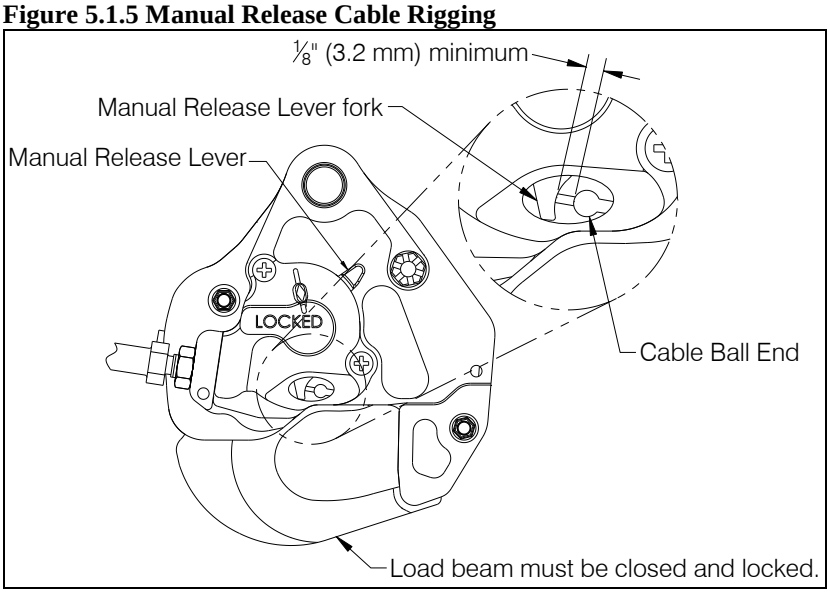
Figure 5.1.4 Manual Release Cable Conditions



5.1 Cargo Hook Kit Inspection continued

10. Check the manual release cable rigging through the window in the manual release cover. With the cargo hook load beam closed and locked, rotate the manual release lever clockwise to remove the free play (the free play is taken up when the hook lock indicator begins to move, this is also readily felt as the lever rotates relatively easily for several degrees as the free play is taken up) and hold it in this position while checking the gap between the release lever fork and the cable ball end as shown below. A minimum gap of 1/8" (3.2 mm) should be present as shown in Figure 5.1.5. If necessary, remove cover to measure.

Figure 5.1.5 Manual Release Cable Rigging



5.2 Cargo Hook Overhaul Schedule

Time Between Overhaul (TBO): 1000 hours of external load operations or 5 years, whichever comes first.

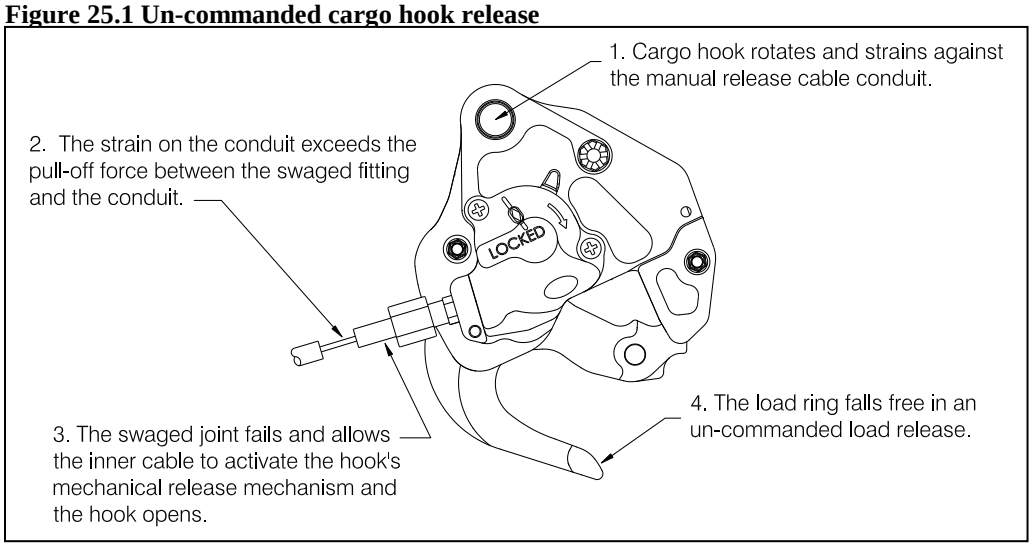
Overhaul the cargo hook per component maintenance manual 122-017-00. Contact Onboard Systems for guidance to locate authorized overhaul facilities.

