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Owner's Manual
Cargo Swing Retrofit Kit

on

Airbus Helicopters AS350 Series Helicopters

System Part Number
200-286-02
200-286-03

Owner's Manual Number 120-107-02
Revision 7
02/02/24

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Record of Revisions

Revision	*Date*	*Page(s)*	*Reason for Revision*
0	10/16/09	All	First Issue
1	09/01/10	All	Replaced warnings, cautions and notes section with safety labels sections. Updated safety label format to current format throughout document. Added fuel drain guard to kit and associated instructions. Updated weight for fixed provisions to included fuel drain guard kit.
2	01/21/11	5-1 & 6-10	Replaced bolt (P/N 510-505-00) with bolt (P/N 510-762-00) in swing frame assembly parts list. Updated RMA instructions.
3	03/21/11	6-8 & 6-10	Added Fuel Drain Warning Placard to System Parts Numbers section under swing hook/frame assembly.
4	04/20/11	1-4 & 2-15	Added Half Clamp Pad (EC P/N 350A-41-1099-20) to the table of Airbus Helicopters required part numbers.
5	05/09/14	Title, 1-1, 1-4, Section 1, Section 2, 4-3, 4-2, & 6-10	Updated Eurocopter to Airbus Helicopters. Replaced load cell P/N 210-249-00 with P/N 210-249-03. Replaced fuel drain guard P/N 290-889-00 with 290-889-01. Updated Figure 4.5. Updated electrical schematic to reflect additional aircraft side configurations.
6	08/16/22	All	Incorporated kit P/N 200-286-03 with C-40 Indicator P/N 210-293-00. Added instructions for connecting C-40 Indicator to VEMD (if applicable). Removed C-39 operation instructions and replaced with reference to manual 120-039-00.
7	02/02/24	1-4, 1-6, 1-7, 2-1, 5-1	Replaced C-40 Indicator P/N 210-293-00 with P/N 210-293-01 in kit P/N 200-286-03. P/N 210-293-00 remains eligible.

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Section 1
General Information

Introduction

Installation of the Cargo Swing Retrofit Kits per this Owner's Manual does not provide 27.952 compliance. Onboard Systems has introduced an STC approved solution for AS350B3s with a 27.952 compliant Crash Resistant Fuel System (CRFS) or a Rupture Resistant Fuel Tank (RRFT). For AS350B3s with any of these configurations* refer to Section 3.0 of Owner's Manual 120-156-00 for the appropriate cargo swing suspension kit to install.

***Refer to Airbus Safety Information Notice 3281-S-28 Rev. 2 for more information on these configurations.**

The P/N 200-286-02 and 200-286-03 Cargo Swing Retrofit Kits are conversion kits for AS350 operators with an existing Airbus Helicopters cargo hook fixed provisions kit. This kit utilizes some of the existing systems fixed components that are compatible with it. These components include the fixed manual release cable, miscellaneous supporting brackets and miscellaneous hardware.

The Cargo Swing Retrofit Kit P/Ns 200-286-02 and 200-286-03 include a fuel drain guard which is compatible with fuel tanks on AS350 B2 and B3 helicopters and on AS350B, B1, BA, and D models that have been retrofitted with the B-2 style dual fuel pump type tank. The Airbus Helicopters part number for this tank is 350A55-1015-0251. The fuel drain guard is intended for helicopters with their fuel drain levers previously modified per AD 2005-03-08. See Theory of Operation section for description of fuel drain guard.

The P/N 200-286-03 kit is the same as the P/N 200-286-02 except it includes the next generation C-40 Indicator and an internal electrical harness that includes provisions for connecting the C-40 Indicator to the AS350B3's VEMD post mod 07-4716 and providing for main rotor RPM increase when an external load of 150 kg is measured by the load cell. With the new kits available (as defined in manual 120-156-00) these P/N's (200-286-02 and 200-286-03) are for installation on AS350 models without CRFS or RRFT

Safety Labels

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.

Specifications

System weights are identified by fixed and removable provisions. Fixed provisions are permanently installed on the aircraft while the removable provisions are easily removed when not required on the helicopter's mission.

Table 1.1 Suspension System Specifications

Design Load	3,086 lbs. (1400 kg.)
Design Ultimate Strength	11,574 lbs. (5250 kg.)
System Weight – Fixed Provisions	4.5 lbs (2.0 kgs)
System Weight – Removable Provisions	30.0 lbs. (13.6 kgs)

Table 1.2 P/N 528-029-00 Cargo Hook Specifications

Design load	3,600 lbs. (1,633 kg.)
Design ultimate strength	13,500 lbs. (6,123 kg.)
Electrical release capacity	9,000 lbs. (4,082 kg.)
Mechanical release capacity	9,000 lbs. (4,082 kg.)
Force required for mechanical release at 3,500 lb.	8 lb. Max. (.600" travel)
Electrical requirements	22-32 VDC 6.9 – 10 amps
Minimum release load	0 pounds
Unit weight	3.0 pounds (1.35 kg.)
Mating electrical connector	PC06A8-2S SR

CAUTION

Load capacities given are for the equipment described only. Loading limits for your particular helicopter model still apply. Consult your flight manual.

Bill of Materials

The following items are included with the P/N 200-286-02 and P/N 200-286-03 Cargo Swing Retrofit Kits.

Table 1.3 Onboard Systems Bill of Materials

Part No.	Description	Qty -02	Qty -03
120-039-00	Owner's Manual, C-39	1	-
120-152-00	Owner's Manual, C-40	-	1
120-107-02	Owner's Manual	1	1
121-015-02	RFMS	1	1
122-017-00	Cargo Hook CMM	1	1
123-014-02	ICA	1	1
210-095-00	C-39 Indicator	1	-
210-293-01***	C-40 Indicator	-	1
215-166-00	Max Hook Load 3086 Decal	1	1
215-168-00	Max Hook Load 2557 Decal	1	1
232-137-01	Shackle Assembly	4	4
232-140-01	Forward Attach Cable Assembly	2	2
232-141-01	Aft Attach Cable Assembly	2	2
232-145-03	Hook-Frame Assembly	1	1
235-259-00	C-40 Mount	-	1
268-024-02	Manual Release Cable Assembly	1	1
270-106-02	LW Internal Harness, C-39	1	-
270-106-03	LW Internal Harness, C-40	-	1
270-108-00	Release Internal Harness	1	1
270-125-00	Ground Strap	1	1
290-772-00	Indicator Mount Bracket	1	-
290-782-00	Connector Bracket	1	1
290-783-00	Relay Bracket	1	1
290-888-00	Retainer	1	1
290-889-01*	Guard	1	1
290-893-00	Bracket	1	1
410-199-00**	Shield Termination	-	1
410-461-00**	Contact	-	3
420-084-00**	Wire, 22 AWG	-	200"
445-005-00	Relay	1	1
500-014-00	Spacer	-	1
510-029-00	Nut	8	8
510-062-00	Washer	8	8
510-095-00	Washer	3	3
510-277-00	Screw	2	2
510-278-00	Washer	2	2
510-279-00	Nut	2	2
510-457-00	Screw	4	-
510-475-00	Screw	3	3
510-481-00	Screw	8	8
510-526-00	Cotter Pin	2	2
510-923-00	Screw	-	1
511-046-00	Screw	-	2
610-024-00	Seal	1	1

*Fuel drain guard P/N 290-889-01 supersedes fuel drain guard P/N 290-889-00.
** These parts are only used if connecting the C-40 Indicator to the VEMD.
*** 210-293-01 supersedes 210-293-00, either is eligible in these configurations. These P/Ns are interchangeable with the exception of software compatibility (refer to C-40 Owner's Manual 120-152-00 for specific software versions).

Bill of Materials continued

The following is needed for installation of the fuel drain guard and is not included with the kit and should be obtained before installation is begun.

Table 1.4 Needed Supplies

Part Number	Description	Quantity
PR1422-B	Sealant	AR

To complete the cargo hook installation the following Airbus Helicopters parts may be necessary to obtain (these parts are frequently found to be on the aircraft or are standard Airbus Helicopters parts).

Table 1.5 Airbus Helicopters Part Numbers

Airbus Helicopters P/N	Description	Quantity	Reference
350A41-1097-20**	Landing Gear Half Clamp – Rear	2	Figure 2.4.1.1
350A-41-1099-20**	Half Clamp Pad	2	Figure 2.4.1.1
22201BE120074L	Screw	4	Figure 2.4.1.1
23111AG120LE	Washer	8	Figure 2.4.1.1
ASN52320BH120N	Nut	4	Figure 2.4.1.1
ASNA0078A403	Rivet	3	Figure 2.2.4

** These parts may or may not be installed with a standard aircraft, therefore verification is recommended before purchasing them.

C-40 Upgrade Kit

For AS350s with an existing C-39 Indicator installed per this STC, kit P/N 200-472-00 is available to upgrade to the next generation C-40 Indicator (P/N 210-293-00 or P/N 210-293-01) and connect it to the VEMD (post MOD 07-4716) to increase the main rotor RPM to 400 when an external load of 150 kg or more is measured. Table 1.10 includes the bill of materials for this kit and installation instructions are included in Owner's Manual 120-104-02 Section 2.13.

If the C-39 Indicator is to be replaced by the C-40 Indicator without connecting to the VEMD, purchase the C-40 Indicator and the C-40 Mount Kit P/N 200-432-00. The Mount Kit includes P/Ns 235-259-00, 500-014-00, 510-923-00, and 511-046-00 as listed below (the electrical parts are not needed).

Table 1.10 Bill of Materials – C-40 Indicator Upgrade Kit P/N 200-472-00

Part Number	Description	Qty
210-293-01**	C-40 Indicator	1
235-259-00	C-40 Mount	1
500-014-00	Spacer	1
510-923-00	Screw	1
511-046-00	Screw	2
Electrical Parts*		
410-199-00	Shield Termination	2
410-375-00	Socket Contact	3
410-461-00	Socket Contact	4
420-087-00	Wire, 2 Conductor, 20 AWG	84"
420-084-00	Wire, 22 AWG	200"

*These parts are required in order to modify the existing P/N 270-106-02 load weigh internal harness to connect to the VEMD. Optionally a new harness (P/N 270-106-03) that has these components incorporated (except wire P/N 420-084-00) can be purchased but this requires replacing the entire P/N 270-106-02 harness.

**210-293-01 supersedes 210-293-00, either is eligible in these configurations. These P/Ns are interchangeable with the exception of software compatibility (refer to C-40 Owner's Manual 120-152-00 for specific software versions).

Theory of Operation

The Cargo Swing Retrofit Kits are comprised of:

- A suspended pyramid frame that supports the cargo hook.
- An electrical release system that provides means for release by pilot actuation of the push-button switch in the cockpit. When the push-button switch is pressed, it energizes the DC solenoid in the cargo hook, and the solenoid opens the latch in the internal mechanism.
- A manual release adapter cable, which interfaces with the existing fixed manual release cable. The manual release system provides a means of releasing a cargo hook load in the event of an electrical release system failure. It is actuated by the existing lever mounted to the collective stick. Ground personnel may also release a load by the actuation of a lever located on the side of the cargo hook.
- A load weigh system, which is comprised of an Indicator mounted to the RH door pillar within the cockpit connected to a load cell between the cargo hook and frame.

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

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

The Cargo Swing Retrofit Kit includes a fuel drain guard. The fuel drain guard protects the fuel drain valve on the helicopter from accidentally being opened or damaged by the cargo swing. The fuel drain valve is located on the bottom of the fuel tank and extends below the belly skin of the helicopter. In this position it is vulnerable to damage or un-commanded opening. The most common occurrence of the cargo hook swing suspension striking the fuel drain valve happens when the helicopter lands on snow or on uneven terrain. The swing has limited ground clearance and when the skid gear sinks into the snow, the swing suspension is pushed upward into the fuel drain valve, opening it and causing fuel to drain. The fuel drain valve can also be opened in flight by the swing suspension flying vertically due to aerodynamics when ferrying with no load or from recoil effects from releasing large cargo hook loads.

The load weigh indicator included with Kit P/N 200-286-03 is Onboard Systems next generation indicator, the C-40 model (P/N 210-293 series). The C-40 Indicator makes several improvements over its predecessor (the C-39 model, P/N 210-095-00) while preserving classical features and is generally backwards compatible.

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Section 2
Installation Instructions

These procedures are provided for the benefit of experienced aircraft maintenance facilities capable of carrying out the procedures. They must not be attempted by those lacking the necessary expertise.

The installation instructions for the AS350 swing suspension are sub-divided into separate sub-installations:

1. Cockpit Indicator Installation – Section 2.1
2. Fixed Electrical Wiring Installation – Section 2.2
3. Fuel Drain Guard Installation – Section 2.3
4. Swing Suspension Installation – Section 2.4
5. Removable Manual Release Cable Installation – Section 2.5
6. External Electrical Cables Installation – Section 2.6

2.1 Cockpit Indicator Installation

Kit P/N 200-286-02 includes the C-39 Indicator (P/N 210-095-00). Refer to Section 2.1.1 for installation of the C-39 model and its mounting bracket. Kit P/N 200-286-03 includes the next generation C-40 Indicator (P/N 210-293 series), refer to section 2.1.2 for installation of this model.

2.1.1 C-39 Indicator Installation

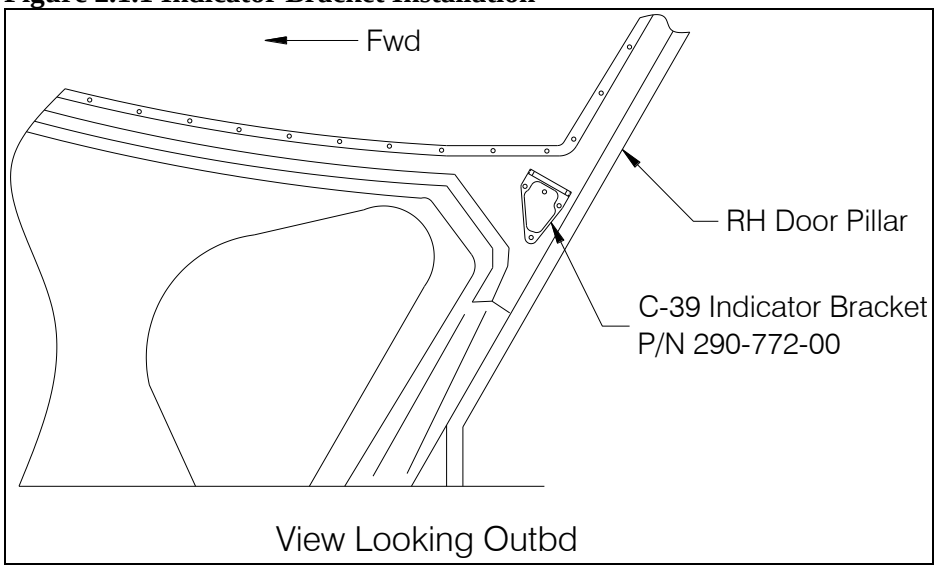
The indicator is to be mounted on the right-hand (RH) forward door pillar, in the same location as the Airbus Helicopters' type certificated Indicator

- If present, remove the Airbus Helicopters' Indicator and its mounting bracket.

If nut clips are not pre-installed in the door pillar, install them per the following.

- Hold the Indicator Bracket (P/N 290-772-00) at a location as shown below and transfer its hole pattern to the door pillar.

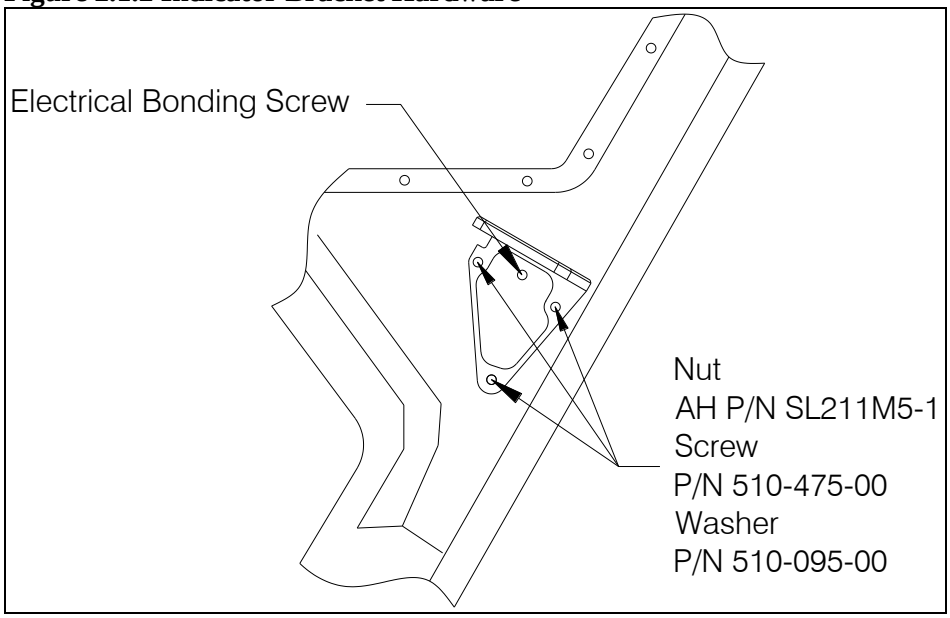
Figure 2.1.1 Indicator Bracket Installation



2.1.1 C-39 Indicator Installation continued

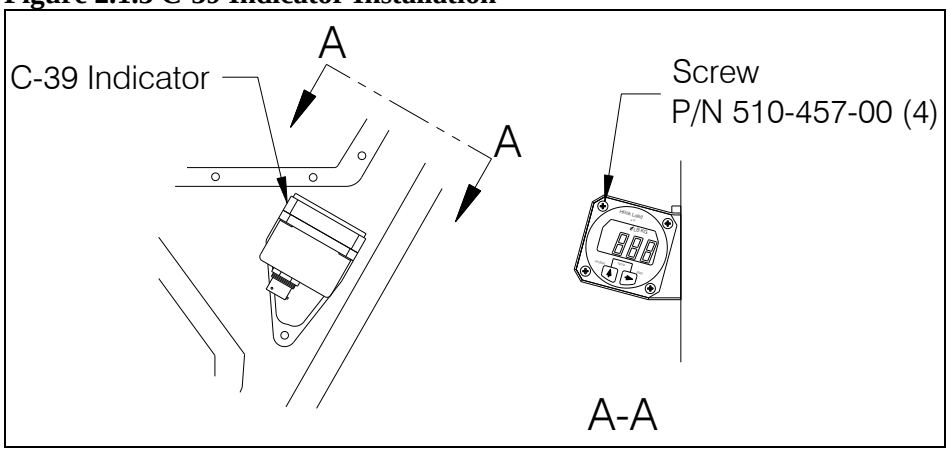
- Drill three mounting holes in the RH door pillar to install the nut clips. Reuse the electrical bonding screw at the fourth location (see below).
- After completing electrical bonding, install the three nut clips (Airbus Helicopters P/N SL211M5-1) and fasten Indicator Bracket with three screws (P/N 510-475-00) and three washers (P/N 510-095-00).

Figure 2.1.2 Indicator Bracket Hardware



- Install the C-39 Indicator (P/N 210-095-00) onto bracket with hardware as illustrated below.

