PLEASE CHECK WEB SITE AT WWW.ONBOARDSYSTEMS.COM FOR THE LATEST REVISION OF THIS MANUAL

Instructions for Continued Airworthiness Talon LC Keeperless Cargo Hook Kit

For the

MD Helicopters 369 Series and 500N Helicopters

System Part Number 200-264-00

STC SR00892SE

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*
1	9/17/02	Title	Factory address change.
2	10/10/03	00-00-00 Page 2 25-00-00 Page 2 25-00-00 Page 4	528-023-01 cargo hook configuration change Reference Service Bulletin 159-011-00
3	10/10/06	Section 5 Section 25	Updated inspection and overhaul information including: adding daily check and an annual inspection, and revising cargo hook overhaul interval. Added kg equivalents to Table 25.2. Added Figure 25.2 Updated installation instructions for clarity and to correct typos.
4	08/13/09	25-00-00 Page 1,5,6 05-00-00 Page 1 00-00-00 Page 1-2	Added warning, caution, and note provisions throughout and revised Figure 25-4.
5	03/09/10	05-00-00 Page 3, 4 25-00-00 Page 5, 6	Changed overhaul frequency criteria, updated Figure 25-4, clarified when procedures in Section 25.18 are to be done.

Register Your Products for Automatic Notifications

Onboard Systems offers a free notification service via fax or email for product alerts and documentation updates. By registering your Onboard Systems products at our website, we will be able to contact you if a service bulletin is issued, or if the documentation is updated.

You can choose to receive notices on an immediate, weekly, or monthly schedule via fax, email or both methods. There is no charge for this service. Please visit our website at www.onboardsystems.com/notify.php to get started.

THIS PAGE INTENTIONALLY LEFT BLANK

List of Effective Pages

Title	Pages	Revision	Date
Cover	*i, ii* Blank	5	03/09/10
Record of Revision	*iii, iv* Blank	5	03/09/10
List of Effective Pages	*v, vi* Blank	5	03/09/10
Contents	*vii, viii* Blank	4	08/13/09
ATA 0 Introduction 00-00-00	1	4	08/13/09
ATA 0 Introduction 00-00-00	2	4	08/13/09
ATA 4 Airworthiness Limitations 04-00-00	1, 2 Blank	0	01/08/01
ATA 5 Inspection and Overhaul Schedule 05-00-00	1 through 2	4	08/13/09
ATA 5 Inspection and Overhaul Schedule 05-00-00	3 through 4	5	03/09/10
ATA 25 Equipment and furnishings 25-00-00	1 through 4	4	08/13/09
ATA 25 Equipment and furnishings 25-00-00	5, 6	5	03/09/10

THIS PAGE INTENTIONALLY LEFT BLANK

CONTENTS

Identification **Title, Page**

Section ATA 0 **Introduction 00-00-00**

0.4 Scope, 1
0.5 Purpose, 1
0.6 Arrangement, 1
0.7 Applicability, 2
0.9 Abbreviations, 2
0.12 Precautions, 2
0.19 Distribution of Instructions for Continued Airworthiness, 2

Section ATA 4 **Airworthiness Limitations 04-00-00**

4.2 No Airworthiness Limitations, 1

Section ATA 5 **Inspection and Overhaul Schedule 05-00-00**

5.1 Cargo Hook Kit Daily Check, 1
5.1 Cargo Hook Kit Inspection Schedule, 2
5.2 Cargo Hook Overhaul Schedule, 3

Section ATA 25 **Equipment and Furnishings 25-00-00**

25.1 Cargo hook connector, 1
25.2 Description, 2
25.5 Component Weights, 2
25.12 Storage Instructions, 2
25.15 Trouble Shooting, 3
25.16 Cargo Hook Removal, 3
25.17 Cargo Hook Re-installation, 4
Connection of Manual release cable, 5
25.18 General Procedures Instructions-Testing, 6

Figures

25-1 Un-commanded cargo hook release, Chapter 25 Page 1
25-2 Cargo Hook Kit Components, Chapter 25 Page 2
25-3 Cargo Hook Attachment Hardware, Chapter 25 Page 4
25-4 Manual Release Cable Rigging, Chapter 25 Page 5

Tables

25-1 Cargo Hook Connector, Chapter 25 Page 1
25-2 Component Weights, Chapter 25 Page 2
25-3 Trouble Shooting, Chapter 25 Page 3

THIS PAGE INTENTIONALLY LEFT BLANK

ATA 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 200-264-00.

