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Instructions for Continued Airworthiness Talon LC Keeperless Cargo Hook Kit

For the

MD Helicopters 369 Series, 500N, and 600N Helicopters

System Part Numbers 200-264-01 and 200-264-02

STC SR00892SE

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RECORD OF REVISIONS

Revision	*Date*	*Page(s)*	*Reason for Revision*
0	08/04/08	All	Initial Release
1	03/10/10	05-00-00 Page 3, 4 25-00-00 Page 7, 8	Changed overhaul frequency criteria, updated Figure 25-5 and added associated CAUTION statement. Clarified when procedures in Section 25.18 are to be done.
2	02/15/16	Section 0 page 2 Section 5 Section 25 page 3, 4, 6	Updated format of Precaution labels, updated Inspection section including removal of daily check and expansion of 100 hour/annual inspection, and update of definition of external load operations. Updated storage instructions. Revised tightening instructions for nut on cargo hook attach bolt.

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CONTENTS

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Section 0
Introduction

0.4 Scope

The following information is necessary to carry out the service, maintenance, and inspection of Cargo Hook Kit P/Ns 200-264-01 and 200-264-02.

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 200-264-01 and 200-264-02 Cargo Hook Kits in an airworthy condition.

0.6 Arrangement

This manual contains instructions for the service, maintenance, inspection and operation of Cargo Hook Kit P/Ns 200-264-01 and 200-264-02 on MD Helicopters' 369 series, 500N, and 600N 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 these kits)
Section 5 Inspection and overhaul schedule.
Section 25 Equipment and Furnishings.

0.7 Applicability

These Instructions for Continued Airworthiness are applicable to Cargo Hook Kit P/N 200-264-01 on MD Helicopter models 369D, 369E, 369F, 369FF, 369HS, 369HM, 369HE, and 500N and to Cargo Hook Kit P/N 200-264-02 on the 600N model.

0.9 Abbreviations

FAA Federal Aviation Administration
FAR Federal Aviation Regulation
ICA Instructions for Continued Airworthiness

0.12 Precautions

The following definitions apply to safety 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 Current revision levels of all manuals are available from the factory.

Section 4
Airworthiness Limitations

4.2 No airworthiness limitations

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 intervals noted 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 additional procedures.

Annually or 100 hours of external load operations, whichever comes first, inspect the cargo hook and other kit components 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. With no load on it, the cargo hook must release. Reset the hook by hand after release.

CAUTION

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

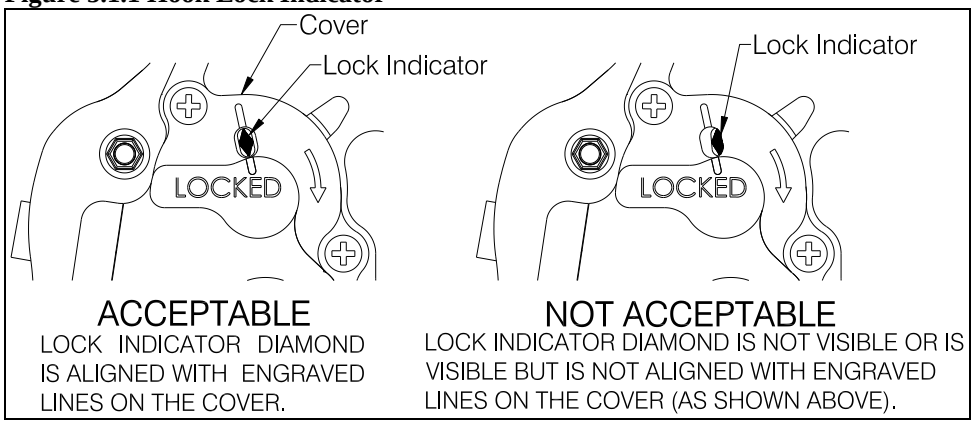
2. Activate the manual release system by pulling the release lever in the cockpit. With no load on it, the cargo hook must release. Reset the cargo hook by hand after release. Verify that the hook lock indicator on the side of the hook returns to the fully locked position.

