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Instructions for Continued Airworthiness

Cargo Hook Sling Suspension System
For the
Airbus Helicopters
AS350Series

Part Number
200-282-03

STC SR01165SE

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Record of Revisions

Revision	*Date*	*Page(s)*	*Reason for Revision*
0	03/15/10	All	Initial Release
1	02/07/12	Section 5 page 1, 4 Section 25, page 4, 8, 9	Corrected system weights in Table 25.5.1. Updated electrical schematic to reflect latest Eurocopter configuration (a/c side). Clarified "hours of external load operations".
2	05/15/15	Section 5 pages 3-8 Section 25 pages 4, 8, 9, 11, 16, 18, 21	Added cargo hook rigging check to annual/100 hour inspection, added 1000 hour/5 year inspection instructions for the suspension system, updated electrical schematic, added load cell P/N 210-203-03, corrected Gimbal attach hardware P/N's.
3	03/05/18	Section 5 page 4 and 7	Revised instructions for returning load cell to the factory for inspection and calibration.
4	04/26/19	Section 5 page 1, Section 11	Added reference to CMM 122-017-00, added placards Table 11.1.

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Section 0
Introduction

0.4 Scope

The following information is necessary to carry out the service, maintenance, and inspection of the Cargo Hook Sling Suspension System P/N 200-282-03.

0.5 Purpose

The purpose of this Instructions for Continued Airworthiness (ICA) manual is to provide the information necessary to inspect, service, and maintain in an airworthy condition the P/N 200-282-03 Cargo Hook Sling Suspension System.

0.6 Arrangement

This manual contains instructions for the service, maintenance, inspection and operation of the Cargo Hook Sling Suspension System P/N 200-282-03 on Airbus Helicopters Model AS350 series helicopters. The manual is arranged in the general order that maintenance personnel would use to install, maintain and operate the Cargo Hook Sling Suspension System in service.

The arrangement is:

Section 0 Introduction.
Section 4 Airworthiness limitations (None apply to this System.)
Section 5 Inspection and overhaul schedule
Section 11 Placards and Markings
Section 25 Equipment and Furnishings

0.7 Applicability

These Instructions for Continued Airworthiness are applicable to Cargo Hook Sling Suspension System P/N 200-282-03 (with Cargo Hook P/N 528-029-00) for the Airbus Helicopters AS350 series. Refer to the appropriate Airbus Helicopters maintenance documentation for instructions regarding parts of the aircraft that interface with the P/N 200-282-03 system.

0.9 Abbreviations

FAA Federal Aviation Administration
ICA Instructions for Continued Airworthiness

0.12 Precautions

The following definitions apply to precaution flags 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

4.2 No airworthiness limitations

The Airworthiness Limitations section is FAA approved and specifies inspections and other maintenance required under Secs. 43.16 and 91.403 of the Federal Aviation Regulations 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 Sling Suspension System 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.

Annually or 100 hours of external load operations, whichever comes first, inspect the cargo hook and other kit components per the following. Refer also to Component Maintenance Manual (CMM) 122-017-00 for additional inspection.

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

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.

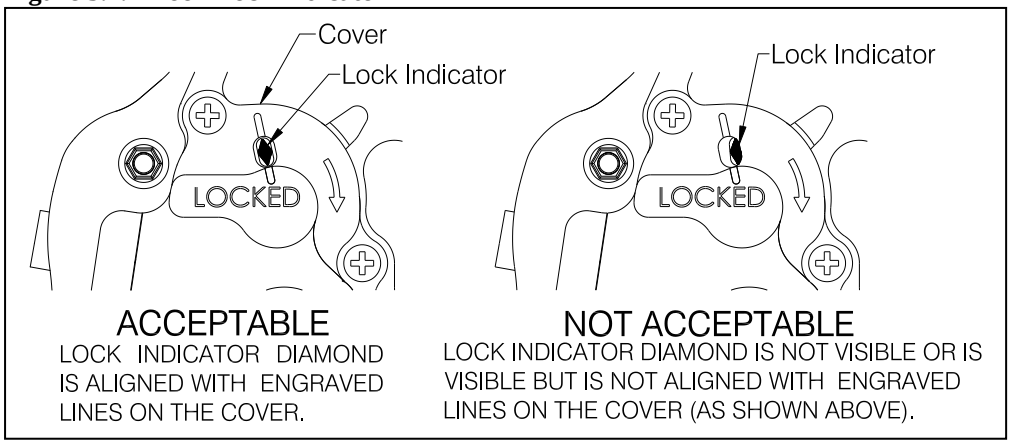
2. Activate the manual release system by pulling the release lever in the cockpit. The cargo hook must release. Reset the cargo hook by hand after release. Verify that the hook lock indicator on the side of the hook returns to the fully locked position. If the hook does not release or re-latch, do not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

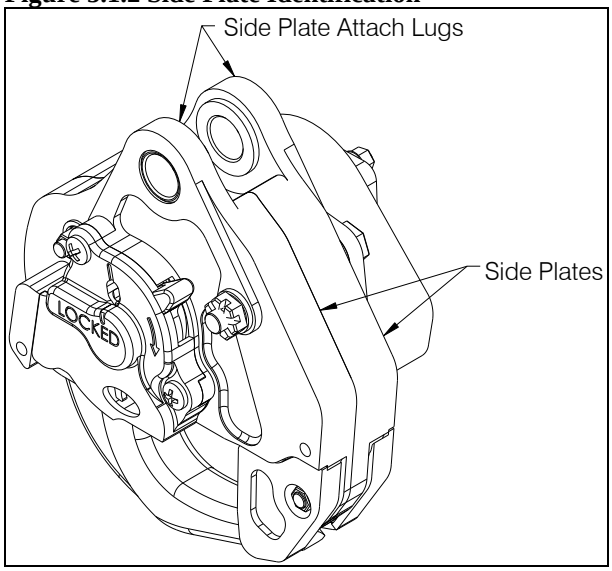
5.1 Cargo Hook Sling Suspension System Inspection continued

Figure 5.1.1 Hook Lock Indicator



3. 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.

Figure 5.1.2 Side Plate Identification

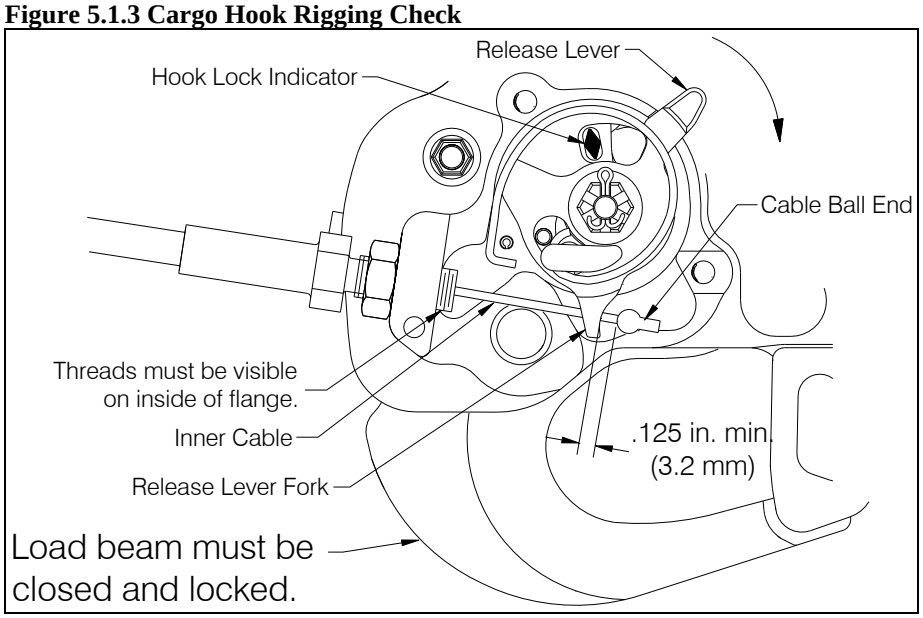


4. Move the cargo hook throughout its full ranges of motion and observe the manual release cable and electrical harnesses to ensure that they have enough slack. The release cable and harnesses must not be the stops that prevent the cargo hook or suspension from moving freely in all directions.
5. Visually inspect for presence and security of fasteners and electrical connections.
6. Visually inspect the external electrical wire harnesses for damage and security.

5.1 Cargo Hook Sling Suspension System Inspection continued

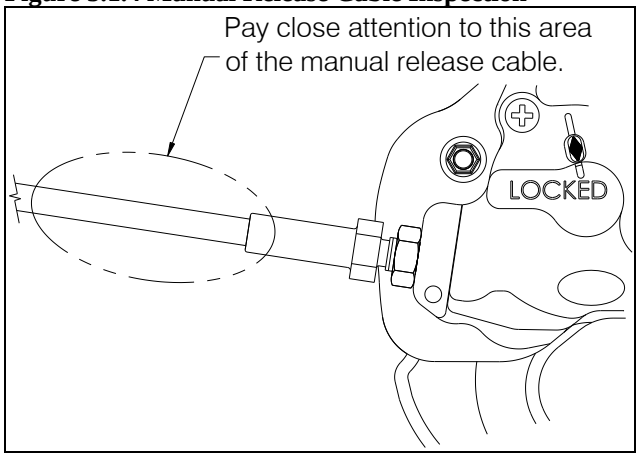
7. Remove the manual release cover and check the manual release cable rigging. Ensure the load beam is closed and locked. Rotate the manual release lever clockwise to remove the free play (the free play is taken up when the hook lock indicator begins to move, this is also readily felt as the lever rotates 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. Check that there is a minimum gap of .125" (3.2 mm) as shown in Figure 5.1.3. Ensure that the manual release cable threads are visible inside the hook flange.

Figure 5.1.3 Cargo Hook Rigging Check



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 5.1.4). Inspect for splitting of the outer black conduit in this area and separation of the conduit from the steel end fitting.

Figure 5.1.4 Manual Release Cable Inspection



9. Verify calibration of the load cell by lifting a load of known weight (see applicable Owner's Manual for instructions).

