Equipment User's Manual

for

Talon LC Keeperless Cargo Hook

P/N 528-023-51

Operator's Manual Number
122-007-00
Revision 7
September 29, 2015

13915 NW 3rd Court Vancouver, Washington 98685 USA
Phone: 360-546-3072 Fax: 360-546-3073 Toll Free: 800-275-0883
www.OnboardSystems.com

THIS PAGE INTENTIONALLY LEFT BLANK

RECORD OF REVISIONS

Revision	*Date*	*Page(s)*	*Reason for Revision*
0	05-06-03	All	Original issue.
1	01-26-04	All	Updated Figure 4-1 and Table 4-1 to replace spring P/N 514-033-00 with P/N 514-056-00 and add spring retainer P/N 290-819-00. Revised manual format to delete revision and date from every page.
2	02-25-04	All	Changed hook part number from 528-023-00 to 528-023-51.
3	03-29-05	All	Deleted installation instructions (was section 2). Updated overhaul information. Updated Operation Instructions section.
4	01-04-06	All	Updated Table 3-1 Item #15 from 510-373-00 to 290-913-00, Item #28 from 510-374-00 to 290-914-00. Added note to page 4-5 to replace bolts when bushings are changed.
5	2-13-06	3-2, 4-5	Changed s/n plate part no. from 215-172-00 to 215-191-00. Changed “mod” to “amdt”.
6	07-14-10	All	Added Signal Words and Symbols (section 1-2) and updated format throughout, added section Manual Release Cable Rigging.
7	09-29-15	All	Removed maintenance information, maintenance information is now contained in CMM 122-005-00. Converted title of manual to “Equipment User’s Manual”. Updated cargo hook rigging figure.

Current revision levels of all manuals are posted on Onboard Systems Int'l website at www.onboardsystems.com. Revision levels of all manuals are available from the factory.

THIS PAGE INTENTIONALLY LEFT BLANK

CONTENTS

THIS PAGE INTENTIONALLY LEFT BLANK

Section 1
General Information

Introduction

This manual contains instructions for use of Cargo Hook P/N 528-023-51.

Specifications

Table 1-1 Specifications for Cargo Hook 528-023-51

Design load	3,500 lb. (1,587 kg.)
Design ultimate strength	13,125 lb. (5,953 kg.)
Electrical release capacity	8,750 lb. (3,970 kg.)
Mechanical release capacity	8,750 lb. (3,970 kg.)
Force required for mechanical release at 3,500 lb.	8 lb. Max.(15.3 mm. travel)
Electrical requirements	22-32 VDC 6.9 - 10 amps
Minimum release load	0 pounds
Unit weight	3.0 pounds (1.35 kg.)
Mating electrical connector	PC06A8-2S SR

Explanation of Signal Words and Symbols

The following definitions apply to the symbols used throughout this manual to draw the reader's attention to safety instructions as well as other important messages.

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.

Theory of Operation

The primary elements of the Cargo Hook are the load beam, the internal mechanism, and a DC solenoid. The load beam supports the load and is latched through the internal mechanism. The DC solenoid provides the normal means for unlatching the load beam. A manual release cable and a manual release lever also provide means for unlatching the load beam

The load is attached to the load beam by passing the cargo sling ring into the throat of the load beam and pushing the ring against the upper portion of the load beam throat, which will initiate the hook to close. In the closed position, a latch engages the load beam and latches it in this position.

To release the load, the latch is disengaged from the load beam. With the latch disengaged, the weight of the load causes the load beam to swing to its open position, and the cargo sling slides off the load beam. The load beam then remains in the open position awaiting the next load.

A load release can be initiated by three different methods. Normal release is achieved by pilot actuation of the push-button switch in the cockpit. When the push-button switch is pressed, it energizes the DC solenoid in the Cargo Hook, and the solenoid opens the latch in the internal mechanism. In an emergency, release can be achieved by operating a mechanical release cable. The release cable operates the internal mechanism of the Cargo Hook to unlatch the load beam. The load can also be released by the actuation of a lever located on the side of the Cargo Hook.