Section 25
Equipment and Furnishings

WARNING

Un-commanded cargo hook release will happen if the manual release cable is improperly restrained. The cable must not be the stop that prevent the Cargo Hook from swinging freely in all directions. If the Cargo Hook loads cause the hook to strain against the manual release cable the swaged end of the cable may separate allowing the inner cable to activate the cargo hook manual release mechanism. The result is an un-commanded release. Ensure that no combination of cyclic stick or Cargo Hook position is restrained by the manual release cable.

Figure 25.1 Un-commanded cargo hook release



25.1 Cargo Hook Connector

Listed below is the pin out for the cargo hook connector.

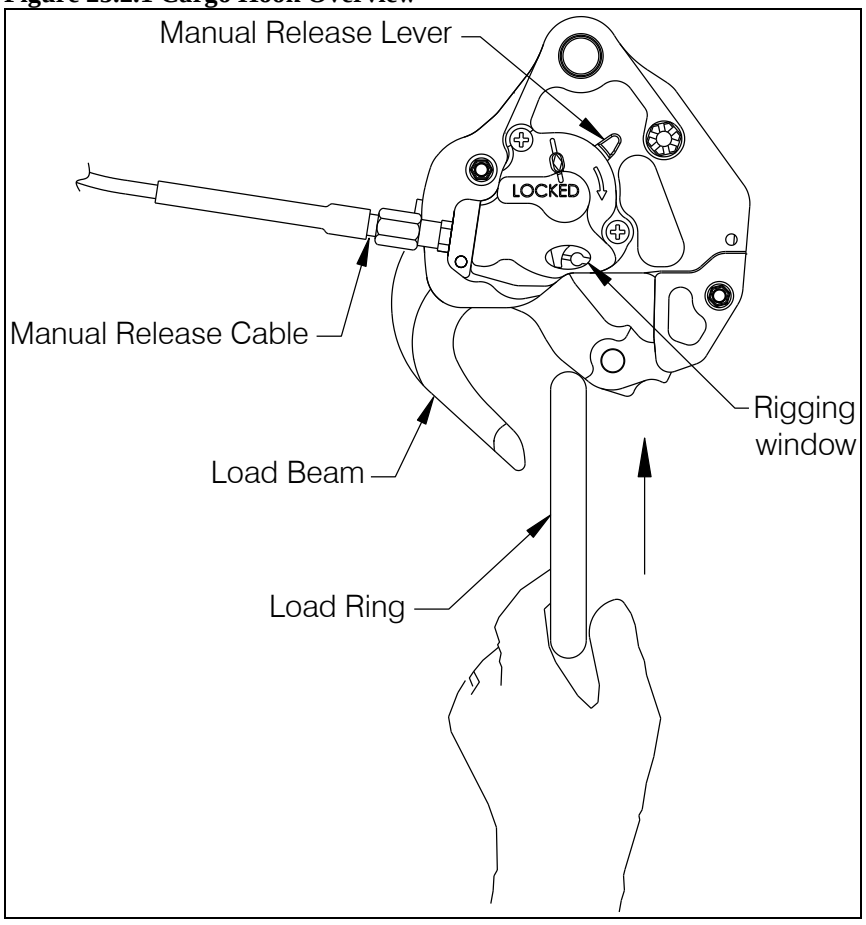
Table 25.1.1 Cargo Hook Connector

Pin	*Function*
A	Ground
B	Positive

25.2 Description

The cargo hook is the means used to attach an external load to the aircraft. A load is attached to the cargo hook by passing a load ring into the throat of the load beam and pushing the ring against the upper portion of the load beam throat (see Figure 25.2.1), which will initiate the hook to close. In the closed position, a latch engages the load beam and latches it in this position. A load release can be initiated by three different methods. Normal release is achieved by pilot actuation of a push-button switch in the cockpit. When the push-button switch is pressed, it energizes the solenoid in the cargo hook, and the solenoid opens the latch in the internal mechanism. In the event of an electrical failure, load release can be achieved by operating the manual release cable. The release cable actuates the internal mechanism of the cargo hook to unlatch the load beam. A rigging window provides a means to verify the manual release cable setting with respect to the internal mechanism. Ground personnel can also release the load by actuating a manual release lever located on the side of the cargo hook (see Figure 25.2.1).