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 200-264-00 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 200-264-00 on MD Helicopters' 369 series and 500N 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:

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

0.7 Applicability

These instruction for Continued Airworthiness are applicable to Cargo Hook Kit P/N 200-264-00 on the following MD Helicopters models:

369D	369HS
369E	369HM
369F	369HE
369FF	500N

The 528-023-01 Cargo Hook and the 270-073-00 Electrical Release Cable are suitable as a replacement for the Breeze Eastern (ERC) 2A20B cargo hook P/N 17149-4 in the MDCHC 369H92105-501 cargo hook assembly.

0.9 Abbreviations

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

0.12 Precautions

The following definitions apply to Warnings, Cautions and Notes used in this manual.

Means that if this information is not observed, serious injury, death or immediate loss of flight safety could occur.

Means that there is a risk of injury or degradation in performance of equipment if this information is not observed.

Draws the reader's attention to information which may not be directly related to safety, but which is important or unusual.

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.

ATA 4
Airworthiness Limitations

4.2 No airworthiness limitations

No airworthiness limitations are associated with this type design change.

THIS PAGE INTENTIONALLY LEFT BLANK

ATA 5
Inspection and Overhaul Schedule

5.1 Cargo Hook Kit Daily Check

Prior to each cargo hook use 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 mechanism must release the load beam. Reset the hook by hand after release. If the hook does not release or re-latch, do not use the unit until the problem is fixed.

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

2. Activate the manual release system by pulling the release lever in the cockpit. The system should operate smoothly and the cargo hook must release. Reset the hook by hand after release. If the hook does not release or re-latch, do not use the unit until the problem is resolved.
3. Swing the cargo hook throughout its full range of motion to ensure the manual release cable and electrical release harness have enough slack. The cable or harness must not be the stops that prevent the cargo hook from swinging freely in all directions.
4. Visually check for presence and security of fasteners, electrical connection and manual release cable connection.
5. Visually check cargo hook for cracks, damage and corrosion.

5.2 Cargo Hook Kit Inspection Schedule

The scheduled inspection interval noted below is a maximum and is 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.

Annually or 100 hours of cargo hook use, whichever comes first, inspect the cargo hook and other kit components per the following.

1. Visually inspect for corrosion on the exterior of cargo hook, load cell and link assembly components. 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. Contact Onboard Systems for the latest revision of the cargo hook service manual.
2. Move the cargo hook throughout its full ranges 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 or suspension from moving freely in all directions.
3. Visually inspect cargo hook for presence and security of fasteners, electrical connection, and manual release cable connection.
4. Visually inspect the manual release cable for security and damage.
5. Visually inspect the electrical release harness for security, chafing, and damage.
6. Visually inspect the cargo hook for cracks, damage and corrosion.
7. Visually inspect the cargo hook bumper for damage and security.
8. Visually inspect the bumper pads on the belly of the helicopter for damage and security.

5.3 Cargo Hook Overhaul Schedule

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

Hours of external load operations is defined as the time in which a helicopter is engaged in external load operations. This includes time between loads on the hook.