This page intentionally left blank

Section 2
Operation Instructions

Operating Procedures

Before each flight involving external load operations perform the following:

1. Be completely familiar with this manual, particularly the cargo hook rigging section.
2. Be completely familiar with all cargo hook operating instructions.
3. Activate the electrical system and press the electrical release button in the cockpit to ensure the cargo hook electrical release is operating correctly. The cargo hook must release. Reset the load beam. If the hook does not release or re-latch do not use the unit until the difficulty is resolved. Refer to the CMM for the cargo hook for trouble shooting and repair information.

   CAUTION

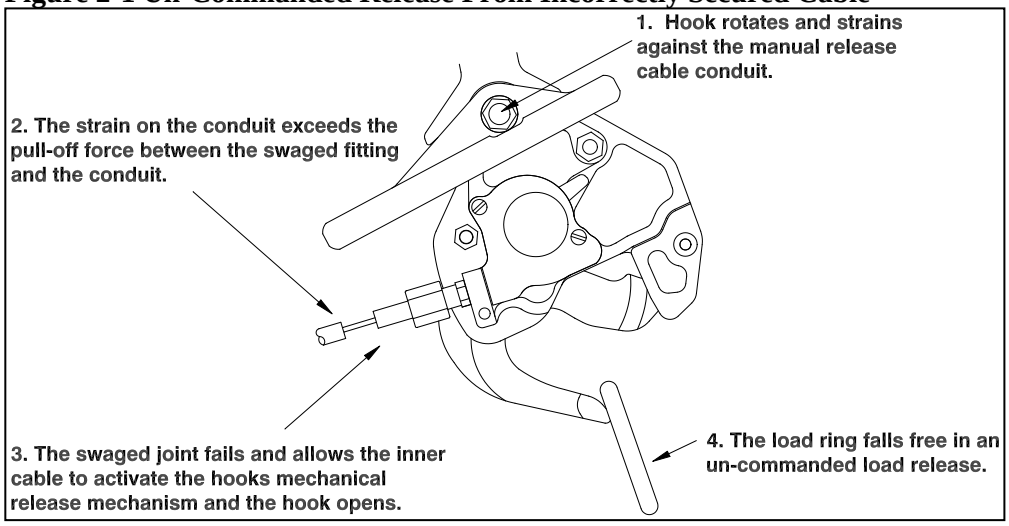
   The release solenoid is intended to be energized only intermittently. Depressing the electrical release button continuously in excess of 20 seconds will cause the solenoid to overheat, possibly causing permanent damage.

4. Activate the manual release lever in the cockpit to test the cargo hook manual release mechanism. The Cargo Hook must release. Reset the load beam. If the hook does not re-latch do not use the unit until the difficulty is resolved.

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 swing or cargo hook position is restrained by the manual release cable.

