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Instructions for Continued Airworthiness Talon LC Keeperless Cargo Hook Kit

For the

AS350 Series and EC130B4

System Part Number
200-261-01

STC SR00886SE

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RECORD OF REVISIONS

Revision	*Date*	*Page(s)*	*Reason for Revision*
0	03/23/06	All	Initial release.
1	10/28/09	00-00-00 page 1,2 05-00-00 page 1,4 25-00-00 page 6	Added Section 0.12 Warnings, Cautions, and Notes and updated format where applicable. Added caution note and revised figure 25-4.
2	03/10/10	05-00-00 page 3 & 4, 25-00-00 page 6	Changed overhaul frequency criteria. Corrected Figure 25-4

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CONTENTS

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ATA 0
Introduction

0.4 Scope

The following information is necessary to carry out the service, maintenance, and inspection of the Cargo Hook P/N 528-029-00.

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 528-029-00 Cargo Hook in an airworthy condition.

0.6 Arrangement

This manual contains instructions for the service, maintenance, inspection and operation of Cargo Hook P/N 528-029-00 on Eurocopter AS350 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 Instructions for Continued Airworthiness are applicable to Cargo Hook P/N 528-029-00 installed as part of Kit P/N 200-261-01 on the Eurocopter AS350B, AS350B1, AS350B2, AS350B3, AS350BA, AS350D, and EC130 B4. Refer to the appropriate Eurocopter ICA for instructions regarding parts of the aircraft that interface with the cargo hook.

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 associated with this type design change.

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ATA 5
Inspection and Overhaul Schedule

5.1 Cargo Hook Daily Check

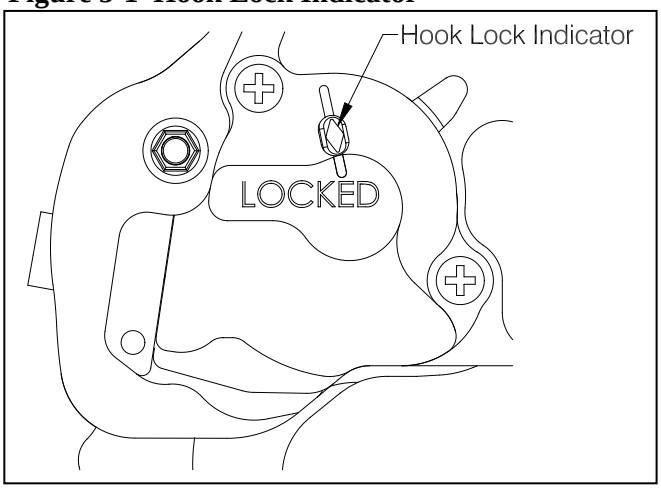
Daily, prior to the first cargo hook use of the day, perform the following:

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 hook by hand after release. If the hook does not release or re-latch, do not use the unit until the problem is fixed.

Depressing the electrical release switch continuously in excess of 20 seconds will cause the cargo hook 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 hook by hand after release. Verify that the hook lock indicator on the side of the hook returns to the fully locked position. In the fully locked position the hook lock indicator should align with the lines on the manual release cover (see Figure 5-1). If the hook does not release or re-latch, do not use the unit until the problem is resolved.

Figure 5-1 Hook Lock Indicator



3. Move the cargo hook throughout its full range of motion to ensure the manual and electrical release cables have enough slack. The cables must not be the stops that prevent the cargo hook or suspension from swinging freely in all directions.

4. Visually inspect for presence and security of fasteners and electrical connection.

5.2 Cargo Hook Inspection Schedule

The scheduled inspection intervals noted below are maximums and are not to be exceeded. If the cargo hook suspension system 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 external load operations, whichever comes first, inspect the cargo hook per the following.**

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.

1. 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. Contact Onboard Systems for the latest revision of the cargo hook service manual.
2. Move the cargo hook throughout its full range of motion and observe the manual and electrical release cables to ensure that they have enough slack. The cables must not be the stops that prevent the cargo hook from moving freely in all directions.
3. Visually inspect for presence and security of fasteners.
4. Visually inspect the electrical connection for damage and security.
5. Visually inspect the manual release cable connection for damage and security.