Figure 2.1.3 C-39 Indicator Installation

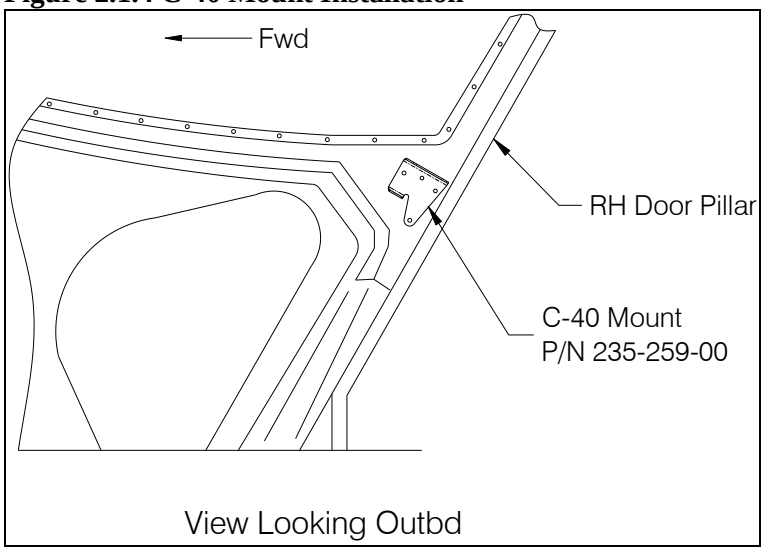


2.1.2 C-40 Indicator Installation

The C-40 Indicator is mounted on the right-hand (RH) forward door pillar, in the same location as the Airbus Helicopters' TC Indicator or C-39 Indicator it replaces. If an Indicator is not present and nut clips are not pre-installed in the door pillar, install nut clips per the previous section.

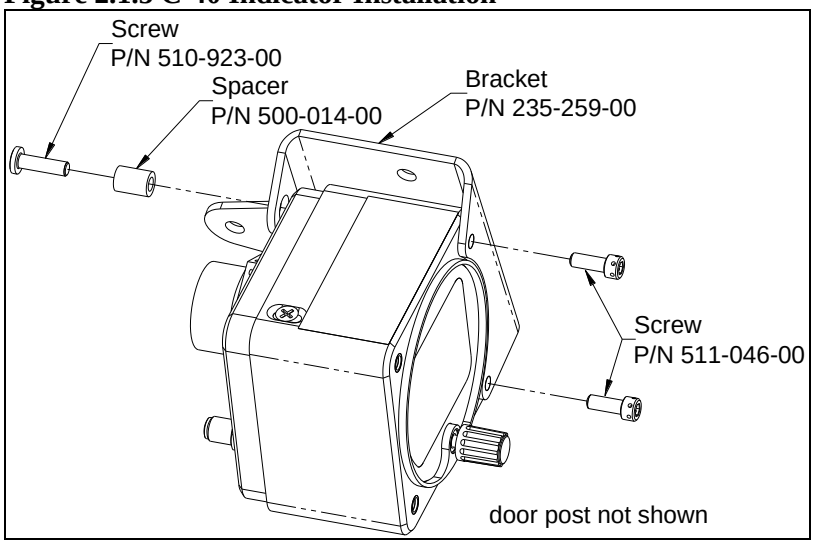
- ❑ If present, remove the Airbus Helicopters' Indicator and its mounting bracket or the C-39 Indicator and its mounting bracket (P/N 290-772-00).
- ❑ Position the C-40 Mount (P/N 235-259-00) on the door pillar and secure it with the three screws (P/N 510-475-00) and washers (P/N 510-095-00) provided.

Figure 2.1.4 C-40 Mount Installation



- ❑ Position the C-40 Indicator within the C-40 Mount and secure with hardware shown in Figure . Secure the P/N 511-046-00 screws with lock wire.

Figure 2.1.5 C-40 Indicator Installation



2.2 Electrical Wiring Installation

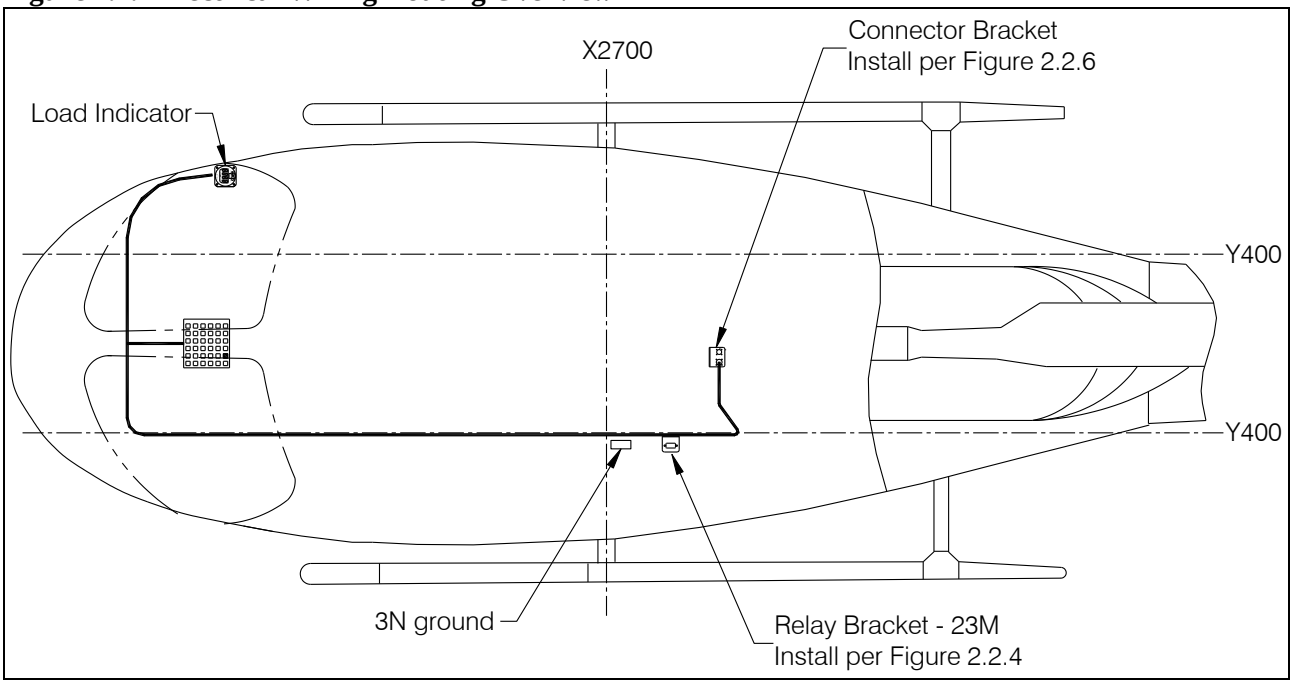
This section provides the instructions for installing the internal cargo hook electrical release harness (see section 2.2.1) and the internal load weigh harness (see section 2.2.2). Figure 2.2.1 provides an overview of where these harnesses are routed.

Remove existing swing suspension at the quick release pins. Remove lower fairings to gain access to areas underneath cabin floor where electrical wiring is routed. Remove existing Airbus Helicopters load weigh and hook release wiring harnesses or disconnect and cap and stow.

Harnesses are to be routed along existing harnesses while observing the following precautions. Refer to Figure 2.2.2 for electrical release schematic and Figure 2.2.8 for load weigh system schematic.

- Pick up existing wire runs by opening existing cable clamps. Nylon ties alone may not be used for primary support.
- The distance between supports should not exceed 21 inches.
- Bend radius of wire or harness must not be less than 10 times the wire or harness diameter.
- Inspect and verify that the wire harness may not be manually deflected into a structure with a bend radius of less than 0.13".

Figure 2.2.1 Electrical Wiring Routing Overview



2.2 Electrical Wiring Installation continued

2.2.1 Cargo Hook Electrical Release Wiring

The schematic for the cargo hook's electrical release system is shown in Figure 2.2.2 along with aircraft interface points. Airbus Helicopters modification #'s 07-4280 and 07-3450 are reflected below. Earlier Airbus Helicopters configurations which affected where wire numbers ME1E and ME10E interfaced with the helicopter are shown on the following page. Refer to the applicable Airbus Helicopters Wiring Diagrams Manual for additional details and for other cargo hook aircraft side wiring configurations that may not be shown.

If existing Airbus Helicopters cargo hook release wiring is installed and terminated at the locations below, remove the wires completely or remove from connectors and cap and stow them.

Figure 2.2.2 Electrical Release Schematic

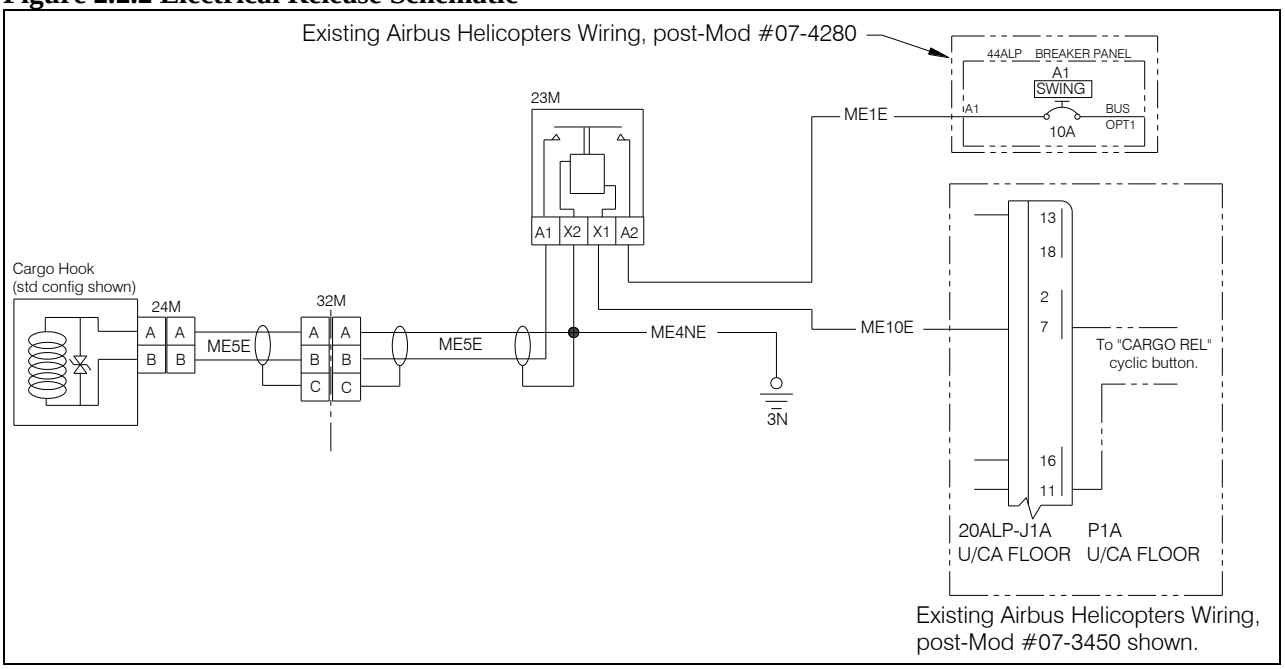
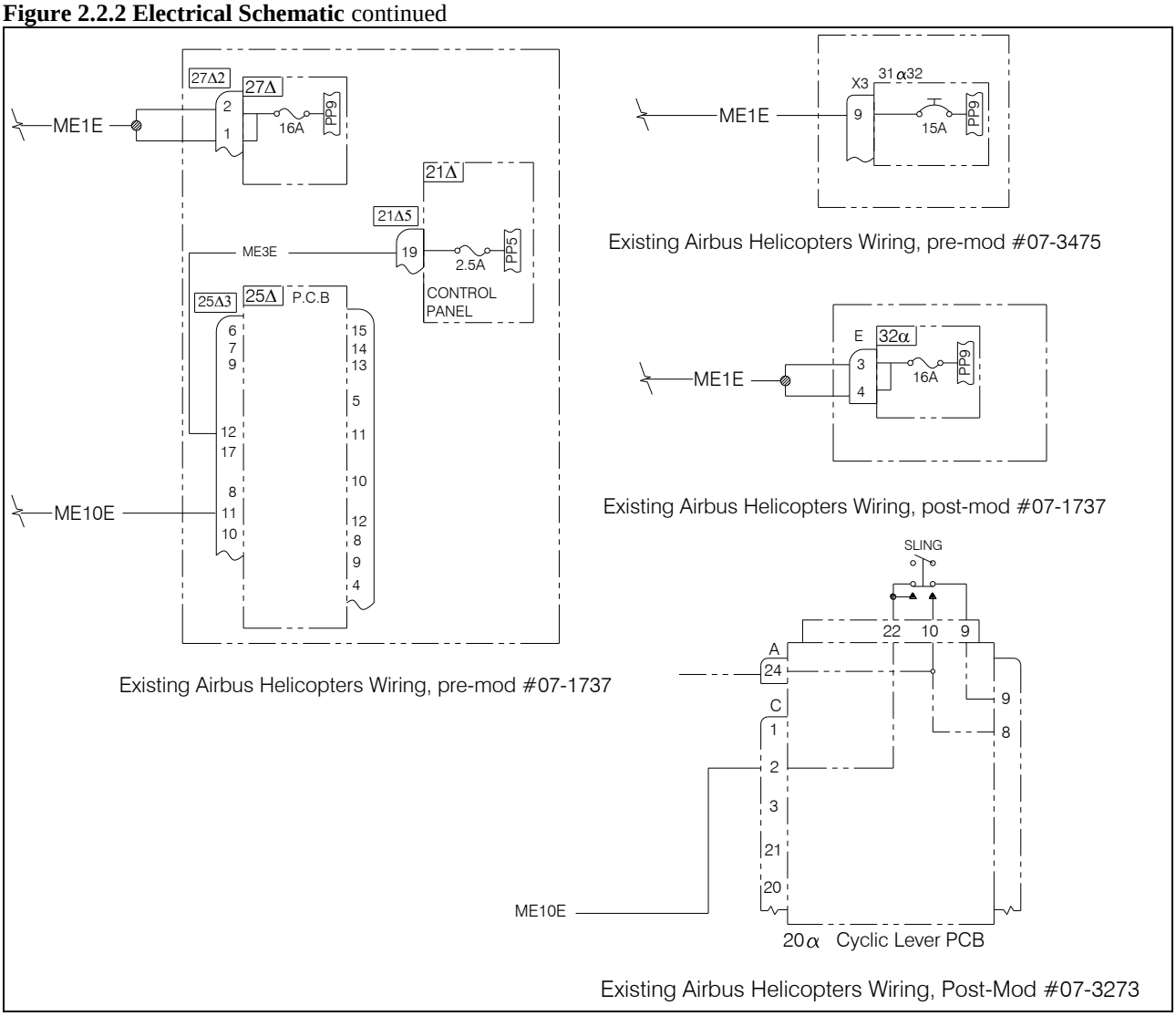


Figure 2.2.2 Electrical Schematic continued



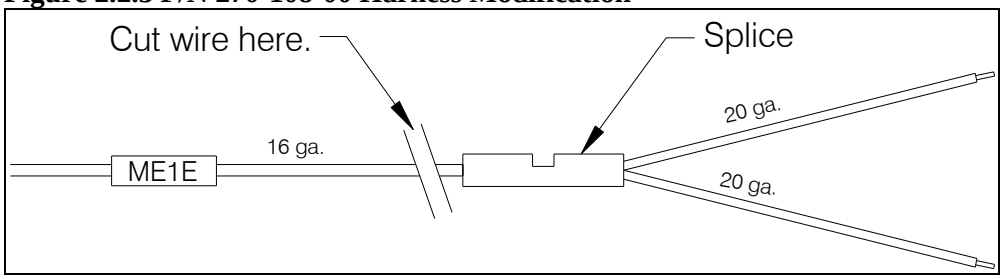
2.2 Electrical Wiring Installation continued

2.2.1 Cargo Hook Electrical Release Wiring continued

Before installing the electrical release harness (P/N 270-108-00), modify it <u>if necessary</u> per the following modification instructions which are dependent on the configuration of the aircraft.

If installing the wire harnesses on a newer AS350B2 or B3 model equipped with a switch panel of circuit breaker design (Airbus Helicopters mod. #07-3274 incorporated) the electrical harness P/N 270-108-00 requires modification. Cut the ME1E wire off just prior to the butt splice and discard the splice and the wires.

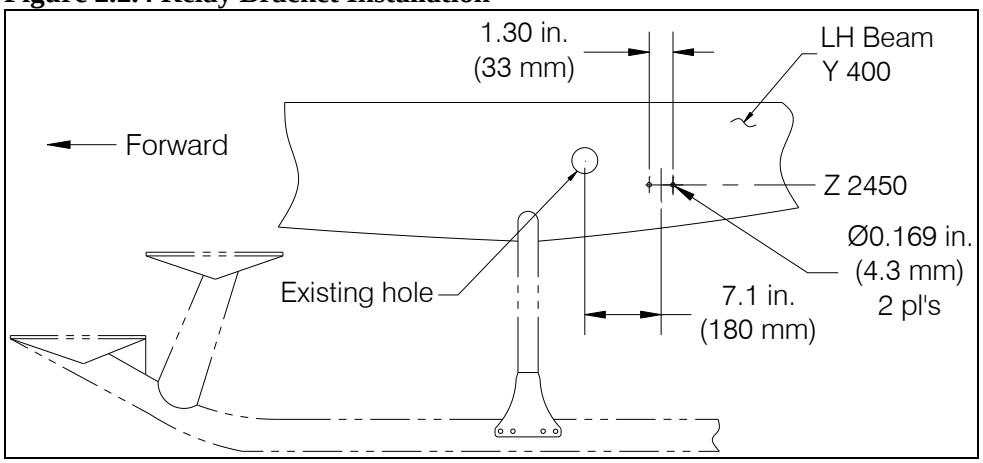
Figure 2.2.3 P/N 270-108-00 Harness Modification



Install the supplied Relay Bracket (P/N 290-783-00), relay socket of harness P/N 270-108-00, relay (P/N 445-005-00) and route/terminate the wires per the following.

- In preparation for installing the Relay Bracket create two holes in the LH beam at Y400 as illustrated in Figure 2.2.4. These holes may be existing as this is the same location as the Airbus cargo hook relay.

Figure 2.2.4 Relay Bracket Installation

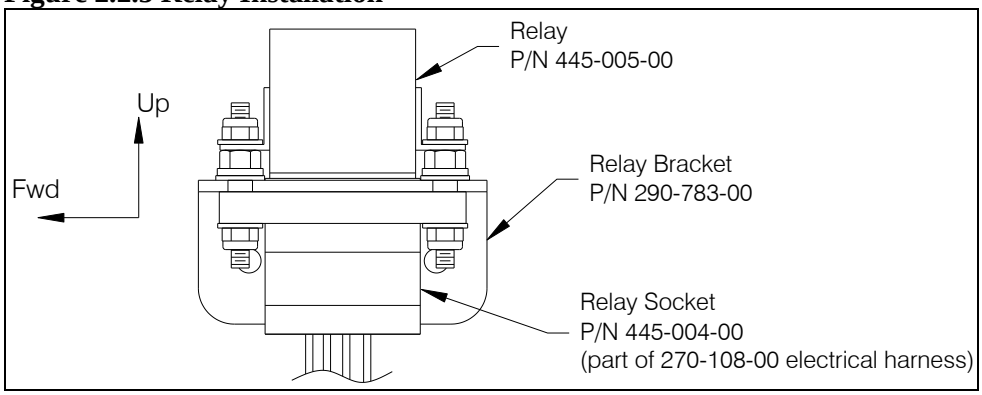


2.2 Electrical Wiring Installation continued

2.2.1 Cargo Hook Electrical Release Wiring continued

- Secure Relay Bracket with two screws (P/N 510-277-00), two washers (P/N 510-278-00), and two nuts (P/N 510-279-00).
- Place relay socket (part of 270-108-00 electrical harness) into relay bracket mounting holes from below and secure to relay and relay bracket with hardware provided with relay (as illustrated below).