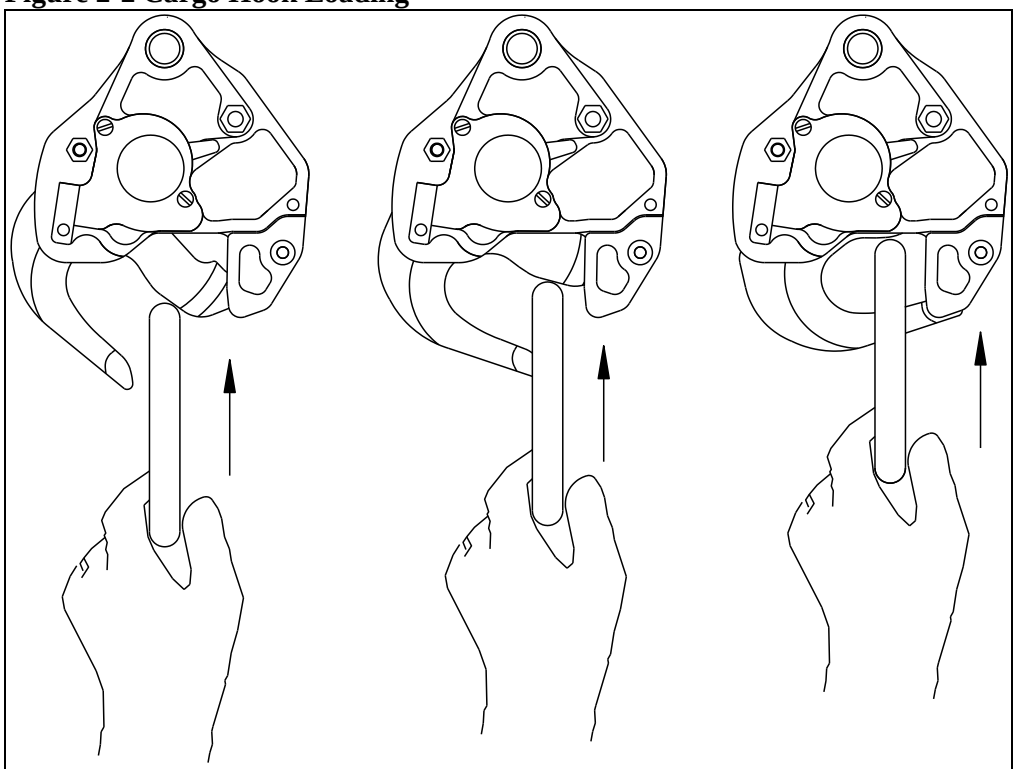
Figure 2-1 Un-Commanded Release From Incorrectly Secured Cable



Cargo Hook Loading

The cargo hook can easily be loaded with one hand. A load is attached to the cargo hook by pushing the ring upward against the upper portion of the load beam throat, as illustrated in Figure 2-2, until an internal latch engages the load beam and latches it in the closed position.

