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Owner's Manual

For the

Cargo Hook Swing Suspension System

with

Talon LC Hydraulic Cargo Hook

on the

Airbus Helicopters AS350 Series

System Part Numbers

200-280-02, 200-280-03, 200-280-05, 200-280-06, 200-280-07, 200-280-08

STC SR01164SE

Owner's Manual Number 120-104-02
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Record of Revisions

Revision	*Date*	*Page(s)*	*Reason for Revision*
32	08/04/17	1-4, 1-5, Section 2	Added 90° backshell (P/N 410-427-00) to kit for AS350B3 for use with CRFS tank, updated electrical wiring installation instructions. Added bleed kit with MIL-PRF-87257 hydraulic fluid. Removed P/Ns 235-274-00 and 232-758-00 from kit P/N 210-202-02.
33	07/02/18	2-7	Added instructions for installation of Connector Bracket P/N 235-274-00 with Airbus sheet metal reinforced cradles (MOD 07-4791).
34	02/01/19	1-1, 1-4, 1-5, 2-19	Removed fuel drain guard components from kit P/Ns 200-280-03 and 200-280-06.
35	01/23/20	2-7, 2-16, 2-25	Added note to fabricate and install shim for connector bracket as needed. Corrected nut P/N in Figure 2.5.1. Added instruction for cutout in belly panel when bracket P/N 235-274-00 is installed.
36	11/13/20	Pages 1-6, 2-14, 2-35, Section 2.1	Added Onboard Systems part numbers to applicable Airbus part numbers in Table 1.5. Updated reservoir lid re-assembly instructions to reflect new screws for securing the lid and add Caution for thread-locking compounds and solvent damaging the reservoir lid. Re-organized electrical wiring installation instructions.
37	05/10/21	All	Added kit P/Ns 200-280-07 and 200-280-08 w/ C-40 Indicator and added C-40 upgrade kit P/N 200-472-00 to replace C-39 indicator w/ the C-40 and connect to AS350B3 VEMD. Increased banjo bolt torque from 60 in-lb to 10 ft-lb.
38	03/01/22	2-10, 2-11, 2-49	Corrected termination of ANALOG OUT wires to VEMD pins t and Y (t and Y were swapped).

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Section 1
General Information

Introduction

Installation of the Cargo Swing Suspension Kits per this Owner's Manual does not provide 27.952 compliance. Onboard Systems has introduced a new 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 200-280-02, 200-280-03, 200-280-05, 200-280-06, 200-280-07, and 200-280-08 Cargo Swing Suspension System kits provide a means for an AS350 series rotorcraft to transport jettisonable external loads. These kits also include a load weigh system which provides the pilot with the weight of the external load being carried on the cargo hook. The kits consist of fixed provisions and removable provisions. The fixed provisions are permanently installed on the aircraft while the removable provisions are easily removed when not required on the helicopter's mission.

The P/N 200-280-02 and 200-280-05 kits are intended for installation on Airbus Helicopters AS350B, AS350BA, AS350D, AS350B1, and AS350B2 model helicopters. These kits are identical except the P/N 200-280-05 kit includes a Cargo Hook with Surefire release as part of its electrical release system. Surefire is a safety enhancement to protect against inadvertent load release due to accidental contact with the release switch or mistaken actuation of the cargo hook switch when another is intended. See Theory of Operation section for complete description of the Surefire release.

The P/N 200-280-03 and 200-280-06 kits are identical to the -02 and -05 kits respectively except they include a different release lever assembly and a friction knob to replace the factory installed friction knob on the collective. With the new kits available (as defined in manual 120-156-00) these P/N's (200-280-03 and 200-280-06) are for installation on the AS350B3 model without CRFS or RRFT as noted above.

The P/N 200-280-07 and 200-280-08 kits are for the AS350B3 and are similar to the -03 and -06 kits respectively except they include 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 (200-280-07 and 200-280-08) are for installation on the AS350B3 model without CRFS or RRFT as noted above.

A C-40 upgrade kit is available to replace the C-39 Indicator with the C-40 indicator and connect to the AS350B3 VEMD.

Cargo Hook Swing Suspension System kits shipped after August 2010 (removed from kit P/Ns 200-280-03 and 200-280-06 in February 2019, see NOTICE below) 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 or 350A55-1015-0252. The fuel drain guard is intended for helicopters with their fuel drain levers previously modified per AD 2005-03-08. It is not installed if the Airbus crash resistant fuel tank is installed.

As of February,2019 the fuel drain guard parts have been removed from the 200-280-03 and 200-280-06 for the B3 model kits due to the crash resistant fuel tank being more widely used. The fuel drain guard kit is still available as kit P/N 200-299-00 approved under STC SR01588SE. Refer to Owner's Manual 120-116-00 for kit details and installation instructions.

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

Table 1.1 Suspension System Specifications

Design load	3,086 lbs. (1400 kg.)
Design ultimate strength	11,574 lbs. (5250 kg.)
Unit weight - Fixed Provisions	5.5 lbs. (2.5 kg.)
Unit weight - Removable Provisions	30 lbs. (13.6 kg.)

Table 1.2 P/N 528-028-00, 528-028-02 Cargo Hook Specifications

Design load	3,500 lbs. (1,587 kg.)
Design ultimate strength	13,125 lbs. (5,952 kg.)
Electrical release capacity	8,750 lbs. (3,970 kg.)
Mechanical release capacity	8,750 lbs. (3,970 kg.)
Force required for mechanical release at 3,500 lb.	12 lbs max. @ Master Cylinder
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	PC05A8-2S

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

Figure 1.1 provides an overview of the Fixed Provisions Kit and Removable Provisions Kit P/N's included with each 200-280-XX kit. Table 1.3 lists the parts included with each provisions kit. If shortages are found contact the company from whom the system was purchased.

Figure 1.1 Top Level Kit Configuration Overview

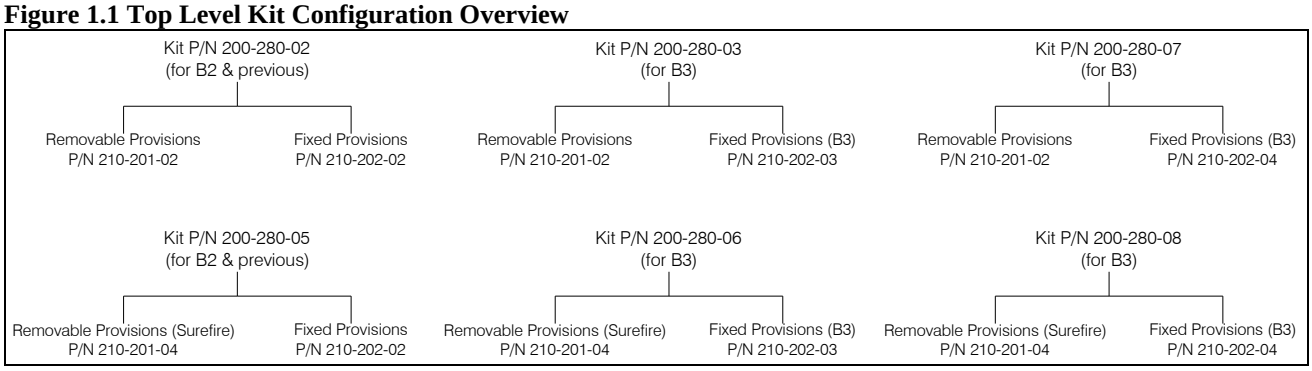


Table 1.3 Bill of Materials

Part No.	Description	210-201-02	210-202-02	210-201-04	210-202-03	210-202-04
120-039-00	Owner's Manual, C-39 Indicator	-	1	-	1	-
120-104-02	Owner's Manual	-	1	-	1	1
120-152-00	Owner's Manual, C-40 Indicator	-	-	-	-	1
121-012-02	RFMS	-	1	-	1	1
122-015-00	CMM, Cargo Hook	1	-	1	-	-
123-011-02	ICA	1	-	1	-	-
210-095-00	C-39 Indicator	-	1	-	1	-
210-095-04**	C-39 Indicator, NVG Lights	-	-	-	-	-
210-293-00	C-40 Indicator	-	-	-	-	1
215-165-00	AS 350 Multiple Decal Sheet	-	1	-	1	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	4
232-140-01	Fwd Attach Cable Assembly	2	-	2	-	-
232-141-01	Aft Attach Cable Assembly	2	-	2	-	-
232-145-02	Swing Frame Assembly	1	-	-	-	-
232-145-04	Swing Frame Assembly	-	-	1	-	-
232-165-00	Master Cylinder Assembly	-	1	-	-	-
232-165-01	Master Cylinder Assembly (B3)	-	-	-	1	1
232-758-00***	Master Cylinder Plumbing	-	-	-	1	-
235-259-00	C-40 Mount	-	-	-	-	1
235-274-00***	Connector Bracket	-	-	-	1	-
270-106-02	Load Weigh Internal Harness	-	1	-	1	-
270-106-03	Load Weigh Internal Harness	-	-	-	-	1
270-108-00	Release Internal Harness	-	1	-	1	1
270-125-00	Ground Strap, Fixed	-	1	-	1	1
290-772-00	Indicator Mount Bracket	-	1	-	1	-
290-783-00	Relay Bracket	-	1	-	1	1
290-884-00	Connector Bracket	-	1	-	1	1
290-888-00*	Retainer	-	1	-	-	-
290-889-01*^	Guard	-	1	-	-	-
290-893-00*	Bracket	-	1	-	-	-

continued

Bill of Materials continued

Table 1.3 Bill of Materials continued

Part No.	Description	210-201-02	210-202-02	210-201-03	210-202-03	210-202-04
291-105-00	Friction Knob	-	-	-	1	1
410-199-00	Shield Termination	-	-	-	-	1
410-427-00	Backshell, 90 Deg.	-	-	-	1	-
410-461-00	Socket Contact	-	-	-	-	4
420-084-00	Wire, 22 AWG	-	-	-	-	200”
445-005-00	Relay	-	1	-	1	1
500-014-00	Spacer	-	-	-	-	1
500-065-00	Grommet Edging	-	1	-	1	1
505-014-00	Grommet	-	1	-	1	1
510-029-00	Nut	-	8	-	8	8
510-042-00	Washer	-	2	-	2	2
510-062-00	Washer	-	8	-	8	8
510-095-00	Washer	-	3	-	3	3
510-102-00	Nut	-	2	-	2	2
510-277-00	Screw	-	2	-	2	2
510-278-00	Washer	-	2	-	2	2
510-279-00	Nut	-	2	-	2	2
510-453-00	Bolt	-	2	-	2	2
510-457-00	Screw	-	4	-	4	-
510-475-00	Screw	-	3	-	3	3
510-481-00	Screw	-	8	-	8	8
510-486-00	Rivet	-	3	-	3	3
510-526-00*	Cotter Pin	-	1	-	-	-
510-672-00***	Screw	-	-	-	8	8
510-923-00	Screw	-	-	-	-	1
511-046-00	Screw	-	-	-	-	2
511-164-00***	Rivet	-	-	-	3	-
512-003-00	Ty-wrap	-	5	-	5	5
512-005-00	Cushioned Loop Clamp	-	4	-	4	4
610-024-00*	Fuel Valve Seal	-	1	-	-	-

* Fuel drain guard component, included with kits shipped after August 2010, removed from kit P/N 200-280-03 and 200-280-06 in February 2019.

^Fuel drain guard P/N 290-889-01 supersedes fuel drain guard P/N 290-889-00.

** The 210-095-04 Indicator is equipped with NVG compatible lights. It is an optional indicator that can be ordered in place of the 210-095-00 Indicator.

*** These items must be obtained separately if installing on an AS350B2 or earlier model retrofitted with the Airbus crash resistant fuel tank.

Bill of Materials continued

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 from the factory or are standard Airbus Helicopters parts). Parts listed with Onboard Systems part numbers may have availability from Onboard Systems.

NOTICE

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

Table 1.5 Airbus Helicopters Part Numbers

Airbus Part No.	Onboard Systems Part No.	Description	Qty
22201BE120074L	610-004-00*	Screw (See Figure 2.5.1)	4
23111AG120LE	610-025-00*	Washer (See Figure 2.5.1)	8
ASN52320BH120N	610-026-00*	Nut (See Figure 2.5.1)	4
DHS751-160.62	N/A	Grommet (see Figure 2.2.5)	1
SL211M5-1	N/A	Nut (see Figure 2.3.2)	3
350A41-1097-20	610-015-00*	Half Clamp, Rear	2
350A-41-1099-20	610-035-00*	Half Clamp Pad	2
350A86-0020-33	N/A	Bracket (see Figure 2.2.6)	1
ASNA0078A403	N/A	Rivet	3

**These parts can be ordered as kit P/N 200-385-00 (includes quantity 2 screws and nuts and quantity 4 washers plus the quantity 2 half clamps and pads) for the attachment of the two swing suspension cables to the aft landing gear cross tube.*

The cargo hook electrical system interfaces with the aircraft's electrical panel. Earlier versions (pre-mod. #07-3274) of the AS350 utilize a fuse type switch panel. The following electrical panel components for these versions are typically found to be on the aircraft, but may be necessary to obtain.

Table 1.6 Airbus Helicopters Electrical Parts – Pre-mod. #07-3274

Part Number	Description	Qty
DHS775-160-42	Indicator Light Body	1
DHS775-240-22	Indicator Light	1
EN2240-6839	Lamp	4
DI-2-5*	Fuse 2.5A	1
DA8-16A*	Fuse 16A	1

AS350B2 and B3 aircraft with modification #07-3274 incorporated utilize a circuit breaker type switch panel. The following electrical panel components for these versions are typically found to be on the aircraft, but may be necessary to obtain.

Table 1.7 Airbus Helicopters Electrical Parts – with Mod. #07-3274

Part Number	Description	Qty
045004A127A	Cargo Hook Sling Switch	1
1180-01-2.5A (Alt. P/N: ECS0744A02A5)	Circuit Breaker 2.5A	1
1170-01-15A (Alt. P/N: ECS0744B15A0)	Circuit Breaker 15A	1

AS350B2 and B3 aircraft with modification #073475 (introduced by Airbus Helicopters Service Bulletin No. AS350-25.01.09) incorporate a 10-amp circuit breaker installed in the 44 ALPHA panel rather than the 15 amp circuit breaker listed in Table 1.8. This 10-amp circuit breaker (P/N EN2495-10AM) may be necessary to obtain.

For AS350 B2 and B3 aircraft post-mod 07-4280 refer to the Airbus Helicopters IPC for Sling switch and circuit breaker P/Ns.

For early B2 models with a Honeywell switch panel, to connect the electrical harnesses to the switch panel it will be necessary to obtain two IDC contacts that are not supplied with the kit (Amp P/N 640632-3, Onboard Systems P/N 410-194-00).

Kit P/N 200-280-01, which uses a cargo hook with a mechanical release cable as the means for secondary release, can be converted to Kit P/N 200-280-02 using upgrade kit P/N 200-306-00 or to Kit P/N 200-280-03 using upgrade kit P/N 200-306-01. See Section 2.9 for installation instructions.