⚠ 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).

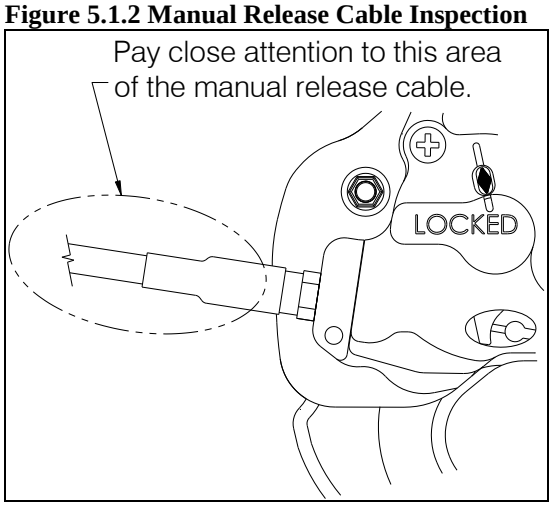
5.1 Cargo Hook Kit Inspection continued

Figure 5.1.1 Hook Lock Indicator



3. Move the cargo hook throughout its full range of motion and observe the manual release cable and electrical harness to ensure that they have enough slack. The release cable and harness must not be the stops that prevent the cargo hook from moving freely in all directions.
4. Swing the cargo hook throughout its range of motion and ensure all pivot points rotate freely without binding.
5. Visually inspect for presence and security of fasteners and electrical connections.
6. Visually inspect the external electrical wire harnesses for damage, chafing and security.
7. Visually inspect the manual release cable for damage and security. Pay close attention to the area of transition at the cargo hook (see Figure 5.1.2).

Figure 5.1.2 Manual Release Cable Inspection



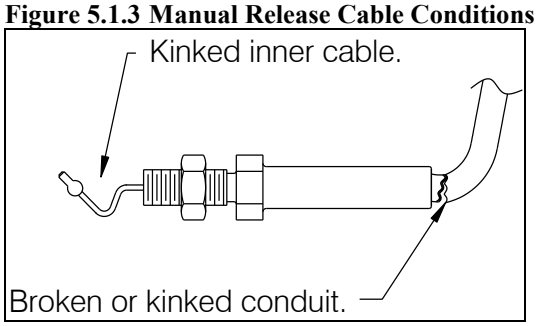
5.1 Cargo Hook Kit Inspection continued

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

⚠ CAUTION

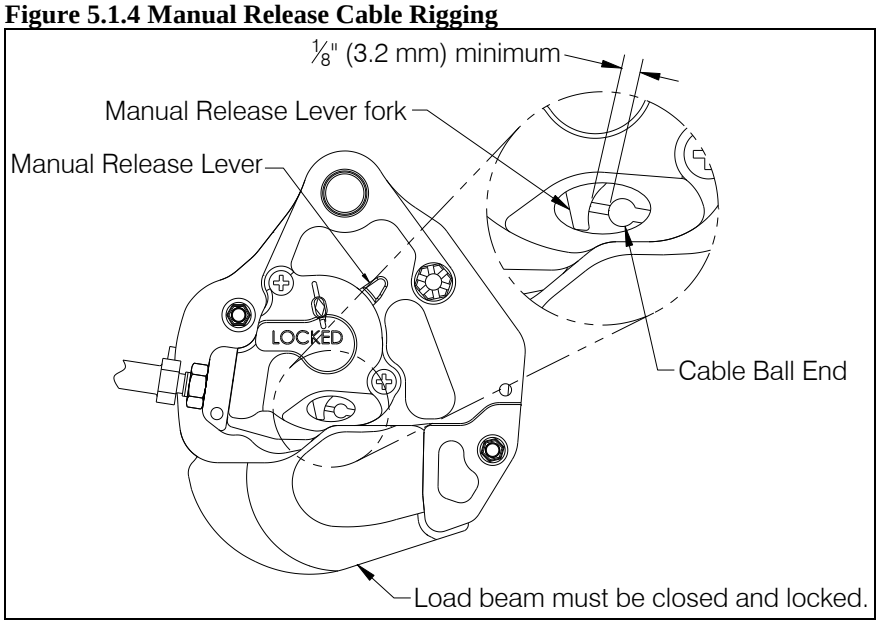
Manual release cables are wearable items and must be replaced as condition requires. Broken or kinked conduit, inner cable kinks (ref Figure 5.1.3), frays, or sticky operation are each cause for immediate replacement.