Figure 2-2 Cargo Hook Loading

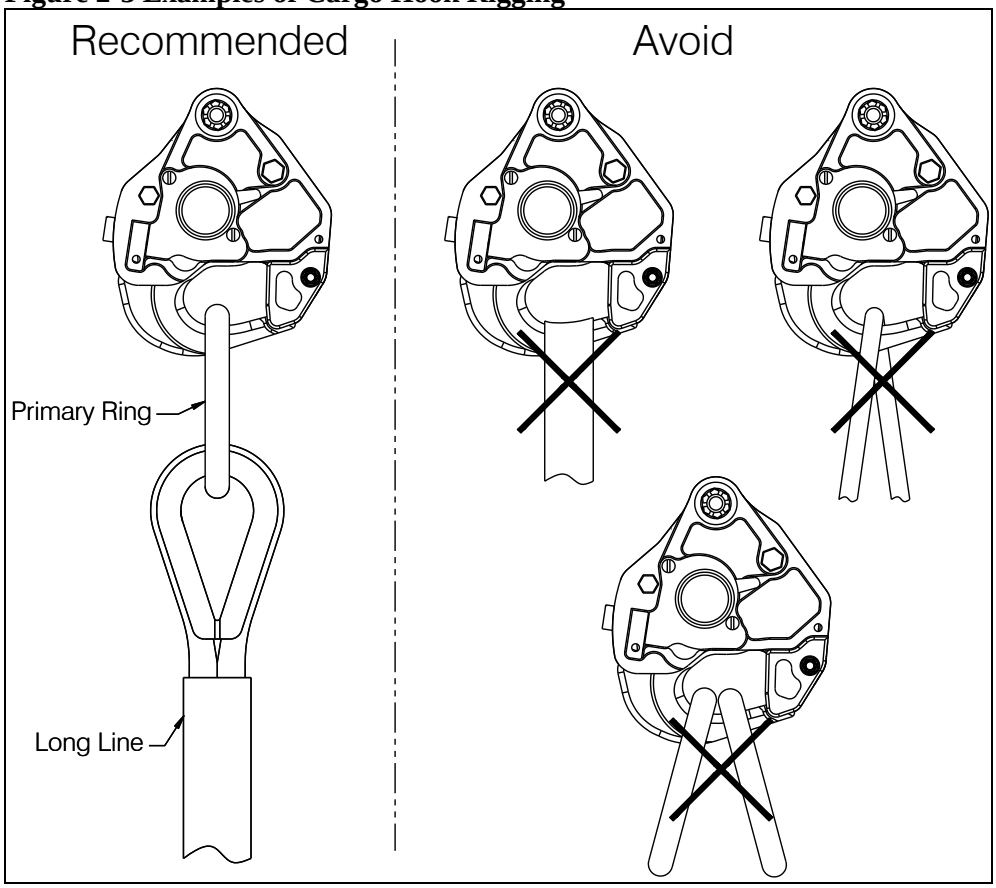


Cargo Hook Rigging

Extreme care must be exercised when rigging a load to the cargo hook. Steel load rings are recommended to provide consistent release performance and resistance to fouling. Figure 2-3 shows the recommended rigging and rigging to avoid, but it is not intended to represent all rigging possibilities.

Cargo Hook Rigging, continued

Figure 2-3 Examples of Cargo Hook Rigging



CAUTION

Nylon type straps (or similar material) or rope must not be used directly on the cargo hook load beam. If nylon straps or rope must be used they should be first attached to a steel primary ring. Verify that the ring will freely slide off the load beam when it is opened. Only the primary ring should be in contact with the cargo hook load beam.

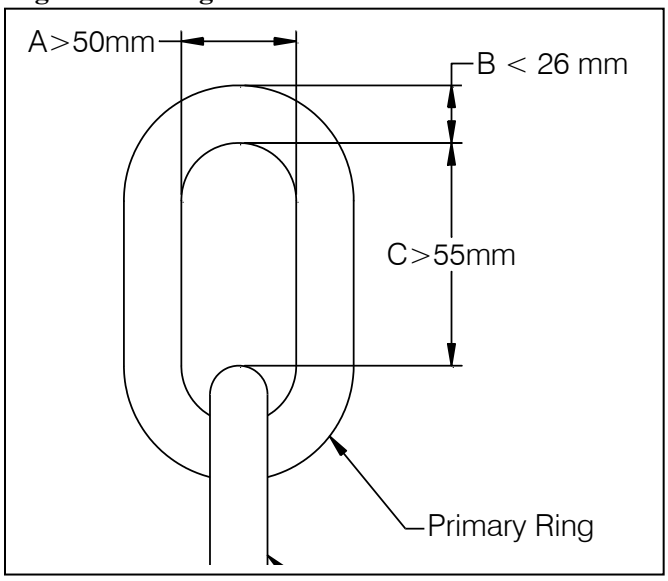
CAUTION

Some combinations of small primary rings and large secondary rings could cause fouling during release. It is the responsibility of the operator to assure the cargo hook will function properly with each rigging.

Cargo Hook Rigging, continued

Because of the keeperless design of the hook, specific ring sizes are not required to prevent roll out. Ring roll out is not the only possible failure mode however. For example, rings with cross sections greater than 26 mm (see Figure 2-4) could get caught in the throat of the hook. The optimum inside diameter of rings is dependent on the size and configuration of the rigging attached below the primary ring (see Figure 2-4). It is the responsibility of the operator to assure that there is no way for the rigging used to hang up or jam on the load beam when it is released. Guidance for ring sizes is provided in Figure 2-4.

Figure 2-4 Ring Size Limitations



Manual Release Cable Rigging

This section provides instructions for checking the rigging of the manual release cable at the cargo hook. Refer to the OEM documentation for information on the manual release cable and adjustment of it at the release lever in the cockpit.

At initial installation or re-installation of the cargo hook or manual release cable perform the following.