Table 1.8 Onboard Systems Bill of Materials – Upgrade Kit P/N 200-306-00

Part Number	Description	Qty
270-129-00	Electrical Release Harness	1
232-209-00	Cargo Hook/Slave Cylinder Assembly	1
290-839-02	Hook Bumper	1
232-165-00	Master Cylinder Assembly	1
290-884-00	Connector Bracket	1
505-014-00	Grommet	1
212-014-00	Bleed Kit	1
510-062-00	Washer	8
510-102-00	Nut	2
510-178-00	Cotter Pin	1
510-277-00	Screw	2
510-278-00	Washer	2
510-279-00	Nut	2
510-453-00	Bolt	2
512-005-00	Adel Clamp	4
512-003-00	Ty-wrap	5
510-486-00	Cherry Max Rivet	3
120-104-02	Owner's Manual	1
121-012-02	RFMS	1
122-015-00	CMM, Cargo Hook	1
123-011-02	ICA	1

Bill of Materials continued

Table 1.9 Onboard Systems Bill of Materials – Upgrade Kit P/N 200-306-01

Part Number	Description	Qty
270-129-00	Electrical Release Harness	1
232-209-00	Cargo Hook/Slave Cylinder Assembly	1
290-839-02	Hook Bumper	1
232-165-01	Master Cylinder Assembly	1
290-884-00	Connector Bracket	1
291-105-00	Friction Knob	1
505-014-00	Grommet	1
212-014-00	Bleed Kit	1
510-062-00	Washer	8
510-102-00	Nut	2
510-178-00	Cotter Pin	1
510-277-00	Screw	2
510-278-00	Washer	2
510-279-00	Nut	2
510-453-00	Bolt	2
512-005-00	Cushioned Loop Clamp	4
512-003-00	Ty-wrap	5
510-486-00	Cherry Max Rivet	3
120-104-02	Owner's Manual	1
121-012-02	RFMS	1
122-015-00	CMM, Cargo Hook	1
123-011-02	ICA	1

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) 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 Section 2.13.

If the C-39 Indicator is to be replaced by the C-40 Indicator without connecting to the VEMD, purchase P/N 210-293-00 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
210-293-00	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”

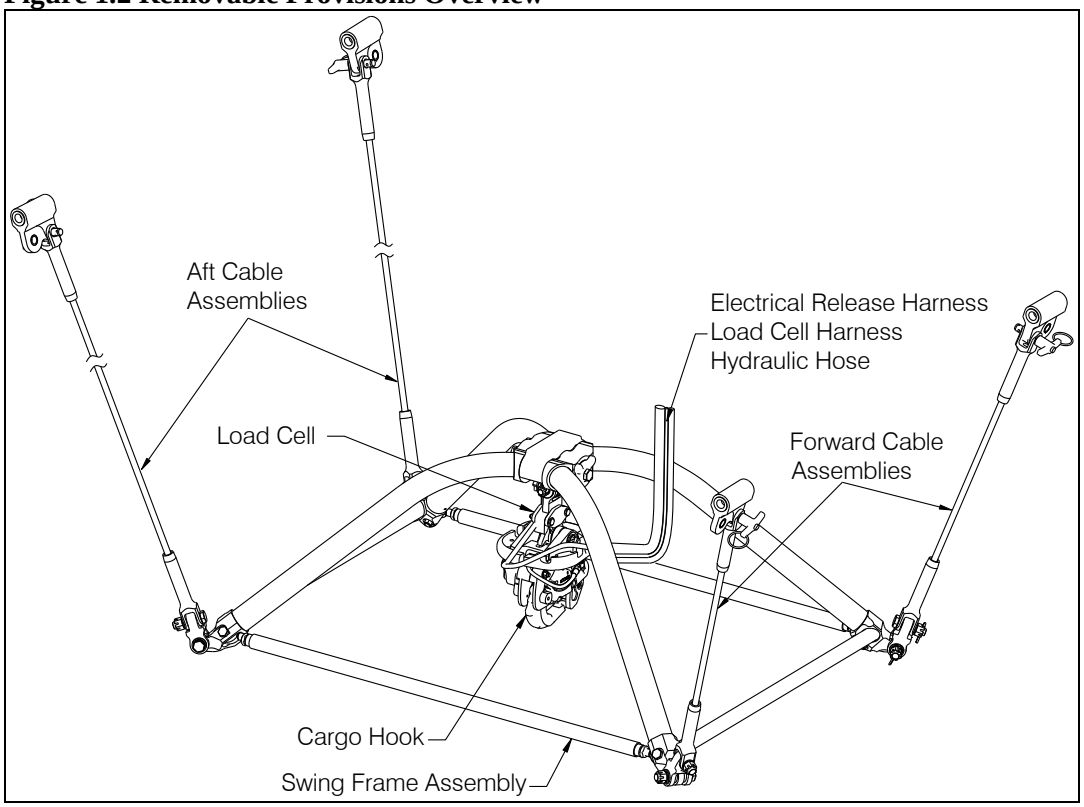
*These parts are required in order to modify the existing P/N 270-106-02 load weigh internal harness to connect to the VEMD. Optionally a new harness (P/N 270-106-03) that has these components incorporated (except wire P/N 420-084-00) can be purchased but this requires replacing the entire P/N 270-106-02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

Theory of Operation

The Cargo Hook Swing Suspension System (see Figure 1.2 for overview of removable provisions) is comprised of:

- A swing frame assembly that supports the cargo hook. The swing frame assembly is suspended from four hard points on the belly of the helicopter via four structural cable assemblies.
- 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 a solenoid in the cargo hook, and the solenoid opens the latch in the internal mechanism.
- A hydraulic release system, which provides a means of releasing a cargo hook load in the event of an electrical release system failure. A lever mounted to the collective actuates it.
- 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 swing frame assembly.

Figure 1.2 Removable Provisions Overview



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 cause 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 optional cargo hook with Surefire includes a short time delay circuit built into the cargo hook's electrical release system (cargo hook P/N 528-028-02). This feature is a safety enhancement to protect against inadvertent load release due to accidental contact with the release switch or mistaken actuation of the cargo hook switch when another is intended. The time delay feature requires that the release switch be depressed and held for more than a 1/2 second to open the cargo hook. Surefire makes the electrical release a more deliberate pilot command. If the cargo hook must be released immediately, use the mechanical backup release.

In addition to its P/N, a cargo hook with Surefire can be identified by a gold color solenoid housing (see Figure 1.3). Also, a placard on the underside of the solenoid housing indicates that the electrical release is delayed by ½ second.

NOTICE

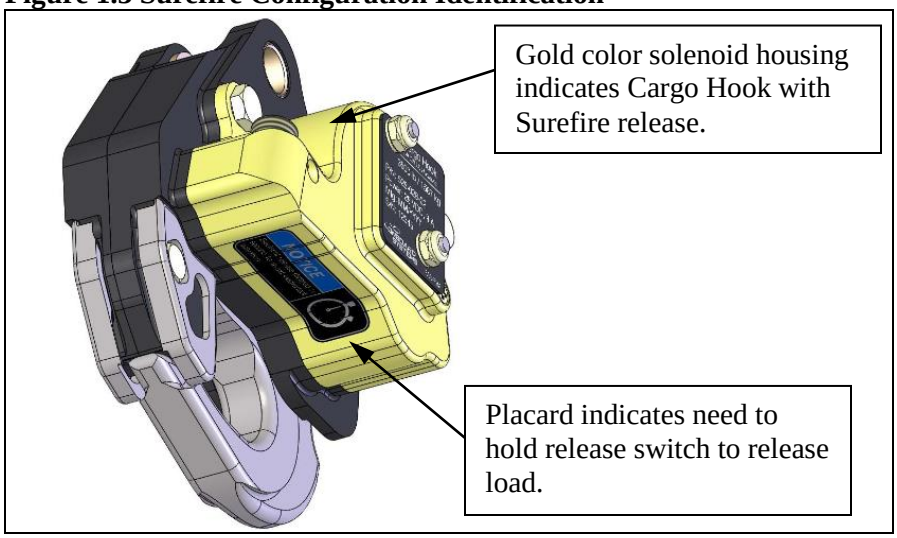
The 528-028-02 cargo hook includes an electronic delay of approximately ½ second. It is necessary to press and hold the cargo hook release button.

⚠ CAUTION

If a Surefire-equipped cargo hook must be released immediately without any delay (such as the case of engine failure or snagged load), use the mechanical backup release.

In addition to the delay feature the circuit includes on-off cycling to limit the duty-cycle on the cargo hook solenoid. If the release switch is held down, the solenoid will cycle on and off repeatedly in a "machine gun" fashion.

Figure 1.3 Surefire Configuration Identification



The swing frame assembly feature several improvements over the original swing frame assembly include with the 200-280-00 system.

- The swing frame now has an additional gimbal near where the hook attaches and spherical rod ends on the sides. This allows the frame to distribute the loads between the four cables more effectively. As the swing moves from side to side under the helicopter the four cables all describe their own arcs. With a load applied to a rigid swing frame, something has to give to accommodate this geometry. This can be observed by moving the Onboard Systems gimbaled swing frame side to side under the helicopter and watching the gimbaled joint and the parallelism of the frame tubes. The frame flexes to accommodate the paths of the cable ends.

  With a rigid frame, such as supplied by Airbus Helicopters, swinging side to side with no load one or more of the cables goes slack. With a load on the hook, the cables don't go slack and the geometry is accommodated by flexure of the swing frame and the airframe. The more rigid the swing frame is, the more loads get transferred to the airframe. It is this principal that lead to the articulated swing frame of the current design. This reduces the stresses in both the airframe and the swing frame to a minimum.

- The attach fittings have been redesigned with larger replaceable bushings for longer life and more economical service.

The load weigh indicator included with Kit P/Ns 200-280-07 and 200-280-08 is Onboard Systems next generation indicator, the C-40 model (P/N 210-293-00). 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. Among others, the C-40 Indicator offers these improvements:

- Full color display
- Load measurement displayed in full, not X 10 (C-39 is X 10)
- Addition of Analog Bar and Maximum Load features
- Simplified user interface
- Addition of Cargo Hook hour meter
- Selectable backlight control voltage, 5 or 28 VDC
- Improved moisture resistance
- Expanded signal input range
- Field-upgradable firmware

In addition, on AS350B3s with mod 07-4716 incorporated, the C-40's Analog Out voltage signal can be connected to the aircraft VEMD as part of the system to increase the main rotor RPM to 400 when an external load of 150 kg or greater is measured on the cargo hook.

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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. Those lacking the necessary expertise must not attempt them.

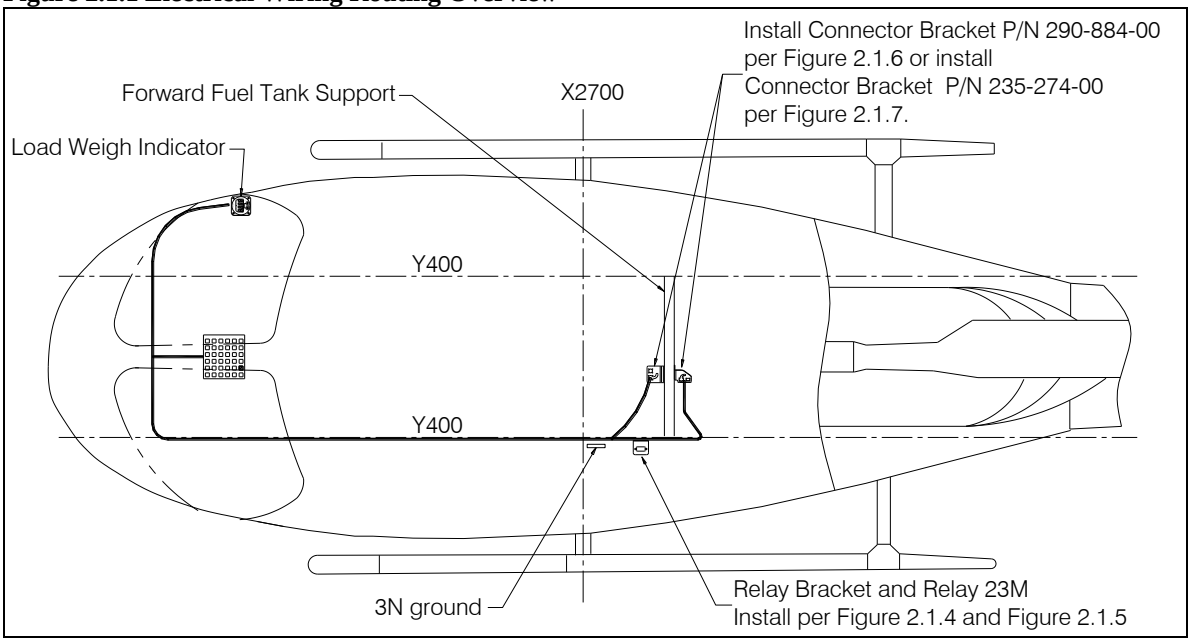
2.1 Electrical Wiring Installation

This section provides the instructions for installing the internal cargo hook electrical release harness (see section 2.1.1) and the internal load weigh harness (see section 2.1.2). Figure 2.1.1 provides an overview of where these harnesses are routed.

Harnesses are to be routed along existing harnesses while observing the following precautions. Refer to Figure 2.1.2 for electrical release schematic and Figure 2.1.8 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 2.1.1 Electrical Wiring Routing Overview



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2.1 Electrical Wiring Installation continued

2.1.1 Cargo Hook Electrical Release Wiring

The schematic for the cargo hook's electrical release system is shown in Figure 2.1.2 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 2.1.2 Electrical Release Schematic