Figure 2.2.5 Relay Installation



- Route the 32M connector to the connector bracket location (see following instructions in this section for installing connector bracket).

For the following cut wires to length as needed and use contacts provided with harness or as specified by Airbus documentation to make terminations.

- Route wire ME4NE to the 3N ground location and terminate it there.
- Route ME10E to the aircraft interface for the CARGO REL cyclic button (refer to the schematic of Figure 2.2.2 for the different configurations).
- Route ME1E to the circuit breaker panel (refer to Figure 2.2.2 for specific location dependent on aircraft configuration).

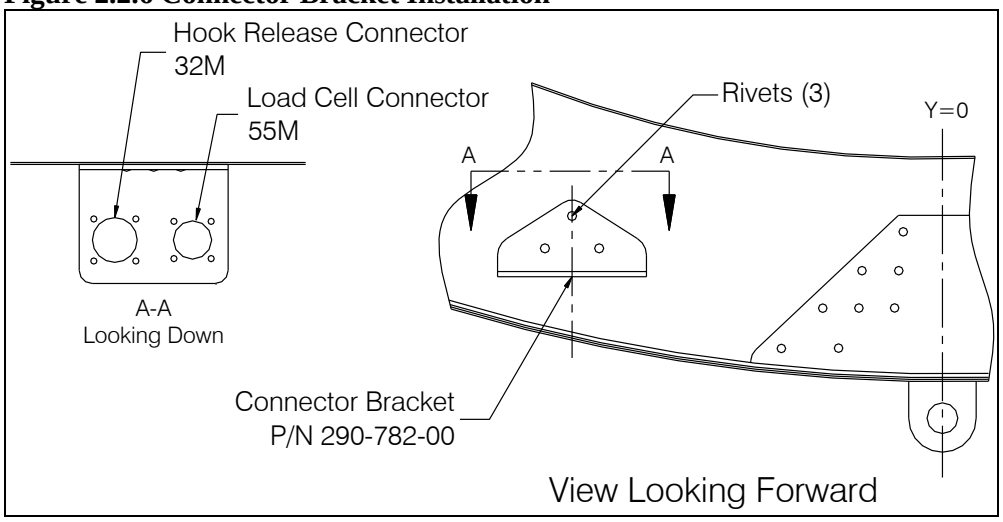
2.2 Electrical Wiring Installation continued

2.2.1 Cargo Hook Electrical Release Wiring continued

Install the Connector Bracket to mount the electrical connectors per the following.

- ❑ Remove the existing connector bracket at the fuel tank support frame by drilling out the three rivets that secure it.
- ❑ Install Connector Bracket (P/N 290-782-00) using the same holes and rivet P/N as the removed bracket.

Figure 2.2.6 Connector Bracket Installation



- ❑ Fasten hook release connector (32M) and load cell connector (55M) to the Connector Bracket with screws (P/N 510-481-00), washers (P/N 510-062-00), and nuts (P/N 510-029-00).

NOTICE

Install screws with their heads on the bottom side of bracket flange (if nuts are installed on bottom side they will interfere with mating connector).

2.2 Electrical Wiring Installation continued

2.2.2 Load Weigh System Wiring Installation

The installation of the load weigh system internal wiring will vary slightly depending on the Load Weigh Indicator model (C-39 or C-40) being installed and the aircraft configuration.

NOTICE

The C-39 Indicator is not compatible with the VEMD. To connect to the VEMD, the C-40 Indicator must be used.

The C-40 Indicator is functionally interchangeable with the C-39 Indicator with a few notable exceptions: (1) it provides for VEMD interface including main rotor RPM increase while the C-39 does not (2) the C-40 does not support the optional Analog Meter and C-30 Data Recorder.

The C-40 Indicator's Load Weigh Harness (P/N 270-106-03) provided with new kits is the same as the C-39 harness except it includes the ANALOG OUT line instead of the DATA line and includes an additional wire for TEDS data which will provide for future capability to automatically recognize the load cell's calibration code.

NOTICE

If installing the C-40 indicator as a replacement for the C-39 indicator, the internal harness does not need to be replaced unless the VEMD connection is intended.

The C-40 Indicator with Load Weigh Harness P/N 270-106-03 provides the capability to interface and function with an AS350B3s' post-mod 07-4716 VEMD to increase the main rotor rpm to 400 when a load over 150 kg is measured on the cargo hook. See instructions in this section to connect to the VEMD, otherwise if this is not to be connected, cap and stow the ANALOG OUT wire and skip these steps.

Connection of the ANALOG OUT wires to the VEMD connector duplicates that of the original type certificated load indicator and depends on the configuration of the aircraft. As needed, refer to Airbus SB AS350-25.01.87 for more information on the pre and post mods and to verify the configuration before continuing with the VEMD connection.

NOTICE

Verify the VEMD configuration before connecting the ANALOG OUT wires.

2.2 Electrical Wiring Installation continued

2.2.2 Load Weigh System Wiring Installation continued

The Indicator is installed at the forward right-hand door pillar per Section 2.1. The instructions following for routing the harness assume this location as the starting point. It is recommended to install the Indicator per Section 2.3 and connect the 30M connector before routing wires per the following.

The following steps to connect to the VEMD are specific to the C-40 Indicator. If not connecting to the VEMD, cap and stow the ANALOG OUT wire. If installing the C-39 model indicator, skip these steps (involving VEMD connection).

- Route the ANALOG OUT wire to the back of the VEMD to connector P2 to establish the length and cut to length as necessary.
- Prepare the two-conductor wire by cutting the outer jacket back 1 ½" and cutting the braided shield back 1 ¼", leaving ¼" exposed.
- Place the shield termination (P/N 410-199-00) with solder ring centered over the exposed shield. Shrink solder termination with heat gun until solder flows and red indicator band disappears. Cut the shield termination wire to the length of the adjacent two wires.
- Strip ends of the three wires and crimp on the supplied contacts (P/N 410-461-00).
- Disassemble the VEMD P2 connector as needed and terminate wires per Table 2.1.2. This information is also represented in the schematic for the C-40 load weigh system shown in Figure 2.1.8.

Table 2.2.2 ANALOG OUT Wire to VEMD (61E) Connection

ANALOG OUT Wire	Pin of VEMD Connector P2
WH/BL	t
WH	Y
WH/BLK (shield)	FF

If VEMD activation signal (to pin Z) is not connected, connect per the following.

- Crimp a 410-461-00 contact to the length of P/N 420-084-00 (22 AWG M22759/34 series) wire provided with the kit and connect this to the VEMD connector P2 per the table below (this is the "Sling Activation" wire).

Connection to VEMD Connector P2 - Activation

Wire Function	Color	Pin of Connector P2
Activation signal	White	Z

- Route the Sling Activation wire to ground 1N on the LH keel beam at –Y400, cut to length as necessary, and terminate. A SPST or SPDT switch with a rating of at least 1 amp at 28VDC (such as Onboard Systems P/N 400-048-00) may be installed between these wires if on/off control of the VEMD interface is desired.

  For aircraft configurations with a 155M or 156M relay (aircraft with a "Sling" button on the 131ALP or 30ALP console that switches the indicator power on and off), route the Sling Activation wire instead to pin 9 (the switched contact) of relay 155M or 156M.

2.2 Electrical Wiring Installation continued

2.2.2 Load Weigh System Wiring Installation continued

- ❑ Route wire 2LK71E (for the indicator backlight) to an available pin in the instrument panel or console lighting circuit (31L for pre-mod 07-4280).

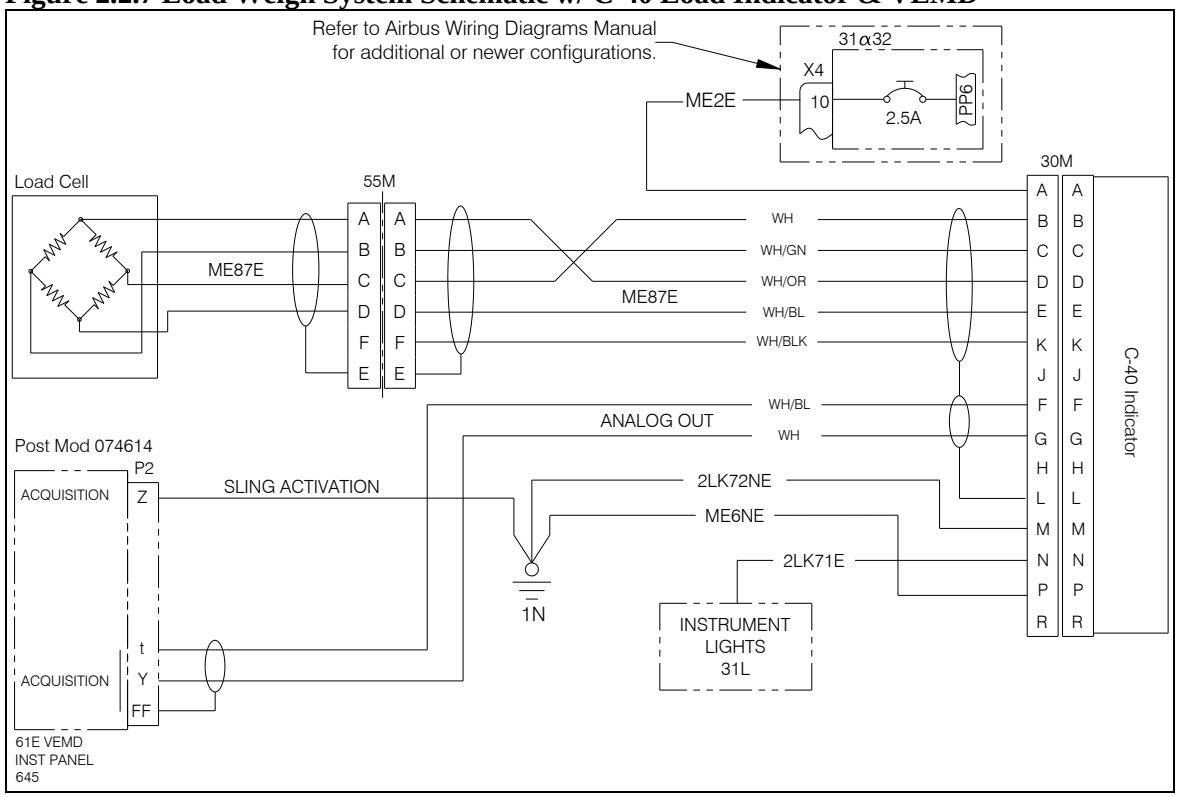
NOTICE

The C-40 Indicator does function normally without the Backlight Control Voltage wired, but will just not dim with other instruments. Full brightness of the Indicator is overridden by the aircraft dimming control voltage (if connected).

- ❑ Route wires 2LK72NE and ME6NE to ground 1N on the LH keel beam at –Y400, cut to length as necessary, and terminate.
- ❑ Route ME87E with existing wire harnesses to the left side of the aircraft and then aft along the left side of the keel beam at -Y400 to the connector bracket at the forward fuel tank support.
- ❑ Secure the load weigh harness wires forward of the load weigh indicator along the canopy with Supports (Airbus P/N 355A61-5099-20 as specified in Airbus Service Bulletin 25.00.62) or equivalent and connect to the indicator.

Make connections to the aircraft with the contacts provided with the harnesses or as specified by Airbus documentation.

Figure 2.2.7 Load Weigh System Schematic w/ C-40 Load Indicator & VEMD



2.2 Electrical Wiring Installation continued

2.2.2 Load Weigh System Wiring Installation continued

The load weigh harness (P/N 270-106-02) for the C-39 Indicator installs the same as the harness (P/N 270-106-03) for the C-40 except it includes a DATA line rather than the ANALOG OUT line. The C-39 is not compatible with the VEMD thus does not include the ANALOG OUT line.

The DATA line is for use with an Onboard Systems Data Recorder or Analog Meter. These items are not included under this STC. Attach connectors to data line per pin out in Table 2.1.3 to connect the Analog Slave Meter or Data Recorder to the electrical harness "DATA" line. If a data connector is present on the data line use harness P/N 270-059-00 to connect to Analog Slave Meter. If the accessory line is not used, stow this line of the harness.

The data line may or may not be terminated with a connector depending on manufacture date.

Table 2.2.3 Optional Equipment Connectors

Analog Meter Connector P/N 410-130-00		
Pin	Color	Function
A	WH	Power
B	WH/GN	Clock
C	WH/OR	Data
D	WH/BL	Ground
E	Shield	Shield

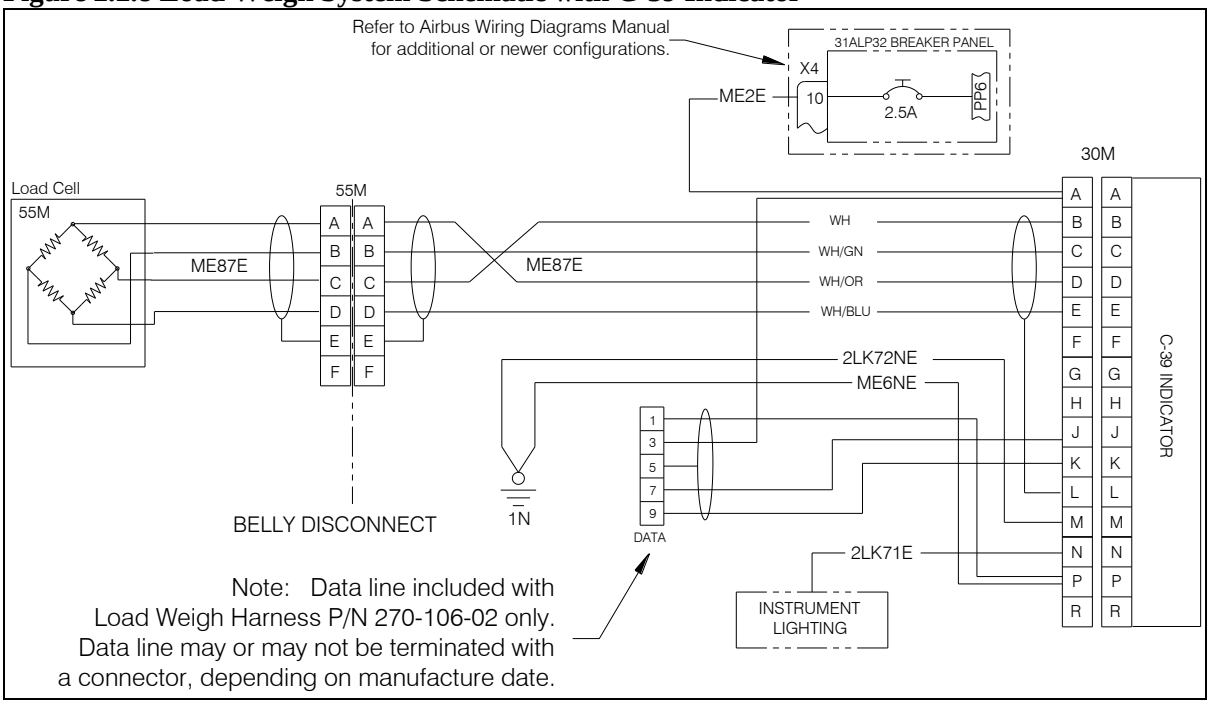
Data Recorder Connector P/N 410-011-00, 410-057-00 & 410-020-00		
Pin	Color	Function
1	WH/BL	Ground
3	WH	Power
5	Shield	Shield
7	WH/GN	Clock Signal
9	WH/OR	Data Signal
4	Red*	Flight Switch
2	Purple*	Cap. Switch

*Optional

2.2 Electrical Wiring Installation continued

2.2.2 Load Weigh System Wiring Installation continued

Figure 2.2.8 Load Weigh System Schematic with C-39 Indicator



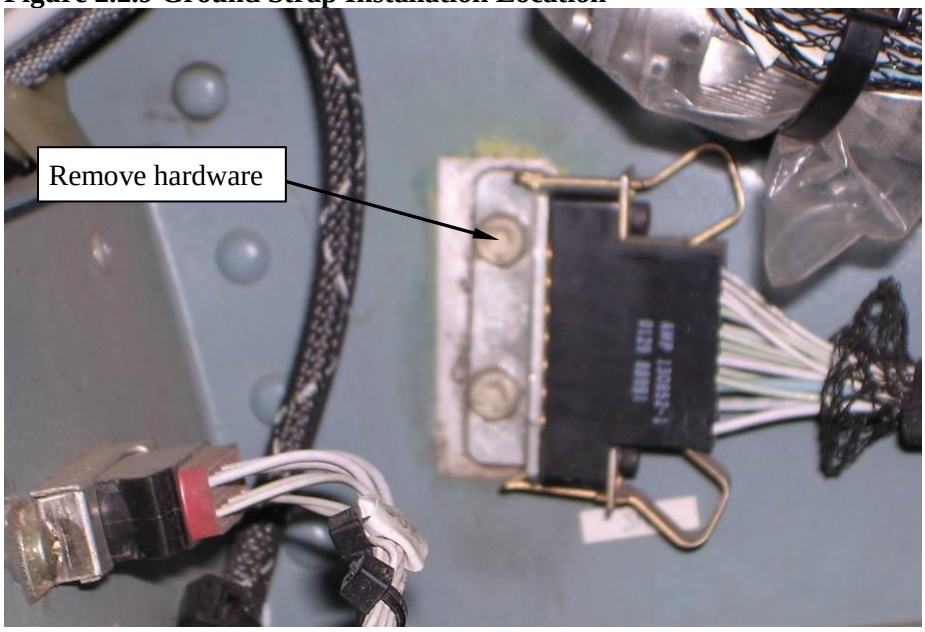
2.2 Electrical Wiring Installation continued

2.2.3 Ground Strap Installation continued

Install the Ground Strap (P/N 270-125-00) terminal at the 3N ground connector bracket at the LH airframe beam at Y400 per the following:

- Remove upper mounting hardware (see below) for 3N connector bracket and retain.
- Prepare the surface for electrical bonding per Airbus Helicopters electrical bonding procedure. Refer to section 20.02.07 of the Airbus Helicopters Standard Practices Manual.
- Install ground strap terminal, re-using hardware removed per above step.

Figure 2.2.9 Ground Strap Installation Location



- Route the Ground Strap to the load weigh and electrical release harnesses installed previously and route with these harnesses, while securing with ty-raps, to the Connector Bracket.
- Route the Ground Strap around the Connector Bracket and position it such that the disconnect fitting at the end can be routed through the connector access hole and extended below the lower fairing (when installed).

2.3 Fuel Drain Guard Installation

NOTICE

If installing the Cargo Swing Retrofit Kit on a helicopter that has NOT been retrofitted with the B-2 style dual fuel pump type tank (Airbus Helicopters P/N 350A55-1015-0251), the fuel drain guard installation is omitted. Skip to section 2.4.