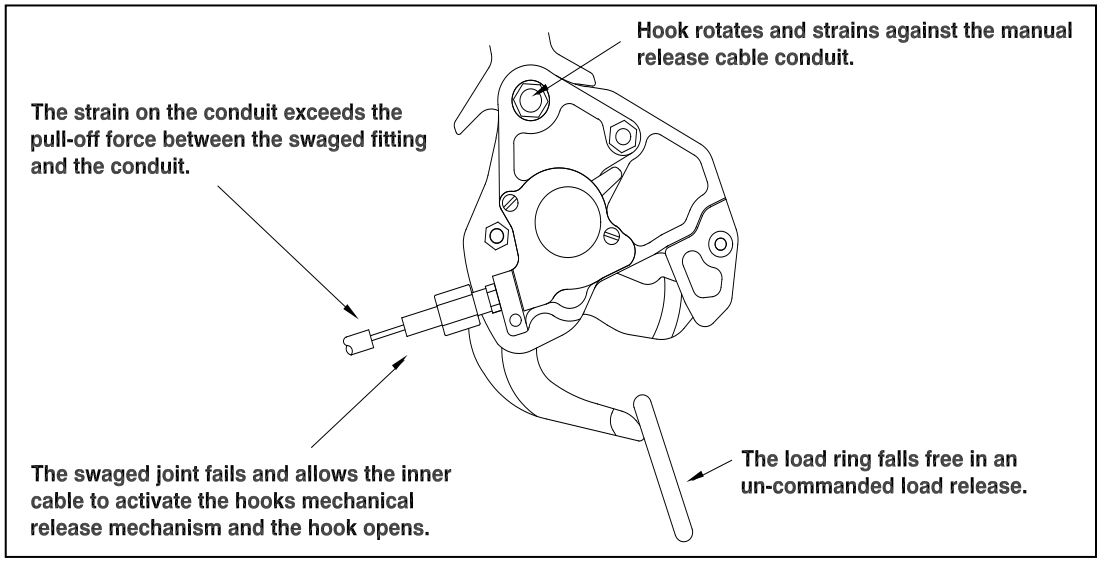
THIS PAGE INTENTIONALLY LEFT BLANK

ATA 25
Equipment and Furnishings

CAUTION

Un-commanded cargo hook release will happen if the manual and electrical release cables are improperly restrained. The cables 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 or electrical release cables.

Figure 25-1 Un-commanded cargo hook release



25.1 Cargo hook connector

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

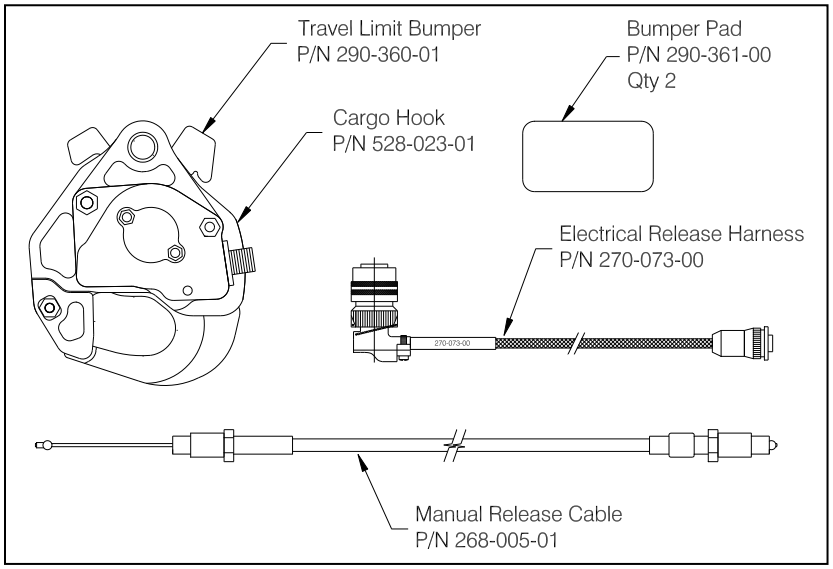
Table 25-1 Cargo Hook Connector

Pin	*Function*
A	Ground
B	Positive

25.2 Description

The type design change consist of the installation of the following elements. The installation uses the existing rotorcraft cargo hook suspension system, internal electrical wiring provisions, and manual release lever.