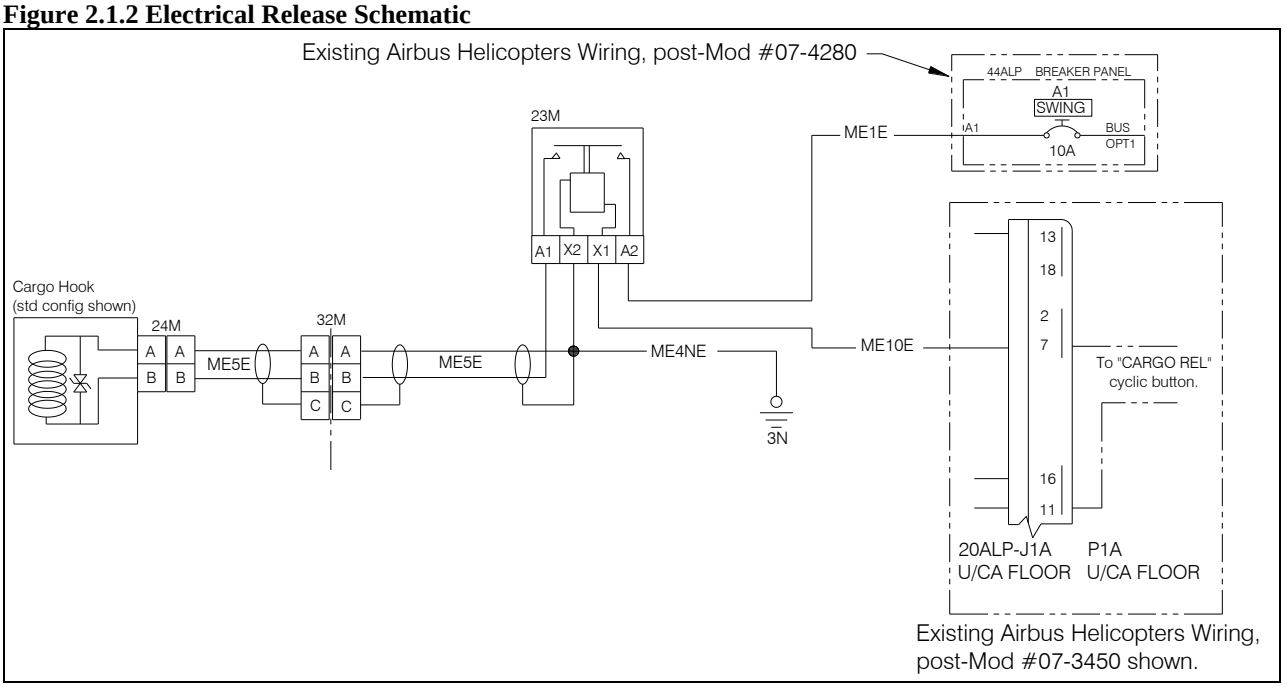
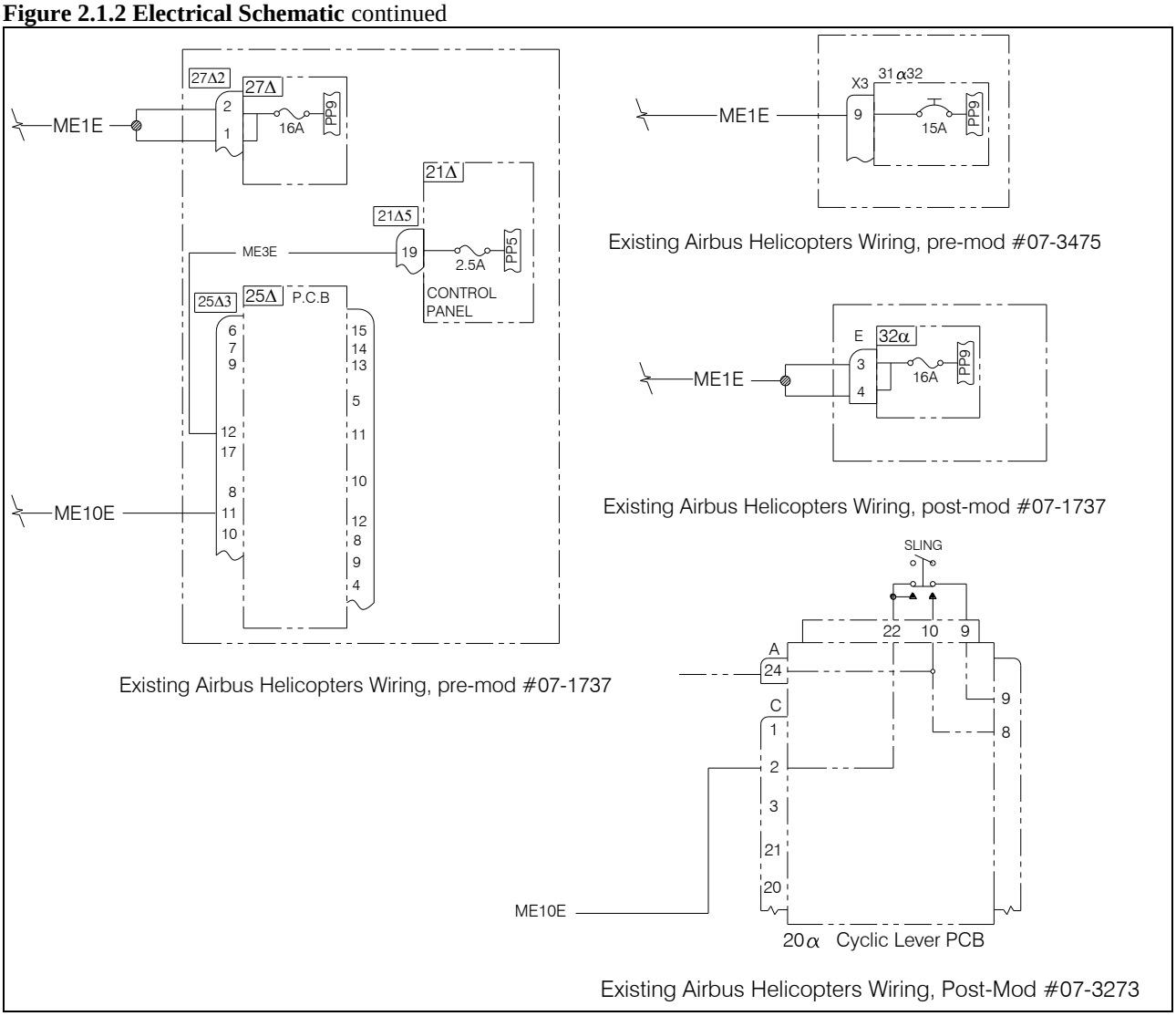


Figure 2.1.2 Electrical Schematic continued



2.1 Electrical Wiring Installation continued

2.1.1 Cargo Hook Electrical Release Wiring continued

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

Modification 1

If the aircraft is equipped with the Airbus crash resistant fuel tank*, replace the straight backshell of the 32M connector with the supplied 90° backshell (P/N 410-427-00) to provide clearance under the fuel tank. Replace the backshell per the following instructions.

NOTICE

**This installation is NOT certified as compatible with the Airbus crash resistant fuel system per FAA regulation 27.952. 27.952 compliant kit configurations are defined in Owner's Manual 120-156-00.*

- Remove the screws at the wire clamp of the backshell and unthread the backshell from the connector.
- Use a pin extractor to remove the individual wires from the connector and remove the connector and backshell from the harness.
- Slide the 90° backshell over the harness and re-connect the wires to the connector referring to Table 2.1.1.
- Thread the 90° backshell onto the connector and secure the wires at the wire clamp. Leave the backshell loose at this point as the orientation of the 90° backshell can be adjusted when it is installed onto the bracket later.

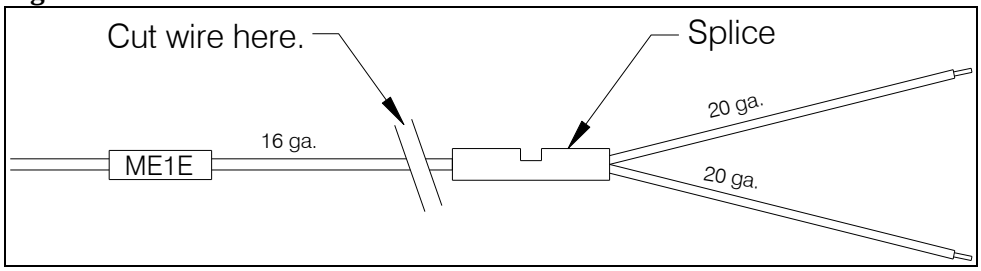
Table 2.1.1 32M Connector Pin-out

Wire of ME5E	Pin
WH/BLU	B
WH	A
WH/BLK (shield termination)	C

Modification 2

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 2.1.3 P/N 270-108-00 Harness Modification



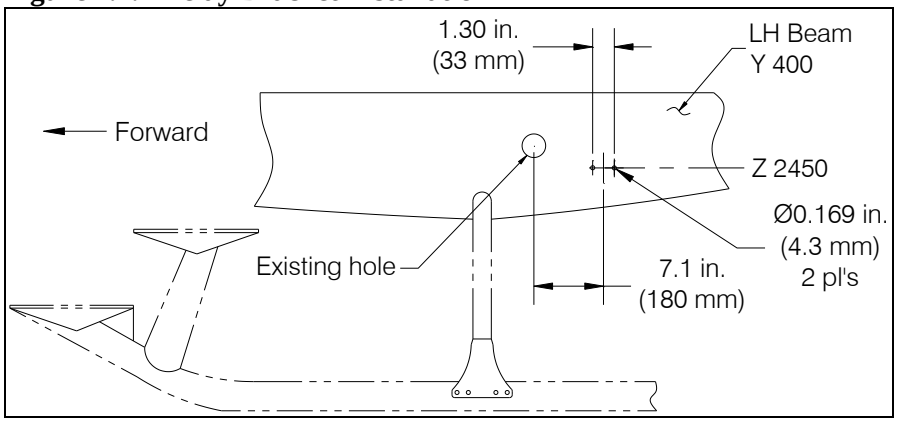
2.1 Electrical Wiring Installation continued

2.1.1 Cargo Hook Electrical Release Wiring continued

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.

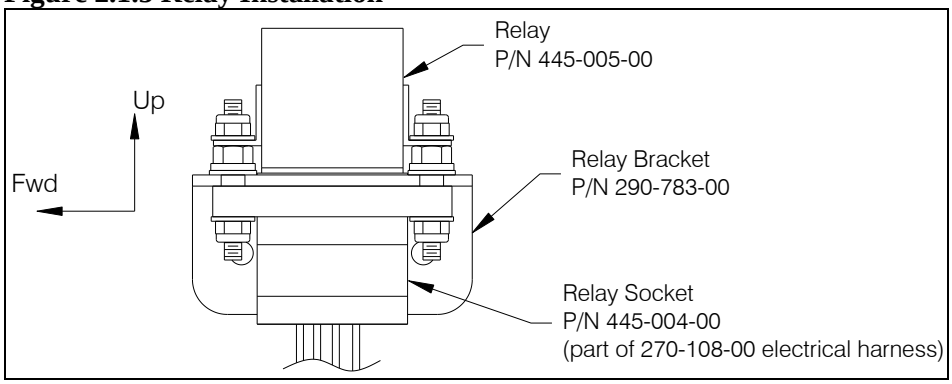
- In preparation for installing the Relay Bracket create two holes in the LH beam at Y400 as illustrated in Figure 2.1.4. These holes may be existing as this is the same location as the Airbus cargo hook relay.

Figure 2.1.4 Relay Bracket Installation



- 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 2.1.5 Relay Installation



- Route the 32M connector to the connector bracket location (either on the forward or the aft side of the forward fuel tank support, 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 2.1.2 for the different configurations).
- Route ME1E to the circuit breaker panel (refer to Figure 2.1.2 for specific location dependent on aircraft configuration).

2.1 Electrical Wiring Installation continued

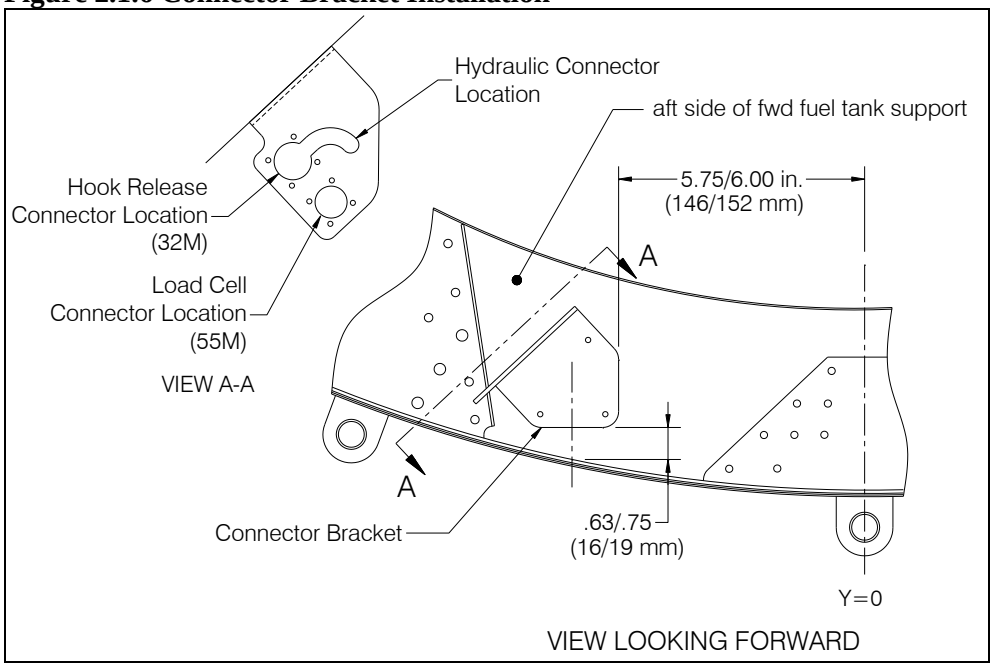
2.1.1 Cargo Hook Electrical Release Wiring continued

Install a Connector Bracket to mount the electrical connectors and the hydraulic release connector per the following.

The connector bracket P/N and installation location depends on which fuel tank is installed. The following steps pertain to aircraft with fuel tank P/N 350A55-1015-0251 or 350A55-1015-0252 or similar installed (these tanks are not of the Airbus "new" crash resistant design). For kit P/N's 200-280-03 and 200-280-06, skip to installation instructions for P/N 235-274-00 if the Airbus crash resistant fuel tank is installed.

- Locate Connector Bracket (P/N 290-884-00) at forward fuel tank support frame as illustrated below.
- Drill out pilot holes in bracket to 0.129/0.132" (3.2/3.4 mm) diameter and drill fuel tank support to match.
- Secure Connector Bracket to fuel tank support with three rivets (P/N 510-486-00).
- The hook release connector, 32M, and load cell connector, 55M, will be installed on the Connector Bracket later in the installation (the hydraulic connector must be installed prior to installing the 32M connector).

Figure 2.1.6 Connector Bracket Installation



2.1 Electrical Wiring Installation continued

2.1.1 Cargo Hook Electrical Release Wiring continued

If the crash resistant fuel tank is installed on the helicopter then Connector Bracket P/N 235-274-00 (included only with kits 200-280-03 and 200-280-06 for the B3 model) provides a physically compatible installation. This Connector Bracket is installed on the forward side of the forward fuel tank cradle (STA 3156) as described in the following steps.

NOTICE

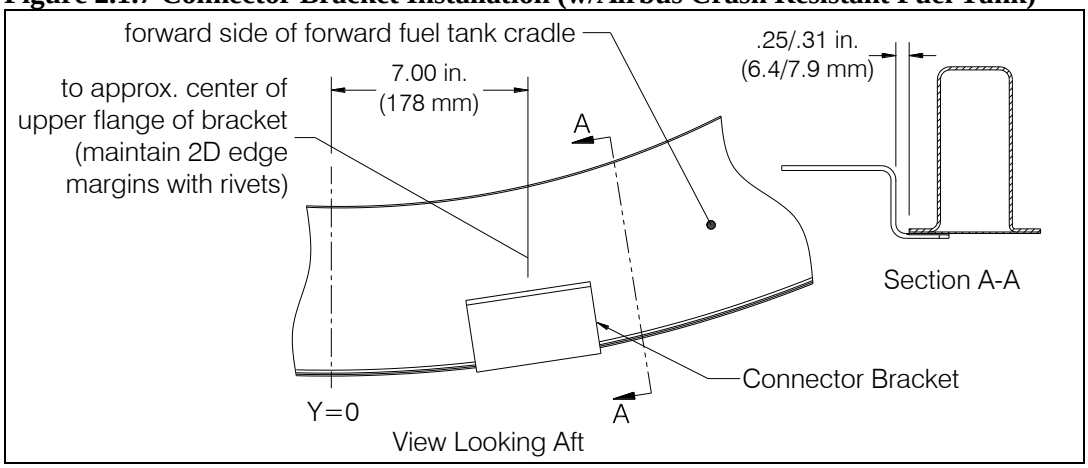
This installation has NOT shown to be compliant with FAA regulation 27.952 when installed with the Airbus crash resistant fuel system. 27.952 compliant kit configurations are defined in Owner's Manual 120-156-00.

- ❑ Position the Connector Bracket as dimensioned below and mark the three rivets to be drilled out on the forward flange. Drill out the rivets.

  Note: Some fuel tank cradles have a doubler that overlaps the area where the connector bracket is shown installed in the figure below. For this cradle configuration fabricate a shim with the same thickness as the Doubler to fill the gap between the Connector Bracket flange and the bottom of the cradle.

- ❑ Re-position the Connector Bracket on the fuel tank cradle flange and transfer the locations of the three holes to its flange.

Figure 2.1.7 Connector Bracket Installation (w/Airbus Crash Resistant Fuel Tank)



For aircraft with a rupture resistant fuel tank (RRFT) installation that is prior to Airbus Service Bulletin No. AS350-53.00.60/MOD 07-4791 perform the following.

- ❑ Drill three .129/.132" (3.2/3.4 mm) holes in the Connector Bracket flange at the marked locations and through the shim (if installed) as necessary.

- ❑ Secure the Connector Bracket to the fuel tank cradle flange with three rivets (P/N 511-164-00, Cherry P/N CR3523-04). If the shim was needed, adjust rivet grip length as needed, within same rivet P/N series.