In preparation for installing the fuel drain guard:

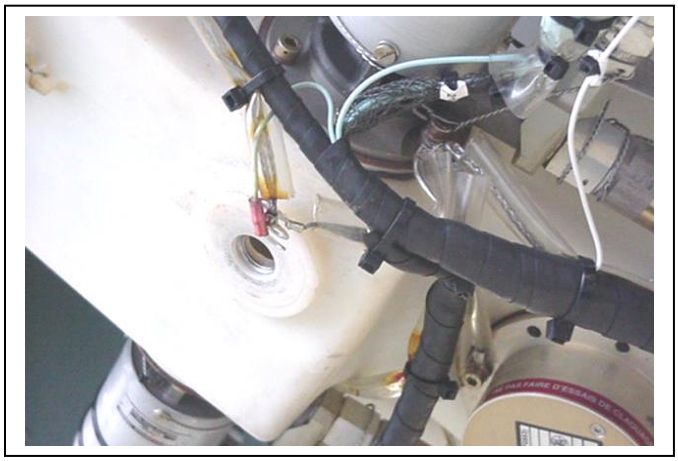
- Obtain ProSeal sealant (P/N PR1422-B).
- Verify that the fuel drain lever has been modified per AD 2005-03-08 requirements.
- Completely drain the fuel from the fuel tank.
- Begin disassembly of the fuel drain assembly by disconnecting the fuel drain control cable from the Lever (Airbus Helicopters P/N 350A55-1043-21). To free the control cable, remove the Sleeve (Airbus Helicopters P/N N1-5ALU) and Cable Grip (Airbus Helicopters P/N 58-2-009). See Figure 2.3.1.

Figure 2.3.1 Removing Control Cable

2.3 Fuel Drain Guard Installation continued

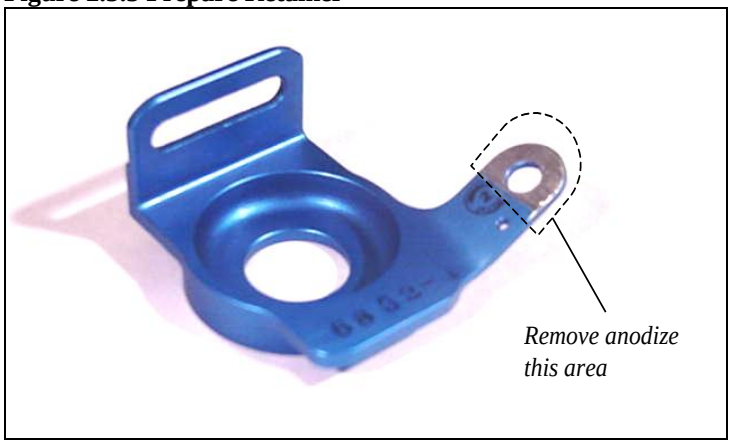
- Remove and retain spring (Airbus Helicopters P/N 350A55-1044-21) and Lever.
- Remove the cable support bracket. Retain the two attachment screws.
- Remove the connections from the common ground point on the lever retainer.
- Remove the safety wire securing the Fuel Drain Valve (Airbus Helicopters P/N 350A52-1008-01). Remove the Fuel Drain Valve and the Retainer from the tank. Discard used Fuel Valve Seal (Airbus Helicopters P/N SD16X-21P).
- Remove the residual sealant from the tank, taking care to not mar the sealing surface. Prepare the area for sealing per Airbus Helicopters Standard Practices Manual.

Figure 2.3.2 Fuel Drain Disassembly Complete



- Prepare the Retainer (P/N 290-888-00) for electrical bonding by removing the anodize from the area shown in Figure 2.3.3.

Figure 2.3.3 Prepare Retainer



2.3 Fuel Drain Guard Installation continued

- ❑ Prepare PR1422-B or equivalent fuel tank sealant per Airbus Helicopters Standard Practices Manual. Apply sealant to Retainer as shown in Figure 2.3.4. Retain unused sealant to ensure proper cure.

Figure 2.3.4 Apply Sealant

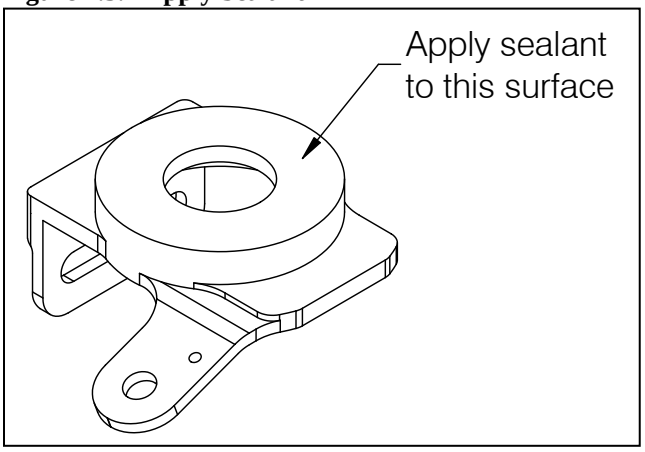
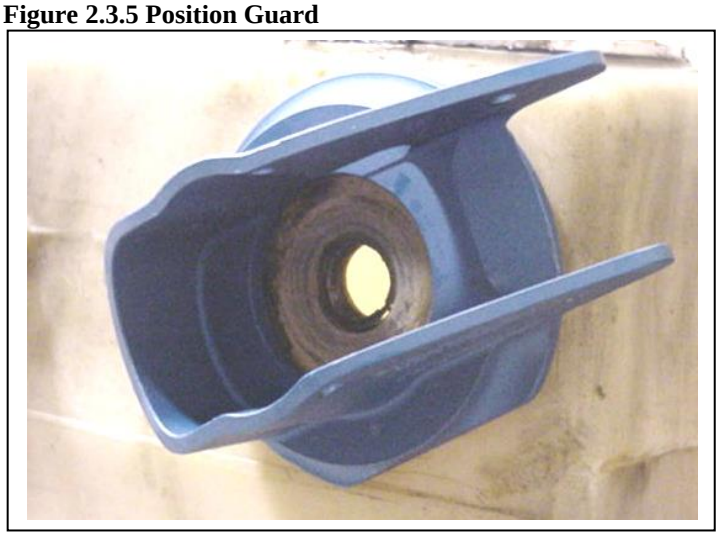


Figure 2.3.5 Position Guard



NOTICE

On some aircraft, the guard may have to be modified to fit the key on the fuel tank. In these cases, the sides of the clearance slot on the guard should be widened the minimum amount necessary in order to fit over the key. See figures 2.3.6 and 2.3.7.

2.3 Fuel Drain Guard Installation continued

Figure 2.3.6 Fuel Tank Key

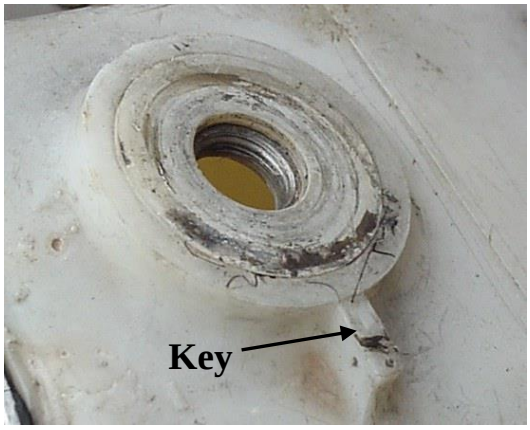
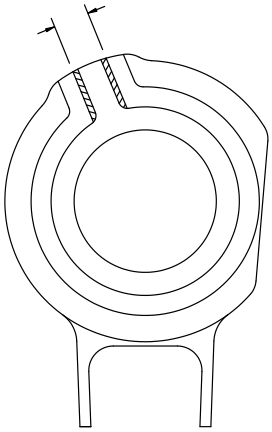


Figure 2.3.7 Modification of Guard Slot



- Carefully place the Retainer inside the Guard by inserting the tab through the slot in the Guard. Press the retainer to the tank firmly and center it about the drain hole. See Figure 2.3.8.

Figure 2.3.8 Retainer/Guard Assembly

- Secure the Guard and Retainer by re-installing the Fuel Drain Valve with Fuel Valve Seal, P/N 610-024-00 (Airbus Helicopters P/N SD16X-21P). Use a flat-blade screwdriver to prevent the Retainer from twisting when tightening the Fuel Drain Valve. Torque per Airbus Helicopters specifications.

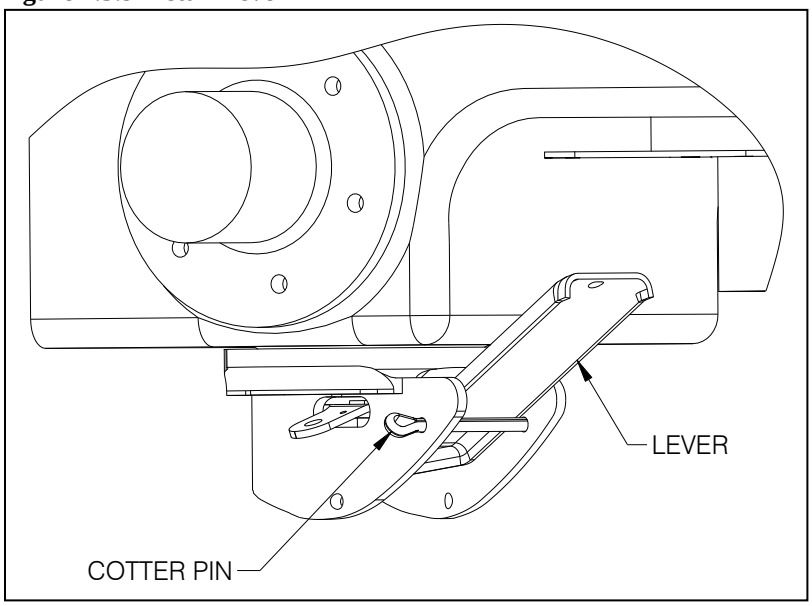
NOTICE

The guard is not intended to fit tightly with the fuel tank. When properly installed, the guard should have freedom to move slightly.

2.3 Fuel Drain Guard Installation continued

- Secure the Fuel Drain Valve with safety wire using the small hole in the retainer tab.
- Re-install the electrical connections to the new Retainer tab per Airbus Helicopters Electrical Bonding Procedure. Refer to Airbus Helicopters Standard Practices Manual, 20.02.07.
- Install the Lever by placing it in Retainer slot and rotating upwards. Secure with cotter pin (P/N 510-526-00). See Figure 2.3.9.

Figure 2.3.9 Install Lever



- Install a second cotter pin through the other holes in the Guard (this cotter pin is for valve protection only and is not used for rigging purposes).
- Prepare to install Bracket (P/N 290-893-00) by threading the control cable through the Bracket hole. Install Bracket using the two screws removed previously.
- Pass the cable through the spring and then the Lever. Install the Sleeve and Cable Grip.

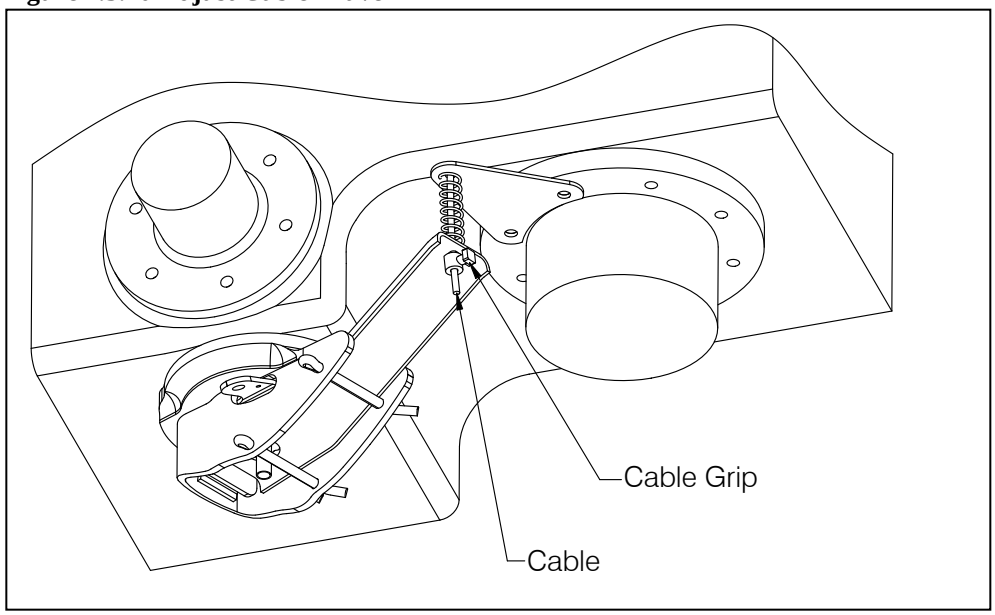
CAUTION

To avoid inadvertent fuel loss, Airbus Helicopters P/N 58-2-009 Cable Grip must be used with this installation.

- Adjust the cable travel by doing the following: allow the lever to rest against the cotter pin stop. Slide the Cable Grip up to the bottom of the lever and secure. See Figure 2.3.10.

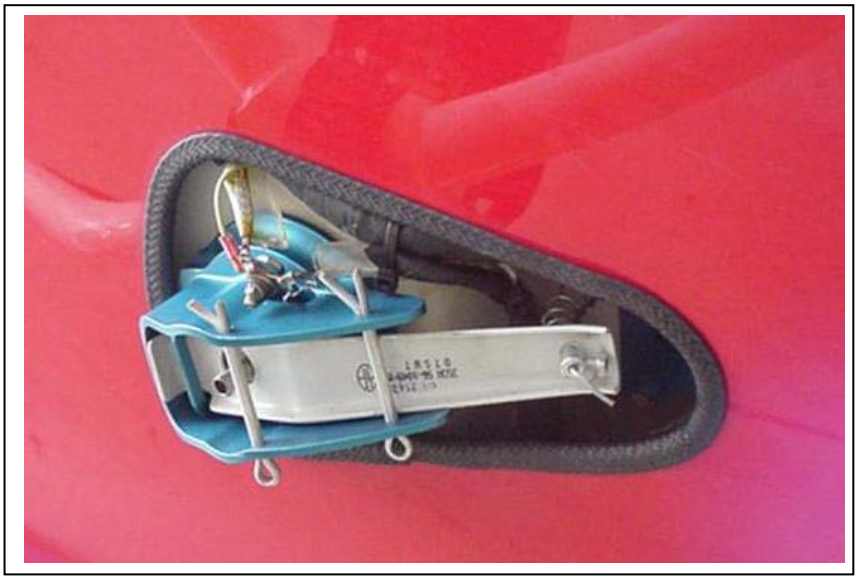
2.3 Fuel Drain Guard Installation continued

Figure 2.3.10 Adjust Cable Travel



- Check the cable adjustment with the release handle on the side of the aircraft. There should be a minimum of .25" (6mm) cable travel before valve opens. Adjust the Cable Grip as required.
- Allow the sealant to cure per Airbus Helicopters Standard Practices Manual before adding fuel. Verify proper cure of unused sealant.
- Add fuel to the tank and check for leakage.
- Reinstall aft lower cowling. Check for clearance between Guard and cowling. If required trim cowling cutout to provide a min of .125" (3.5mm) clearance between the cowling and guard. See Figure 2.3.11 for completed installation.

Figure 2.3.11 Installation Complete



2.4 Swing Suspension Installation

2.4.1 Shackle Assembly Installation

- If necessary, install the landing gear half clamps and pads per Airbus Helicopters modification 07-2772.
- Remove the existing Airbus Helicopters shackles (if present) and install the four Shackle Assemblies (P/N 232-137-01) onto the landing gear half clamps with hardware as illustrated in Figure 2.4.1.1 (Airbus Helicopters part numbers are shown in italics). At the RH forward half clamp remove and re-install the existing manual release cable support bracket at the inboard side as illustrated in Figure 2.4.1.2. Torque the nuts to 100-130 in-lbs.

Figure 2.4.1.1 Shackle Assembly Installation

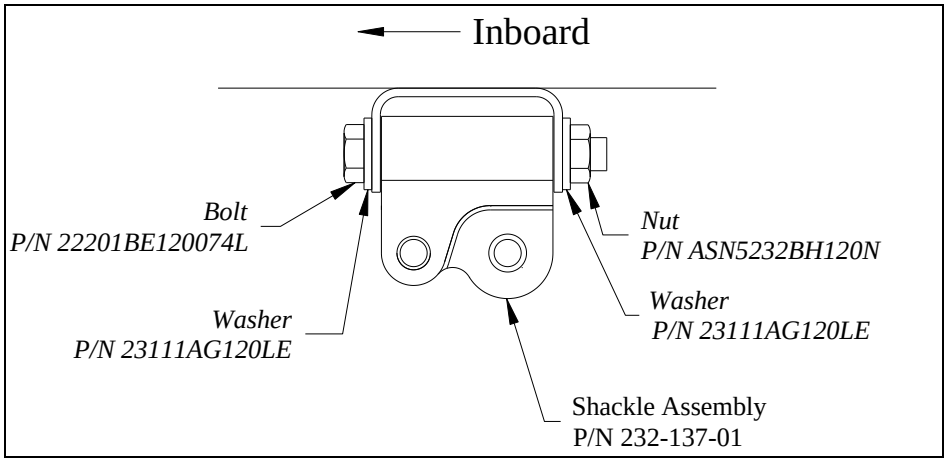
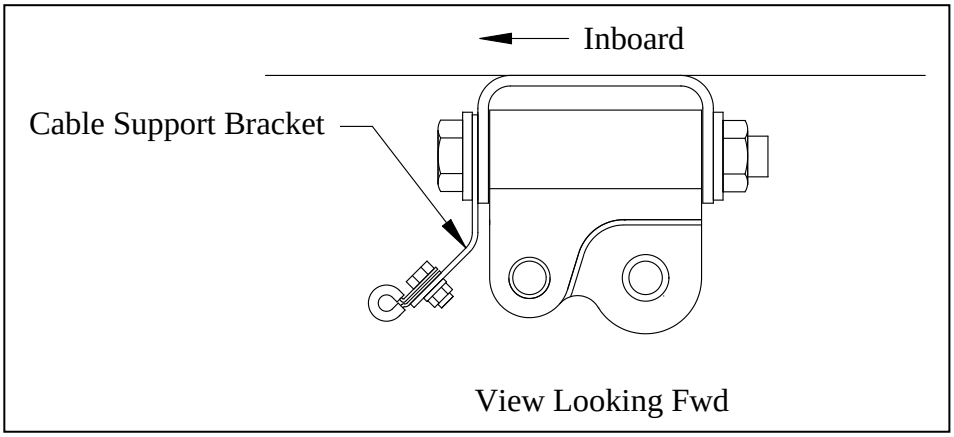


Figure 2.4.1.2 RH Forward Shackle Assembly Installation



2.4 Swing Suspension Installation continued

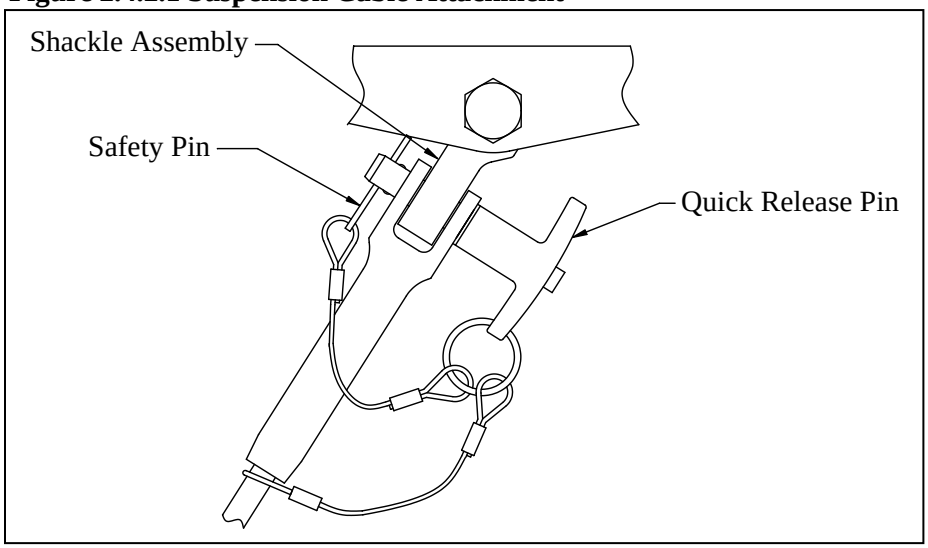
2.4.2 Suspension Installation

- Install the cable assemblies onto the swing suspension frame with hardware provided pre-assembled onto the cable clevis end. Fasten the two shorter cable assemblies (P/N 232-140-01) onto the forward pivot points* of the suspension frame and the two longer cable assemblies (P/N 232-141-01) to the aft pivot points. Torque the castellated nuts on the pivot bolts to 20 ft-lbs., then rotate nut to next castellation, not to exceed 30 ft-lbs. Install and secure cotter pins.