Figure 25.2.1 Cargo Hook Overview



25.2 Description continued

The P/N 200-260-01 cargo hook kit includes the cargo hook and a manual release cable. The manual release cable connects to the helicopter's existing fixed manual release cable. In addition, the kit includes the cargo hook attach hardware to bolt onto the existing Bell Helicopter suspension carriage. The existing Bell electrical release harness connector connects directly to the cargo hook connector.

Figure 25.2.2 Cargo Hook Attached to Suspension System

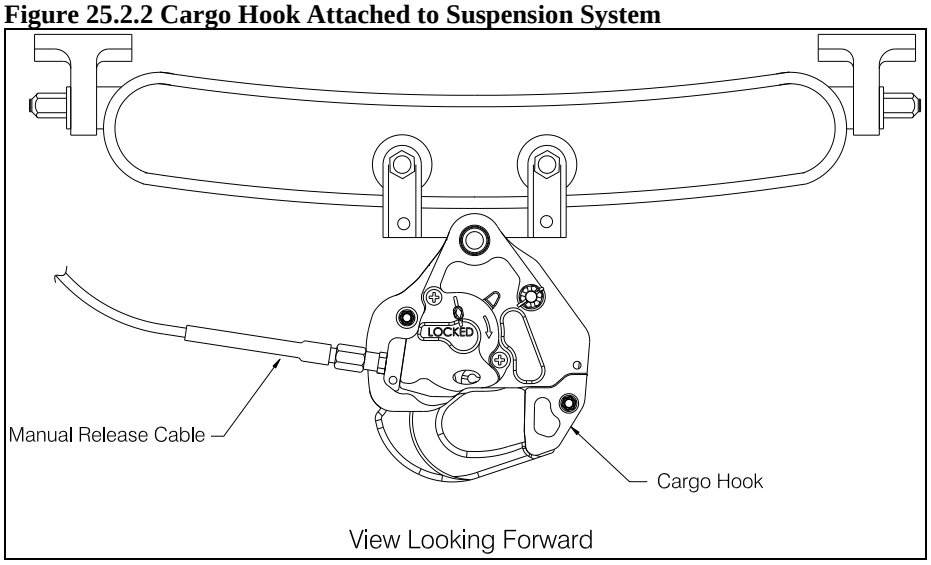


Figure 25.2.3 shows the primary components that make up the cargo hook kit. These items are listed in Table 25.2.1. Miscellaneous items, hardware, etc. are not shown.

Figure 25.2.3 Primary Kit Components

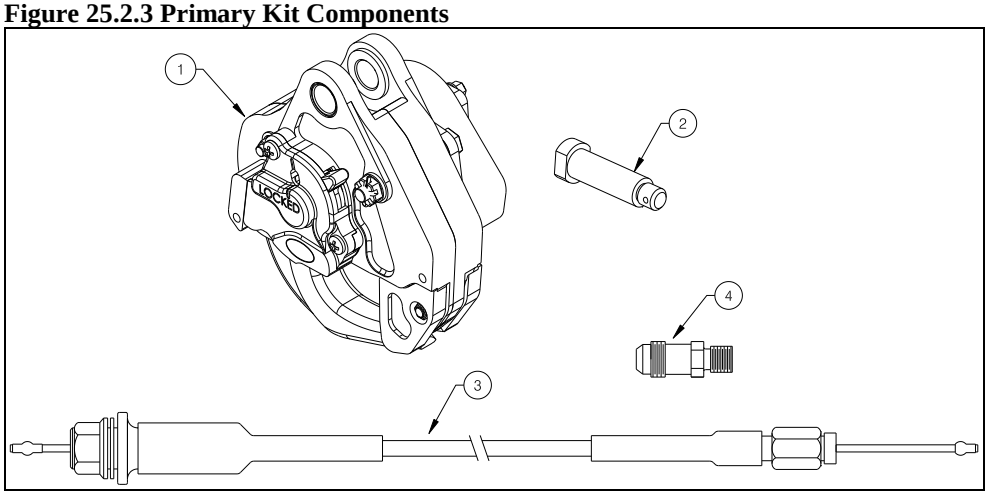


Table 25.2.1 Primary Kit Components

Item	Part No.	Description
1	528-029-00	Cargo Hook
2	290-332-00	Attach Bolt
3	268-004-01	Manual Release Cable
4	290-331-00	Manual Release Cable Adapter

25.5 Component Weights

The weight of the Cargo Hook kit components are listed below.