Figure 5.1.3 Manual Release Cable Conditions



9. 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 5.1.4. If necessary, remove cover to measure.

Figure 5.1.4 Manual Release Cable Rigging



5.2 Cargo Hook Overhaul Schedule

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

*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.*

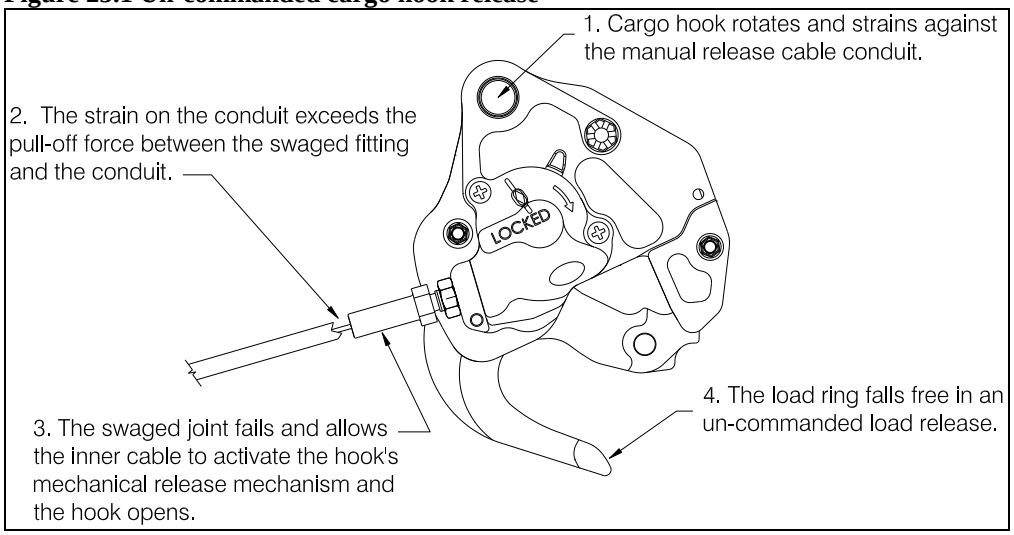
Overhaul instructions for the cargo hook are contained in Component Maintenance Manual 122-017-00. Contact Onboard Systems for guidance to locate authorized overhaul facilities.

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 stops 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 kit includes the following primary components listed in the table below in addition to miscellaneous attach hardware. The cargo hook attaches to the existing rotorcraft cargo hook hard point.