  * The forward end of the suspension is determined by the orientation of the cargo hook. **When the suspension is installed the cargo hook load beam must point to the left side of the helicopter** (the manual release cable is routed to the right side of the helicopter).

- Install the Swing Suspension onto the aircraft by attaching the four clevises at the end of the cables to the inboard holes on the Shackle Assemblies with the quick release pins as shown in Figure 2.4.2.1. Install the attached safety pins at each quick release pin.

Figure 2.4.2.1 Suspension Cable Attachment

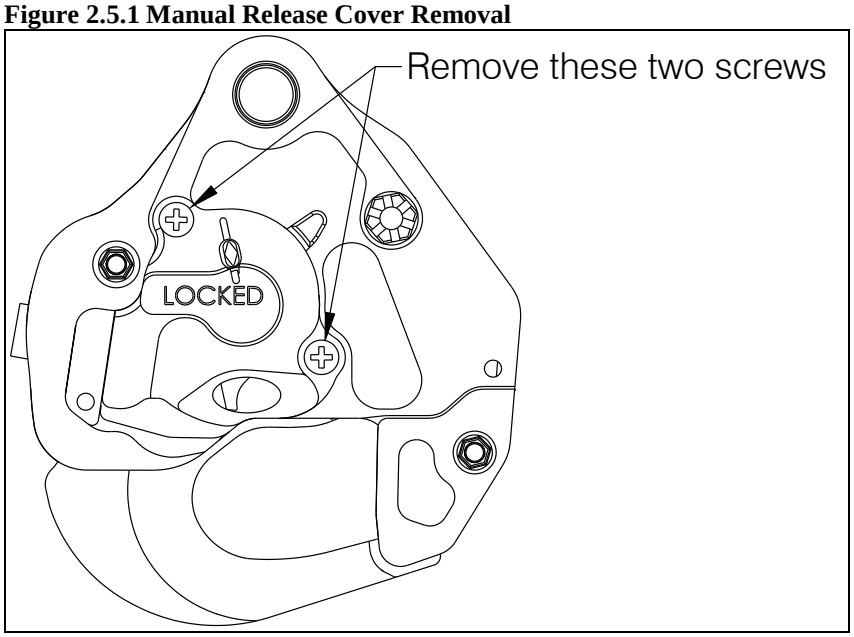


2.5 Manual Release Cable Assembly Installation

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

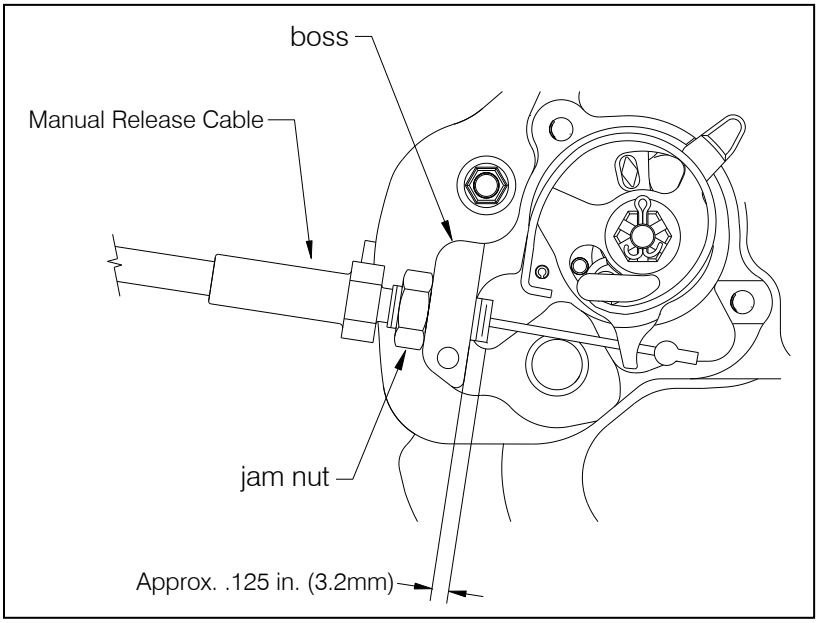
- Remove the manual release cover from the cargo hook by removing two screws (see below).

Figure 2.5.1 Manual Release Cover Removal



- Thread the fitting at the end of the manual release cable into the manual release boss on the cargo hook side plate until the threads protrude approximately .125 inches beyond the boss and secure with jam nut (as shown in Figure 2.5.2). Leave the manual release cover off of the cargo hook until the other end of the release cable is connected, in order to verify proper setting.

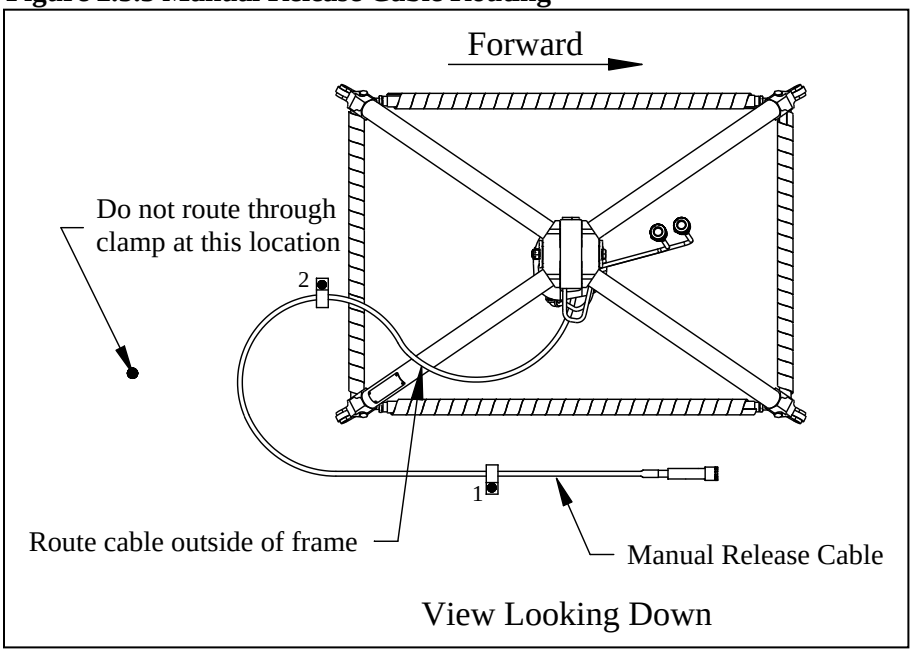
Figure 2.5.2 Initial Release Cable Adjustment



2.5 Manual Release Cable Assembly Installation, continued

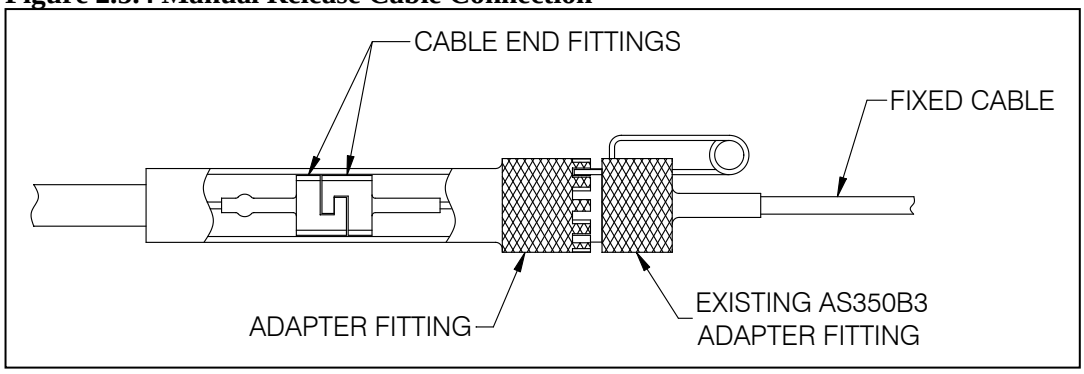
- Route the cable from the hook to the fixed manual release cable through two existing clamps as illustrated below. These clamps must be located at the two furthest forward positions on the lower cowling (points 1 and 2 in Figure 2.5.3 below). Do not use the clamp at the aft position.

Figure 2.5.3 Manual Release Cable Routing



- Connect the other end of the release cable to the fixed section of the existing AS350 manual release cable by mating the cable end fittings together as shown below (slide back the Adapter Fitting to access fitting on removable cable). Slide the Adapter Fitting forward and thread it onto the AS350B3 fitting, and engage a castellation on the Adapter Fitting with the retaining pin and lock it in place.
- Snap the Adapter Fitting into the existing clip mounted to the belly of the helicopter.

Figure 2.5.4 Manual Release Cable Connection



- At the cargo hook, ensure the manual release cable is between the two prongs of the release lever fork as illustrated in Figure 2.5.5.

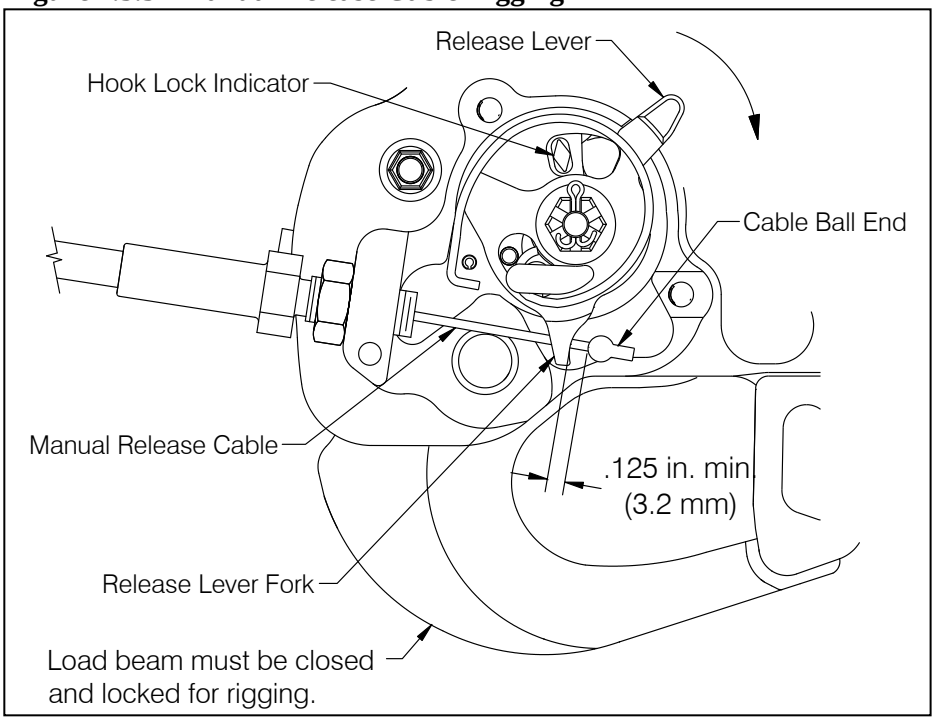
2.5 Manual Release Cable Assembly Installation continued

CAUTION

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

- With the cargo hook closed and locked, rotate the release lever in the clockwise direction to remove free play (the free play is taken up when the hook lock indicator begins to move, this is also felt as the lever rotates relatively easily for several degrees as the free play is taken up) and measure the gap between the cable ball end and the release lever fork with the manual release lever in the cockpit in the non-release position. This gap should be a minimum of .125 inches (3.2 mm) as shown in Figure 2.5.5.

Figure 2.5.5 Manual Release Cable Rigging



- If necessary adjust the manual release cable system to obtain the minimum gap of .125 inches at the release lever fork as shown in Figure 2.5.5 (the maximum gap is limited by the manual release cover, i.e.- the release cable must fit within the cover when it is installed).
- The system can be adjusted at the manual release lever on the collective or minor adjustments can be made at the cargo hook by loosening the jam nut and turning the manual release cable in the required direction (this requires that the manual release cable be disconnected from the fixed release cable and the quick release clamps on the belly). Be sure to maintain full thread engagement between the manual release cable fitting and cargo hook.

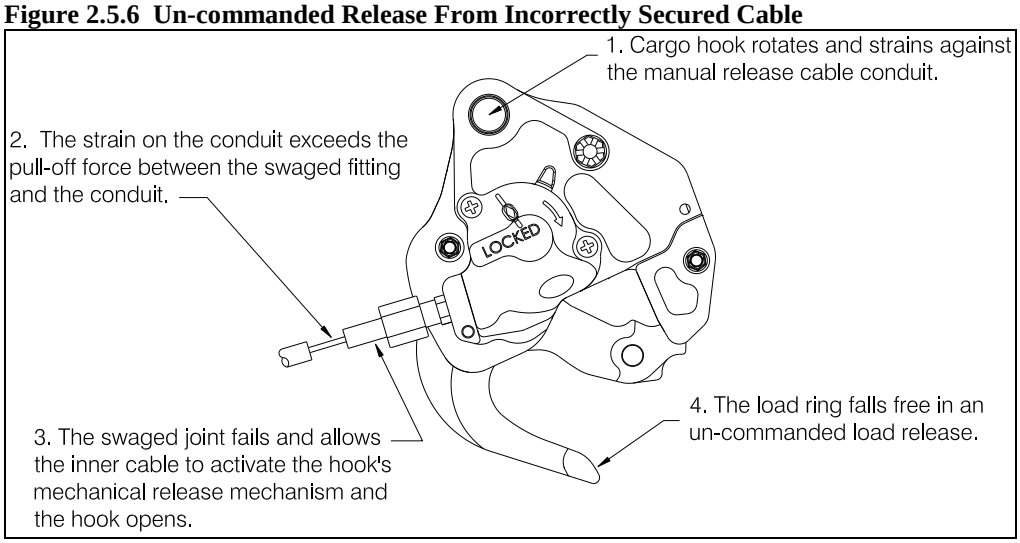
2.5 Manual Release Cable Assembly Installation continued

- Re-install the manual release cover with the two screws and ensure the manual release cable jam nut is tightened securely against the cargo hook.
- Move hook and swing frame throughout its range of motion while observing free play. At no point should the free play be less than .030" (.8 mm). Also, check that the cable housing is not kinked or pulled tight in any position.
- Verify proper release travel by pulling manual release lever in cockpit and ensuring that there is sufficient travel to open hook fully.
- Replace the manual release cover on the hook with the two screws.

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 Cargo Hook or Swing Frame position is restrained by the manual release cable.

Figure 2.5.6 Un-commanded Release From Incorrectly Secured Cable



2.6 External Electrical Cable Installation

- Connect the end of the cargo hook electrical release cable to the fixed electrical release connector (32M) installed per Section 2.2. See Table 2.6.1 for cargo hook connector pin out information.
- Connect the Ground Strap from the hook to the fixed ground strap.
- Connect the end of the load cell cable to the fixed load weigh harness connector (55M).

Table 2.6.1 Cargo Hook Connector

Pin	*Function*
A	Ground
B	Power

Early versions of the cargo hook were equipped with a suppression diode that will be damaged if the cargo hook electrical connection is reversed.

2.7 Installation Check-Out

After installation of the Cargo Swing Suspension System, perform the following functional checks.

1. Swing the installed Cargo Hook on the suspension to its full extremes to ensure that the manual release cable assembly and the electrical release cable have enough slack to allow full swing of the cargo hook 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.
2. Swing the Suspension to its full extremes to ensure that the manual release cable assembly and the electrical release cable have enough slack to allow full swing of the Suspension without straining or damaging the cables. The cables must not be the stops that prevent the Suspension from swinging freely in all directions.
3. With no load on the cargo hook load beam, pull the handle operated cargo hook mechanical release, the Cargo Hook should release. Reset the cargo hook load beam.
4. With no load on the cargo hook load beam, depress the cargo hook electrical release button, the Cargo Hook should release. Reset the cargo hook load beam.
5. Perform an EMI ground test per AC 43.13-1b section 11-107. For equipment that can only be checked in flight an EMI flight test may be required.

The cargo hook and load weigh system are of a class of equipment not known to have a high potential for interference. This class of equipment does not require special EMI installation testing (i.e. FADEC) as required in paragraphs 7 and 8 of FAA policy memorandum ASW-2001-02.

The following steps pertain to the load weigh system. Step 6 pertains to the C-39 Indicator. Steps 7 through 11 pertain to the C-40 Indicator. Power on the load weigh system and verify the following.

6. On startup the C-39 Indicator will perform a brief self-diagnostic routine and then display the load screen. Set the Installation Zero for the installation and desired units (lbs. or kg) per the instructions contained in Owner's Manual 120-039-00.
7. On startup the C-40 Indicator will display an information screen while performing a brief self-diagnostic routine and then display the load screen. Set the Installation Zero for the installation per the instructions contained in the C-40 Indicator's Owner's Manual 120-152-00.

2.7 Installation Check-Out continued

8. For the C-40: In the Settings menu select desired units (lb or kg), brightness of the display, maximum load, backlight voltage and other settings as preferred (refer to the C-40 Indicator Owner's Manual 120-152-00 for detailed instructions).

NOTICE

With the C-40 Indicator, one setting that must be set to function properly is the backlight voltage. If the wire for the backlight was connected the backlight voltage must be set to the aircraft circuit voltage (5 VDC or 28 VDC). Setting to the incorrect voltage will not damage the unit; it will either be brighter or dimmer than it should be.

9. Verify the calibration code (Cal Code) entered into the C-40 Indicator matches the calibration code on the load cell. Refer to the C-40 Indicator Owner's Manual 120-152-00 for instructions for checking calibration code.

10. If the C-40 Indicator's ANALOG OUT wire was connected to the VEMD perform the following (with the system on and power to the VEMD):

    - In the C-40 settings menu verify that the C-40 Indicator's Analog Full Scale setting is set to 9309.
    - Enter the Analog Test setting in the C-40 menu and follow the instructions to initiate a self-test. The load displayed on the VEMD should be 475 lbs (215 kg) for three seconds and then return to 0.

11. The C-40 Indicator records and displays external load time accumulated on the cargo hook to facilitate timely inspection and overhaul of the cargo hook. If this feature is to be used, reset the "Hook Hours" in the Settings menu to zero (the C-40 Indicator undergoes testing after assembly at the factory which "accumulates" 15-18 hours).

2.8 Component Weights

The weights and cg locations of the system components are listed below.

Table 2.8.1 Component Weights and CGs

Item	Weight	Station
Fixed Provisions	4.5 lbs (2.0 kgs)	110 in (2794 mm)
Removable Provisions	30.0 lbs (13.6 kgs)	133 in (3375 mm)
Fuel Drain Guard	0.40 lbs (.18 kg)	135 in. (3430 mm)
Total	**34.9 lbs (15.8 kg)**	**130 in (3302 mm)**

2.9 Paper Work

In the US, fill in FAA form 337 for the initial installation. This procedure may vary in different countries. Make the appropriate aircraft log book entry. Insert the Rotorcraft Flight Manual Supplement P/N 121-015-02 into the rotorcraft flight manual.