5.1 Cargo Hook Sling Suspension System Inspection continued

Every 5 years or 1000 hours of external load operations, whichever comes first, remove the suspension system from the aircraft, disassemble, and inspect the component parts per the following. Refer to Figure 5.1.5 for item numbers ( ) and Table 5.1.1 for their part numbers.

Remove the cargo hook suspension from the helicopter per Section 25.16.

Remove the cotter pin (11), nut (10), and washers (8, 9) from the end of the cargo hook attach bolt (7) and remove the attach bolt and washer (8) to separate the cargo hook (13) from the load cell assembly (12).

At the other pivot point of the load cell remove the cotter pin (11), nut (10), and washers (8, 9) from the end of the attach bolt (7) and remove the attach bolt and washer (8) to separate the gimbal assembly (1) from the load cell assembly.

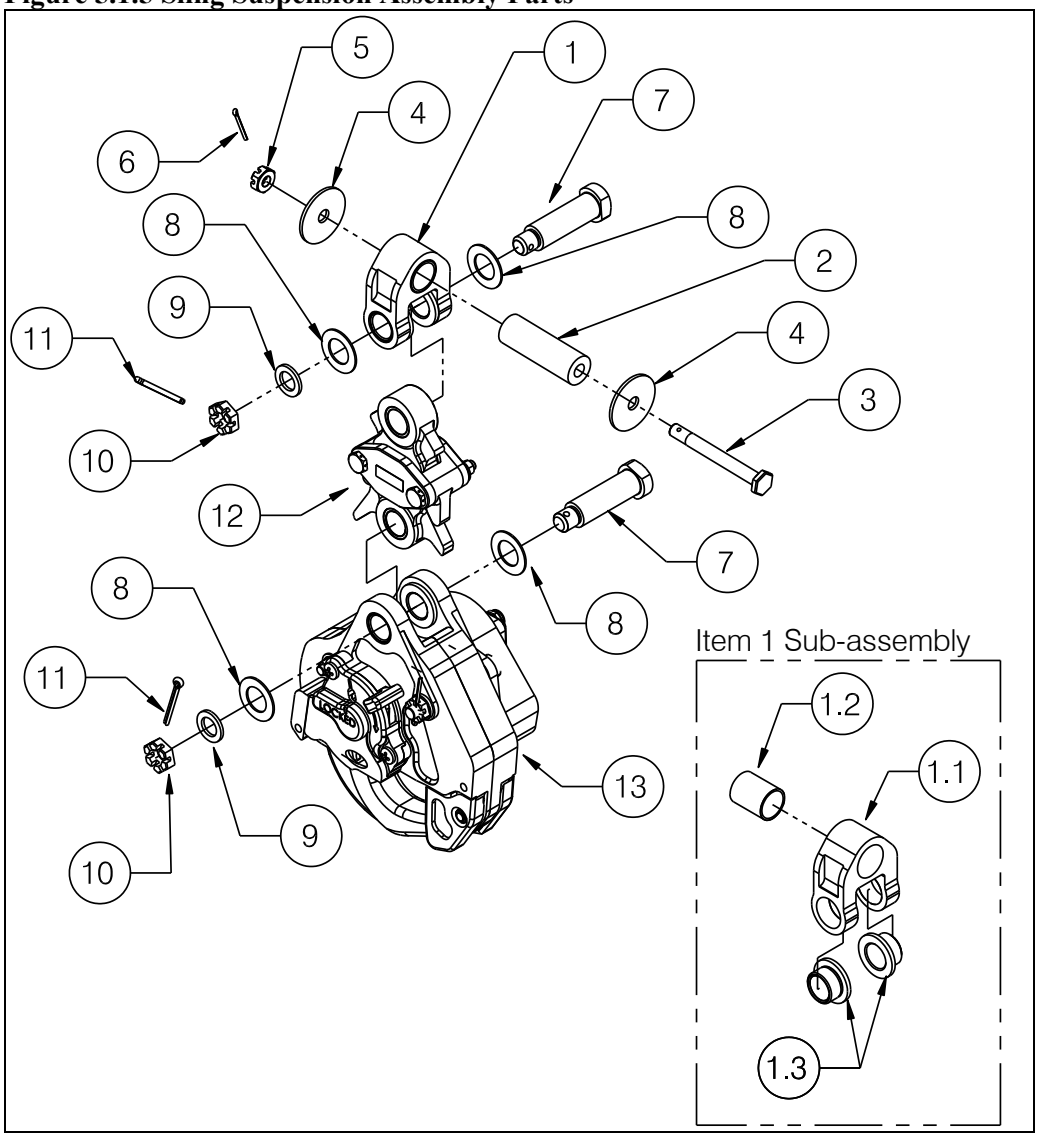
Return the Load Cell Assembly (12) to the factory for inspection and calibration. The factory will inspect the condition of the load cell and perform acceptance test procedures including calibration and zero balance, repairing as necessary.

Perform inspection on the remaining parts per the instructions below. Refer to CMM 122-017-00 for inspection and overhaul of the cargo hook.

- Carefully inspect the component parts in accordance with the instructions in Table 5.1.2. Inspect the parts in a clean, well-lit room using standard dimensional measuring tools and visual methods. Repair parts found within inspection limits. Replace any part found beyond limits. Refer to Figure 5.1.5 and Table 5.1.1 for part identification.

5.1 Cargo Hook Sling Suspension System Inspection continued

Figure 5.1.5 Sling Suspension Assembly Parts



5.1 Cargo Hook Sling Suspension System Inspection continued

Table 5.1.1 Sling Suspension Assembly Parts

Item	Part No.	Description	Qty
1	232-144-00	Gimbal Assembly	1
1.1	290-767-00	Gimbal	1
1.2	517-051-00	Bearing	1
1.3	290-294-00	Attach Bushing	2
2	290-766-00	Gimbal Shaft	1
3	510-451-00	Bolt	1
4	510-336-00	Washer	2
5	510-259-00	Nut	1
6	510-081-00	Cotter Pin	1
7	290-332-00	Attach Bolt	2
8	510-183-00	Washer	4
9	510-174-00	Washer	2
10	510-170-00	Nut	2
11	510-178-00	Cotter Pin	1
12	210-203-03*	Load Cell Assembly	1
13	528-029-00	Cargo Hook	1

*Supersedes 210-203-00.

5.1 Cargo Hook Sling Suspension System Inspection continued

Table 5.1.2 Inspection Criteria

Item	Component	Inspection Criteria & Limit	Repair Action	Finish	Recommended replacement at 1000 hour/5 year
1.	Gimbal (1.1)	Dents, nicks, gouges, scratches and corrosion – 0.030 in. (0.76 mm) deep.	Glass bead blast at less than 30 PSI to remove corrosion. Blend at 10:1 ratio as required to provide smooth transitions. Replace bushings if required. Install bushings with zinc chromate primer (TT-P-1757 or similar).	Passivate per AMS-QQ-P-35 or ASTM A967	No
2.	Gimbal (1.1)	Visible cracks	None. Replace.	N/A	No
3.	Bearing (1.2)	Wear – more than 50% copper showing	None. Replace.	N/A	Yes
4.	Attach Bushing (1.3)	Wear on ID – 0.520 in. (13.21 mm)	None. Replace.	N/A	Yes
5.	Gimbal Pin (2)	Wear on OD - .57 in. (14.48 mm)	None. Replace.	N/A	No
6.	Attach Bolt (7)	Wear on OD - .495 in. (12.57 mm)	None. Replace.	N/A	No
7.	Remaining bolts, nuts, washers	Wear, corrosion, or deterioration	None. Replace.	N/A	Yes
8.	Load Cell Assembly (12)	Wear on bushing IDs – 0.520 in. (13.21 mm). Dents, nicks, gouges, scratches and corrosion in link – 0.030 in. (0.76 mm) deep. Cracks in link.	Return to factory for inspection.		
9.	Cargo Hook (13)	Refer to CMM 122-017-00.			

Upon completion of inspection, re-assemble cargo hook to load cell and load cell to gimbal assembly referring to Figure 5.1.5. Apply thin film of grease (Mobilgrease 28 or AeroShell 7 is recommended) to OD of each attach bolt. Tighten nuts to finger tight and rotate to previous castellation if necessary to insert cotter pin.

5.2 Cargo Hook Overhaul Schedule

The overhaul of the Cargo Hook shall be in accordance with the schedule below. Time Between Overhaul (TBO): 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.*

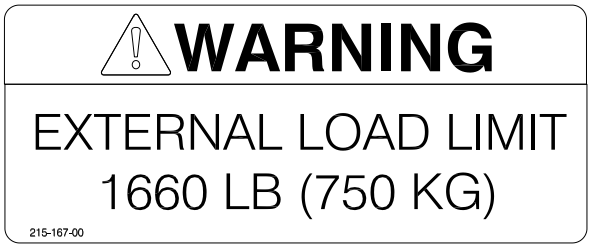
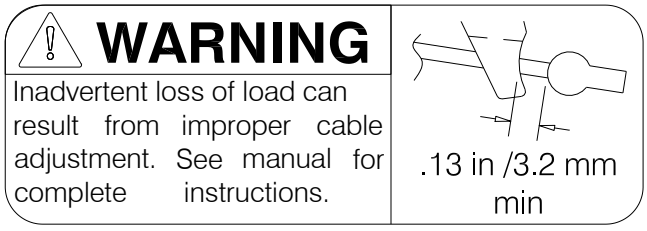
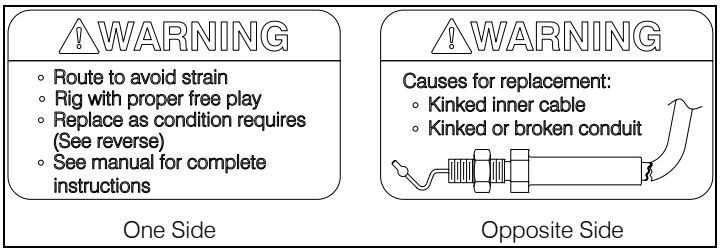
Overhaul the cargo hook per component maintenance manual 122-017-00. Contact Onboard Systems for guidance to locate authorized overhaul facilities.