2.1 Electrical Wiring Installation continued

2.1.1 Cargo Hook Electrical Release Wiring continued

For aircraft with the RRFT installation incorporated via Airbus Service Bulletin No. AS350-53.00.60/MOD 07-4791 (sheet metal reinforced cradles) perform the following.

- Drill three 0.159” (#21 drill) holes in the Connector Bracket flange at the marked locations.
- Secure the Connector Bracket to the cradle flange with three solid rivets (P/N MS20470AD5-7 (not supplied with kit)).

The hook release connector, 32M, and load cell connector, 55M, will be installed on the Connector Bracket later in the installation. The hydraulic connector must be installed prior to installing the 32M connector.

NOTICE

This Connector Bracket location will require that the belly panel be cut out to accommodate the connectors. Refer to Section 2.2 for details.

2.1 Electrical Wiring Installation continued

2.1.2 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 (P/N 210-293-00) 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 functions performed by the C-30 data recorder will be integrated into the C-40 Indicator with a future software update.

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.

2.1 Electrical Wiring Installation continued

2.1.2 Load Weigh System Wiring Installation continued

The Indicator is installed at the forward right-hand door pillar per Section 2.3. 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.

- 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 2.1.2 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).
- 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.

Connection to VEMD Connector P2 - Activation

Wire Function	Color	Pin of Connector P2
Activation signal	White	Z

2.1 Electrical Wiring Installation continued

2.1.2 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).

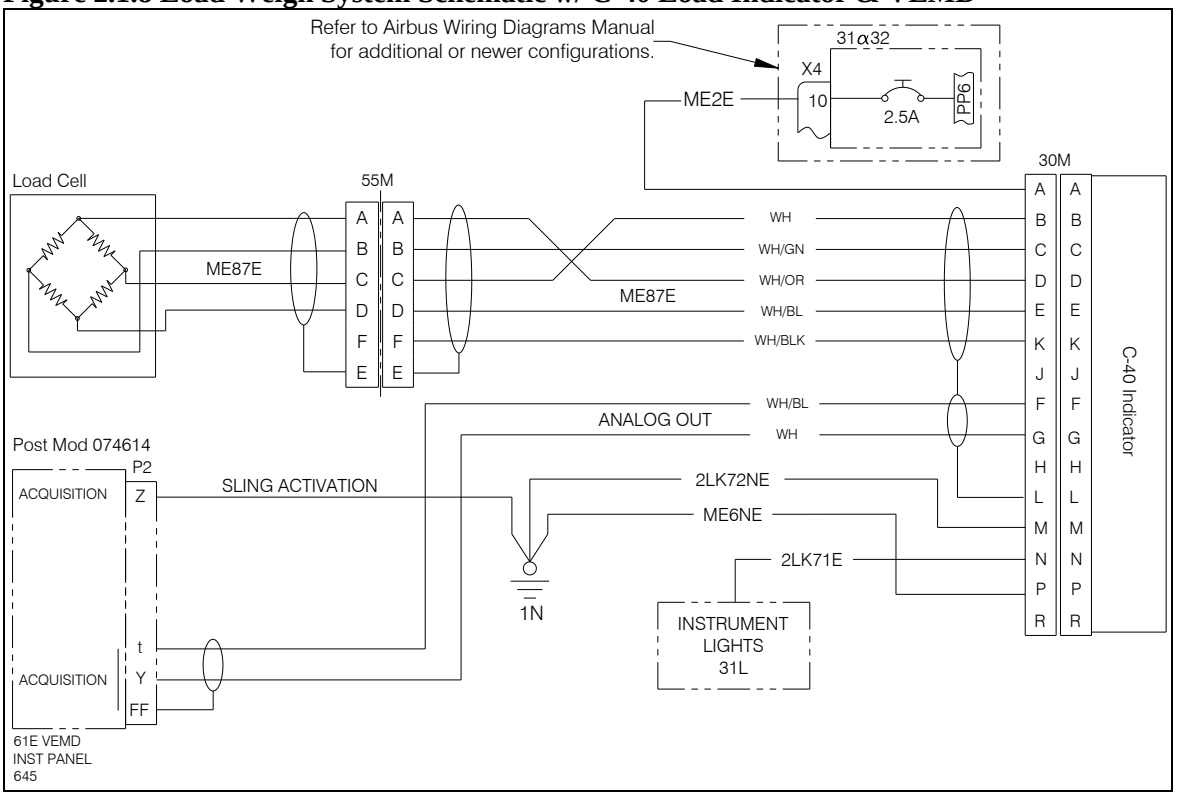
NOTICE

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 after it is installed per Section 2.3.

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

Figure 2.1.8 Load Weigh System Schematic w/ C-40 Load Indicator & VEMD



2.1 Electrical Wiring Installation continued

2.1.2 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 2.1.3 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

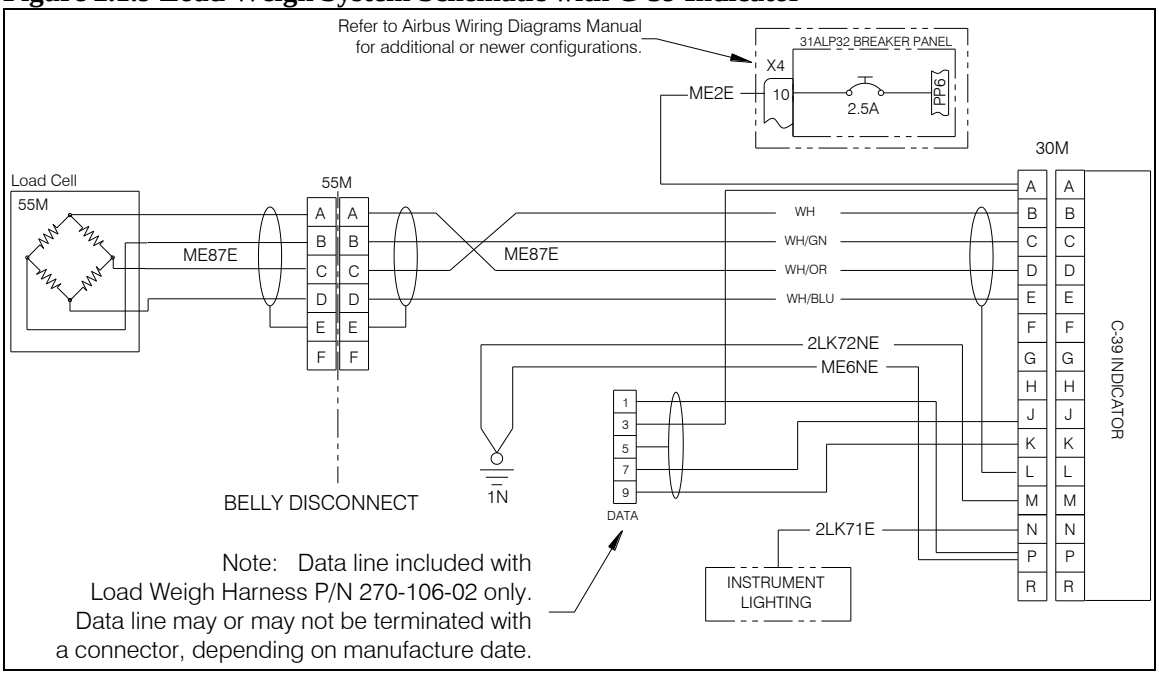
Data Recorder Connector P/N 410-011-00, 410-057-00 & 410-020-00		
Pin	Color	Function
1	WH/BL	Ground
3	WH	Power
5	Shield	Shield
7	WH/GN	Clock Signal
9	WH/OR	Data Signal
4	Red*	Flight Switch
2	Purple*	Cap. Switch

*Optional

2.1 Electrical Wiring Installation continued

2.1.2 Load Weigh System Wiring Installation continued

Figure 2.1.9 Load Weigh System Schematic with C-39 Indicator



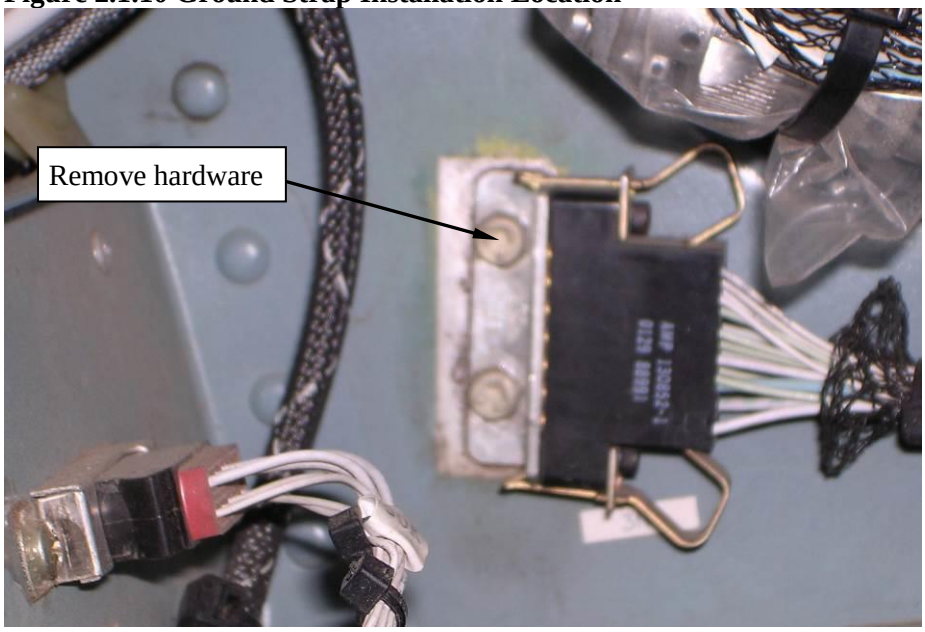
2.1 Electrical Wiring Installation continued

2.1.3 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 2.1.10 Ground Strap Installation Location



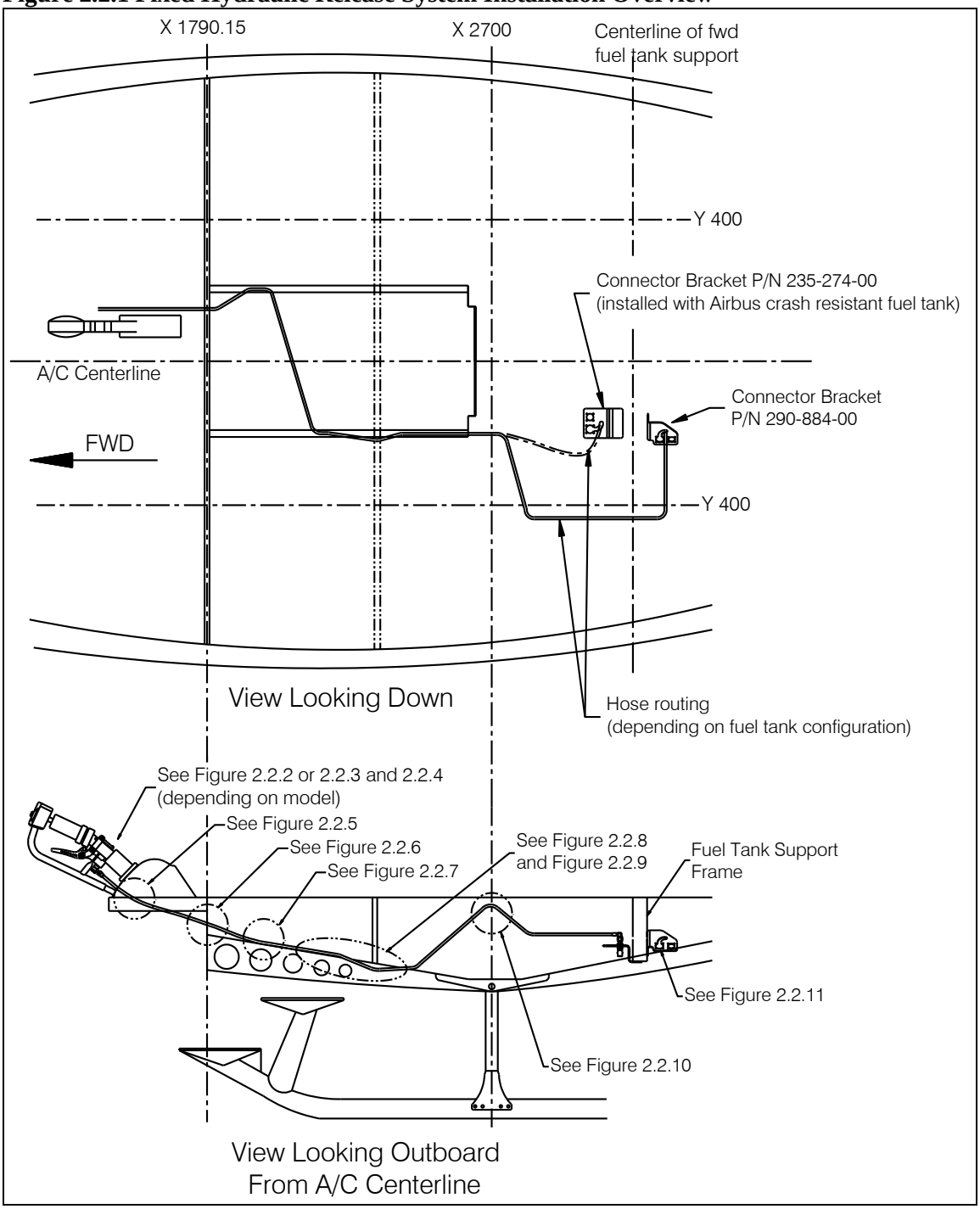
- Route the Ground Strap to the load weigh and electrical release harnesses installed previously and route with these harnesses, while securing with ty-raps, to the Connector Bracket.
- Route the Ground Strap around the Connector Bracket and position it such that the disconnect fitting at the end can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

2.2 Fixed Hydraulic Release System Installation

As necessary, remove the lower fairings on the helicopter in order to obtain access to hydraulic hose routing areas.

The hydraulic release system installation consists of a fixed section and a removable section. The fixed section is routed from the release lever at the collective, underneath the cabin floor, and aft to meet up with the electrical release harness. Figure 2.2.1 is an overview of the hose routing and the figures following detail the support installations at various points.

Figure 2.2.1 Fixed Hydraulic Release System Installation Overview



2.2 Fixed Hydraulic Release System Installation continued

If installation of kit P/N 200-280-03 or 200-280-06 is being done on an aircraft with an Airbus Helicopters crash resistant fuel tank, a shorter plumbing assembly (P/N 232-758-00 supplied with kit P/Ns 200-280-03 and 200-280-06) with a 90° end fitting is provided to accommodate this tank. Remove the plumbing assembly from the release lever assembly and the quick disconnect fitting from the plumbing at the end opposite the release lever assembly. Assemble the shorter plumbing assembly onto the release lever assembly. Torque the banjo bolt to 10 ft-lbs. Assemble the quick disconnect fitting onto the 90° fitting of the shorter plumbing assembly (P/N 232-758-00).

The hydraulic release system is supplied dry. It is recommended that the system be filled and bled on the bench before installing on the helicopter. Refer to section 2.6 for filling and bleeding instructions.

Mount the Release Lever Assembly to the collective stick with the Clamp Half (P/N 290-753-00) and two screws (P/N 510-390-00) provided pre-assembled on the assembly, as illustrated below.