Section 3
Operation Instructions

Operating Procedures

Prior to a flight involving external load operations, perform the following. Refer to the Airbus Helicopters manuals for additional instructions. Refer to Owner's Manual 120-039-00 for operation instructions for the C-39 Indicator or Owner's Manual 120-152-00 for operation instructions for the C-40 Indicator.

1. Activate the electrical system and press the Cargo Hook release button to ensure the cargo hook electrical release is operating correctly. The mechanism should operate smoothly and the Cargo Hook must release. Reset the hook by hand after the release.

CAUTION

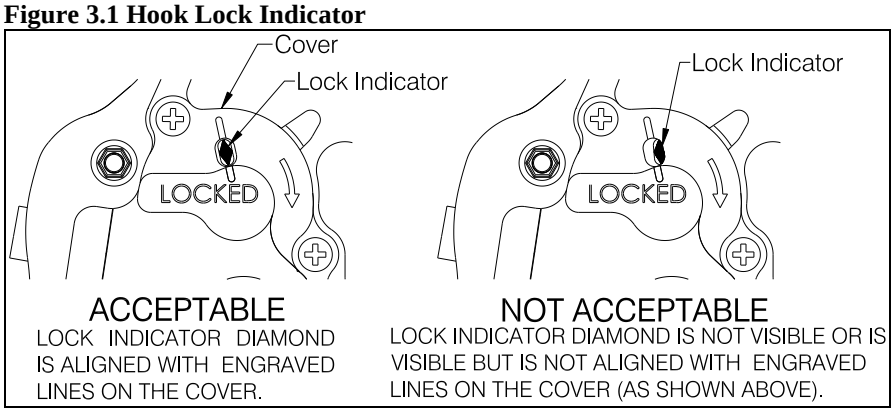
The cargo hook release solenoid is intended to be energized only intermittently. Depressing the electrical release button continuously in excess of 20 seconds will cause the solenoid to overheat, possibly causing permanent damage.

2. Activate the manual release lever to test the cargo hook manual release mechanism. The mechanism should operate smoothly and the Cargo Hook must release. Reset the load beam 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 3.1).

Figure 3.1 Hook Lock Indicator

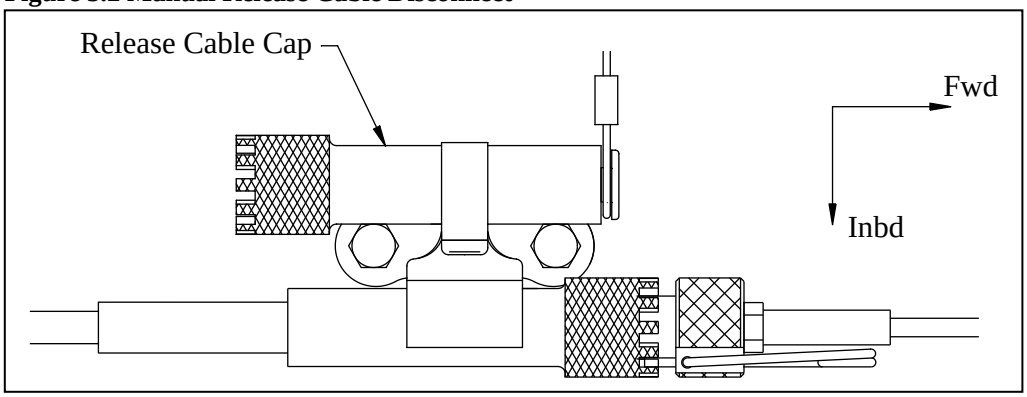


Disconnecting Removable Provisions

For helicopter missions in which the cargo hook swing suspension system is not needed, its removable provisions may be removed per the following instructions.

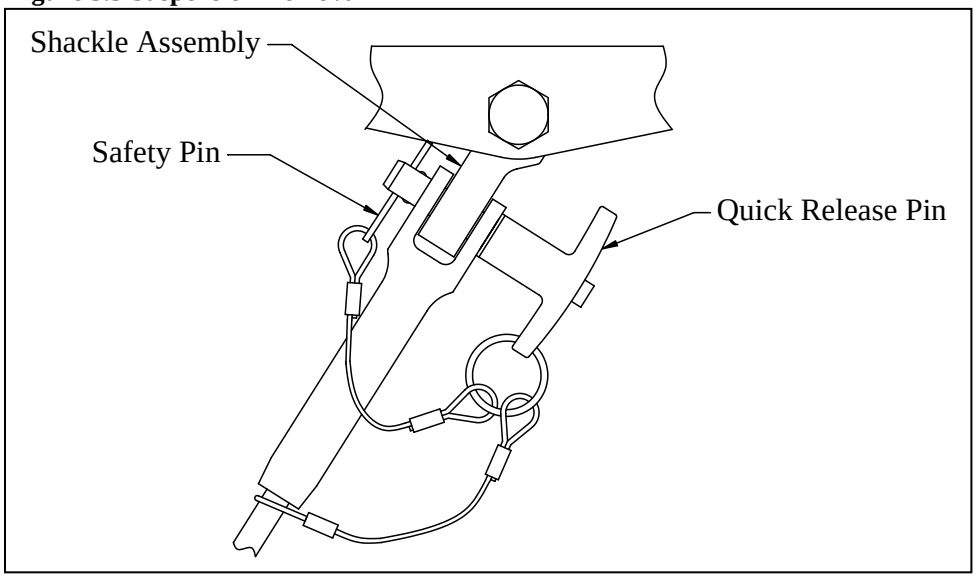
1. Remove the removable section of the manual release cable by un-clipping it from the bracket on the belly of the helicopter, disengaging the locking pin and unthreading the Adapter Fitting. Unclip the Release Cable Cap (see below) from the bracket and thread it over the open end of the fixed manual release cable assembly and clip it into the inboard spring clip on the bracket.

Figure 3.2 Manual Release Cable Disconnect



2. Remove the electrical cables and ground strap at the belly of the helicopter.
3. Remove the Swing Suspension by removing the safety pins and then the quick release pins that secure the cables to each of Shackle Assemblies.

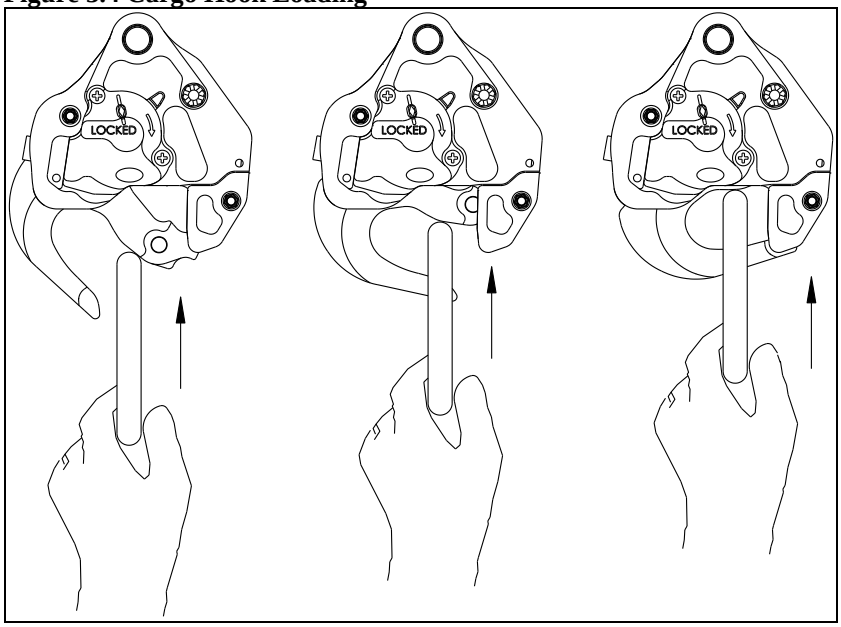
Figure 3.3 Suspension Removal



Cargo Hook Loading

The cargo hook can easily be loaded with one hand. A load is attached to the hook by pushing the ring upward against the upper portion of the load beam throat, as illustrated in Figure 3.4, until an internal latch engages the load beam and latches it in the closed position.

Figure 3.4 Cargo Hook Loading



Cargo Hook Rigging

Extreme care must be exercised when rigging a load to the Cargo Hook. Steel load rings are recommended to provide consistent release performance and resistance to fouling. The following illustration shows the recommended rigging and rigging to avoid, but is NOT intended to represent all rigging possibilities.

⚠ CAUTION

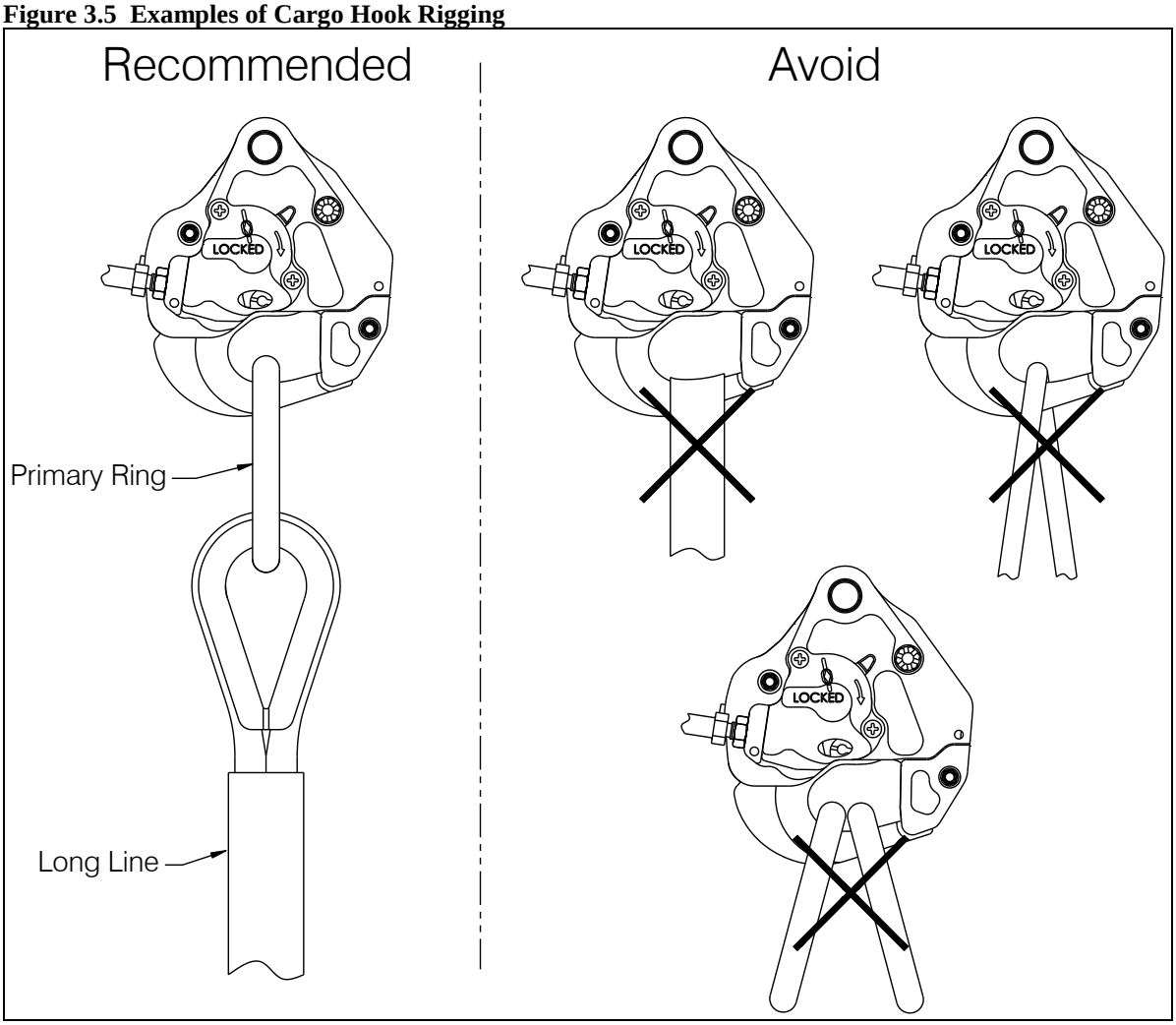
It is the responsibility of the operator to assure the cargo hook will function properly with each rigging.

⚠ CAUTION

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

Cargo Hook Rigging, continued

Figure 3.5 Examples of Cargo Hook Rigging



Section 4
Maintenance

Refer to the Instructions for Continued Airworthiness (ICA) manual 123-014-02 for maintenance of the cargo hook suspension system. For maintenance of the cargo hook refer to Cargo Hook Component Maintenance Manual 122-017-00.

Instructions for Returning Equipment to the Factory

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

NOTICE

An RMA number is required for all equipment returns.

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

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

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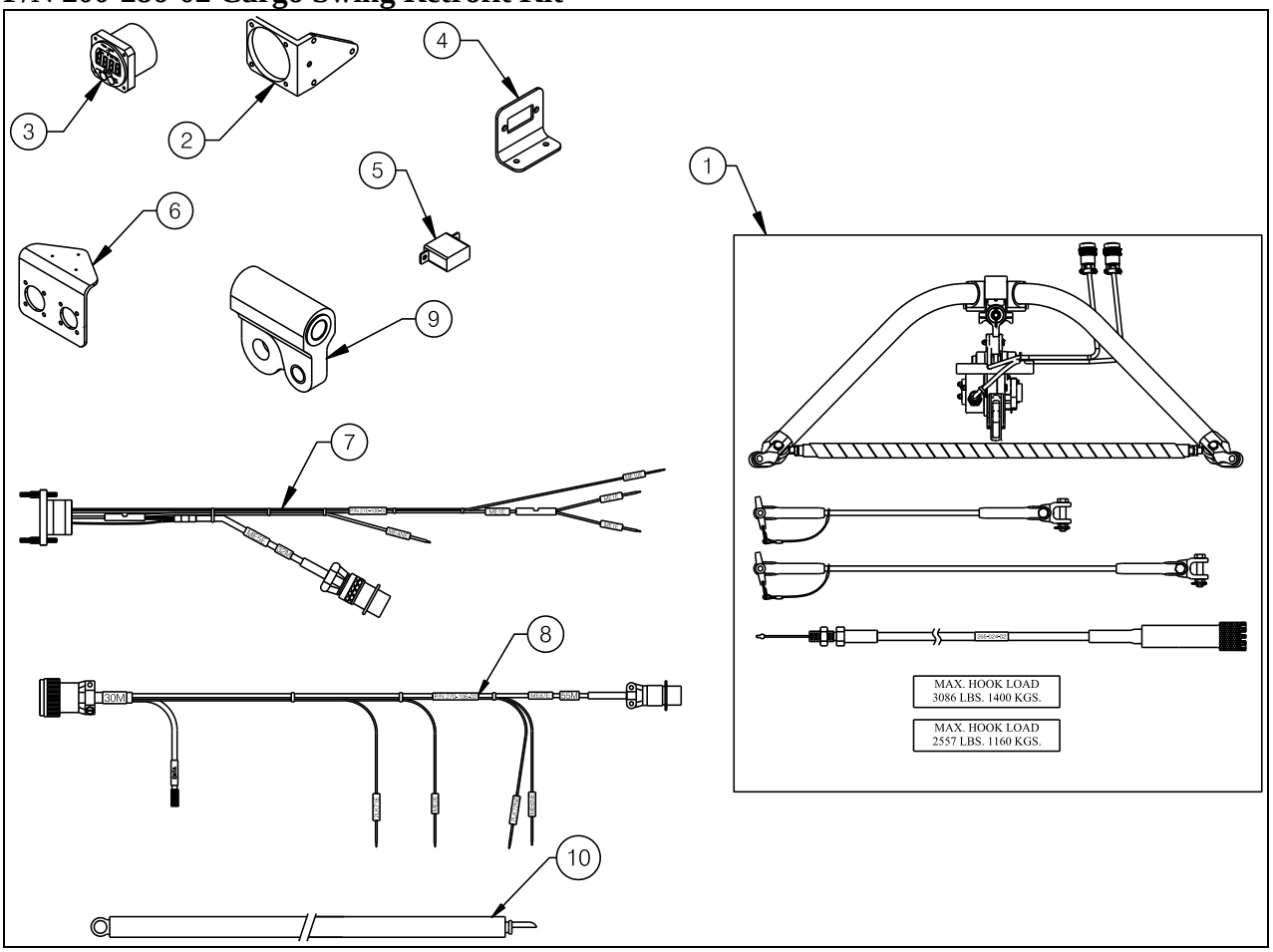
Section 5

System Part Numbers

P/N 200-286-02 Cargo Swing Retrofit Kit

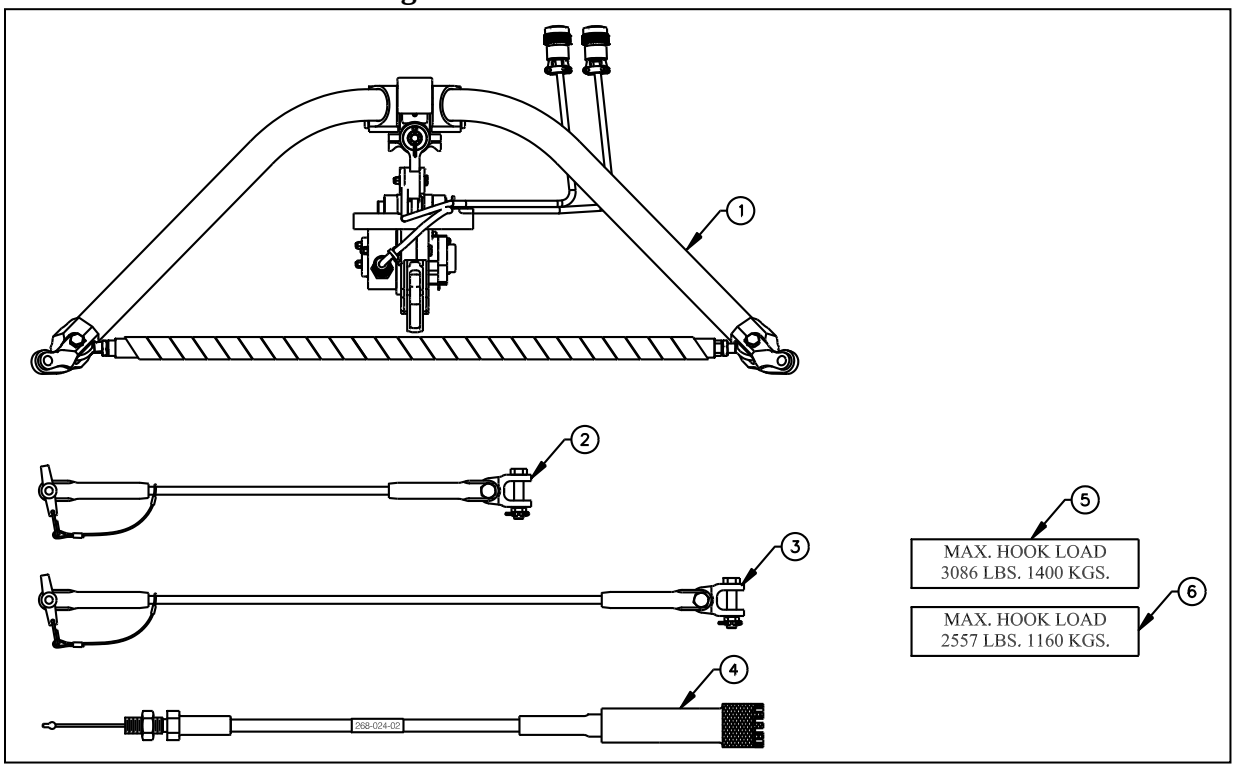


Item	Part Number	Description	Qty
1	210-201-03	AS 350 Swing Removable Provisions	1
2	290-772-00[1]	Indicator Mount Bracket	1
3	210-095-00[2]	C-39 Indicator	1
4	290-783-00	Relay Bracket	1
5	445-005-00	Relay	1
6	290-782-00	Connector Bracket	1
7	270-108-00	Electrical Release Internal Harness	1
8	270-106-02	Load Weigh Internal Harness	1
9	232-137-01	Shackle Assembly	4
10	270-125-00	Ground Strap, Fixed	1

[1]Replaced by P/N 235-259-00 for the C-40 Indicator in Kit P/N 200-286-03.
[2]Replaced by C-40 Indicator P/N 210-293-00 or 210-293-01 in Kit P/N 200-286-03.