Table 25.5.1 Component Weights

Item	Weight
Cargo Hook w/ attach hardware	3.2 lbs (1.45 kgs)
Manual Release Cable	0.31 lbs (0.14 kgs)

25.12 Storage Instructions

Refer to the Component Maintenance Manual 122-017-00 for storage instructions for the cargo hook.

25.15 Trouble Shooting

Table 25.15.1 is provided with the intention of isolating the cause of malfunctions within the system. Sections 25.16 and 25.17 include instructions for removing and replacing defective components. Refer to the appropriate Bell Helicopter maintenance documentation for guidance on procedures relating to parts that interface with this cargo hook kit.

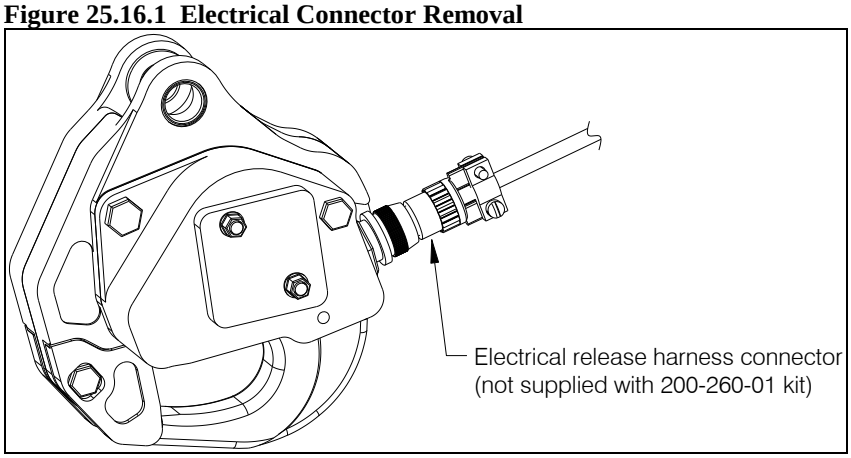
Table 25.15.1 Trouble Shooting

MALFUNCTION	PROBABLE CAUSE	CORRECTIVE ACTION
Cargo hook does not operate electrically, manual cable release operates normally.	Open electrical circuit, faulty wiring, circuit breaker, switch or solenoid.	Disconnect electrical connector at the Cargo Hook. Using multi-meter, check for 3.0 to 4.0 ohms between pins A and B of electrical connector. If open indication is obtained, remove and replace cargo hook or replace solenoid per cargo hook component maintenance manual (document no. 122-017-00).
Cargo hook does not operate electrically or manually.	Defective internal mechanism	Remove and replace cargo hook or repair per the cargo hook component maintenance manual.
Cargo hook operates electrically, but not manually.	Defective manual release cable. Defective manual release mechanism components in cargo hook. Kinks or wear in external manual release cable, frozen water in cable, debris or damage to cable quick disconnect fitting.	Check manual release cable and cable connection to Cargo Hook. Correct any defects. Remove and replace cargo hook or repair per the cargo hook component maintenance manual.
Load beam fails to re-latch after being reset.	Defective latch mechanism.	Remove and replace cargo hook or repair per the cargo hook component maintenance manual.
Manual release cable force (at the hook) required to open the cargo hook exceeds 8 lbs.	Friction in internal mechanism.	Check operation of unit using manual release lever on the cargo hook. Remove and replace cargo hook or repair per the cargo hook component maintenance manual.
Failure to open or re-lock properly	Defective internal mechanism.	Remove and replace cargo hook or repair per the cargo hook component maintenance manual.
Circuit breaker opens when Cargo Hook is energized.	Short in the system, faulty wiring, circuit breaker or solenoid.	Check for shorts to ground. Check solenoid resistance, repair or replace defective parts.