Section 11
Placards and Markings

11.1 Placards

The 200-282-03 Cargo Hook Sling Suspension System Kit includes the following placard shown in Table 11.1.

Table 11.1 Cargo Hook Suspension System Placards

Placard P/N and appearance	Location
P/N 215-167-00 	Located on the belly of the aircraft near the cargo hook suspension in clear view of the ground support personnel.
P/N 215-240-00 	Adhered to the underside of the cargo hook electrical housing.
P/N 215-272-00 	Attached around the manual release cable, near the cargo hook.

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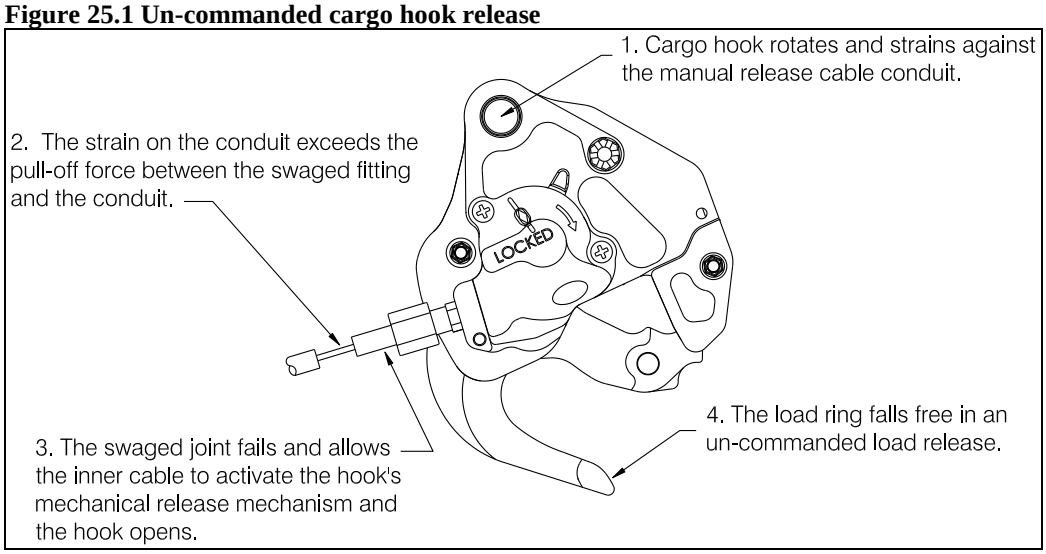
Section 25
Equipment and Furnishings

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 Sling Suspension System consists of four primary subsystems: Sling Suspension Assembly, Electrical Release System, Manual Release System, and the Load Weigh System.

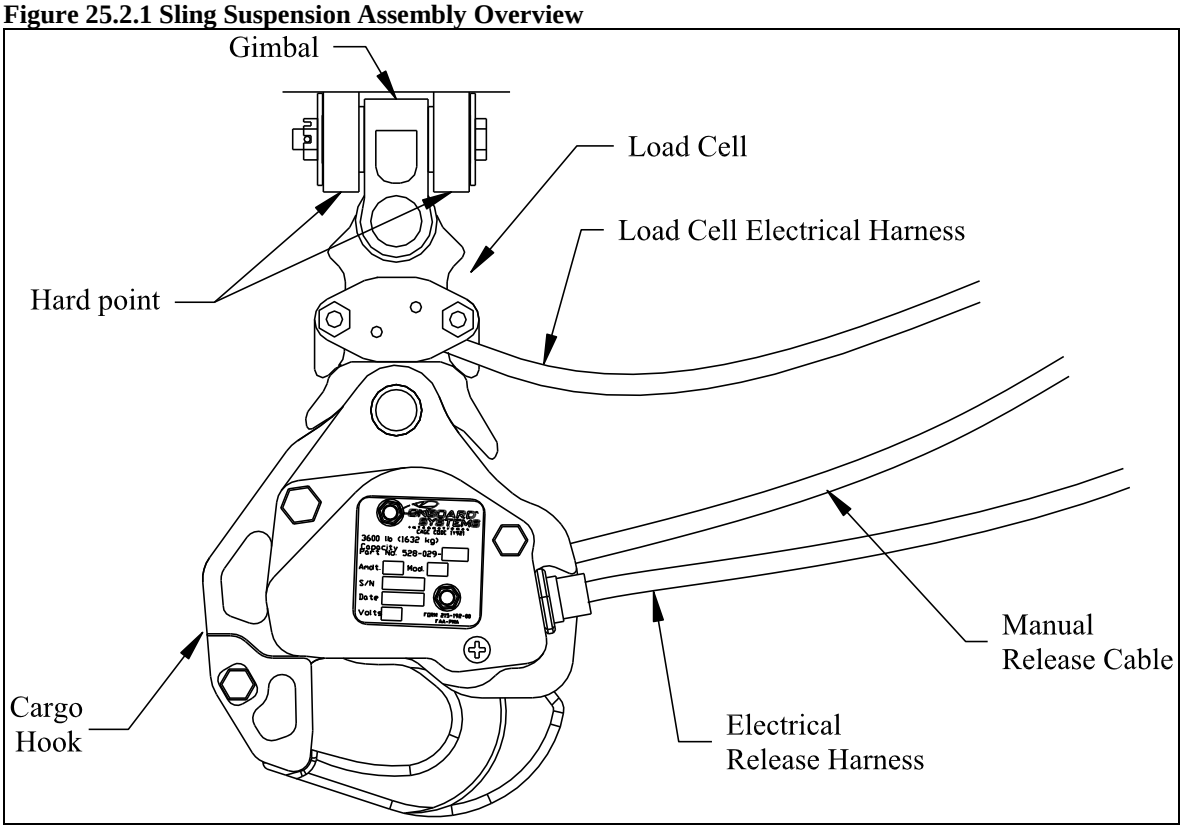
The Sling Suspension Assembly includes the cargo hook, the load cell body, and the Gimbal. It is attached to the hard point on the belly of helicopter through the Gimbal as illustrated below.

The Electrical Release System provides a means to release a cargo hook load by activating a switch in the cockpit. The 200-282-03 kit includes the internal electrical wiring harness which interfaces with the switch and the external electrical release harness.

The Manual Release System provides an additional means to release a hook load and is actuated by a lever mounted to the collective. The 200-282-03 kit includes the internal manual release cable including the lever mounted to the collective and the external manual release cable.

The Load Weigh System consists of the load cell on the suspension, an Indicator within the cockpit, and interconnecting electrical wiring harness.

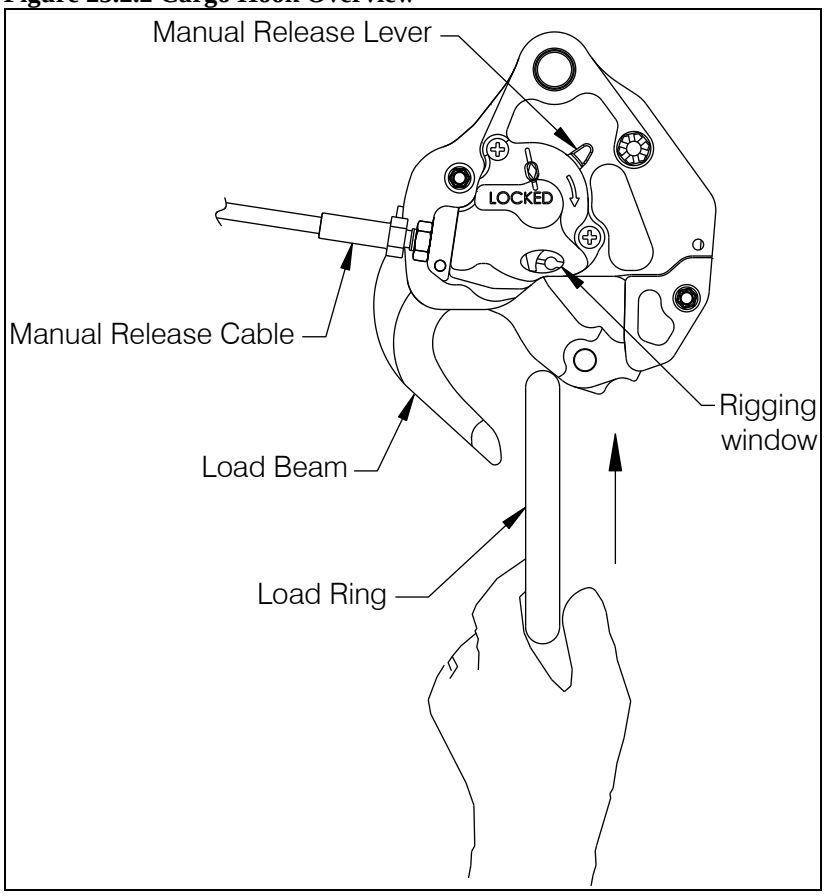
Figure 25.2.1 Sling Suspension Assembly Overview



25.2 Description continued

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 25.2.2), 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 25.2.2).

Figure 25.2.2 Cargo Hook Overview



25.5 Component Weights

The weights and cgs of the system components are listed in Table 25.5.1.

Table 25.5.1 Component Weights and CGs

Item	Weight	Station
Removable Provisions*	5.0 lbs (2.27 kg)	130.2 in (3307 mm)
Fixed Provisions**	3.7 lbs (1.68 kg)	92 in (2337 mm)
Total	8.7 lbs (3.95 kg)	113.9 in (2894 mm)

***** The removable provisions include the sling suspension w/ hook, external manual release cable, and external electrical release cable. These items are easily removed if they are not needed on the helicopter's mission. Refer to Suspension System Removal in Section 25.16 for removal instructions.

** The fixed provisions are those items of the kit that remain on the aircraft. These include the fixed manual release cable, internal electrical wire harnesses, the load weigh indicator, and the miscellaneous brackets that support these items.