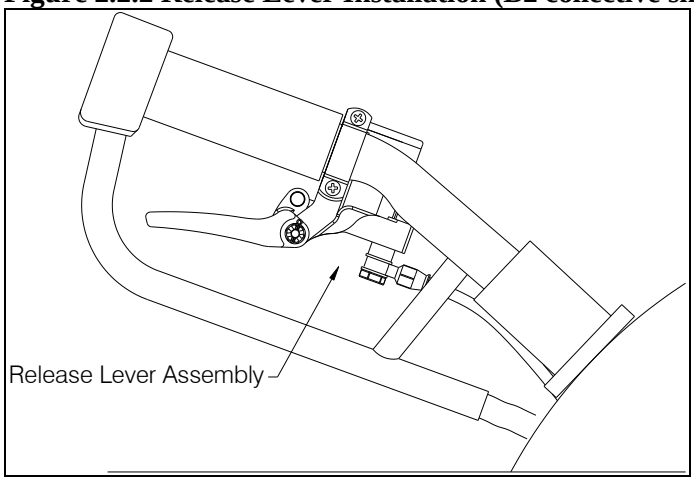
NOTICE

An optional clamp half (P/N 291-523-00) which can be installed in place of clamp half P/N 290-753-00 and includes a 10 mm (.394 in.) mounting hole (e.g. – for an accessory) is available from the factory.

NOTICE

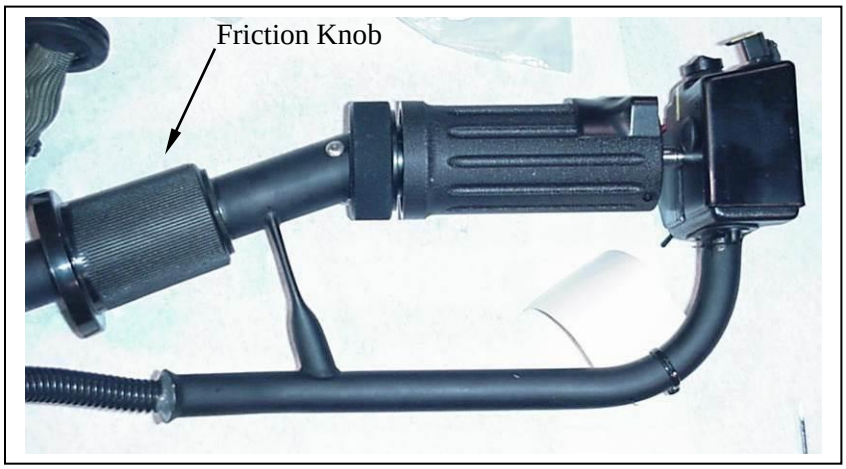
If installing kit P/N 200-280-03 (for the AS350B3 model) a shorter friction adjustment knob for the collective is required because of interference with the master cylinder assembly reservoir. This item is supplied as P/N 291-105-00. See below for installation instructions.

Figure 2.2.2 Release Lever Installation (B2 collective shown)



2.2 Fixed Hydraulic Release System Installation continued

Figure 2.2.3 B3 Collective



- Remove the collective to the extent necessary to remove the friction knob. Refer to Airbus Helicopters maintenance manual for removal and re-installation instructions.
- Replace the OEM friction knob with the friction knob P/N 291-105-00 provided.
- Re-install collective per Airbus Helicopters maintenance manual instructions.
- Mount the Release Lever Assembly (P/N 232-165-01) to the collective stick with the Clamp Half (P/N 290-753-00) and two screws (P/N 510-390-00) provided pre-assembled on the assembly, as illustrated below.

NOTICE

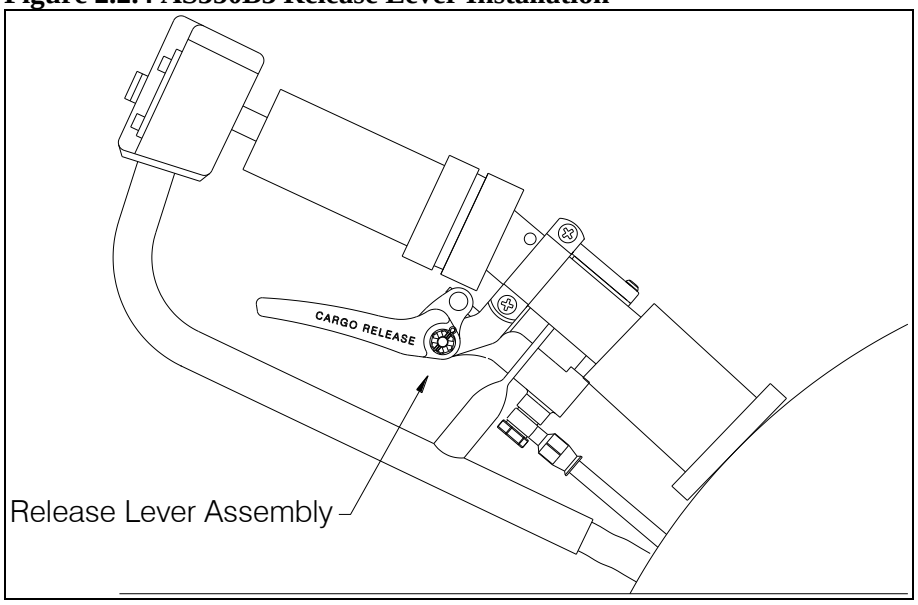
Locate the Release Lever Assembly on the collective shaft as close as possible to the throttle twist grip (as shown in Figure 2.2.4).

CAUTION

Use care with solvents and thread-locking compounds as the polycarbonate reservoir lid can be damaged if it comes into contact with these.

- Adjust the Friction Knob to its outermost position and verify that there is clearance with the reservoir on the release lever assembly.

Figure 2.2.4 AS350B3 Release Lever Installation



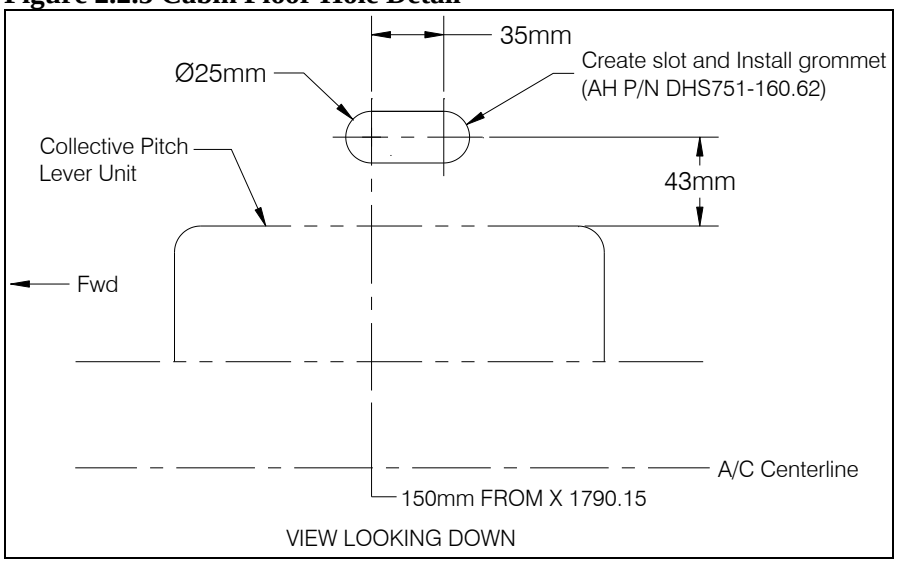
NOTICE

The lever position is to be adjusted, if necessary, at installation check out, after the system is filled and bled.

- After the Release Lever Assembly is secured to the collective, route the hose to underneath the cabin floor through the existing slot.

  If the slot in floor does not exist, create one with dimensions as shown below in the cabin floor 43 mm from the collective pitch lever unit and 150 mm forward of X1790.15 (see below) and install the grommet (Airbus Helicopters P/N DHS751-160.62).

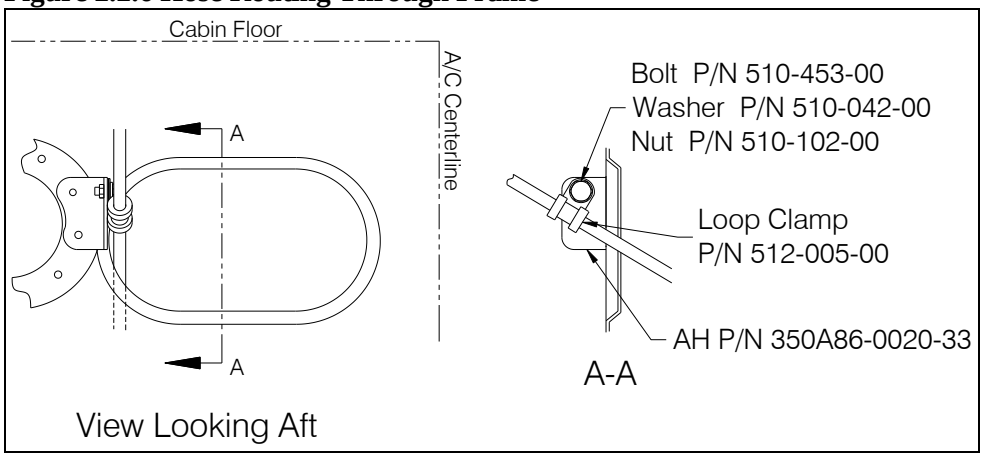
Figure 2.2.5 Cabin Floor Hole Detail



2.2 Fixed Hydraulic Release System Installation continued

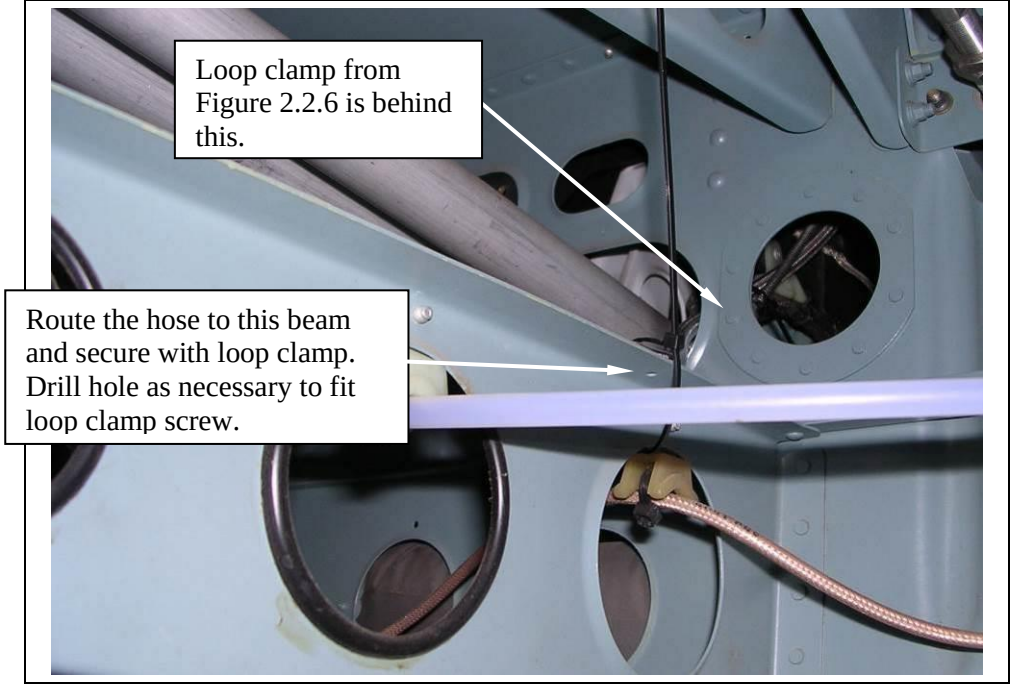
- Underneath the floor, route the hydraulic hose through an existing hole in the frame immediately aft of the collective. Secure the hose at this point with a loop clamp (P/N 512-005-00). Fasten the loop clamp to the existing bracket (Airbus Helicopters P/N 350A86-0020-33) with hardware as illustrated below.

Figure 2.2.6 Hose Routing Through Frame



- Aft of the frame, route the hose along the top of the structural member (shown below) and secure with loop clamp (P/N 512-005-00) at location shown.

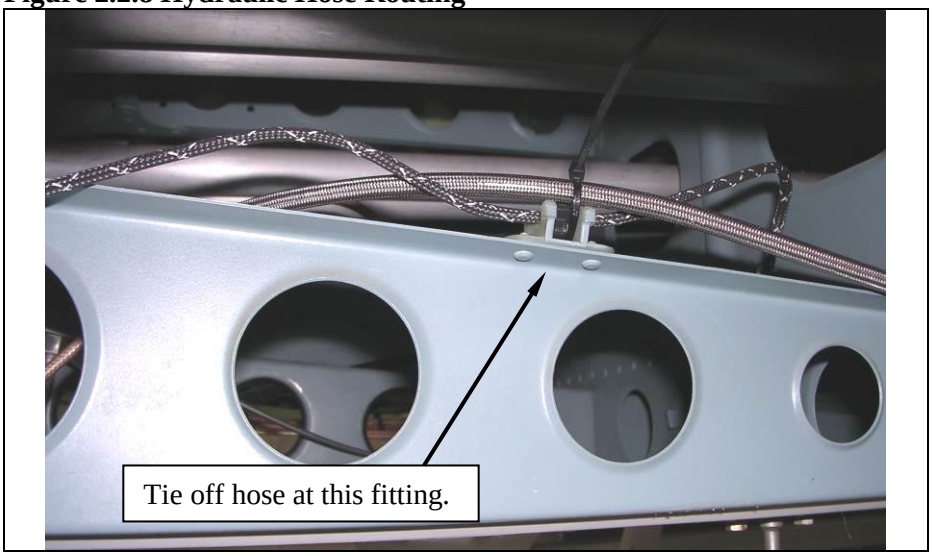
Figure 2.2.7 Loop Clamp Installation



2.2 Fixed Hydraulic Release System Installation continued

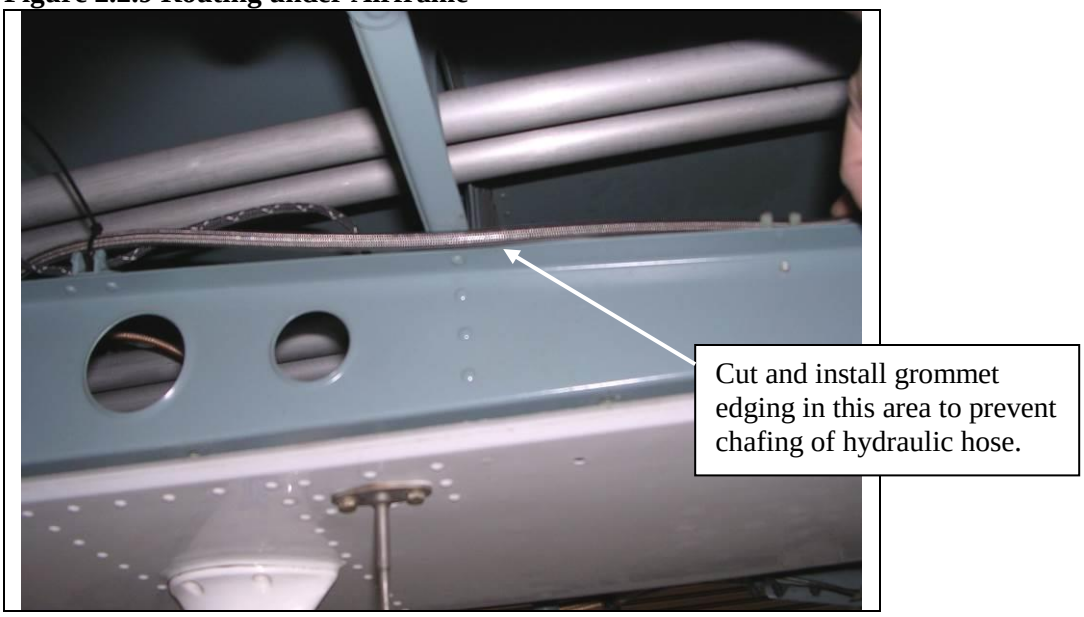
- Aft of the loop clamp installed in Figure 2.2.7, route the hose inboard and aft across the airframe centerline to the identical structural member on the left side of the airframe. Secure hose to fitting on top of structural member with ty-rap as shown below. Ensure the hose is secured so that it does not interfere with the control rods.