25.16 Cargo Hook Removal

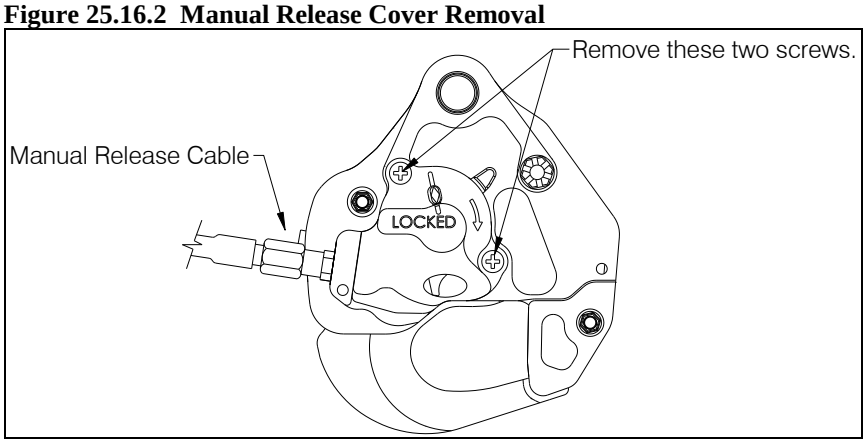
- Disconnect the electrical release harness connector (this kit uses existing Bell Helicopter release harness) from the cargo hook connector.

Figure 25.16.1 Electrical Connector Removal



- Remove manual release cover by removing 2 screws.

Figure 25.16.2 Manual Release Cover Removal

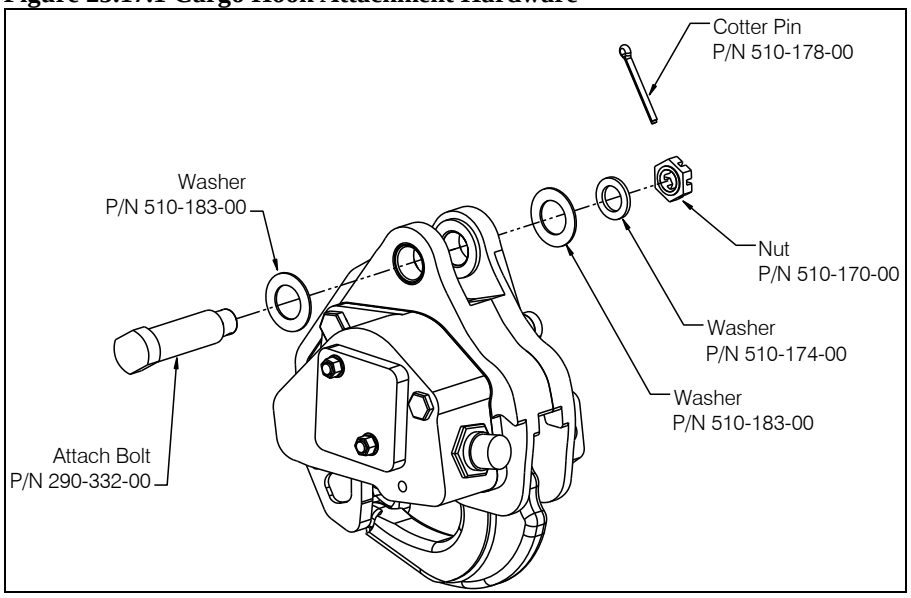


- Remove the manual release cable from the cargo hook.
- Remove the cotter pin (P/N 510-178-00) from the Attach Bolt (P/N 290-332-00).
- Remove the castellated nut (P/N 510-170-00) from the Attach Bolt.
- Remove Attach Bolt and all washers.
- Remove cargo hook from suspension system.

25.17 Cargo Hook Re-installation

- Attach the Cargo Hook (P/N 528-029-00) to the suspension system by installing the Attach Bolt (P/N 290-332-00) and washer (P/N 510-183-00) as illustrated in Figure 25.17.1.
- Install washer (P/N 510-183-00) and washer (P/N 510-174-00) over bolt end.
- Thread nut (P/N 510-170-00) onto Attach Bolt to finger tight, then rotate nut to next castellation to install and secure cotter pin (P/N 510-178-00).