25.12 Storage Instructions

Refer to CMM 122-017-00 for storage instructions for the Cargo Hook. Clean suspension 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-23199 and MIL-STD-2073-1 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 Troubleshooting

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 Airbus Helicopters maintenance documentation for guidance on procedures relating to Airbus Helicopters parts that interface with this suspension system. Repair to the suspension system beyond what is described in this manual is not authorized by these instructions. Contact Onboard Systems for further guidance if necessary.

Table 25.15.1 Troubleshooting

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 cargo hook component maintenance manual (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).
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 cargo hook 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 cargo hook 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 cable from hook and check 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 (see Sections 25.16 and 25.17 for remove and replace instructions for manual release cable).
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 cargo hook CMM 122-017-00.
Cargo hook fails to open or re-lock properly.	Failure to open or re-lock properly.	Remove and replace cargo hook (see Sections 25.16 and 25.17) or repair per cargo hook CMM 122-017-00.
Fuse opens when cargo hook is energized.	Short in the system, faulty wiring, fuse or solenoid.	Check for shorts to ground along length of wire harness (see note 2). Check solenoid resistance (see note 1), repair or replace defective parts.

25.15 Troubleshooting continued

Table 25.15.1 Troubleshooting continued

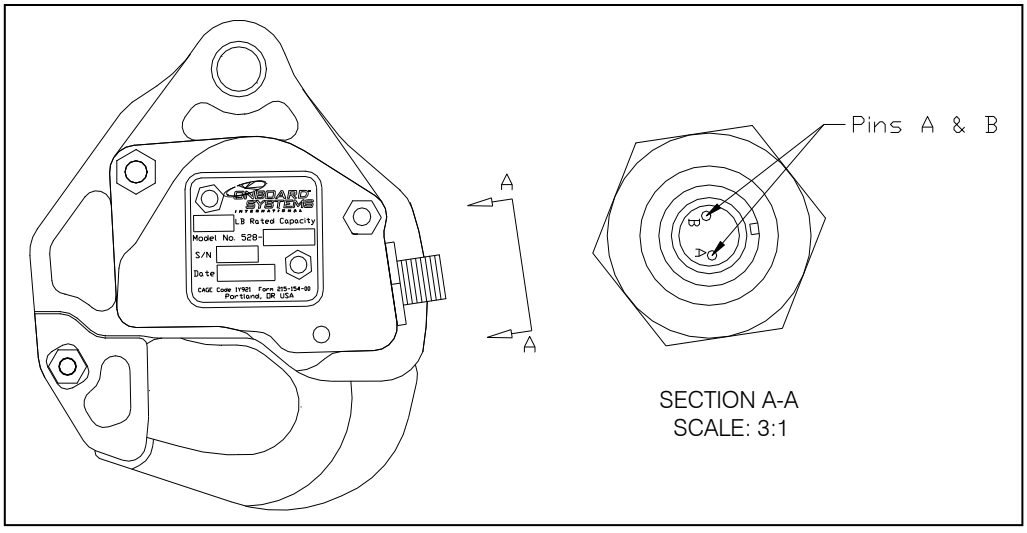
MALFUNCTION	PROBABLE CAUSE	CORRECTIVE ACTION
Load Weigh Indicator does not light up.	Faulty wiring or fuse.	Check the fuse (refer to Airbus Helicopters' maintenance instructions) and wiring (see Note 2). If this doesn't help, remove and replace indicator per sections 25.16 and 25.17.
The displayed load on the Load Weigh Indicator is incorrect.	Incorrect calibration code.	Ensure the correct calibration code has been entered (see Note 3).
Indicator displayed load is not stable.	Dampening level is too low.	Adjust the dampening level to a higher number (see Note 4).
Indicator displayed load takes too long to change the reading when the load is changed.	Dampening level is too high.	Adjust the dampening level to a lower number (see Note 4).
Indicator does not change with changing hook loads.	Defective load cell, indicator failure or damaged wire harness.	Check for damaged wire harness (see note 2), remove and replace wire harness assembly or load cell (see sections 25.16 and 25.17).

Notes:

1. **Checking resistance at pins A and B.**

   Check for 3.0 to 4.0 ohms between pins A and B of electrical connector located on the cargo hook (see below).

Figure 25.15.1 Cargo Hook Electrical Connector



25.15 Troubleshooting continued

Table 25.15.1 Notes continued:

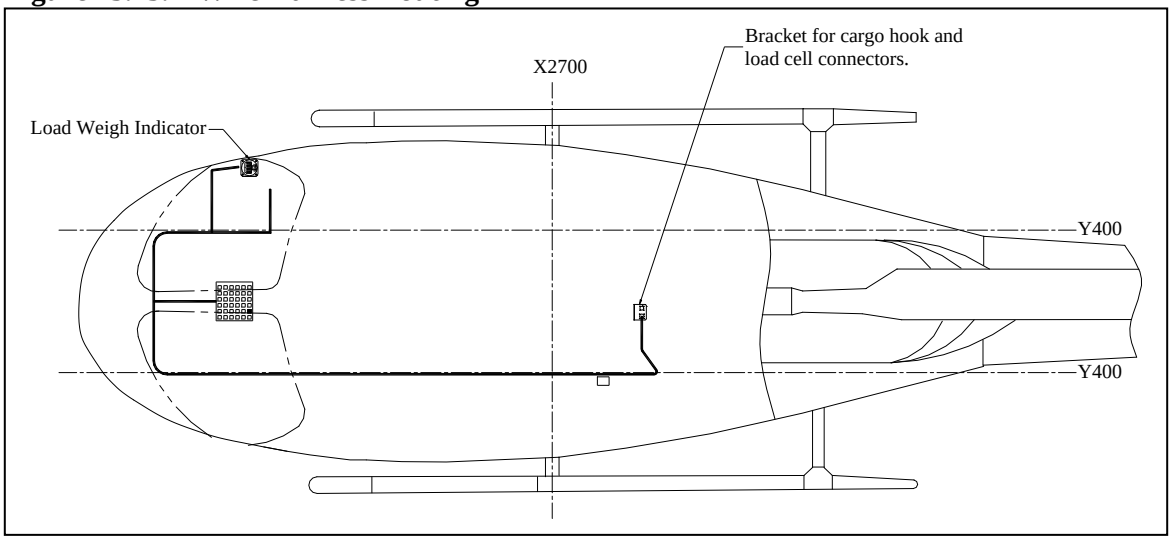
2. Checking Wire Harnesses

As appropriate, before working on a circuit, e.g. - inspection, removal-installation of components, check that the aircraft system is not energized:

- "EXT. PWR. BAT." push-button is released.
- External power connector is not supplied
- Further precaution: remove the fuse(s) from the corresponding circuits (refer to Figure 25.15.3)

The wire harnesses are routed with and secured to existing wire bundles and are located approximately as shown below. Remove lower fairings to inspect wiring underneath the cabin floor. Inspect for general condition and chafing along length of wire runs. See Figure 25.15.3 for electrical schematic.

Figure 25.15.2 Wire Harness Routing

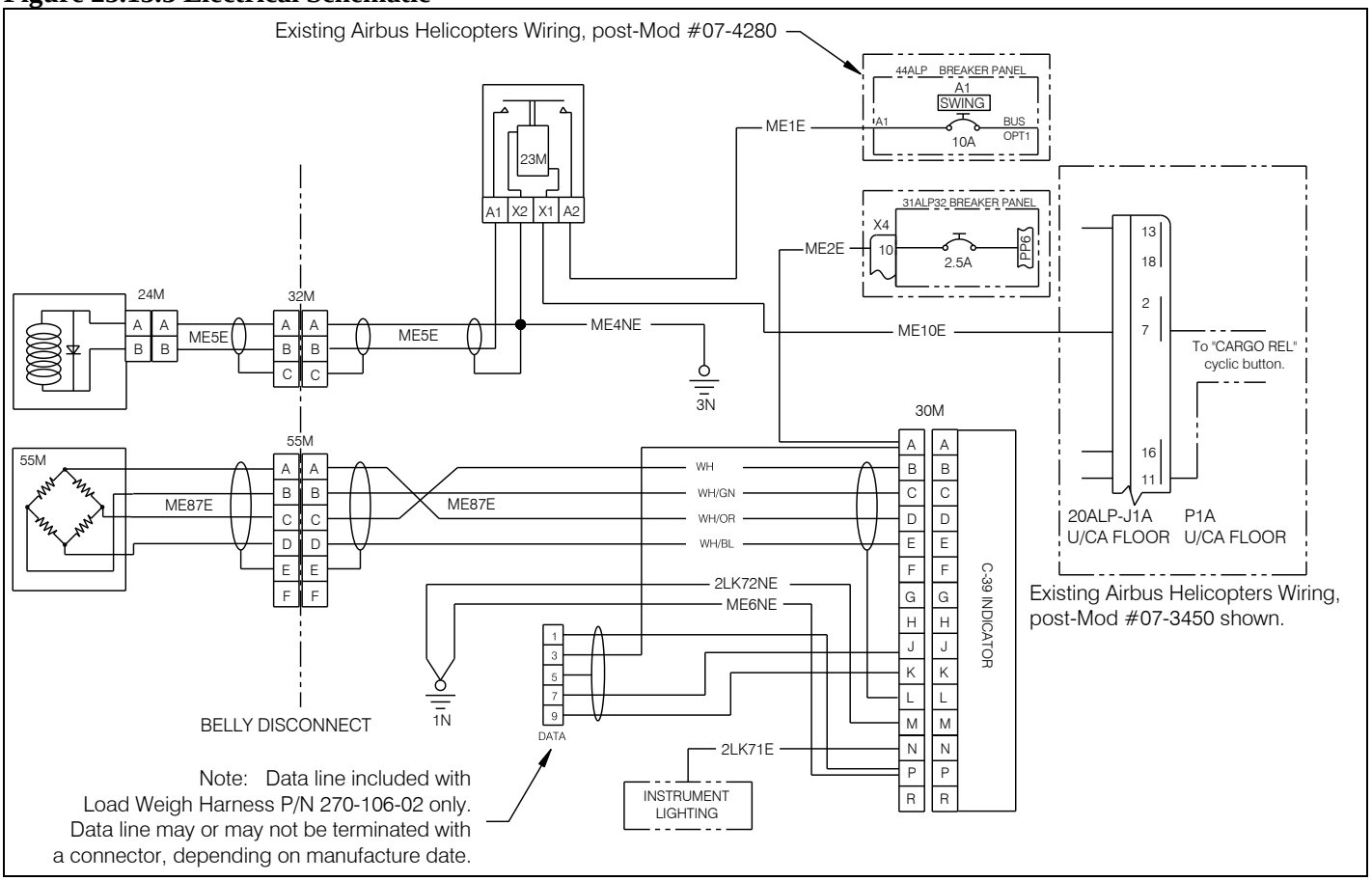


25.15 Troubleshooting continued

2. Checking Wire Harnesses continued

The electrical schematic for the electrical release system and the load weigh system is shown below. Airbus Helicopters modification #'s 07-3273, 07-3274, and 07-3475 are reflected below. Earlier Airbus Helicopters configurations which affected how and where wire numbers ME1E, ME2E and ME10E of the electrical release harness and load weigh harness interface with the helicopter are shown on the following page. Refer to the applicable Airbus Helicopters Wiring Diagrams Manual for additional information.