Figure 25-2 Cargo Hook Kit Components



25.5 Component Weights

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

Table 25-2 Component Weights

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

25.12 Storage Instructions

Clean the exterior Cargo Hook components thoroughly of excess dirt and grease with a rag before packaging. Pack the unit in a heat-sealable package. If the unit is to be stored for long periods in a tropical climate it should be packed in a reliable manner to suit local conditions.

Package the unit in a suitable fiberboard box and cushion the unit to prevent shifting. Seal the fiberboard box with tape and mark the box with the contents and date of packaging.

25.15 Trouble Shooting

Table 25-3 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 cable from electrical connector on Cargo Hook. Using multimeter, check for 3.0 to 4.0 ohms between pins A and B of electrical connector. If open indication is obtained, overhaul solenoid.
Cargo hook does not operate electrically or manually.	Defective internal mechanism	Overhaul internal mechanism.
Cargo hook operates electrically, but not manually.	Defective manual release cable Defective manual release system	Check manual release cable and cable connection to Cargo Hook. Correct any defects. Overhaul internal mechanism.
Load beam fails to relatch after being reset.	Defective latch mechanism	Overhaul internal mechanism.
Cargo hook manual release cable pull-off force exceeds 8 Lbs. (at the hook).	Friction in internal mechanism.	Check operation of unit using manual release lever. Overhaul internal mechanism.
Visibly loose fasteners or missing locking pins	Visibly loose fasteners or missing locking pins	Re-torque and reinstall locking pins per installation instructions
Visibly loose electrical connector	Visibly loose electrical connector	Re-tighten connector
Visible cracks or corrosion.	Visible cracks or corrosion.	Remove Hook from service and replace discrepant parts.
Visible cracks. Gouges or wear deeper than . 090	Visible cracks. Gouges or wear deeper than . 090	Remove Hook from service and replace discrepant parts.
Failure to open or re-lock properly	Failure to open or relock properly	Remove hook from service.
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.

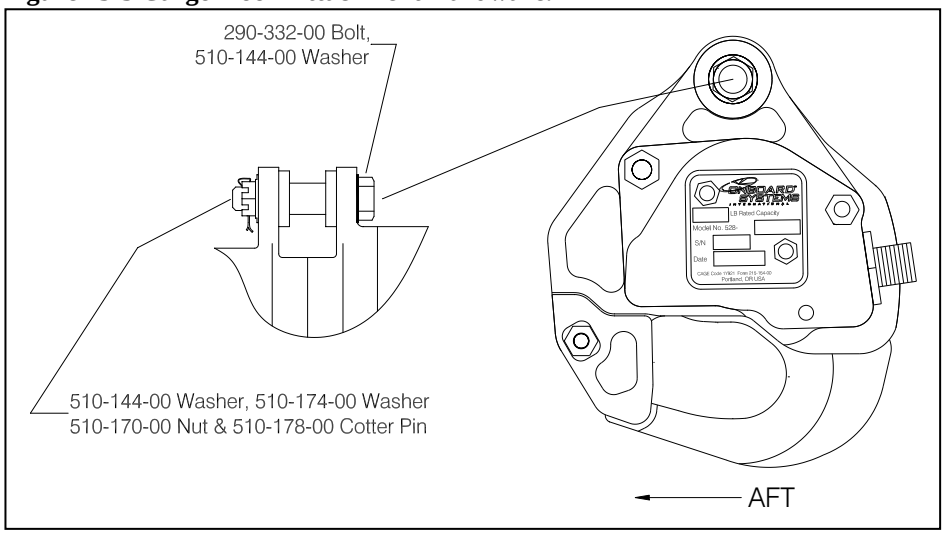
25.16 Cargo Hook Removal

1. Cut and remove all lockwire.
2. Remove manual release cover by removing 2 screws.
3. Remove the manual and electrical release cables from the Cargo Hook.
4. Remove the cotter pin P/N 510-178-00 from the Attach Bolt P/N 290-332-00.
5. Remove the castellated nut P/N 510-170-00 from the attach Bolt.
6. Remove Attach Bolt and all washers.
7. Remove Cargo Hook from suspension system.