Figure 2.2.8 Hydraulic Hose Routing



- Route the hose under the airframe support (as shown below) and secure the hose to the fitting on top of the structural member aft of the airframe support. Install grommet edging (P/N 500-065-00) as necessary to protect hydraulic hose from chafing.

Figure 2.2.9 Routing under Airframe



2.2 Fixed Hydraulic Release System Installation continued

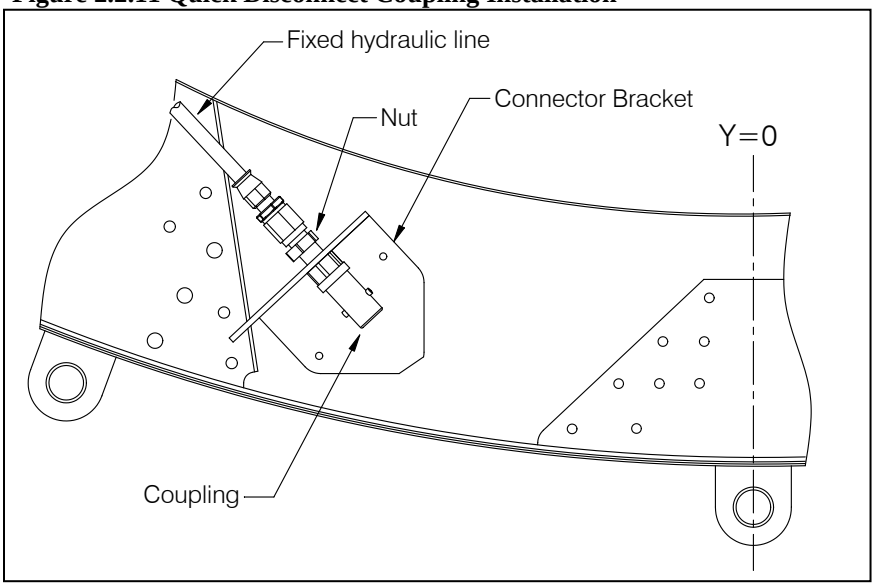
- Route the hose up through the rear cabin bulkhead as shown in Figure 2.2.10. Split and install grommet (P/N 505-014-00) in hole after hose is routed through.

Figure 2.2.10 Hose Routing through Rear Cabin Bulkhead

Aft of the rear cabin bulkhead the routing depends on which fuel tank is installed. If the "older" fuel tank is installed, route per the following steps.

- Route the hose outboard through the hole at STA 2860 in the LH keel beam (Y400) and pick up existing electrical harness runs and secure hydraulic hose using ty-raps, protect wiring from chafing by the hydraulic hose by spacing it off of it or using a spiral wrap. The hose will follow the electrical release harness (installed previously) to the connector bracket.
- Pass the hydraulic quick disconnect coupling through the load cell electrical connector hole. Slide the fitting to the end of the slot and tighten the jam nut securely against the Connector Bracket.

Figure 2.2.11 Quick Disconnect Coupling Installation



2.2 Fixed Hydraulic Release System Installation continued

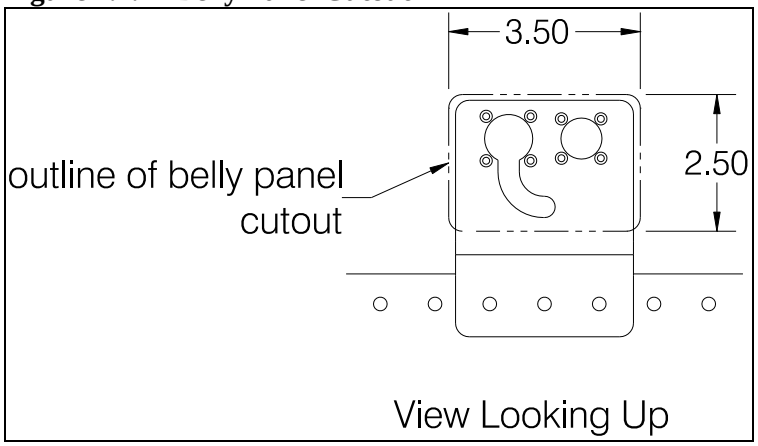
- If an Airbus Helicopters crash resistant fuel tank is installed, route the hose from the hole in the rear cabin bulkhead directly aft to the connector bracket P/N 235-274-00 installed previously on the forward side of the fuel tank support frame. Orient the 90° fitting outboard to go around the electrical connectors.
- Install the release connector 32M and load cell connector 55M with screws (P/N 510-481-00 or P/N 510-672-00 for bracket P/N 235-274-00), washers (P/N 510-062-00), and nuts (P/N 510-029-00). If the 90° backshell is being used on 32M, adjust its orientation as necessary for wire routing and then tighten securely. Use care to not twist the wires too far, remove the clamp if needed and re-install after re-orienting or rotate the connector about its four mounting holes.

NOTICE

Install P/N 510-481-00 screws with their heads on the bottom side of bracket flange (if nuts are installed on bottom side they will interfere with mating connector). See Figure 2.4.1 for location of each connector.

- If the connector bracket (P/N 235-274-00) is installed on forward side of the fuel tank support, the electrical harnesses will have extra length. Coil and stow this extra length.
- With bracket P/N 235-274-00 installed, layout its location with respect to the lower fairing and cut out a hole in the lower fairing large enough, to be able to access and disconnect each connector (size shown below is approximate). Refer to the Airbus Helicopters Standard Practices manual for modifying the panel.

Figure 2.2.12 Belly Panel Cutout



- Install electrical markers (P/N 215-165-00) on the Connector Bracket adjacent to the corresponding connectors.

2.3 Load Indicator Installation

Kit P/Ns 200-280-02, 200-280-03, 200-280-05, and 200-280-06 include the C-39 Indicator (P/N 210-095-00). Refer to Section 2.3.1 for installation of the C-39 model and its mounting bracket. Kit P/Ns 200-280-07 and 200-280-08 include the next generation C-40 Indicator (P/N 210-293-00), refer to section 2.3.2 for installation of this model.

2.3.1 C-39 Indicator Installation

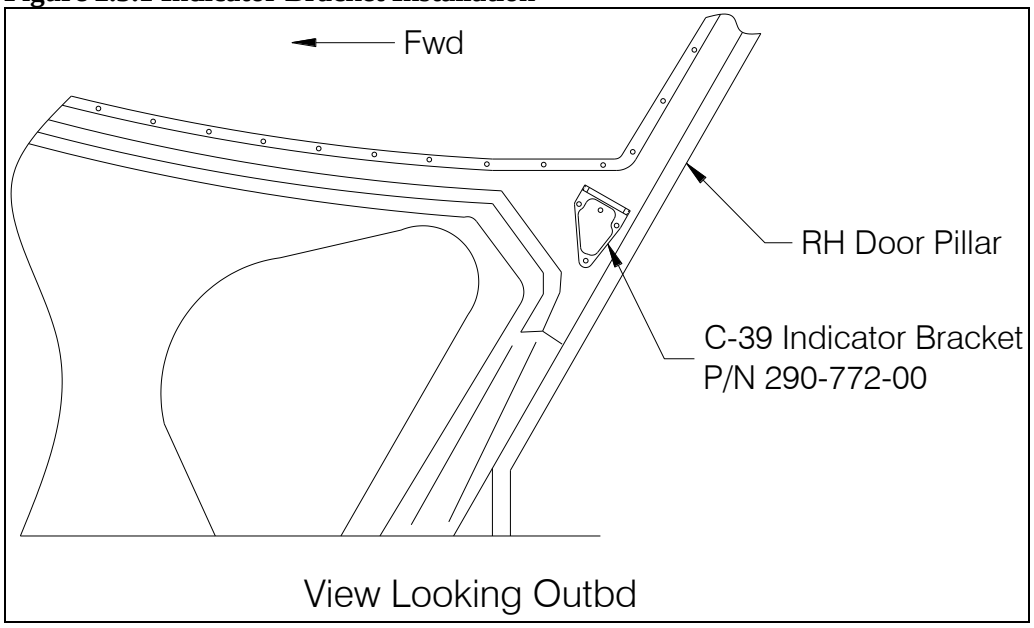
The C-39 Indicator (P/N 210-095-00) is to be mounted on the right-hand (RH) forward door pillar, in the same location as the Airbus Helicopters' type certificated Indicator

- 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 2.3.1 Indicator Bracket Installation

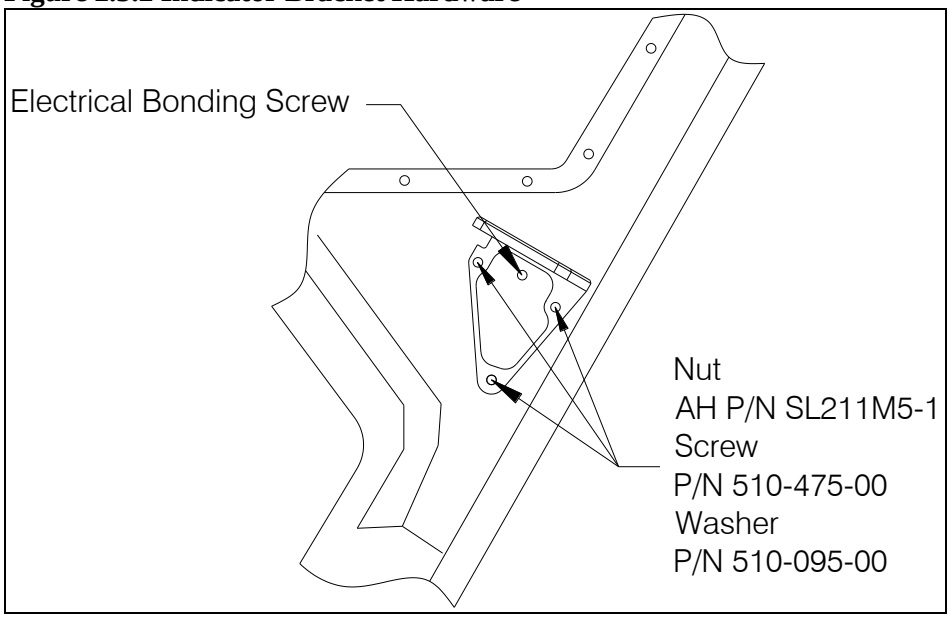


2.3 Load Indicator Installation continued

2.3.1 C-39 Indicator Installation continued

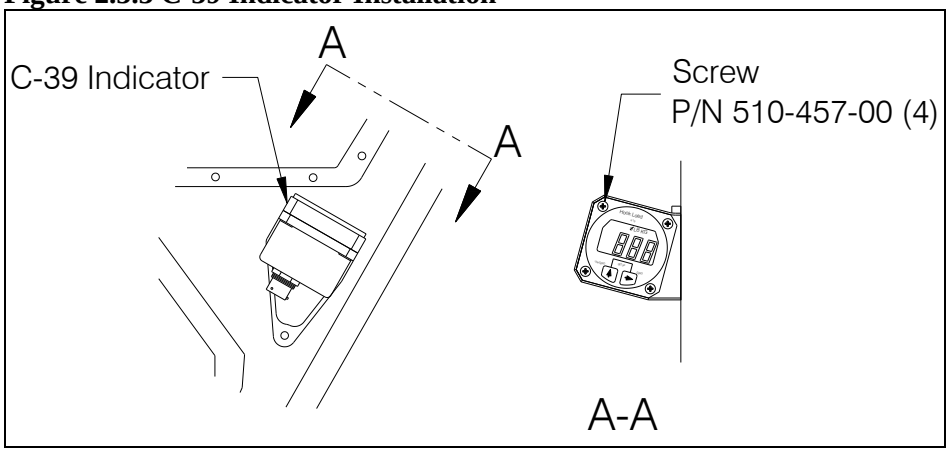
- Drill three mounting holes in the RH door pillar to install the nut clips. Reuse the electrical bonding screw at the fourth location (see below).
- After completing electrical bonding, install the three nut clips (Airbus Helicopters P/N SL211M5-1) and fasten Indicator Bracket with three screws (P/N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

Figure 2.3.2 Indicator Bracket Hardware



- Install the C-39 Indicator (P/N 210-095-00 or P/N 210-095-04) onto bracket with hardware as illustrated below.

Figure 2.3.3 C-39 Indicator Installation



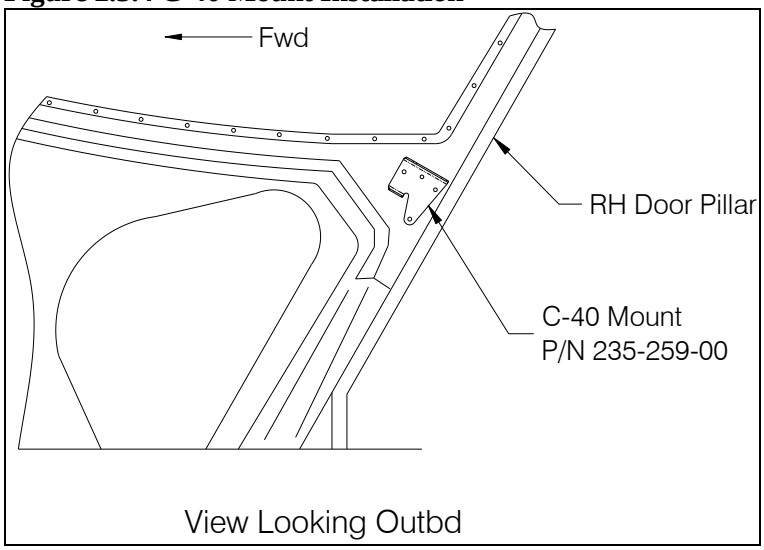
2.3 Load Indicator Installation continued

2.3.2 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.

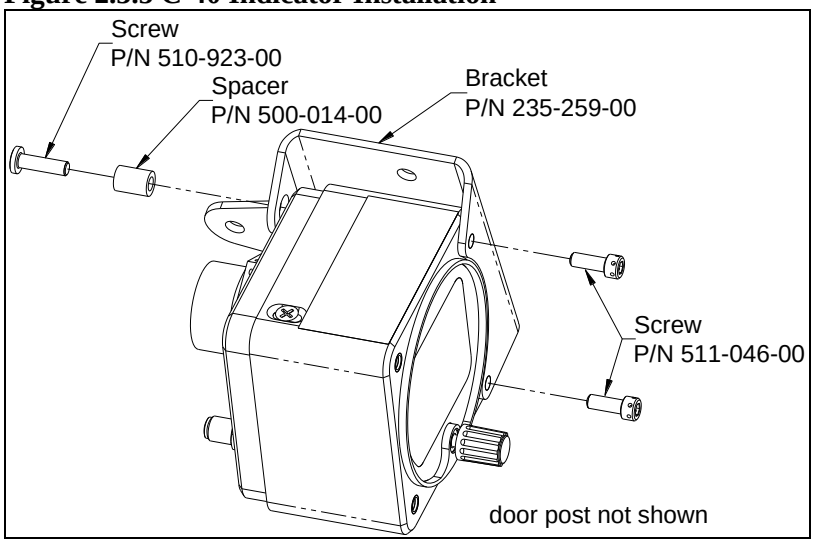
- If present, remove the Airbus Helicopters' Indicator and its mounting bracket or the C-39 Indicator and its mounting bracket (P/N 290-772-00).
- Position the C-40 Mount (P/N 235-259-00) on the door pillar and secure it with the three screws (P/N 510-475-00) and washers (P/N 510-095-00) provided.