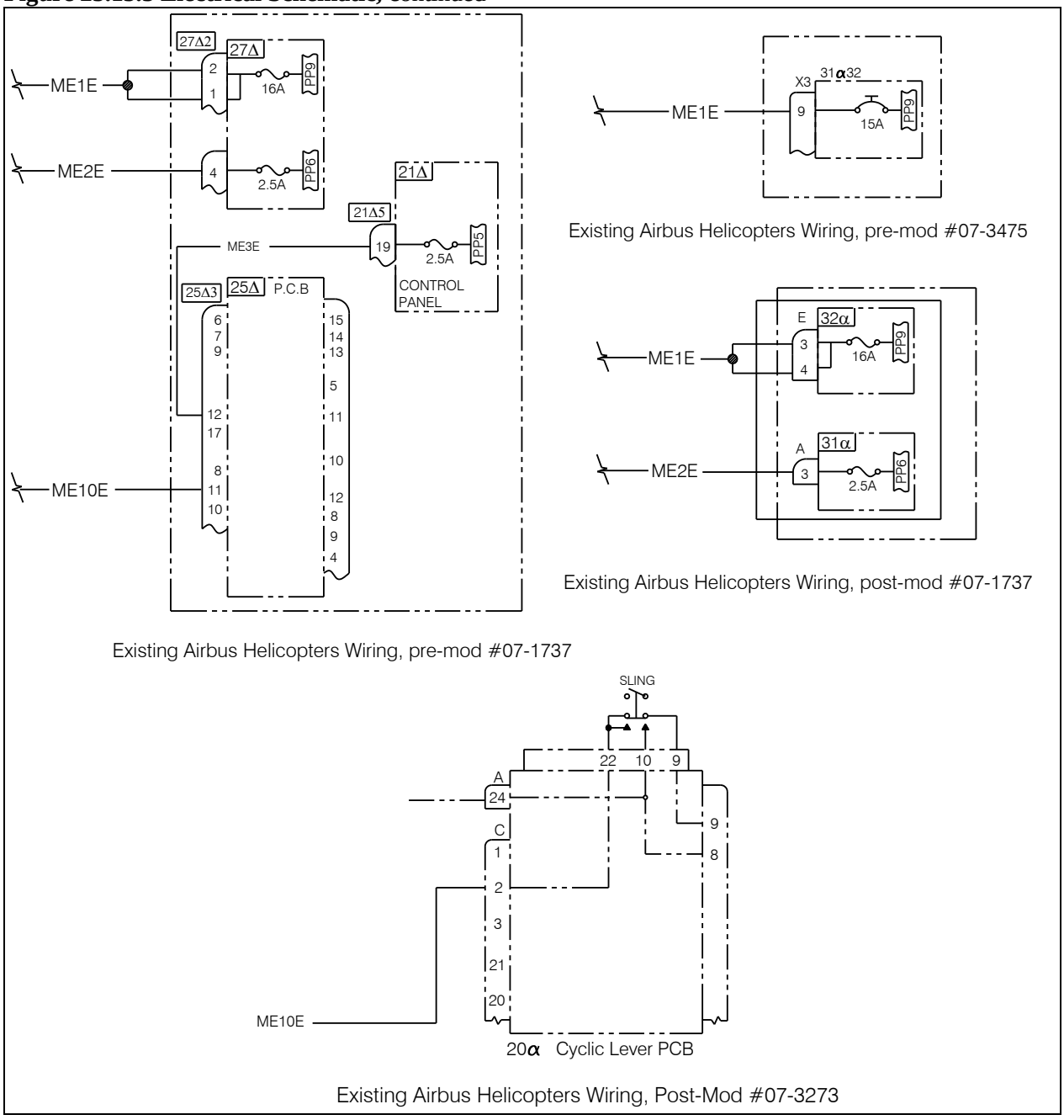
Figure 25.15.3 Electrical Schematic



25.15 Troubleshooting continued

2. Checking Wire Harnesses continued

Figure 25.15.3 Electrical Schematic, continued



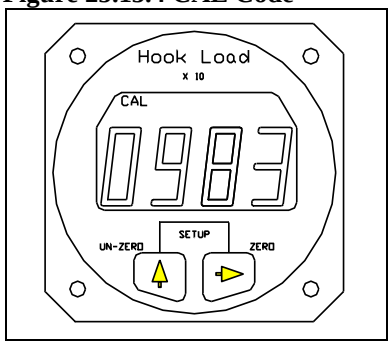
25.15 Troubleshooting continued

Table 25.15.1 Notes continued:

3. Checking Load Weigh Indicator calibration code:

With the Indicator powered up and in the Run Mode, press both buttons at the same time to go to Setup. Scroll through the menu until the word CODE is displayed, then press the Right button. The display should look like this:

Figure 25.15.4 CAL Code

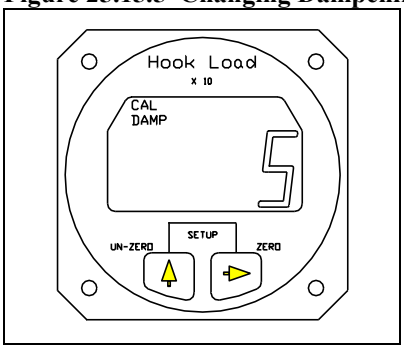


This code should match the code printed on the tag attached to the load cell cable. If this code does not match, contact Onboard Systems for further guidance.

4. Adjusting dampening level:

With the Indicator powered up and in the Run Mode, press both buttons at the same time to go to Setup. Scroll through the menu, using the Left button, until the word DAMP is displayed. To look at or change the Dampening Level press the Right button. The display should look like this:

Figure 25.15.5 Changing Dampening Level



The CAL and the DAMP legend is turned on and the previously set dampening level is displayed. To return to Run without changing the current dampening level press both the Right and Left buttons at the same time. To change the dampening number, use the Left button to scroll the blinking digit to the desired number. Ten dampening levels are available, from 0 through 9. At level 0 the display responds to the slightest change in weight. However, if the load bounced even slightly, the display digits would respond instantly, making the display look unstable. With a dampening level of 9, the display would be stable under the most turbulent conditions, however, it would take several seconds for the display to respond to a change in weight. The ideal dampening level will depend on the flying conditions. A mid range setting of 5 or 6 is usually adequate. After the selection has been made press both the Right and Left buttons at the same time to return to Run.

25.16 Component Removal

Cargo Hook Removal

1. Disconnect the electrical release harness connector from the cargo hook.
2. Remove the cotter pin (P/N 510-178-00) from the Attach Bolt (P/N 290-332-00).
3. Remove the castellated nut (P/N 510-170-00) from the Attach Bolt.
4. Remove Attach Bolt and all washers.
5. Remove cargo hook from suspension system.
6. Remove manual release cover by removing 2 screws (reference Figure 25.16.2).
7. Loosen jam nut and remove the manual release cable from the Cargo Hook by turning the cargo hook.

Suspension Removal

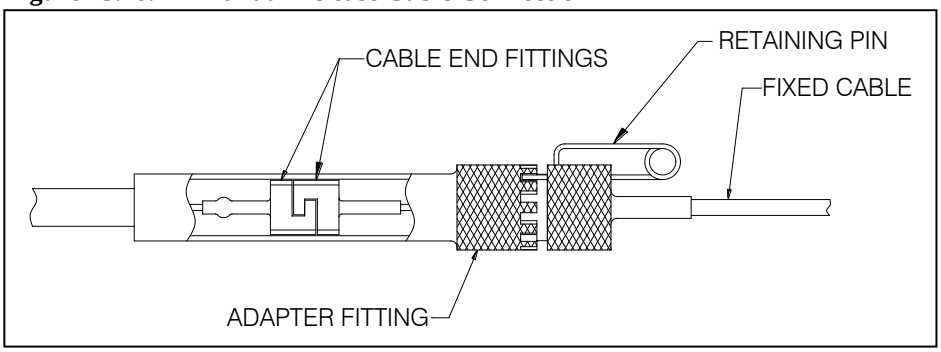
1. Disconnect the load cell harness at the bulkhead connector on the belly of the aircraft.
2. Disconnect the electrical release harness at the bulkhead connector on the belly of the aircraft.
3. Disconnect the manual release cable at the junction fitting on the belly (reference Figure 25.16.1).
4. At the pivot point at the aircraft hard point, remove the cotter pin (P/N 510-081-00) from the bolt (P/N 510-451-00).
5. Remove the castellated nut (P/N 510-259-00) from the bolt.
6. Remove the bolt and all washers.
7. Remove Gimbal Pin (P/N 290-766-00) and remove the suspension from aircraft hard point.