5.3 Cargo Hook Overhaul Schedule

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

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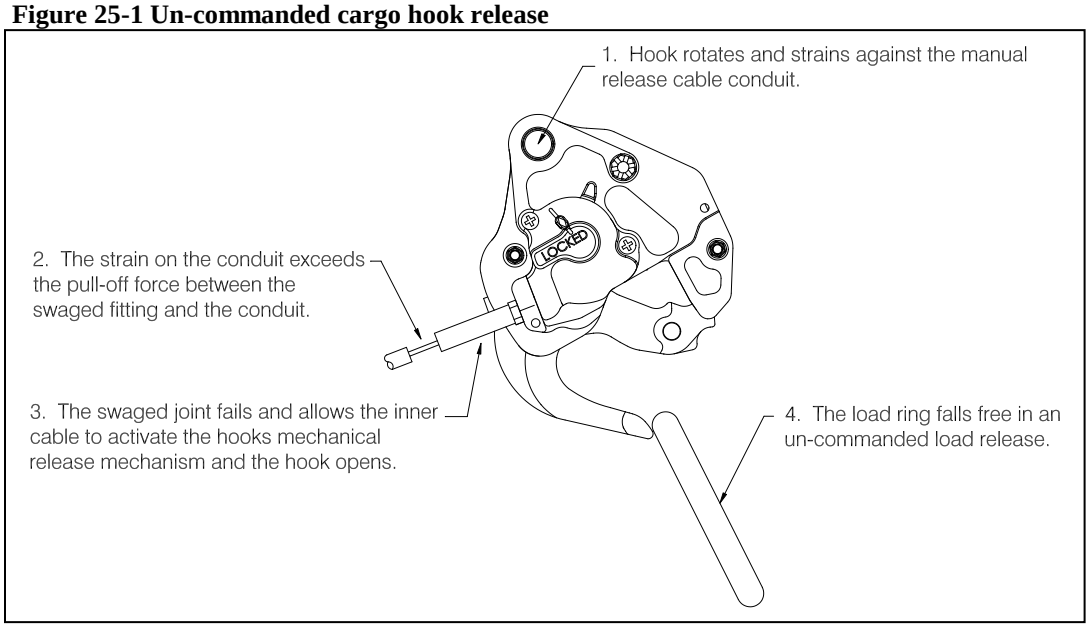
ATA 25
Equipment and Furnishings

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 consists of the installation of Cargo Hook P/N 528-029-00 that uses the existing rotorcraft cargo hook suspension system, electrical and mechanical release systems.

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 and an external manual release cable provide the means for unlatching the load beam.

25.5 Component Weights

The weight of the Cargo Hook is listed below.

Table 25-2 Component Weights

Item	Weight
Cargo Hook	3.0 lbs (1.4 kgs)

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. Refer to MIL-PRF-23199E and MIL-STD-2073-1D for additional guidance.

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 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 Eurocopter ICA for guidance on procedures relating to Eurocopter parts that interface with this suspension system.

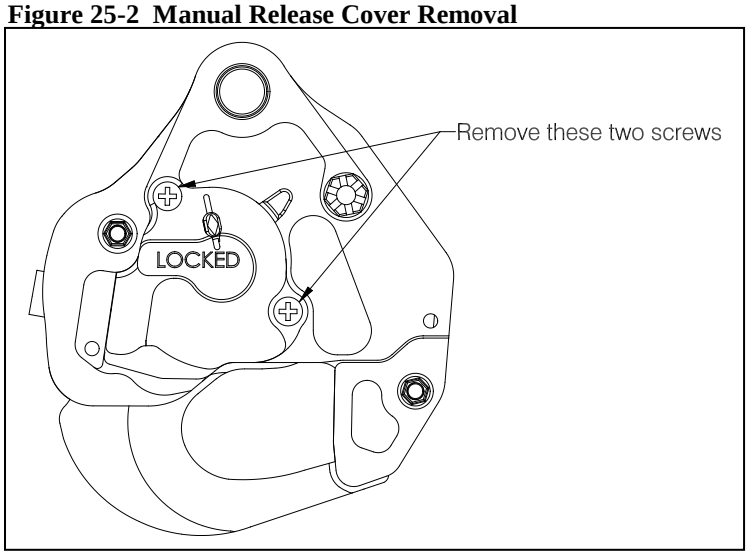
Table 25-3 Trouble Shooting

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	Remove and replace cargo hook.
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. Remove and replace cargo hook.
Load beam fails to relatch after being reset.	Defective latch mechanism	Remove and replace cargo hook.
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. Remove and replace cargo hook.
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	Retighten connector
Visible cracks or corrosion.	Visible cracks or corrosion.	Remove and replace cargo hook.
Visible cracks. Gouges or wear deeper than . 090	Visible cracks. Gouges or wear deeper than . 090	Remove and replace cargo hook.
Failure to open or re-lock properly	Failure to open or re-lock properly	Remove and replace cargo hook.
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 two screws.