Figure 25.17.1 Cargo Hook Attachment Hardware



NOTICE

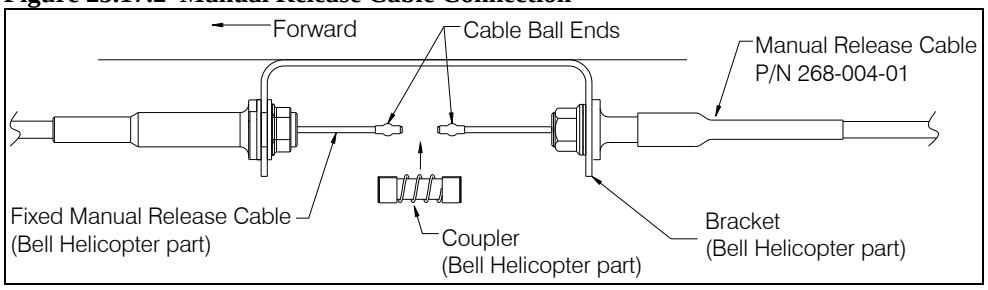
The Cargo Hook load beam must point to the right side of the helicopter when looking from the rear. See Figure 25.2.2 for proper orientation.

25.17 Cargo Hook Re-installation, continued

Connection of Manual Release Cable

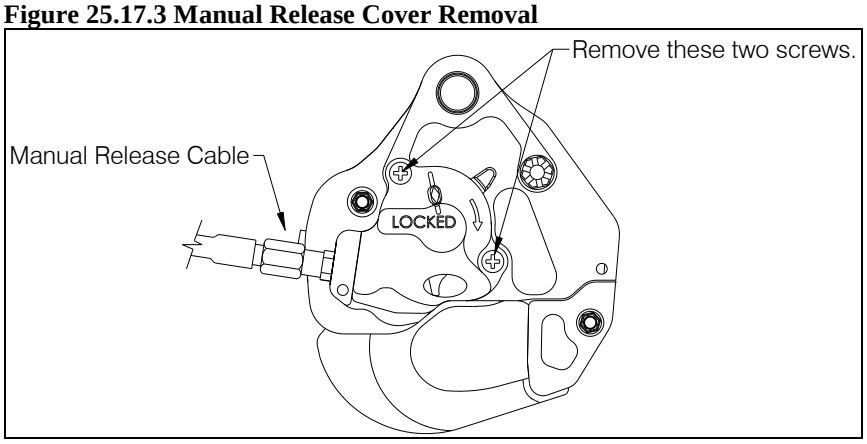
- Connect the Manual Release Cable (P/N 268-004-01) end fitting through the aft flange of the bracket on the belly of the helicopter and secure with nut and washer.
- Connect the inner cable to the inner cable from the fixed manual release cable using the Coupler (see Figure 25.17.2). Retract the spring-loaded sleeve at each end (of the Coupler) and insert the Cable Ball Ends.

Figure 25.17.2 Manual Release Cable Connection



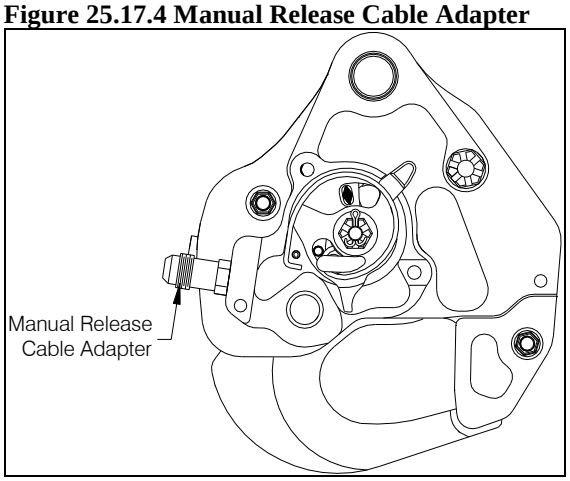
- At the cargo hook, remove the manual release cover by removing two screws.

Figure 25.17.3 Manual Release Cover Removal



- Thread the manual release cable adapter, P/N 290-331-00 into the cargo hook side plate and tighten until it is jammed.