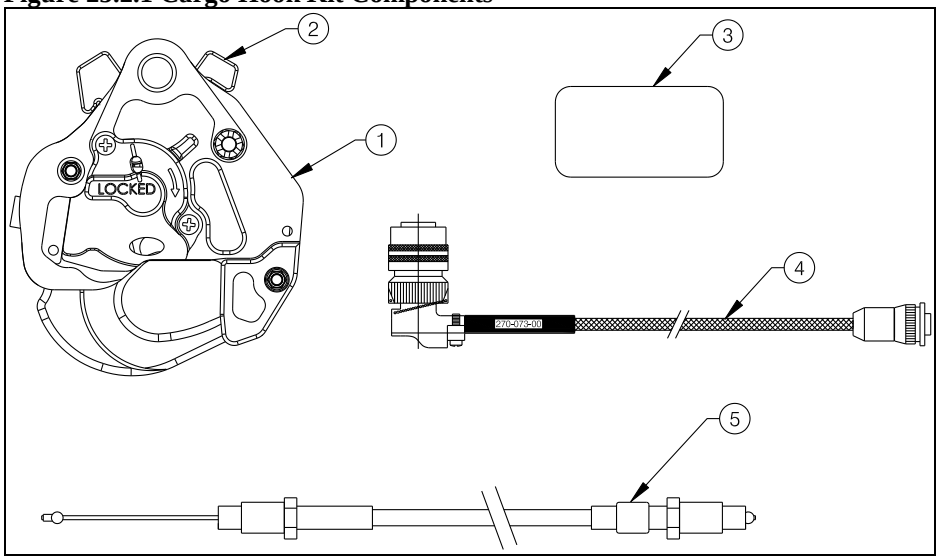
Item*	P/N	Description
1	528-029-00	3,600 Lb. Cargo Hook
2	290-360-01	Travel Limit Bumper
3	290-361-00	Bumper Pads
4	270-073-00[1] or 270-073-02[2]	Electrical Release Harness
5	268-005-01[1] or 268-005-02[2]	Manual Release Cable

* Refer to Figure 25-2 below.

1 Included with kit P/N 200-264-01

2 Included with kit P/N 200-264-02

Figure 25.2.1 Cargo Hook Kit Components



25.5 Component Weights

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

Table 25.5.1 Component Weights

Item	Weight lbs (kgs)
Cargo Hook	3.0 (1.36)
Manual Release Cable	1.0 (.45)
Electrical Release Harness	0.5 (.23)
Bumper Pads	0.2 (.09)
Travel Limit Bumper	0.1 (.04)

25.12 Storage Instructions

Refer to Cargo Hook Component Maintenance Manual 122-017-00 for storage instructions for the Cargo Hook.