25.16 Component Removal continued

Manual Release Cable Removal

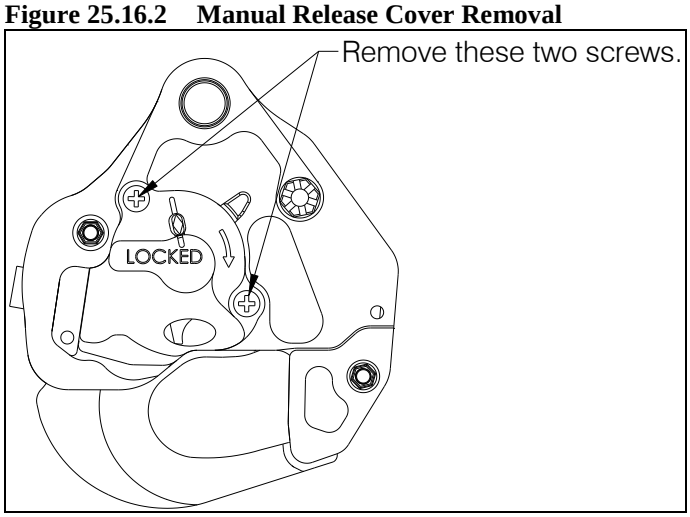
1. Disconnect the release cable at the junction with the fixed manual release cable on the belly of the helicopter by disengaging the retaining pin and unthreading the Adapter Fitting.

Figure 25.16.1 Manual Release Cable Connection



2. At the other end of the cable (at the cargo hook) remove the two screws that secure the manual release cover to the hook (see below), remove the cover, and unhook the cable ball end from the fork fitting.

Figure 25.16.2 Manual Release Cover Removal



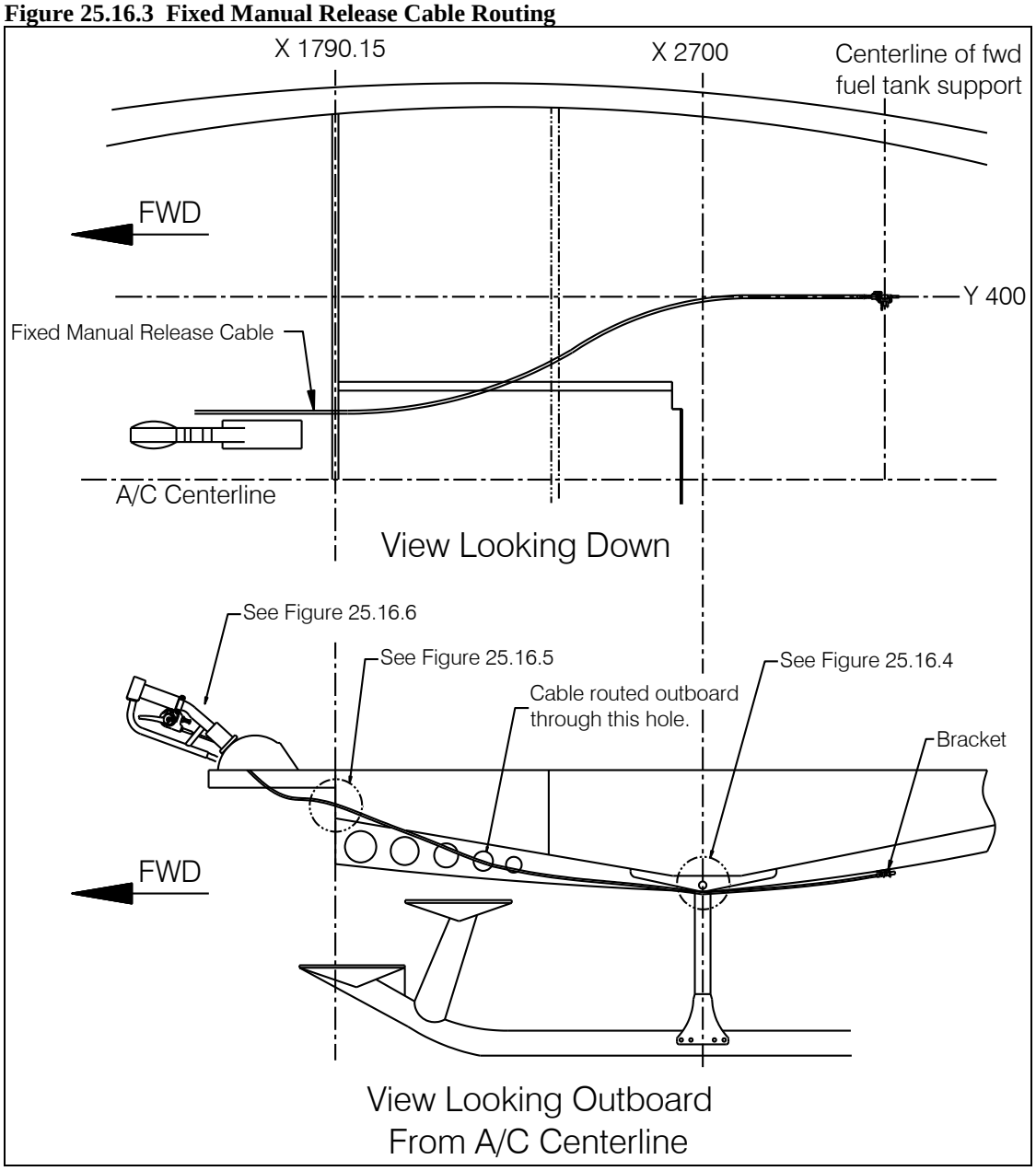
3. Loosen the jam nut and unthread the release cable from the hook.

25.16 Component Removal continued

Fixed Manual Release Cable Assembly Removal

The fixed manual release cable is routed from the release lever mounted to the collective to the bracket on the belly of the helicopter where it is mated with the removable section of the cable.

Figure 25.16.3 Fixed Manual Release Cable Routing

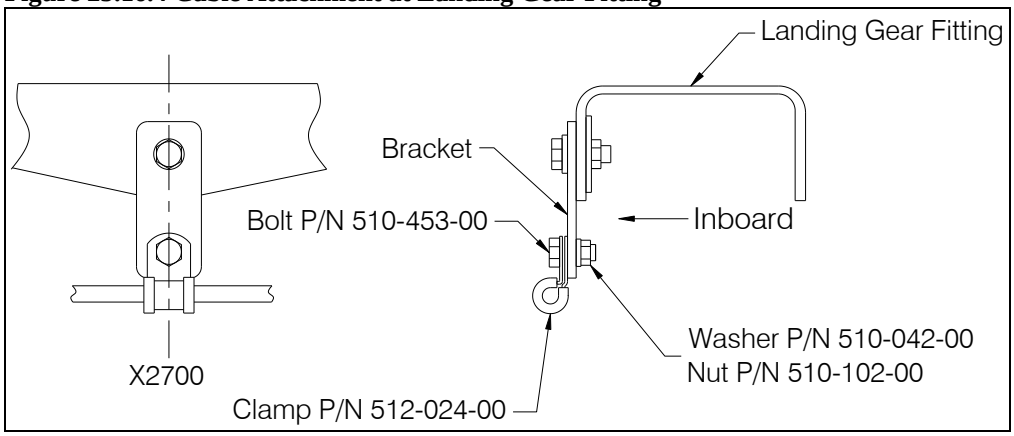


25.16 Component Removal continued

Fixed Manual Release Cable Assembly Removal continued

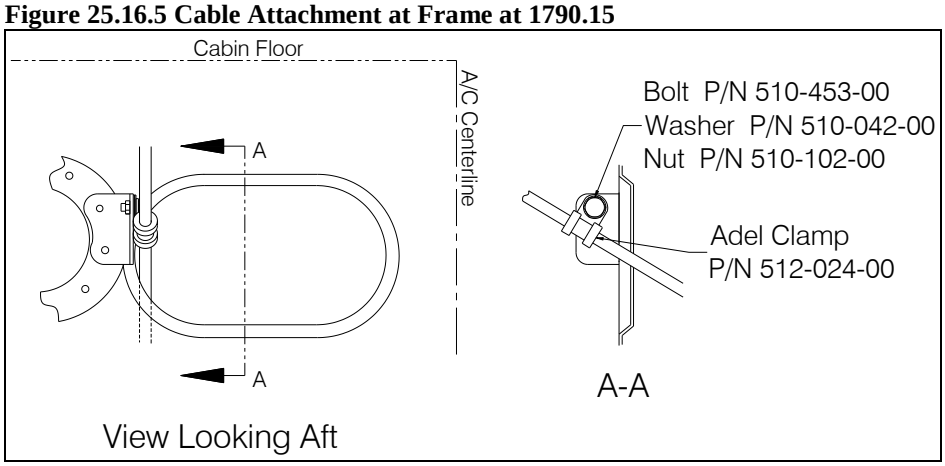
1. Unclip the end of the cable assembly from the bracket on the belly of the helicopter.
2. Remove the clamp from the bracket at the RH forward landing gear fitting and remove it from the cable.