Figure 25.17.4 Manual Release Cable Adapter



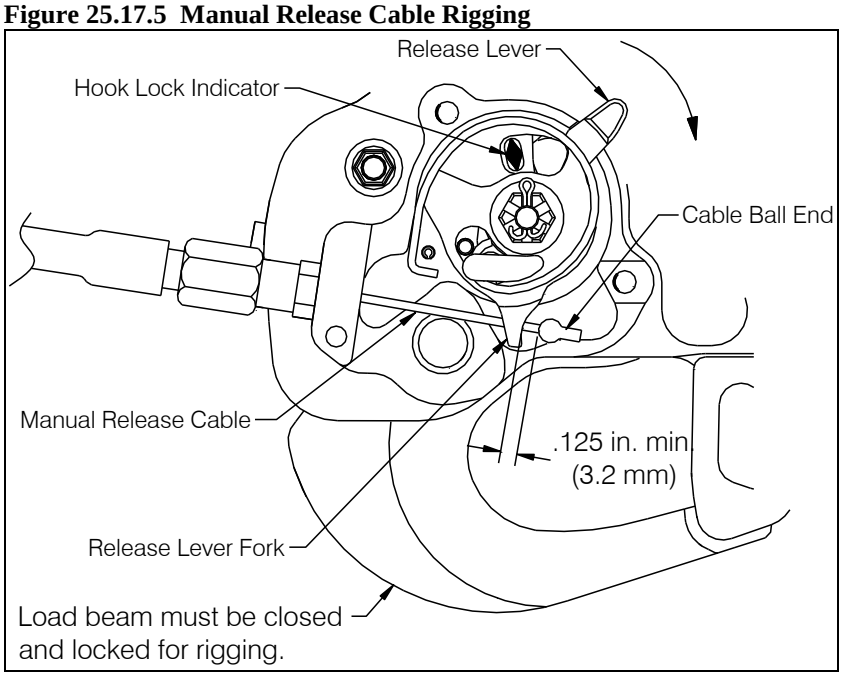
25.17 Cargo Hook Re-installation, continued

WARNING

Manual release cable rigging must be done with the cargo hook load beam in the closed and locked position.

- Connect the manual release cable, P/N 268-004-01, to the adapter.
- At the cargo hook, place the cable ball end fitting into the manual release lever fork as illustrated in Figure 25.17.4.
- Rotate the release lever in the clockwise direction to remove free play (the free play is taken up when the hook lock indicator begins to move, this is also readily felt as the lever rotates relatively easily for several degrees as the free play is taken up) and measure the gap between the release lever fork and cable ball end with the manual release lever in the cockpit in the non-release position. Verify that there is a minimum gap of 0.125 inches (3.2mm) at the release lever fork as shown in Figure 25.17.4. If this minimum gap is not attained, the manual release cable system must be evaluated. Contact Onboard Systems for further information.

Figure 25.17.5 Manual Release Cable Rigging



- Re-install the manual release cover with the two screws.
- Connect the electrical release harness connector to the cargo hook mounted connector.

25.18 General Procedural Instructions-Testing

After cargo hook re-installation, perform the following:

1. Activate the electrical system and press the Cargo Release button to ensure the cargo hook electrical release system is operating correctly. The cargo hook must release. Reset the cargo hook by hand after release. If the hook does not release or re-latch, do not use the unit until the problem is resolved.

   CAUTION

   Actuating the electrical release switch continuously in excess of 20 seconds will cause the cargo hook release solenoid to overheat, possibly causing permanent damage.

2. Activate the manual release system by pulling the release lever in the cockpit. The cargo hook must release. Reset the cargo hook by hand after release. Verify that the hook lock indicator on the side of the hook returns to the fully locked position. If the hook does not release or re-latch, do not use the unit until the problem is resolved.

   ⚠ CAUTION

   In the fully locked position the hook lock indicator must align with the lines on the manual release cover (see Figure 5.1.1).

3. Swing the installed Cargo Hook to ensure that the manual release cable assembly and the electrical release cable have enough slack to allow full swing of the suspension assembly without straining or damaging the cables. The cables must not be the stops that prevent the Cargo Hook from swinging freely in all directions.