25.15 Trouble Shooting

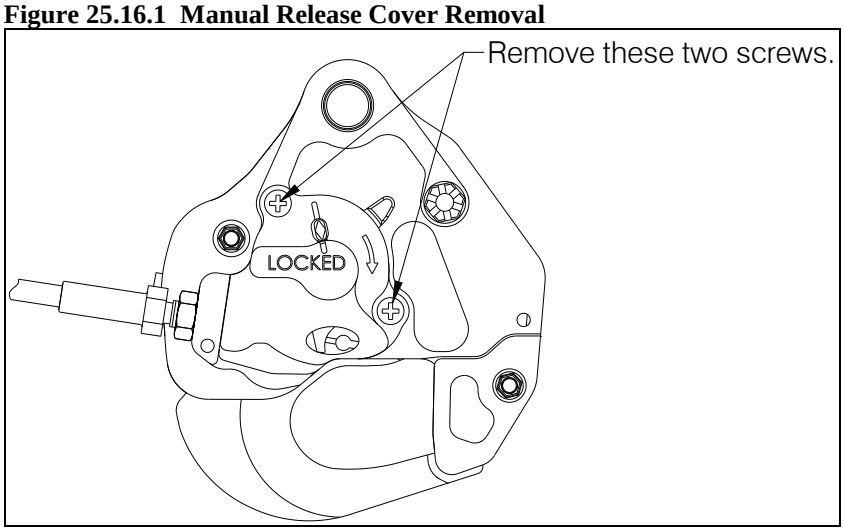
Table 25.15.1 Trouble Shooting

MALFUNCTION	PROBABLE CAUSE	CORRECTIVE ACTION
Cargo hook does not operate electrically or manually.	Defective internal mechanism.	Remove and replace cargo hook (see sections 25.16 and 25.17) or repair per CMM 122-017-00.
Cargo hook does not operate electrically, manual cable release operates normally.	Open electrical circuit, faulty wiring, fuse, switch or solenoid.	Disconnect cable from electrical connector on cargo hook. Using multi-meter, check for 3.0 to 4.0 ohms between pins A and B of electrical connector (see note 1 below). If open indication is obtained, remove and replace cargo hook (see sections 25.16 and 25.17) or repair per CMM 122-017-00.
Cargo hook operates electrically, but not manually.	Defective manual release cable. Defective manual release system.	Inspect manual release cable and cable connection to Cargo Hook. Remove and replace cargo hook (see Sections 25.16 and 25.17) or repair per CMM 122-017-00.
Load beam fails to re-latch after being reset.	Defective latch mechanism.	Remove and replace cargo hook (see sections 25.16 and 25.17) or repair per CMM 122-017-00.
Force required to release hook with lever on collective exceeds 14 lbs.	High cable friction or friction in internal mechanism of hook.	Remove release cable from hook and check release cable and hook independently (see below) to determine cause.
With release cable disconnected at hook, the force required to move manual release lever on collective exceeds 6 lbs.	Kinks or wear in cable, frozen water in cable, debris or damage to cable quick disconnect fitting or lever mechanism on cyclic	Inspect individual components to isolate problem. Remove and replace defective parts.
Cargo hook manual release cable pull-off force exceeds 8 Lbs. (at the hook).	Friction in internal mechanism.	Remove and replace cargo hook (see Section 25.16 and 25.17) or repair per CMM 122-017-00.
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

1. Remove manual release cover by removing 2 screws.

Figure 25.16.1 Manual Release Cover Removal

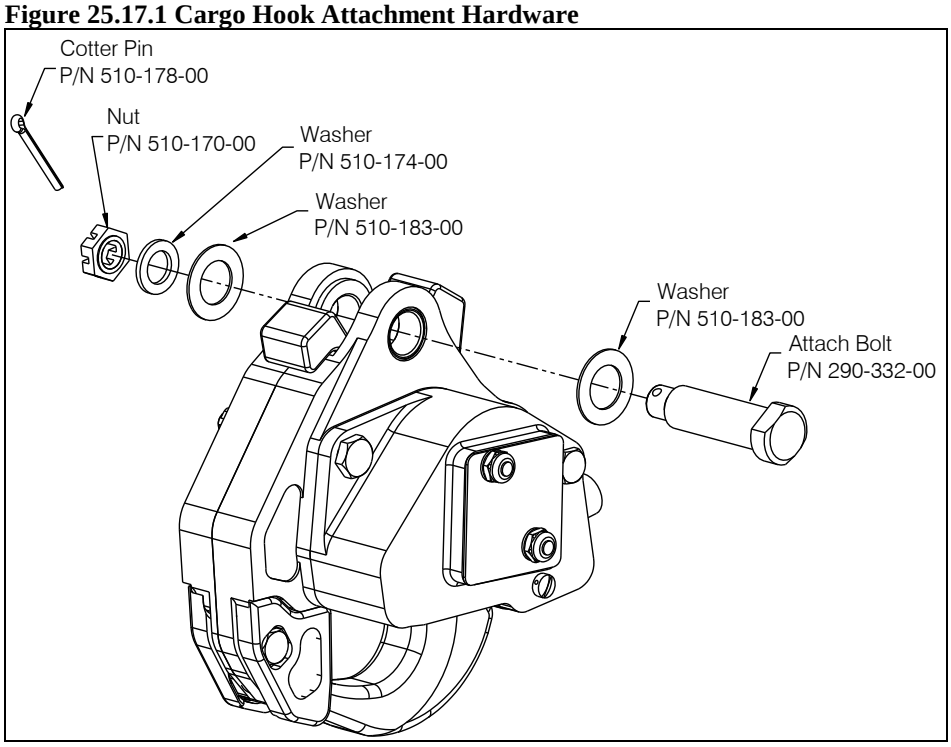


2. Disconnect the electrical release harness connector from the Cargo Hook.
3. Remove the cotter pin P/N 510-178-00 from the Attach Bolt P/N 290-332-00.
4. Remove the castellated nut P/N 510-170-00 from the Attach Bolt.
5. Remove Attach Bolt and all washers.
6. Remove Cargo Hook from the hard point.
7. Unthread the manual release cable from the Cargo Hook by holding the manual release cable and turning the Cargo Hook.