25.17 Cargo Hook Re-installation

1. Inspect the Cargo Hook for evidence of damage, corrosion and security of lock wire and fasteners. If damage is evident, do not use the items until they are repaired.
2. Verify that the part number of the cargo hook removed matches one of the numbers on the list in the Applicability section of this manual. If it does not, do not attempt to use the cargo hook, contact the factory for clarification.
3. Inspect the suspension system to ensure that all components are in serviceable condition before re-installing the cargo hook to the suspension system.
4. Attach the Cargo Hook, P/N 528-023-01 to the suspension system by installing the bolt and washer P/N 290-332-00 and P/N 510-144-00 as illustrated in Figure 25-3.
5. Install washer P/N 510-144-00 and washer P/N 510-174-00 over bolt end.
6. Tighten nut P/N 510-170-00 on bolt P/N 290-332-00 to finger tight, then rotate nut to next castellation to install and secure cotter pin P/N 510-178-00.

Figure 25-3 Cargo Hook Attachment Hardware.



Note: The Cargo Hook load beam must point aft of the helicopter**.**

25.17 Cargo Hook Re-installation, continued

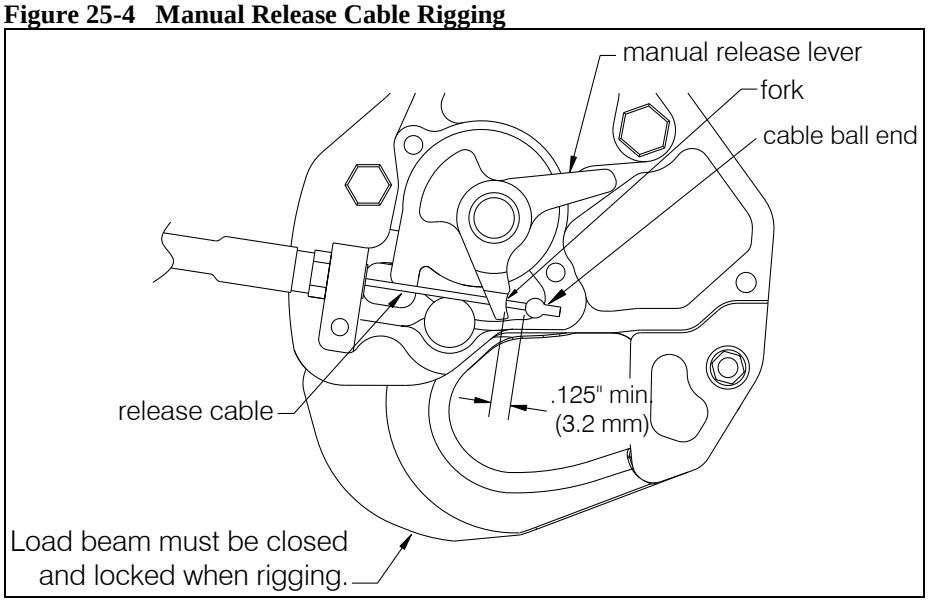
Connection of Manual Release Cable

1. Remove the manual release cover from the cargo hook.
2. Thread the manual release cable, P/N 268-005-01 into the cargo hook and tighten against the hook
3. Place the cable ball end fitting into the hook manual release fork fitting as illustrated in Figure 25-4.
4. Rotate the manual release lever in the clockwise direction until the boss on its underside contacts the cam stop and hold in this position.
5. Measure the cable ball end free play with the manual release handle in the cockpit in the non-release position.
6. Verify that the manual release cable system has a minimum of .125" of free play at the fork fitting as shown in Figure 25-4.
7. Re-install the manual release cover with the two screws and lockwire.

CAUTION

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

Figure 25-4 Manual Release Cable Rigging



Connect the cargo hook electrical release cable connector to the Cargo Hook.

25.18 General Procedural Instructions-Testing

After re-installation of the cargo hook or manual release cable, 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 sec. will cause the release solenoid to overheat, possibly causing permanent damage.

2. Activate the release handle 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 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.