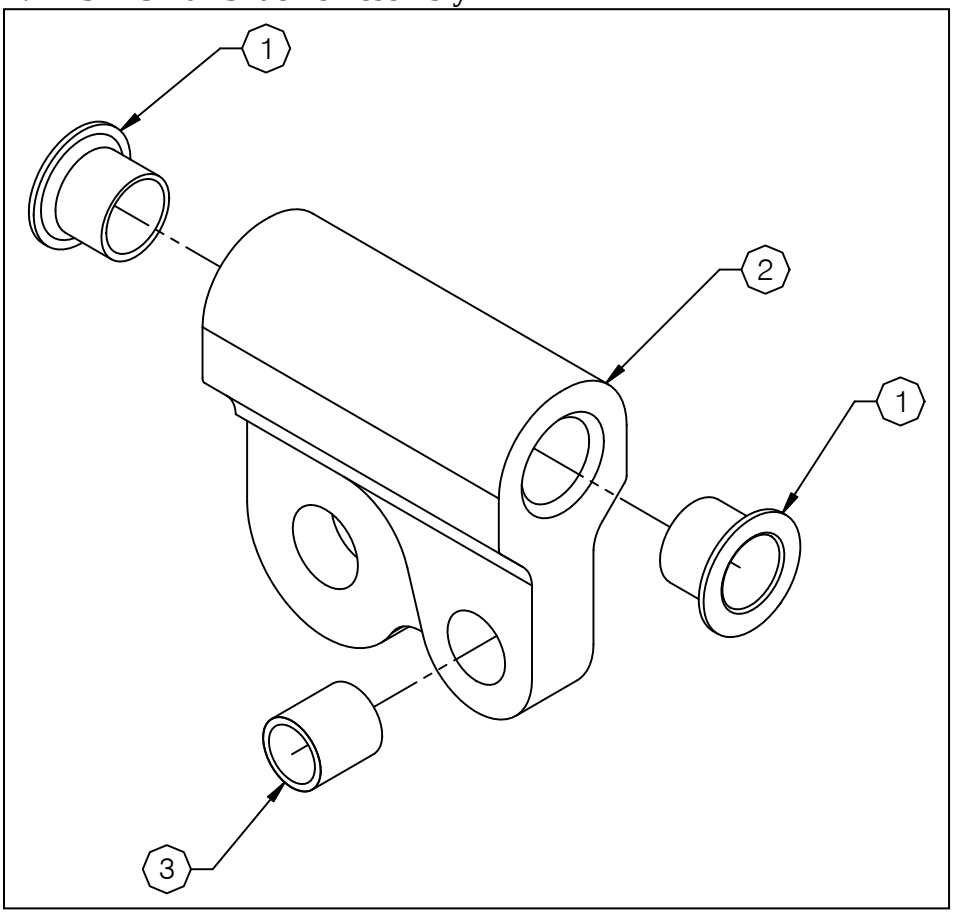
System Part Numbers continued

P/N 210-201-03 AS 350 Swing Removable Provisions



Item	Part Number	Description	Qty
1	232-145-03	Hook Frame Assembly	1
2	232-140-01	Forward Attach Cable Assembly	2
3	232-141-01	Aft Attach Cable Assembly	2
4	268-024-02	Manual Release Cable Assembly	1
5	215-166-00	Max Hook Load 3086 Decal	1
6	215-168-00	Max Hook Load 2557 Decal	1

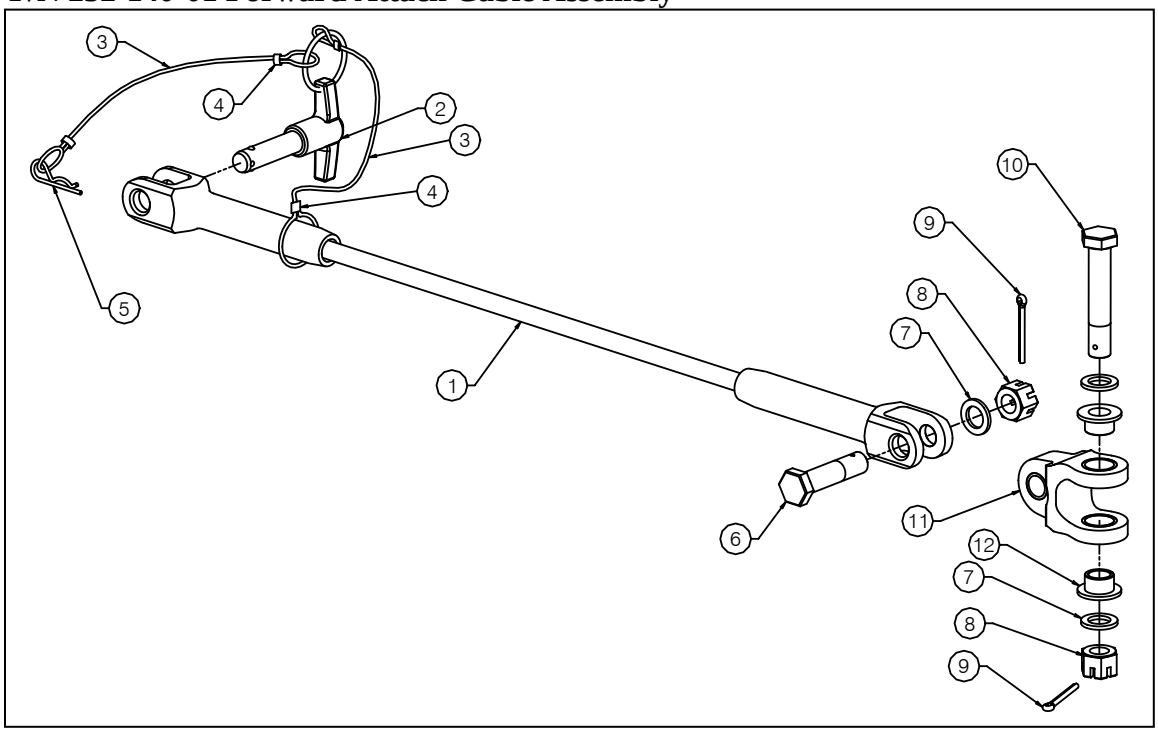
P/N 232-137-01 Shackle Assembly



Item	Part Number	Description	Qty
1	517-047-00	Bushing	2
2	290-850-00	Airframe Attach Fitting	1
3	517-016-00	Bushing	1

System Part Numbers continued

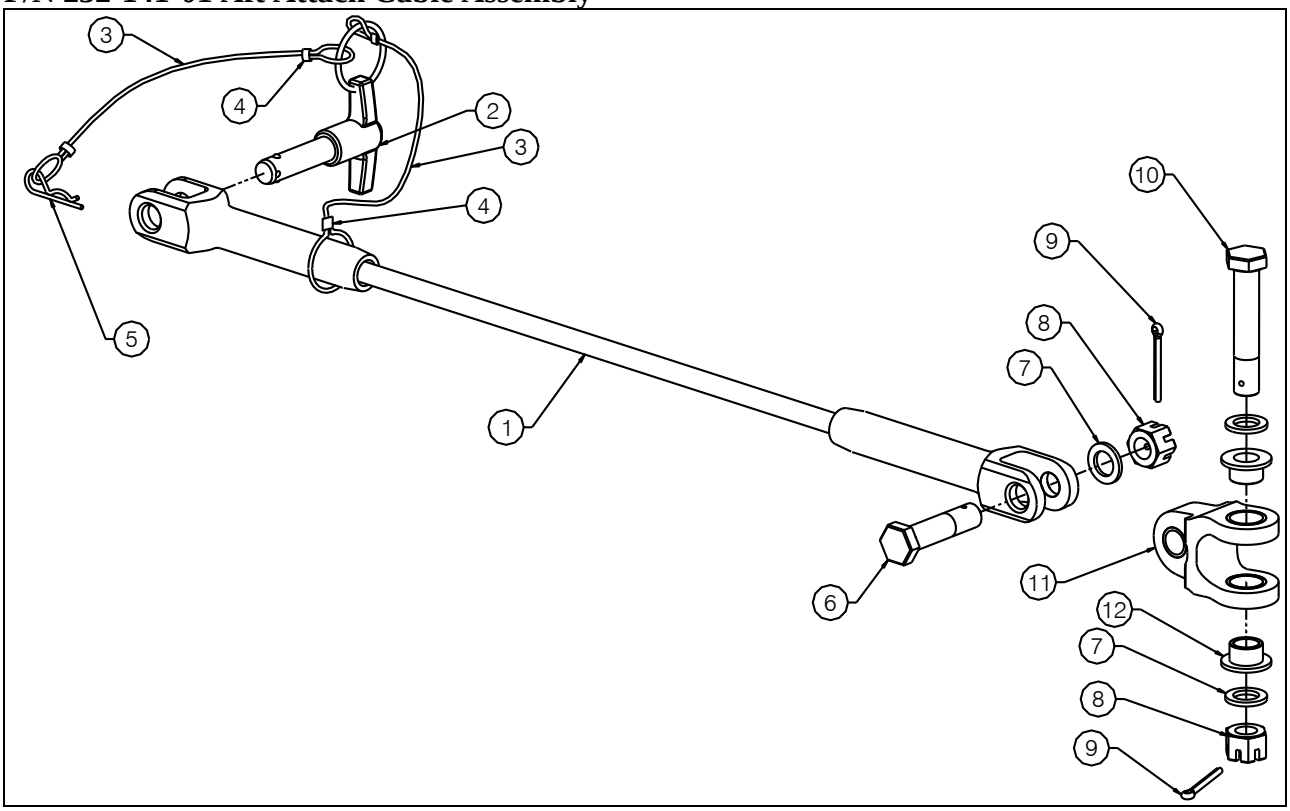
P/N 232-140-01 Forward Attach Cable Assembly



Item	Part Number	Description	Qty
1	232-177-00	Forward Attach Cable	1
2	290-851-00	Quick Release Pin	1
3	531-015-00	Lanyard Cable	2
4	531-016-00	Crimp Sleeve	2
5	510-464-00	Hitch Pin	1
6	510-438-00	Bolt	1
7	510-221-00	Washer	3
8	510-440-00	3/8" Castellated Nut	2
9	510-178-00	Cotter Pin	2
10	510-439-00	Bolt	1
11	232-142-00	Lower Attach Gimbal Assembly	1
12	290-749-00	Standoff Bushing	2

System Part Numbers continued

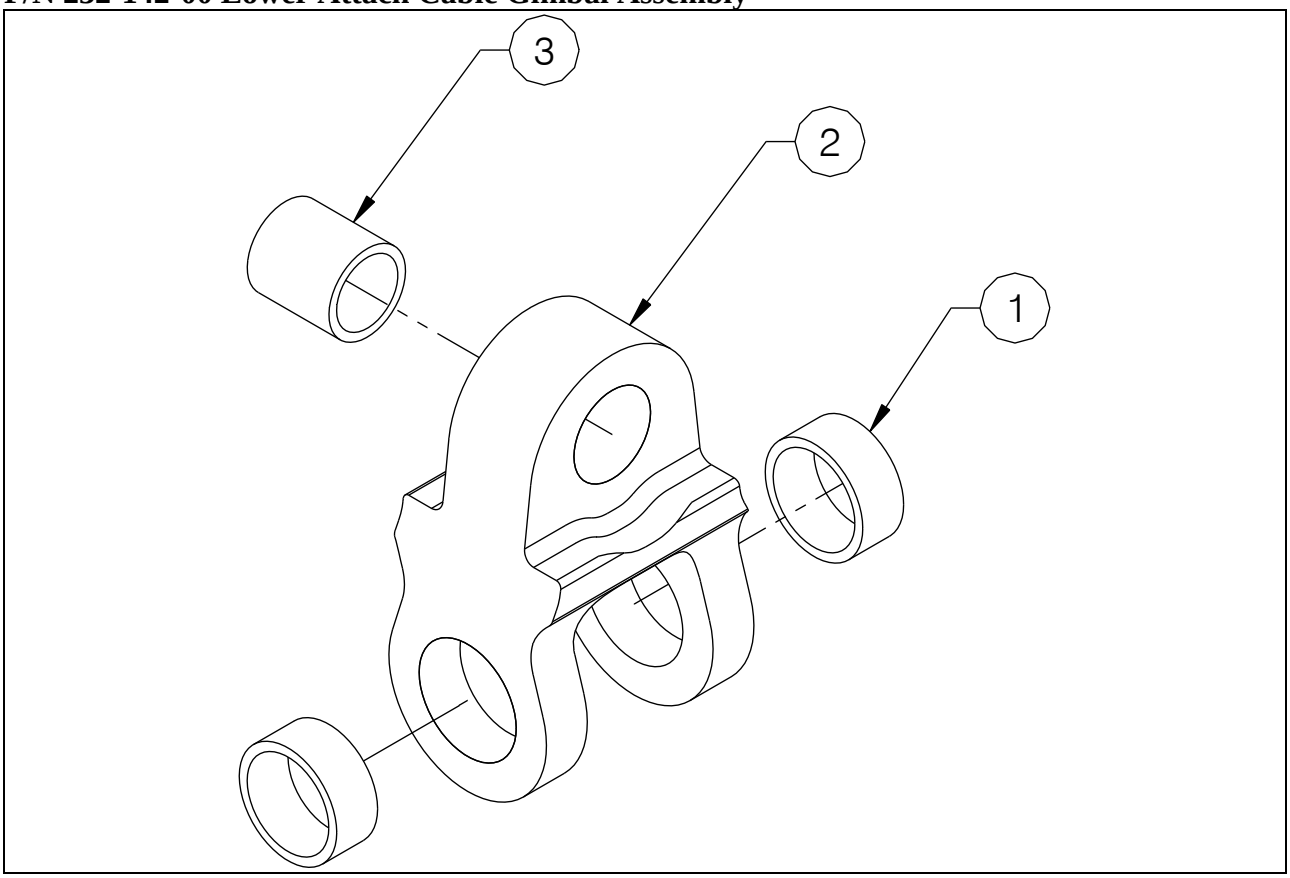
P/N 232-141-01 Aft Attach Cable Assembly



Item	Part Number	Description	Qty
1	232-178-00	Aft Attach Cable	1
2	290-851-00	Quick Release Pin	1
3	531-015-00	Lanyard Cable	2
4	531-016-00	Crimp Sleeve	2
5	510-464-00	Hitch Pin	1
6	510-438-00	Bolt	1
7	510-221-00	Washer	3
8	510-440-00	3/8" Castellated Nut	2
9	510-178-00	Cotter Pin	2
10	510-439-00	Bolt	1
11	232-142-00	Lower Attach Gimbal Assembly	1
12	290-749-00	Standoff Bushing	2

System Part Numbers continued

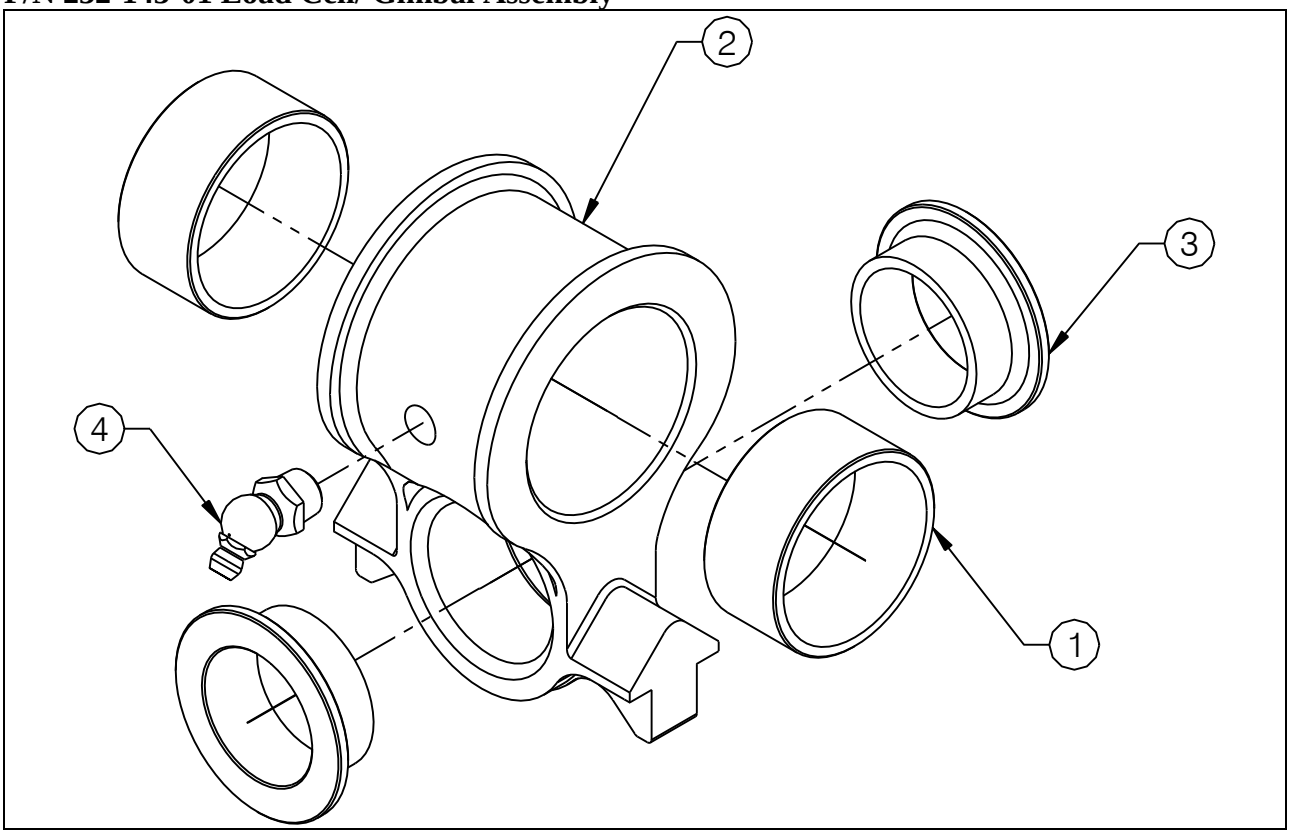
P/N 232-142-00 Lower Attach Cable Gimbal Assembly



Item	Part Number	Description	Qty
1	517-048-00	Bushing	2
2	290-746-00	Lower Cable Gimbal	1
3	517-016-00	Bushing	1