Figure 2.3.4 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.
- Connect the load weigh harness connector (30M) to the C-40 Indicator's connector.

Figure 2.3.5 C-40 Indicator Installation



2.4 Fuel Drain Guard Installation

The fuel drain guard installation is applicable to those aircraft equipped with Airbus Helicopters duel fuel pump type tank (P/N 350A55-1015-0251 or 350A55-1015-0252).

The fuel drain guard is not installed on aircraft with a crash resistant fuel tank. As of February 2019 the fuel drain guard components have been removed from kit P/Ns 200-280-03 and 200-280-06 which are for the AS350B3 model. If installing one of these kit P/Ns on a B3 model without the crash resistant fuel tank, the fuel drain guard is available as a separate kit (P/N 200-299-00) approved under STC SR01588SE.

Proceed with the fuel drain guard installation per the following or skip to Section 2.5 as applicable.

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 350A55-1043-20). 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 2.4.1.

Figure 2.4.1 Removing Control Cable

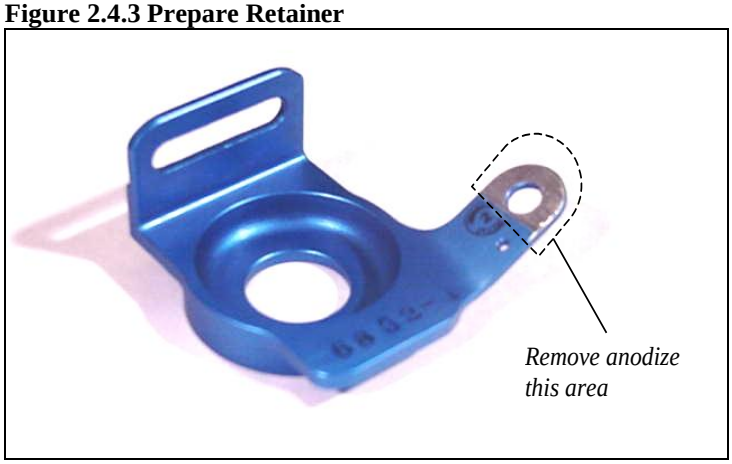
2.4 Fuel Drain Guard Installation continued

- 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 A1282Z3). 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 2.4.2 Fuel Drain Disassembly Complete

- Prepare the Retainer (P/N 290-888-00) for electrical bonding by removing anodize from the area shown in Figure 2.4.3.

Figure 2.4.3 Prepare Retainer



2.4 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 2.4.4. Retain unused sealant to ensure proper cure.

Figure 2.4.4 Apply Sealant

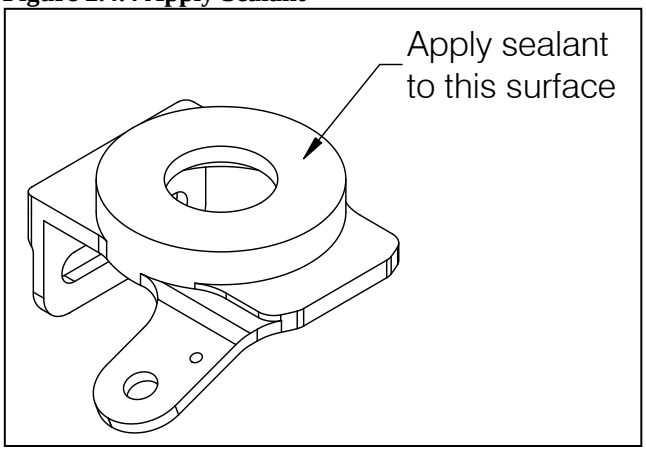


Figure 2.4.5 Position Guard

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 2.4.6 and 2.4.7.

2.4 Fuel Drain Guard Installation continued

Figure 2.4.6 Fuel Tank Key

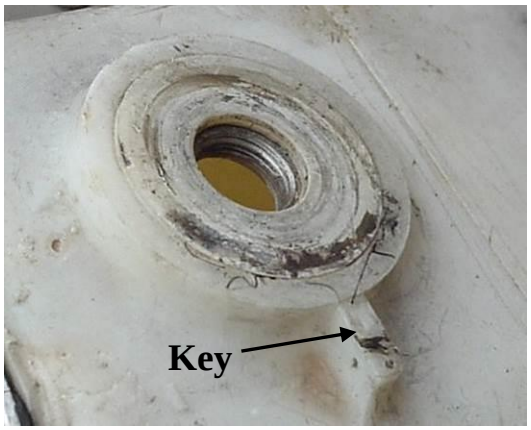
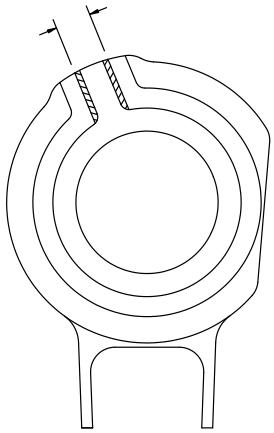


Figure 2.4.7 Modification of Guard Slot



- 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 2.4.8.

Figure 2.4.8 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.

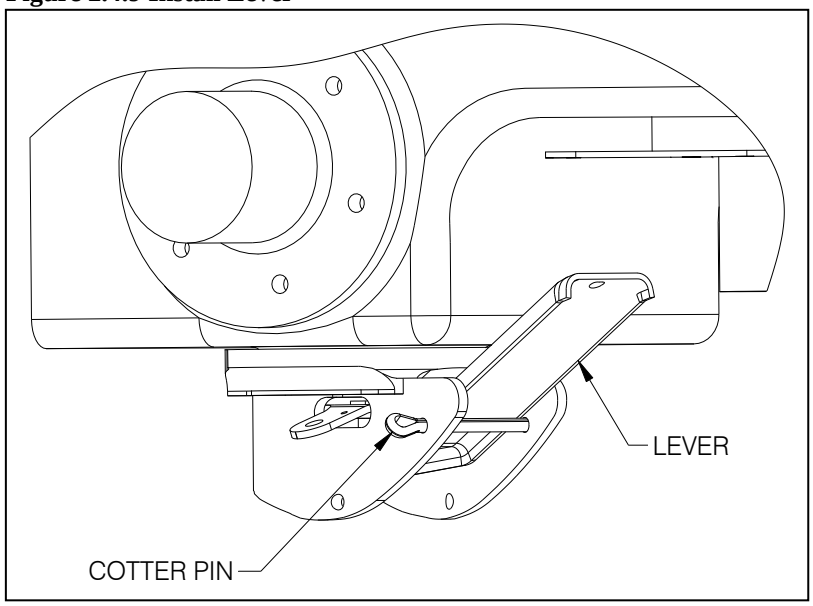
NOTICE

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

2.4 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 2.4.9.

Figure 2.4.9 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.

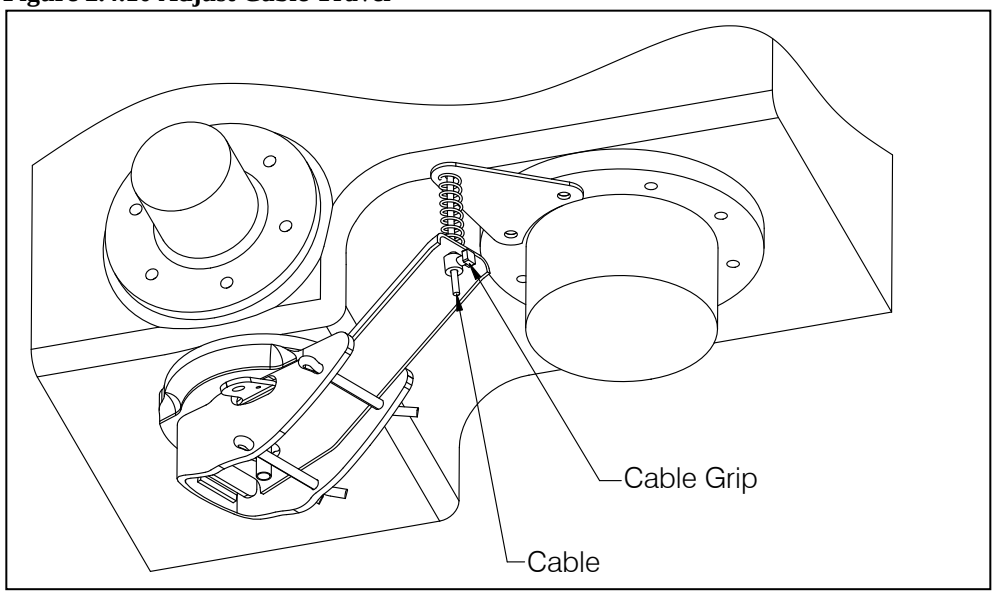
⚠ CAUTION

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 2.4.10.

2.4 Fuel Drain Guard Installation continued

Figure 2.4.10 Adjust Cable Travel



- Check the cable adjustment with the release handle on the side of the aircraft. There should be a minimum of .25 inch (6mm) cable travel before valve opens. Adjust the Cable Grip as required.
- Trim excess cable to within .25” of cable grip.
- 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.
- Re-install aft lower cowling. Check for clearance between Guard and cowling. If required trim cowling cutout to provide a min of .125 inch (3.5mm) clearance between the cowling and guard. See Figure 2.4.11 for completed installation.

Figure 2.4.11 Installation Complete

2.5 Shackle Assembly Installation

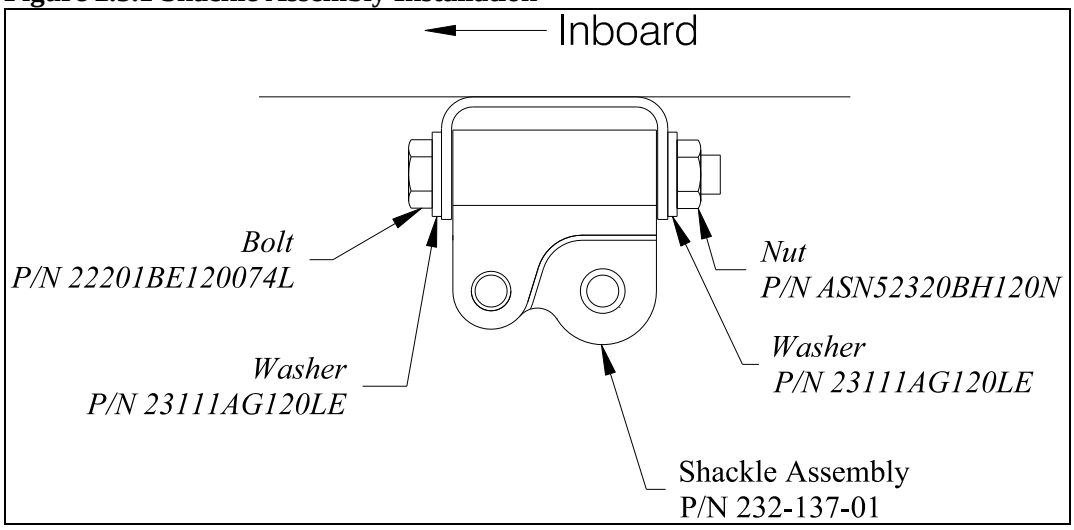
Airbus Helicopters landing gear fittings (P/N 350A41-1097-20) are standard on B3 and optional on earlier models. If not present, install per Airbus Helicopters modification 07-2772.

Attach the four Shackle Assemblies (P/N 232-137-01) to the helicopter landing gear fittings with hardware as illustrated in Figure 2.5.1 (Airbus Helicopters part numbers are shown in italics).

NOTICE

The smaller lobe of the shackle must be inboard as shown in the figure below.

Figure 2.5.1 Shackle Assembly Installation



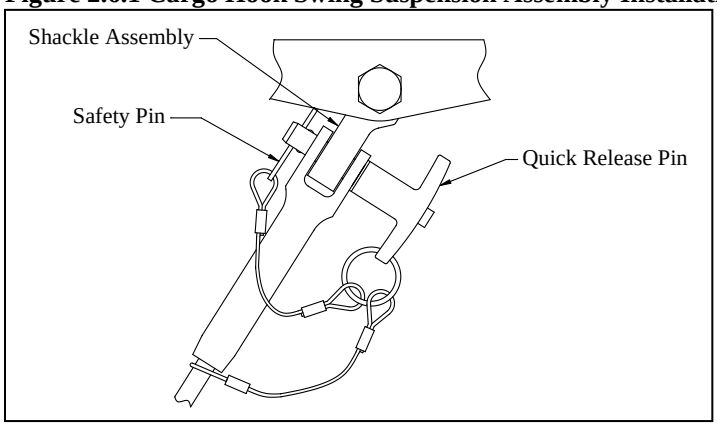
- ❑ Install the cable assemblies onto the swing suspension frame with hardware provided pre-assembled onto the cable clevis end. Disassemble hardware from cable clevis end and apply grease to pivot bolts, recommended lubricants are AeroShell 17, MIL-G-21164 or Mobilgrease 28, MIL-G-81322. Attach the two shorter cable assemblies (P/N 232-140-01) onto the forward feet of the suspension frame and the two longer cable assemblies (P/N 232-141-01) to the aft feet. 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.**
- ❑ Tighten the nuts securing the cable assemblies to the frame feet to 95-110 in-lbs and rotate to next castellation if necessary to insert cotter pin. Install cotter pin.

2.6 Swing Suspension Installation

- ❑ Re-install the lower fairing(s).
- ❑ Install the Swing Suspension onto the aircraft by attaching the suspension cable clevises to the **INBOARD** holes of the Shackle Assemblies with the Quick Release Pins* (P/N 290-851-00) as shown in Figure 2.6.1. Install the attached safety pins at each Quick Release Pin.

  * Apply grease to quick release pins before installing, recommended lubricants are AeroShell 17, MIL-G-21164 or Mobilgrease 28, MIL-G-81322.

Figure 2.6.1 Cargo Hook Swing Suspension Assembly Installation



- ❑ Connect the end of the cargo hook electrical release cable to the fixed electrical release connector (32M) installed per Section 2.1. See Table 2.6.1 for pin out information.

Table 2.6.1 Cargo Hook Connector

Pin	Function
A	Ground
B	Power

CAUTION

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

- ❑ Connect the Ground Strap from the hook to the fixed ground strap installed per Section 2.1.
- ❑ Connect the end of the load cell cable to the fixed load weigh harness connector (55M) installed per Section 2.1.
- ❑ Connect the hydraulic hose from the hook to the fitting installed at the belly of the helicopter.

2.7 Filling Hydraulic Release System

Each hydraulic system is typically shipped dry. A label affixed to the Master Cylinder and Slave Cylinder assemblies will state if each hydraulic assembly has been filled and bled. Proper bleeding is critical to the operation of the hydraulic release system. An improperly bled system will not release the cargo hook mechanism.

A reservoir seal is installed beneath the reservoir lid. This seal serves to prevent hydraulic fluid left over from the testing process from leaking during shipping.

NOTICE

The reservoir seal is for shipping purposes only and must be removed and discarded before bleeding of the hydraulic release system.

If there is a need to fill and/or bleed the system, follow the procedures listed below. If you need to remove and repair any items in the hydraulic system, refer to 123-011-02, Instruction for Continued Airworthiness.

Filling and bleeding the hydraulic release system is most easily accomplished on the bench, prior to installation on the aircraft. This process may also be accomplished after the system is installed. Filling and bleeding requires two persons, one to inject hydraulic fluid through the system and the other to observe the reservoir.