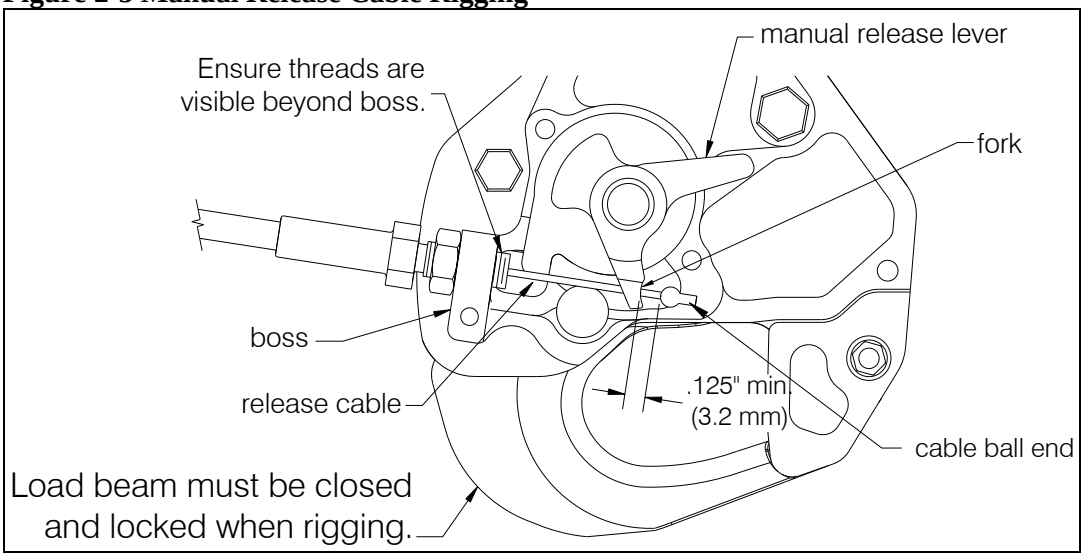
- Ensure the cable ball end fitting is inserted through cargo hook manual release fork fitting as illustrated in Figure 2-5.

⚠ CAUTION

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

- With the cargo hook closed and locked, rotate the release lever in the clockwise direction to remove free play (this is felt as the lever rotates relatively easily for several degrees as the free play is taken up) and measure the gap between the cable ball end and the release lever fork with the release lever in the cockpit in the non-release position. This gap must be a minimum of .125" (3.2 mm) as shown in Figure 2-5.
- If the gap does not measure at least .125" (3.2 mm), make adjustments at the cargo hook or at the release lever in the cockpit.

Figure 2-5 Manual Release Cable Rigging



- Move the cargo hook and its suspension throughout their range of motion while observing free play. At no point should the free play be less than .030" (.76 mm).
- Check that the manual release cable housing is not kinked or pulled tight in any cargo hook and/or suspension position.

Section 3
Maintenance

Refer to the Component Maintenance Manual 122-005-00 for maintenance of the cargo hook.

Instructions for Returning Equipment to the Factory

If an Onboard Systems product must be returned to the factory for any reason (including returns, service, repairs, overhaul, etc) obtain an RMA number before shipping your return.

NOTICE

An RMA number is required for all equipment returns.

- To obtain an RMA, please use one of the listed methods.
  - Contact Technical Support by phone or e-mail (Techhelp@OnboardSystems.com).
  - Generate an RMA number at our website: http://www.onboardsystems.com/rma.php
- After you have obtained the RMA number, please be sure to:
  - Package the component carefully to ensure safe transit.
  - Write the RMA number on the outside of the box or on the mailing label.
  - Include the RMA number and reason for the return on your purchase or work order.
  - Include your name, address, phone and fax number and email (as applicable).
  - Return the components freight, cartage, insurance and customs prepaid to:

    Onboard Systems
    13915 NW 3rd Court
    Vancouver, Washington 98685
    USA
    Phone: 360-546-3072