Figure 25.16.4 Cable Attachment at Landing Gear Fitting



3. Moving farther forward, remove the adel clamp at the bracket at frame at X1790.15 and remove it from the cable.

Figure 25.16.5 Cable Attachment at Frame at 1790.15

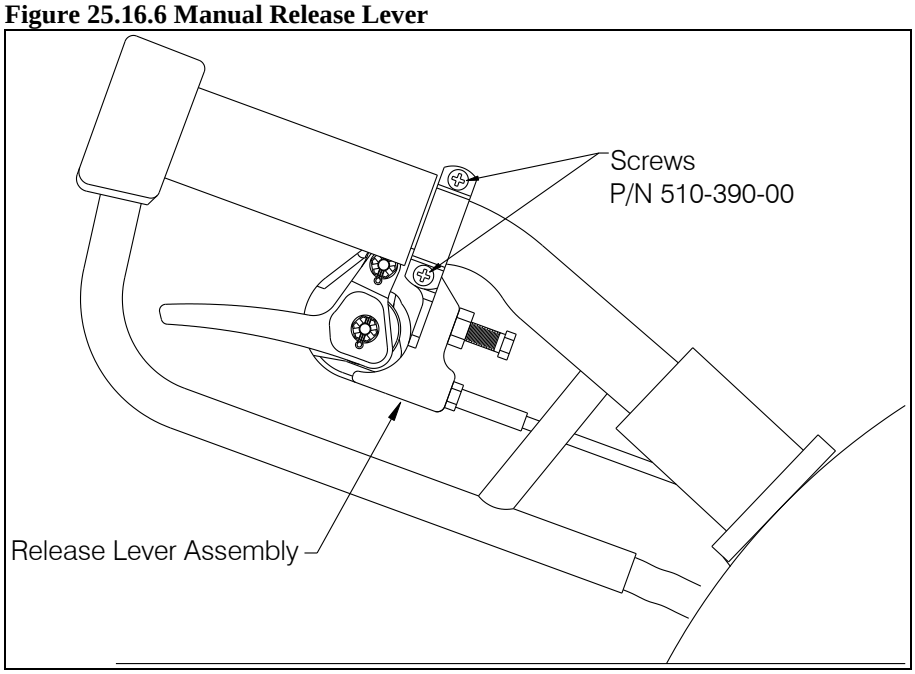


25.16 Component Removal continued

Fixed Manual Release Cable Assembly Removal continued

4. Above the floor and on the collective remove the release lever by removing two screws (see below).

Figure 25.16.6 Manual Release Lever

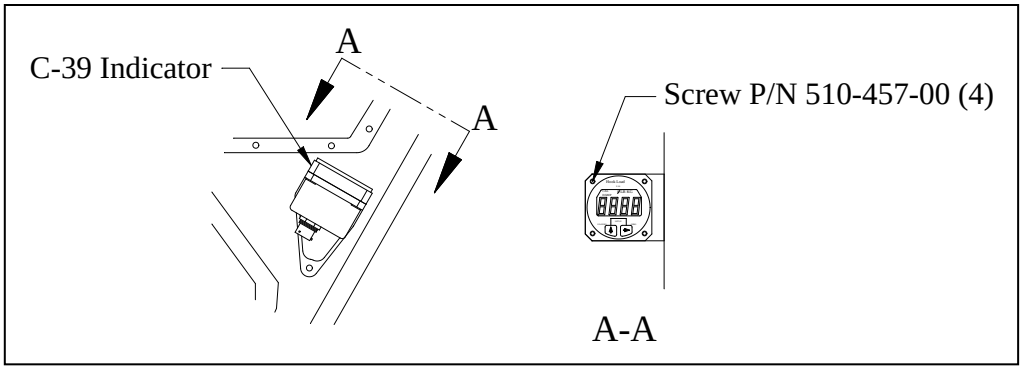


5. Feed the cable forward and then up through the slot in the floor. Note: Remove the grommet from the slot to allow the end fitting on the cable to be fed through.

Load Weigh Indicator Removal

1. Disconnect electrical connector from the back of indicator.
2. Remove the four screws (P/N 510-457-00) that secure the indicator to the mounting bracket.

Figure 25.16.7 Load Weigh Indicator

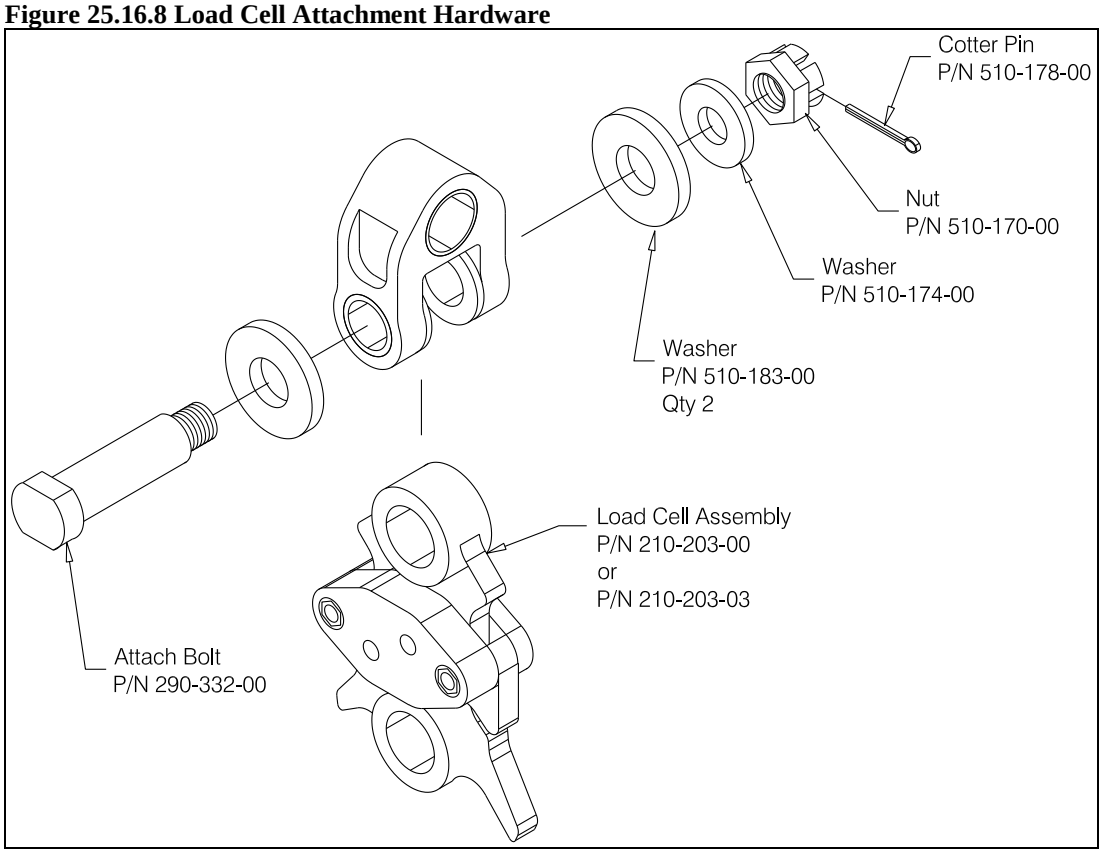


25.16 Component Removal continued

Load Cell Removal

1. Disconnect the electrical connector on the belly of the helicopter.
2. Remove the Cargo Hook per the above instructions.
3. Remove the Load Cell Assembly from the gimbal on the helicopter hard point (not shown) by removing the hardware as illustrated below.

Figure 25.16.8 Load Cell Attachment Hardware

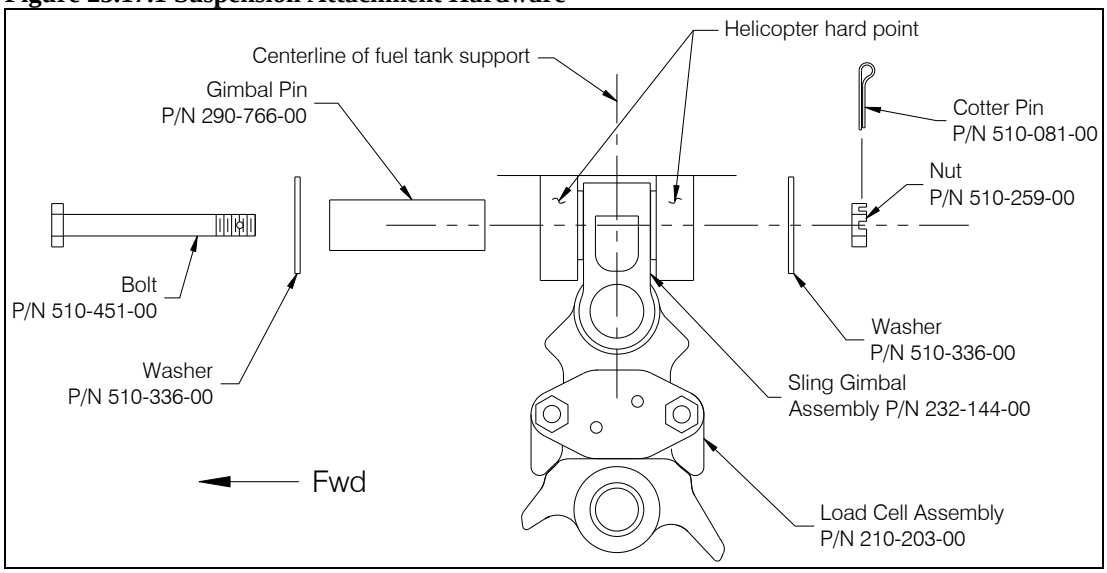


25.17 Component Re-installation

Suspension Re-installation

1. Attach the suspension's Gimbal Assembly (P/N 232-144-00) to the hard point by installing the Gimbal Pin (P/N 290-766-00), washer (P/N 510-336-00), and bolt (P/N 510-451-00).
2. Install washer (P/N 510-336-00) and castellated nut (P/N 510-259-00) over bolt end.
3. Tighten nut to finger tight, then rotate nut to next castellation to install and secure cotter pin (P/N 510-081-00).
4. Connect the load cell cable connector to the bulkhead connector on the belly of the aircraft.