Figure 25-2 Manual Release Cover Removal

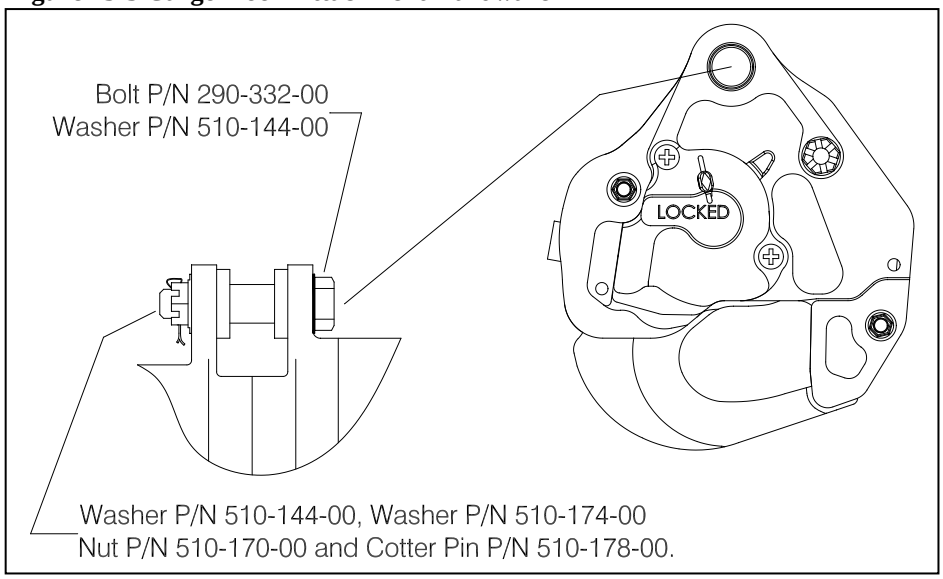


2. Remove the manual release cable from the Cargo Hook.
3. Remove the electrical release cable from the Cargo Hook.
4. Remove the cotter pin P/N, 510-178-00, from the Attach Bolt, P/N 290-332-00.
5. Remove the castellated nut, P/N 510-170-00, from the attach bolt.
6. Remove Attach Bolt and all washers.
7. Remove the Cargo Hook from helicopter.

25.17 Cargo Hook Re-installation

1. Inspect the Cargo Hook for evidence of damage, corrosion and security of 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. Attach the Cargo Hook, P/N 528-029-00, to the suspension system by installing the bolt, P/N 290-332-00 and washer, P/N 510-144-00, as illustrated in Figure 25-3.
4. Install washer, P/N 510-144-00, and washer, P/N 510-174-00, over bolt end.
5. Tighten nut, P/N 510-170-00, on bolt 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



25.17 Cargo Hook Re-installation, continued

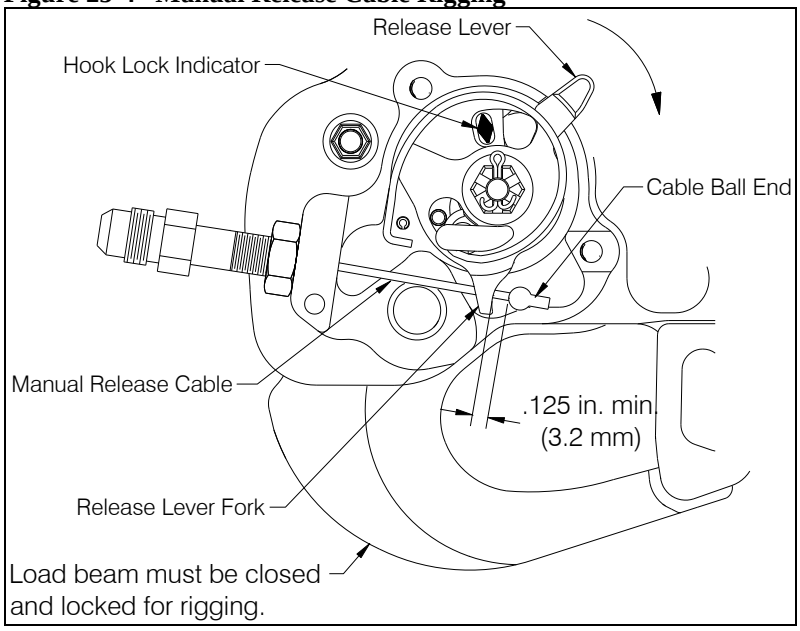
Connection of Manual Release Cable

1. Remove the manual release cover from the cargo hook.
2. Thread the Manual Release Adapter with jam nut into the cargo hook side plate.
3. Connect the manual release cable to the adapter.
4. Place the cable ball end fitting into the manual release lever fork as illustrated in Figure 25-4.
5. With the cargo hook closed and locked, rotate the release lever in the clockwise direction to remove free play and hold (the free play is taken up when the hook lock indicator begins to move).
6. Measure the cable ball end free play with the manual release handle in the cockpit in the non-release position. 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. Tighten jam nut.
8. Re-install the manual release cover with the two screws.

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

Daily, prior to each cargo hook use, and after 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 handle located between the seats 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 re-latch 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 cable have enough slack to allow full swing of the cargo hook without straining or damaging the cables. The cables must NOT be the stops that prevent the Cargo Hook from swinging freely in all directions.