System Part Numbers continued

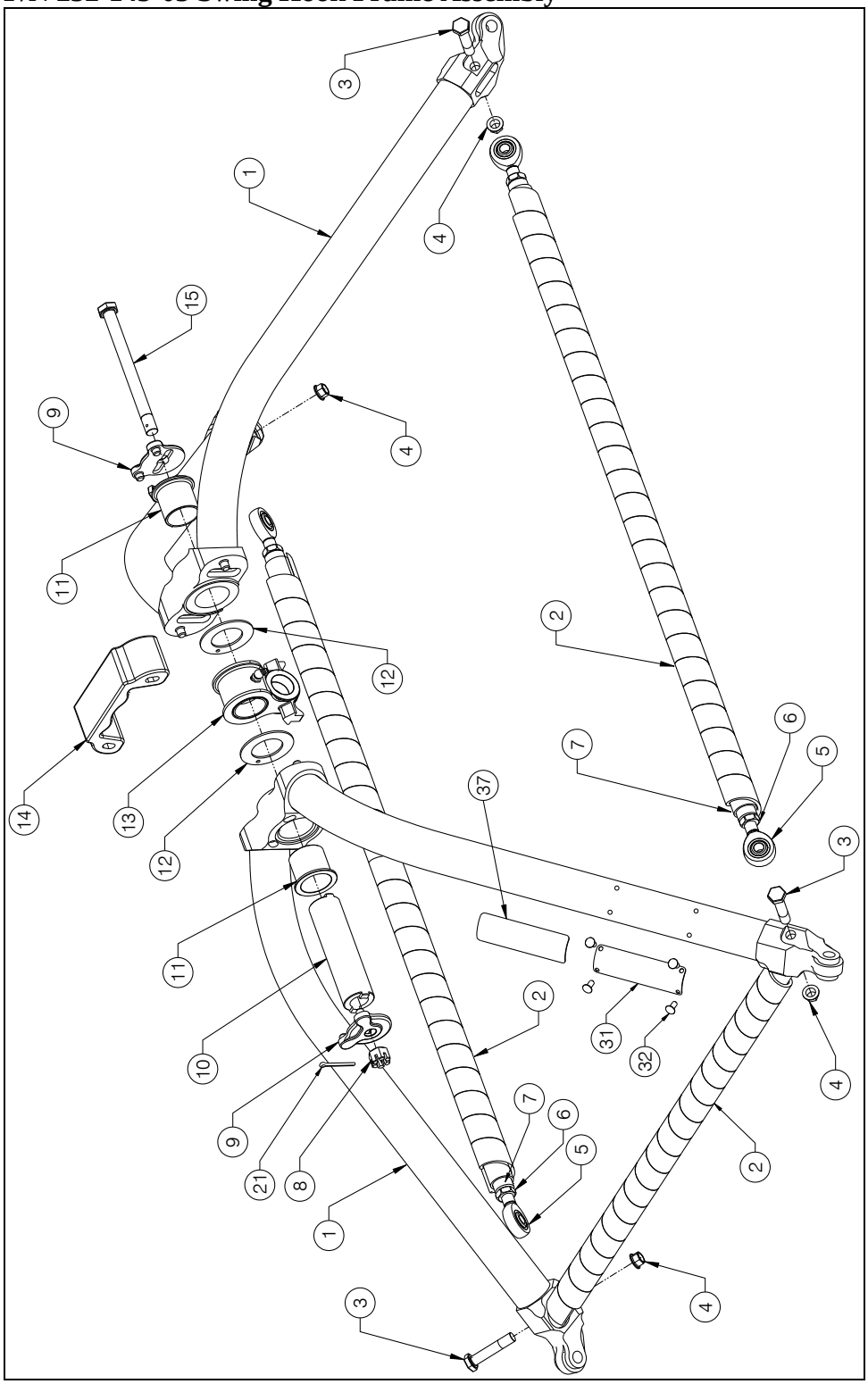
P/N 232-143-01 Load Cell/ Gimbal Assembly



Item	Part Number	Description	Qty
1	517-056-00	Bushing Upper Hook Gimbal	2
2	290-841-00	Gimbal Link	1
3	517-046-00	Bushing Lower Hook Gimbal	2
4	518-003-00	Grease Fitting	1

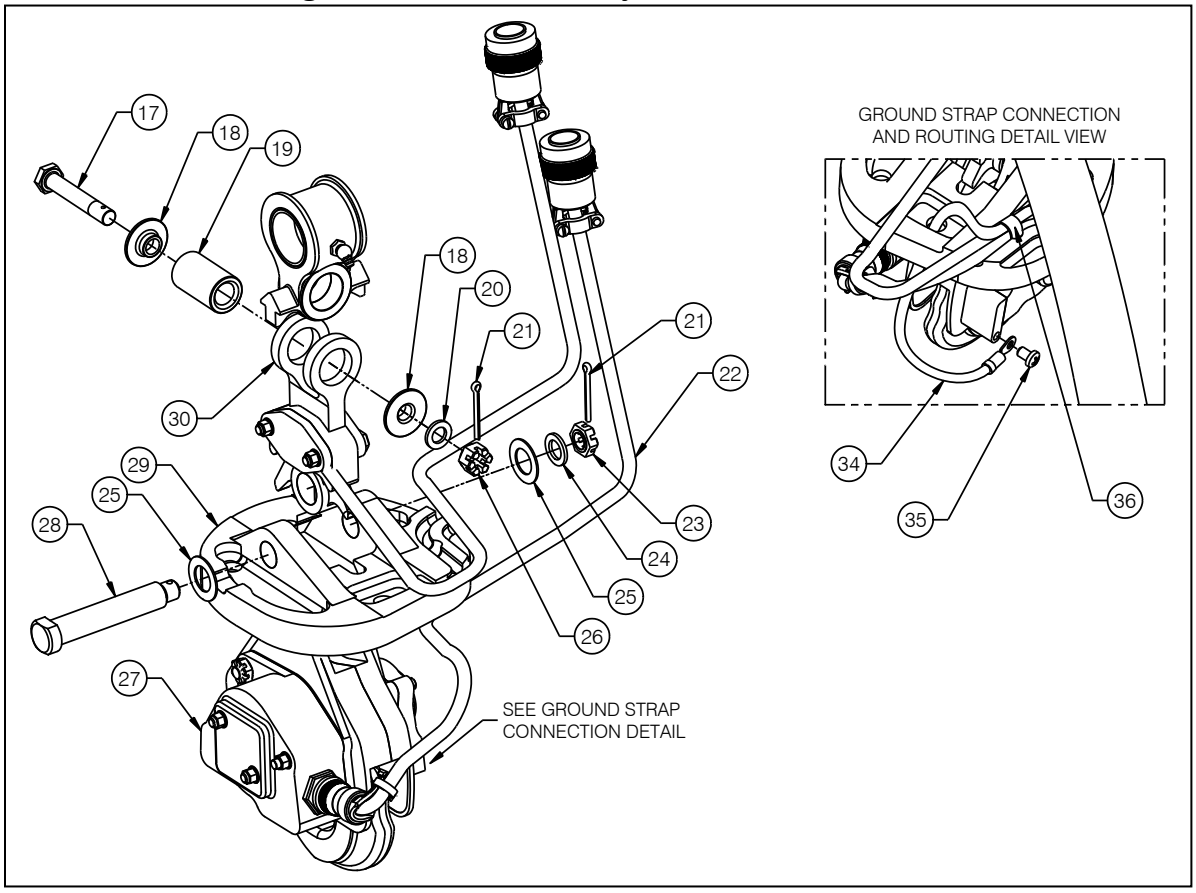
System Part Numbers continued

P/N 232-145-03 Swing Hook Frame Assembly



System Part Numbers **continued**

P/N 232-145-03, Swing Hook Frame Assembly continued



System Part Numbers continued

P/N 232-145-03 Swing Hook Frame Assembly continued

Item	Part Number	Description	Qty
1	235-117-00	Swing Frame Half	2
3	510-762-00	Bolt	4
4	510-104-00	Nut	4
5	517-055-00	Spherical Bearing	4
6	510-510-00	Jam Nut	4
7	235-116-00	Frame Strut	2
8	510-440-00	Nut, Castellated	1
9	290-843-00	Shaft Cap	2
10	290-842-00	Shaft – Pivot	1
11	517-057-00	Bearing	2
12	517-058-00	Bearing	2
13	232-143-01	Loadcell/Gimbal Assembly	1
14	290-862-00	Bumper	1
15	510-506-00	Bolt	1
17	510-443-00	Bolt	1
18	290-740-00	Shaft Retaining Bushing	2
19	290-739-00	Shaft – Gimbal	1
20	510-220-00	Washer	1
21	510-178-00	Cotter Pin	3
22	270-107-00	Lower Electrical Release Cable	1
23	510-170-00	Nut	1
24	510-174-00	Washer	1
25	510-183-00	Washer	1
26	510-320-00	Nut, Castellated	1
27	528-029-00	3,600lb Keeperless Cargo Hook	1
28	290-775-00	Long Hook Attach Bolt	1
29	290-774-00	Hook Bumper	1
30	210-249-03	AS350 Swing Loadcell Assy	1
31	590-011-00	Spiral Wrap	80”
32	215-183-00	Serial Number Plate	1
33	510-486-00	Rivet, 1/8”	4
34	270-126-00	Ground Strap	1
35	510-391-00	Screw	1
36	512-011-00	Ty-Wrap	2
37	215-271-00	Fuel Drain Warning Placard	1

* Supersedes 210-249-00, 210-199-01 and 210-199-00. These part numbers are interchangeable.

Section 7
Certification
FAA STC

United States of America
Department of Transportation
Federal Aviation Administration

Supplemental Type Certificate

Number: **SR01393SE**

This certificate issued to: **Onboard Systems International, LLC**
13915 NW 3rd Court
Vancouver, WA 98685

Certifies that the change in the type design for the following product with the limitations and conditions therefore as specified hereon meets the airworthiness requirements of Part 27 *of* the Federal Aviation Regulations.

Original Product Type Certificate Number: H9EU

Make: Airbus Helicopters

Model: AS350B, AS350B1, AS350B2, AS350B3, AS350BA, and AS350D

Description of Type Design Change:

Installation of Onboard Systems International Cargo Hook Kits in accordance with the Master Drawing List (MDL) No. 155 093 00, Revision 14, dated August 16, 2022, or later FAA-approved revision. Maintained in accordance with the Instructions for Continued Airworthiness (ICA) No. 123-014-01, Revision 11, dated February 21, 2018, or ICA No. 123-014-02, Revision 9, dated August 16, 2022, as applicable, or later FAA-approved revision. Operated in accordance with the Rotorcraft Flight Manual Supplement (RFMS), No. 121-015-01, Revision 0, dated December 10, 2004, or RFMS No. 121-015-02, Revision 2, dated October 30, 2023, as applicable, or later FAA-approved revision.

Limitations and Conditions:

Approval of this change in type design applies only to Airbus Helicopters AS350 model rotorcraft listed above. This approval should not be extended to other rotorcraft of these models on which other previously approved modifications are incorporated unless it is determined by the installer that the relationship between this change and any of those other previously approved modifications, including changes in type design, will introduce no adverse effect upon the airworthiness of that helicopter. Rotorcraft modified in accordance with this STC must be operated in accordance with the FAA-approved Onboard Systems RFMS, as listed above, or later FAA-approved revision. A copy of this certificate, FAA-approved RFMS, ICA, and Owners Manual, must be maintained as part of the permanent records of the modified rotorcraft.

If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of that permission.

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of Application: February 20, 2003 *Date Reissued:* October 7, 2021

Date of Issuance: April 5, 2004 *Date Amended:* December 10, 2004, June 29, 2010, November 21, 2023

By Direction of the Administrator

Signature: JASON J MUCHA

Digitally signed by JASON J MUCHA
Date: 2023.11.21 15:42:21 -08'00'

Title: for Manager, West Certification Branch

Any alteration of this certificate is punishable by a fine of not exceeding $1,000, or imprisonment not exceeding 3 years, or both. This certificate may be transferred or made available to third persons by licensing agreements in accordance with 14 CFR 21.47. Possession of this Supplemental Type Certificate (STC) document by persons other than the STC holder does not constitute rights to the design data nor to alter an aircraft, aircraft engine, or propeller. The STC's supporting documentation (drawings, instructions, specifications, flight manual supplements, etc.) is the property of the STC holder. An STC holder who allows a person to use the STC to alter an aircraft, aircraft engine, or propeller must provide that person with written permission acceptable to the FAA. (Ref. 14 CFR 21.120).

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Canadian Approval

Transport Canada / Transports Canada

Aviation / Aviation

Suite 620
800 Burrard Street
Vancouver, B.C.
V6Z 2J8

Your file *Votre référence*
130S-GA-04-28
Our file *Notre référence*
P-04-0212

May 27, 2004

Mark Hanson, Data Manager
Onboard Systems
13915 NW 3rd Court
Vancouver, WA 98685
USA

Dear Mr. Hanson

Subject: Acceptance of FAA STC SR01393SE

This is in response to the FAA Seattle ACO letter requesting Transport Canada approval of the subject STC.

In accordance with our current policy associated with the review of foreign STC's, some STCs applicable to certain categories of aircraft may be accepted solely on the basis of their foreign certification, and do not require the issue of a corresponding certificate by Transport Canada. The subject STC falls within these criteria.

This STC will be entered in the national index of STCs that have been reviewed and accepted by Transport Canada for installation on Canadian registered aeronautical products.

This letter confirms formal acceptance of the referenced STC by Transport Canada.

Yours truly,

Henry Wong
for
Regional Manager
Aircraft Certification

c.c. Mr. Jeffrey E. Duven, Manager, Seattle Aircraft Certification Office

Canada

1/1

EASA STC

European Aviation Safety Agency

SUPPLEMENTAL TYPE CERTIFICATE

10016870, REV. 1

This Supplemental Type Certificate is issued by EASA, acting in accordance with Regulation (EC) No. 216/2008 on behalf of the European Community, its Member States and of the European third countries that participate in the activities of EASA under Article 66 of that Regulation and in accordance with Commission Regulation (EC) No. 1702/2003 to

ONBOARD SYSTEMS INT.

13915 NW 3rd COURT
VANCOUVER WA 98685
USA

and certifies that the change in the type design for the product listed below with the limitations and conditions specified meets the applicable Type Certification Basis and environmental protection requirements when operated within the conditions and limitations specified below:

Original Product TC Number : EASA.R.008
TC Holder : EUROCOPTER
Model : AS350B, AS350BA, AS350B1
Model : AS350B2, AS350B3, AS350D
Original STC Number : FAA STC SR01393SE

Description of Design Change:
Onboard Systems cargo hook kits P/N 200-286-01 (with cargo hook P/N 528-023-01) and P/N 200-286-02 (with cargo hook P/N 528-029-00)
Revision 1 - introduces cargo hook kit P/N 200-286-02
This STC is the validation of FAA STC SR01393SE (issued on April 05, 2004 and last amended on June 29, 2010).

See Continuation Sheet(s)

For the European Aviation Safety Agency,

Date of issue: 04.02.2011

Massimo MAZZOLETTI
Certification Manager
Rotorcraft, Balloons, Airships

Note:
The following numbers are listed on the certificate:
EASA old Project Number: EASA.IM.R.S.01286, REV. 1

EASA STC continued

European Aviation Safety Agency

EASA Certification Basis:
The Certification Basis for the original product and the following additional or alternative airworthiness requirements are applicable to this certificate/ approval.
Change under revision 1 complies with FAR Part 27, amdts 27-1 through 27-39
The requirements for environmental protection and the associated certificated noise and/ or emissions levels of the original product are unchanged and remain applicable to this certificate/ approval.

Associated Technical Documentation:
Definition and installation:
Onboard Systems Master Drawing List No. 155-093-00, Rev. 8 dated November 16, 2010 and

for cargo hook kit P/N 200-286-01:
Onboard Systems Owner's Manual No. 120-107-01 Rev. 6 dated September 01, 2010

for cargo hook kit P/N 200-286-02:
Onboard Systems Owner's Manual No. 120-107-02 Rev. 1 dated September 01, 2010

Inspection and maintenance:
for cargo hook kit P/N 200-286-01:
Onboard Systems Instructions for Continued Airworthiness No. 123014-01, Rev. 5 dated August 24, 2010 and
Onboard Systems Cargo Hook Service Manual No. 122-005-00 Revision 19, dated October 5, 2010

for cargo hook kit P/N 200-286-02:
Onboard Systems Instructions for Continued Airworthiness No. 123014-02, Rev. 1 dated September 01, 2010 and
Onboard Systems Cargo Hook Service Manual No. 122-017-00 Revision 12, dated December 1, 2010

Operation:
for cargo hook kit P/N 200-286-01:
Onboard Systems RFMS No. 121-015-01, Rev. 0 dated December 10, 2004

for cargo hook kit P/N 200-286-02:
Onboard Systems RFMS No. 121-015-02, Rev. 1 dated December 03, 2010

or later revisions of the above listed documents approved by EASA in accordance with EASA ED Decision 2004/04/CF (or subsequent revisions of this decision)

Limitations:
None

See Continuation Sheet(s)

Note:
The following numbers are listed on the certificate:
EASA old Project Number: EASA.IM.R.S.01246, REV. 1

SUPPLEMENTAL TYPE CERTIFICATE - 10016870, REV. 1 - ONBOARD SYSTEMS INT.

EASA STC continued

European Aviation Safety Agency

Conditions:
This STC is approved only for the product configuration as defined in the approved design data referred to in the paragraphs "Title/Description" and "Associated Technical Documentation". Compatibility with other aircraft/engine configurations shall be determined by the installer.

Prior to installation of this modification it must be determined that the interrelationship between this modification and any other previously installed modification and/ or repair will ntroduce no adverse effect upon the airworthiness of the product.

- end -

Note:
The following numbers are listed on the certificate:
EASA old Project Number: EASA.IM.R.S.01246, REV. 1

SUPPLEMENTAL TYPE CERTIFICATE - 10016870, REV. 1 - ONBOARD SYSTEMS INT.

EASA Form 91, Issue 4 - 24/09/2010

3/3

JCAB STC

Japan
Ministry of Land, Infrastructure, Transport and Tourism
Civil Aviation Bureau

Supplemental Type Certificate

Number **STC-342-OSA**

1	Kind of Aircraft	Rotorcraft
2	Model of Aircraft	Airbus Helicopters AS350B3
3	Airworthiness Category	Rotorcraft, Normal Category
4	Content of Supplemental Type Design	Installation of Cargo Hook Kit (P/N:200-286-02)
5	Name or Title of Designer	Onboard Systems International
6	Address of Designer	13915 NW 3rd Court, Vancouver, Washington, 98685, U.S.A.

7 Remarks

Certification Basis	:	Certification Basis specified on Japan Type Certificate Data Sheet No.49 for the above model of aircraft.
Drawing	:	Master Drawing List Document Number 155-093-00
Flight Manual	:	Onboard Systems Cargo Hook Kit (P/N:200-286-02) Revision Original (September 22, 2014) or later JCAB approved revision.
Instructions for Continued Airworthiness	:	Instructions for Continued Airworthiness 123-014-02
Classification of Works	:	Minor Alteration
Reference	:	The approval of this STC is based on FAA STC No.SR01393SE (Date of issuance: April 05, 2004 Date amended: June 29, 2010).

8 This is to certify that the above-mentioned Supplemental Type Design complies with the standards of Article 10 paragraph 4 of Civil Aeronautics Law of Japan.

Takeshi GAMOH
Director-General of Osaka Regional Civil Aviation Bureau

Date of issuance: September 22, 2014

Note: This is a translation of Supplemental Type Certificate originally issued in Japanese and shall not be construed as an official text.