25.17 Cargo Hook Re-installation

1. Attach the Cargo Hook, P/N 528-029-00 to the cargo hook attach point on the helicopter by installing bolt P/N 290-332-00 and washer P/N 510-183-00 as illustrated in Figure 25.17.1.
2. Install washer P/N 510-183-00 and washer P/N 510-174-00 over bolt end.
3. Tighten nut P/N 510-170-00 on bolt P/N 290-332-00 to finger tight, then rotate to previous castellation if necessary to insert cotter pin. 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 aft of the helicopter.

25.17 Cargo Hook Re-installation, continued

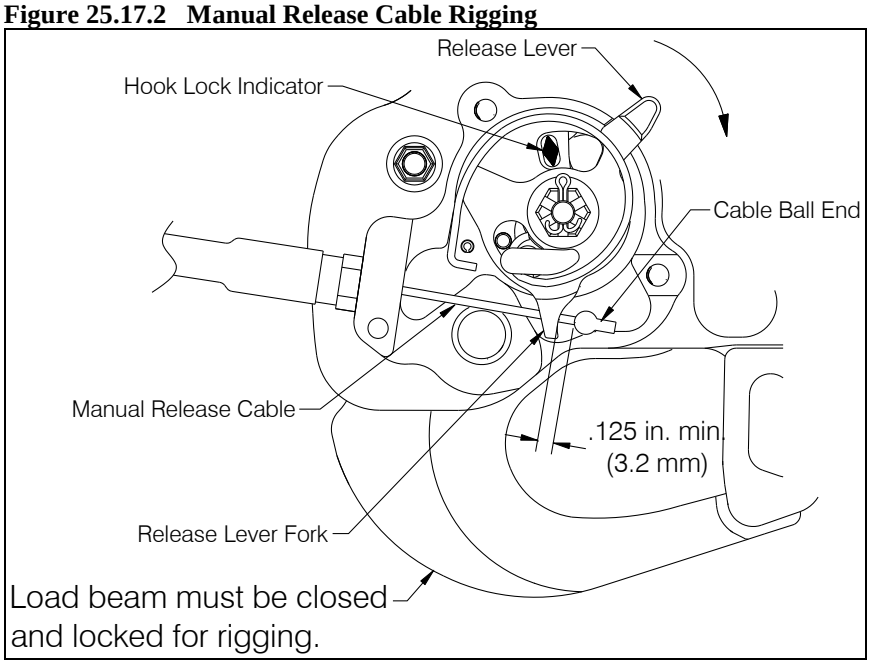
Connection of Manual Release Cable

CAUTION

Cargo hook must be closed and locked when rigging and adjusting the manual release cable.

1. Remove the manual release cover from the cargo hook.
2. Thread the manual release cable into the cargo hook and tighten it against the cargo hook
3. Place the cable ball end fitting into the cargo hook manual release fork fitting as illustrated in Figure 25.17.2.
4. Rotate the release lever in the clockwise direction to remove free play and hold in this position (the free play is taken up when the hook lock indicator begins to move).
5. Measure the cable ball end free play with the manual release handle in the cockpit in the non-release position. Adjust the manual release cable system for a minimum of .125 inches of free play at the fork as shown in Figure 25.17.2.
6. Verify that the manual release cable has a minimum of 0.125 inches (3.2 mm) of free play at the fork fitting as shown in Figure 25.17.2.
7. Re-install the manual release cover with the two screws.

Figure 25.17.2 Manual Release Cable Rigging



25.18 General Procedural Instructions-Testing

After cargo hook or manual release cable re-installation perform the following.

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

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

2. Activate the release lever located on the cyclic to test the cargo hook manual release mechanism. The mechanism should operate smoothly and the Cargo Hook must release. Reset the hook by hand after release. If the hook does not release or relatch do not use the unit until the difficulty is resolved.

3. Swing the installed Cargo Hook to ensure that the manual release cable and the electrical release harness 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.