Figure 25.17.1 Suspension Attachment Hardware

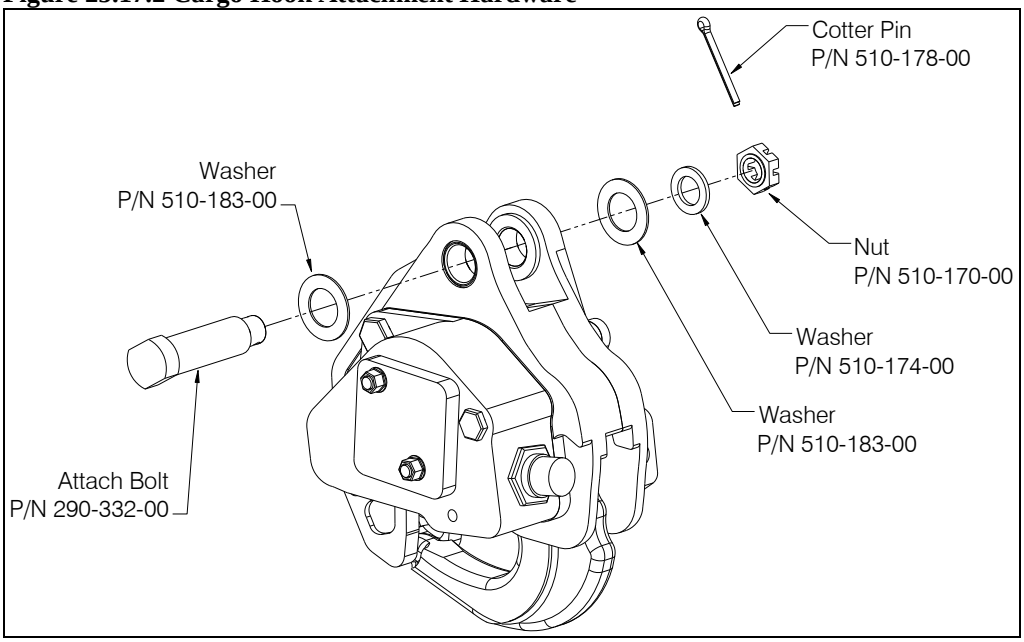


25.17 Component Re-installation continued

Cargo Hook Re-installation

1. 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 below.
2. Install washer (P/N 510-183-00) and washer (P/N 510-174-00) over bolt end.
3. Tighten the nut (P/N 510-170-00) on Attach Bolt to finger tight, then rotate nut to previous castellation if necessary to install and secure cotter pin (P/N 510-178-00).
4. Connect the electrical release cable at the bulkhead connector at the belly of the aircraft and the other end to the Cargo Hook.
5. Connect the manual release cable at the quick release fitting and route through quick disconnect clamps on the belly of the aircraft to the cargo hook.

Figure 25.17.2 Cargo Hook Attachment Hardware



NOTICE

The Cargo Hook load beam must point forward when installed.

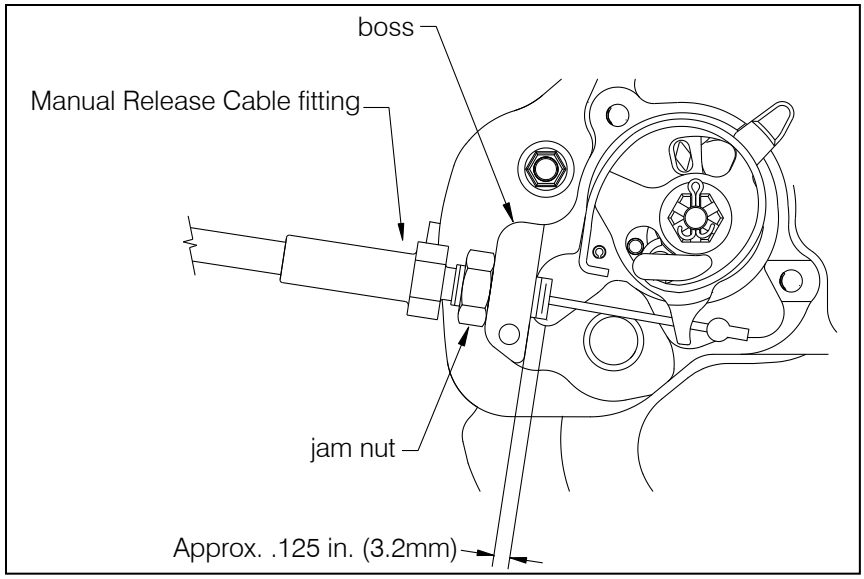
25.17 Component Re-installation continued

Manual Release Cable Re-installation

Connect the manual release cable (P/N 268-024-02) to the cargo hook per the following instructions:

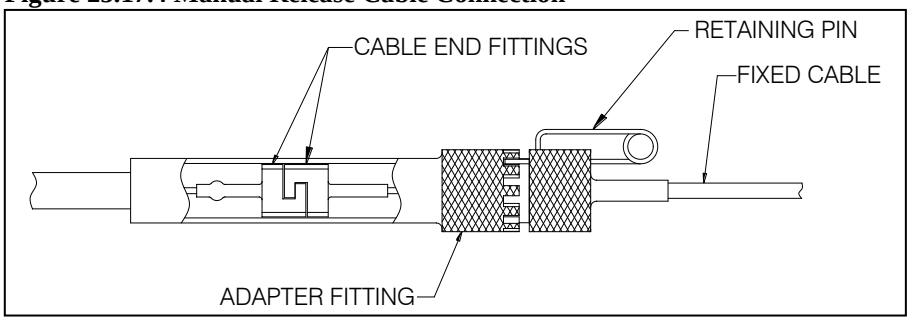
1. Remove the manual release cover from the cargo hook.
2. Thread the fitting at the end of the manual release cable into the manual release boss on the hook side plate until the threads protrude approximately .125 inches beyond the boss and secure with jam nut (as shown in Figure 25.17.3). Leave the cover off of the cargo hook until the other end of the release cable is connected, in order to verify proper setting.

Figure 25.17.3 Manual Release Cable Adjustment



3. Connect the other end of the release cable to the fixed section of the manual release cable by mating the cable end fittings together as shown below (slide back the Adapter Fitting to access fitting on removable cable).
4. Slide the Adapter Fitting forward and thread it onto the fixed cable fitting, and engage a castellation on the Adapter Fitting with the retaining pin and lock it in place.
5. Snap the Adapter Fitting into the existing clip mounted to the belly of the helicopter.

Figure 25.17.4 Manual Release Cable Connection



25.17 Component Re-installation continued

Manual Release Cable Re-installation continued

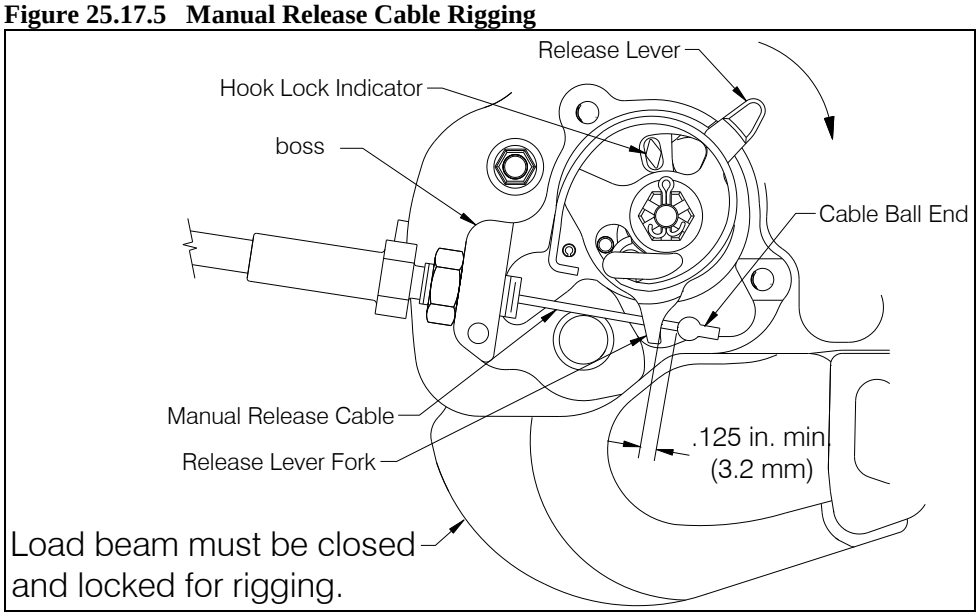
6. At the cargo hook, place the cable ball end fitting into the manual release lever fork as illustrated in Figure 25.17.5.

⚠ CAUTION

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

7. With the cargo hook load beam in the closed and locked position, 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) 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. There must be a minimum of .125 inches (3.2 mm) between the cable ball end and fork fitting as shown in Figure 25.17.5. The maximum amount of free play is limited by the manual release cover, i.e. – the ball end must fit inside the cover when it is installed.

Figure 25.17.5 Manual Release Cable Rigging



8. If necessary adjust the manual release cable system to obtain a minimum of .125 inches (3.2 mm). Some adjustment can be made at the cargo hook by loosening the jam nut and turning the manual release cable or cargo hook in the required direction and re-tightening the jam nut. Ensure the manual release cable fitting threads maintain full thread engagement with the cargo hook side plate boss (i.e.- the end of the threads should not be recessed within the boss).
9. Re-install the manual release cover with the two screws.
10. Check the operation of 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.

25.17 Component Re-installation continued

Fixed Manual Release Cable Assembly Re-installation

1. Feed the end of the cable through the slot in the floor and re-install grommet.
2. Install the release lever onto the collective stick with the two screws (P/N 510-390-00).
3. Install the cushioned loop clamp around the release cable at the bracket at frame at X1790.15 with hardware as shown in Figure 25.16.5.
4. Install the cushioned loop clamp around the release cable at the Attachment Bracket with hardware as shown in Figure 25.16.4.
5. Clip the end of the cable assembly onto the bracket on the belly of the helicopter.

Load Weigh Indicator Re-installation

1. Place the Load Weigh Indicator into the mounting bracket on the RH door pillar and secure with four screws (P/N 510-457-00).
2. Connect the electrical connector on the wiring harness to the connector on the back of the indicator.

Load Cell Re-installation

1. Attach the load cell assembly (P/N 210-203-00 or P/N 210-203-03) to the gimbal fitting on the suspension frame with hardware as illustrated in Figure 25.16.8.
2. Connect the load cell electrical cable connector on the load cell cable to the connector on the belly of the helicopter

25.18 General Procedural Instructions-Testing

After component 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 fixed.

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.

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.