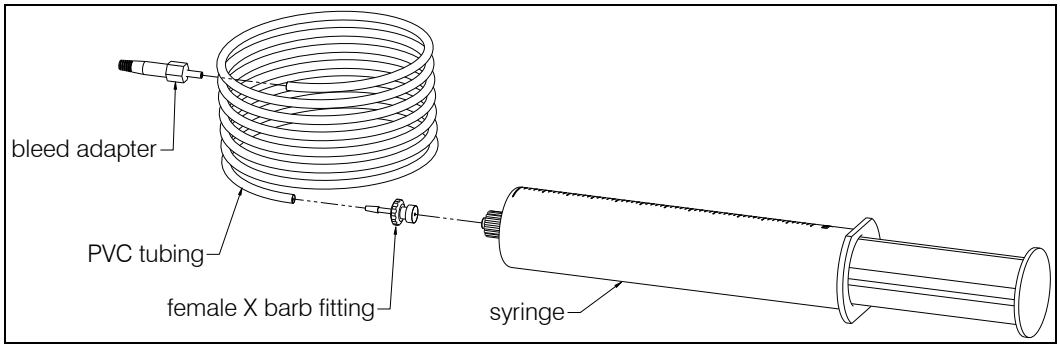
Bleeding procedure:

1. Assemble the supplied bleed kit P/N 212-014-02 (or optional P/N 212-014-01) by press fitting each of the kit's components together as shown in Figure 2.7.1. This kit also includes 2 ounces of MIL-PRF-87257 fluid (kit P/N 212-014-01 includes MIL-PRF-5606 fluid).

NOTICE

MIL-PRF-5606 and MIL-PRF-87257 fluids are both compatible with the hydraulic system. These fluids are interchangeable and miscible.

Figure 2.7.1 Hydraulic Hook Bleed Kit



2.7 Filling Hydraulic Release System continued

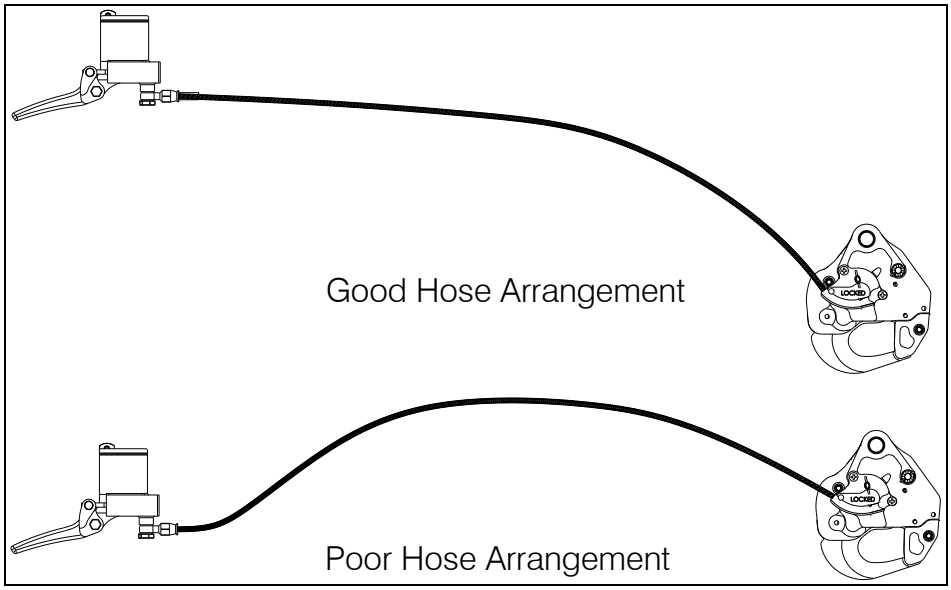
2. If the system is already installed on the aircraft, place an absorbent towel under the master cylinder. If the master cylinder is not installed on the aircraft, lightly clamp the master cylinder in a vise to hold it in a vertical position and position the slave cylinder so that its level is below the level of the master cylinder.

NOTICE

Use best shop practices to keep foreign material out of the hydraulic system. FOD will plug orifices, damage seals and/or scratch sealing surfaces necessitating system rebuild. Use only clean hydraulic fluid from sealed containers.

3. Connect the master cylinder assembly to the slave cylinder assembly if not already done. If filling or bleeding on the bench, as much as possible, arrange the hoses uncoiled, straight and running uphill as much as possible.

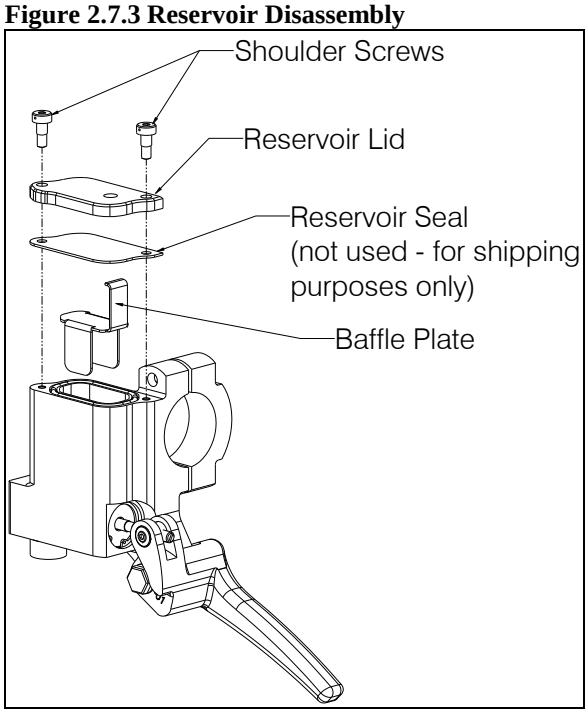
Figure 2.7.2 Hose Arrangements



4. Remove shoulder screws (or button head screws may be present), reservoir lid, reservoir seal, and baffle from the master cylinder reservoir as shown in Figure 2.7.3 (the reservoir seal is for shipping purposes only, after removal discard or retain for future shipping or storage).

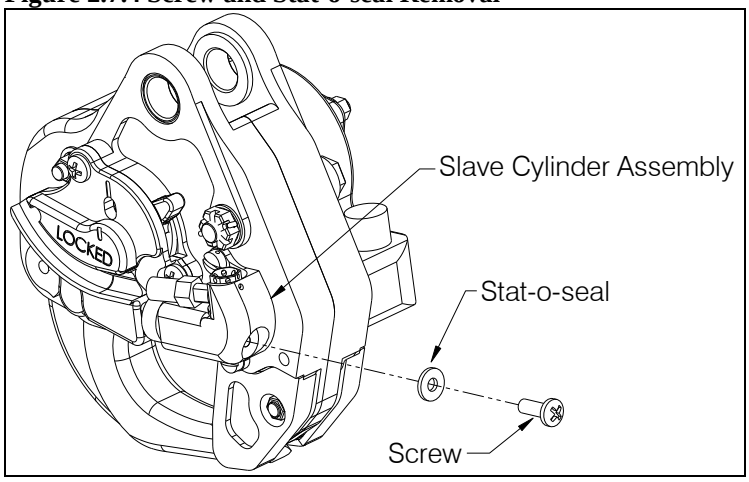
2.7 Filling Hydraulic Release System continued

Figure 2.7.3 Reservoir Disassembly



5. Remove the screw and stat-o-seal on the slave cylinder, see Figure 2.7.4.

Figure 2.7.4 Screw and Stat-o-seal Removal



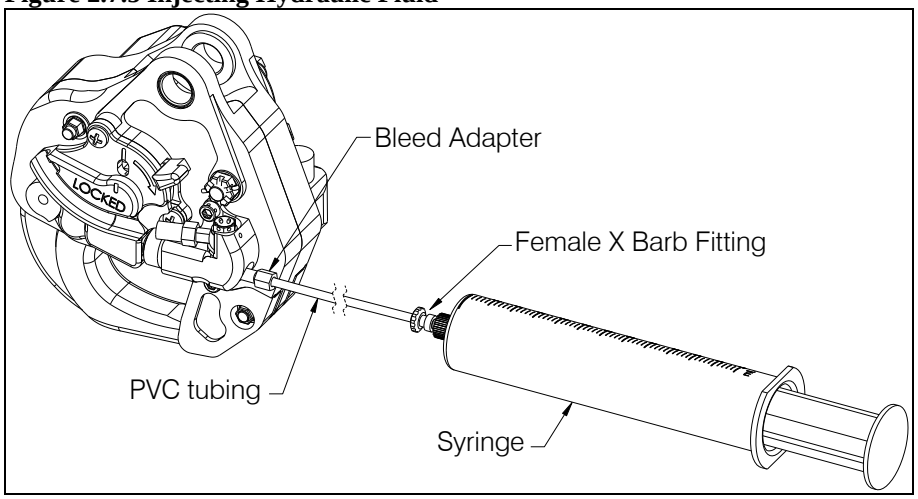
6. Fill the syringe with approximately 35 cc of hydraulic fluid and purge any remaining air in the syringe and tubing. Screw the end of the bleed adapter into the screw hole on the slave cylinder to create a tight seal. See Figure 2.7.5.
7. While observing the reservoir, **slowly** push on the syringe plunger to force fluid through the slave cylinder, hydraulic hose, and up to the master cylinder reservoir. There will be some resistance during filling—this is normal.

2.7 Filling Hydraulic Release System continued

CAUTION

Injecting the fluid into the system too rapidly may cause the fluid to spray up and out of the master cylinder reservoir. Wear safety glasses when observing fluid reservoir while filling.

Figure 2.7.5 Injecting Hydraulic Fluid



8. Continue to force fluid into the master cylinder reservoir until the reservoir is approximately half full.

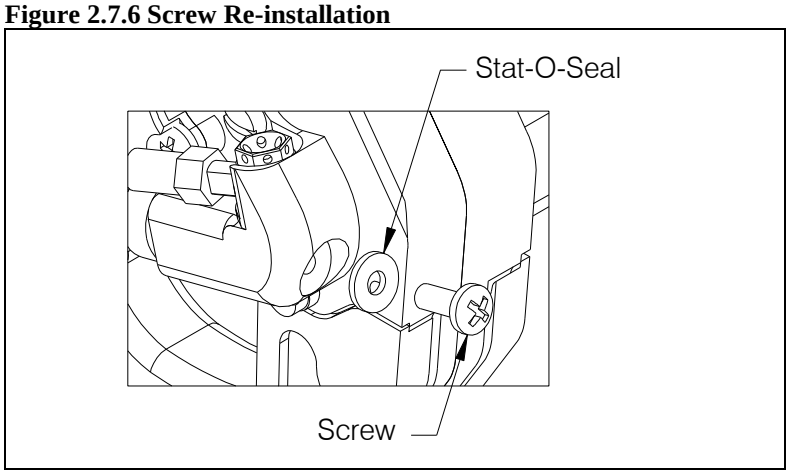
NOTICE

If bleeding an already filled system, you may need to draw fluid from the master cylinder reservoir during this step to prevent overflow.

9. Remove the bleed adapter from the screw hole. Re-install the Stat-O-Seal (P/N 510-496-00) and screw (P/N 510-493-00), see Figure 2.7.6.

2.7 Filling Hydraulic Release System continued

Figure 2.7.6 Screw Re-installation



10. Allow the system to rest for several minutes. This will allow any air to rise through the system.

11. Very **slowly** pull the release lever on the master cylinder and watch for bubbles. If bubbles are observed rising within the reservoir, continue to slowly cycle the lever until there are no more. Actuating the lever releases air trapped within the master cylinder.

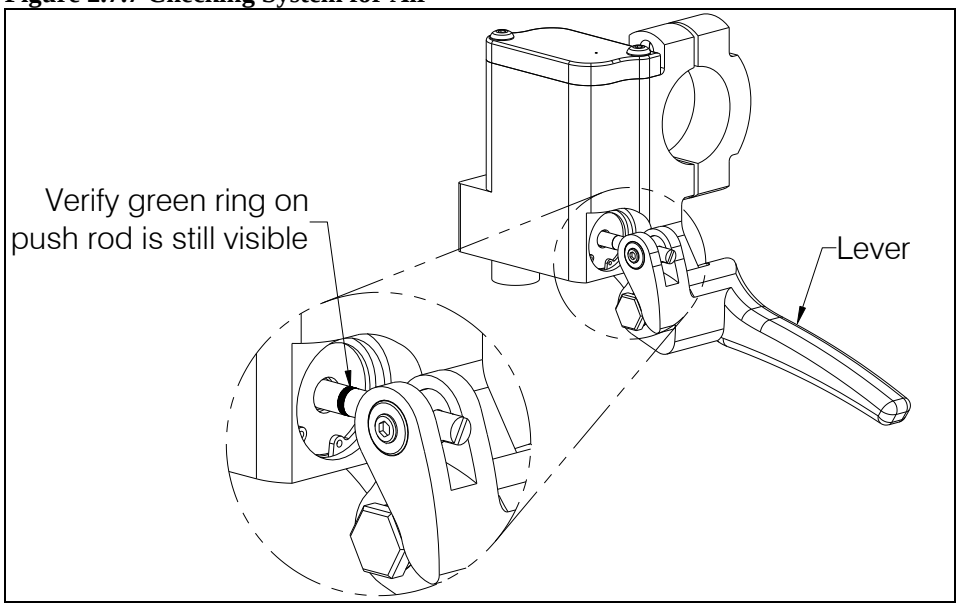
CAUTION

Pull the lever very slowly! When the reservoir is not baffled and capped, a hard pull will cause fluid to erupt over the edge of the reservoir.

2.7 Filling Hydraulic Release System continued

12. Check the system for air by actuating the lever firmly until it bottoms out. Check the push rod position (see Figure 2.7.7). If the green area on the push rod is visible, proceed to step 13. If the green on the push rod is not visible with the lever completely pulled, the system has too much air in it and needs further bleeding. To do this, repeat steps 5 – 11.

Figure 2.7.7 Checking System for Air



13. After the system is properly bled, verify that the reservoir is approximately half full of hydraulic fluid. Fluid should be visible above the baffle.

14. Re-install the baffle and the reservoir lid. Do NOT use a thread-locking compound on the screws (such as Loctite) on the screws. Tighten the screws to 5 in-lbs. maximum.

CAUTION

Solvents and thread-locking compounds will cause cracking of the reservoir lid.

15. If the screws provided with the master cylinder are shoulder screws with drilled heads, secure them with lock wire (newer production master cylinders include the shoulder screws).

16. Check the system for proper operation. Fully actuate the release lever. The hook must open and the lever must have a firm feel.

17. Disassemble and thoroughly clean the hydraulic hook bleed kit with isopropyl alcohol. Allow it to dry. Not cleaning the kit will render it unusable. Reassemble and store for next use.

2.8 Placards Installation

Install appropriate load limitation placard, P/N 215-166-00 (3086 lb. max. hook load) or P/N 215-168-00 (2557 lb. max. hook load), dependent on the model of AS350 on which the system is being installed. Consult the Airbus Helicopters Flight Manual Supplement applicable to your particular helicopter for the external load limitation. Locate the placard on the belly of the helicopter, visible to the ground operator and near the hook.

The provided load limitation placards P/N 215-166-00 and P/N 215-168-00 feature black letters on a transparent background. If being installed on a dark-colored helicopter the lettering may not be readily visible. In this instance new placards of the same size and with the same text may be fabricated with a different background to provide visibility. The lettering must contrast with the background.

If installation is being done under a Brazilian CHST, bilingual placards are required. The required placards are illustrated in Section 6, fabricate as shown or contact Onboard Systems for price and availability. Install appropriate load limitation placard, P/N 215-200-00 (1400 kg max. hook load) or P/N 215-201-00 (1160 kg max. hook load), dependent on the model of AS350 on which the system is being installed. Install "SOLTA-CARGA" placard (P/N 215-202-00) on the manual release lever in the cockpit over, or next to, the "CARGO RELEASE" engraving.

If installing kit P/Ns 200-280-05 and 200-280-06 (include Cargo Hook with Surefire release) install the Cockpit Decal (P/N 215-343-00) adjacent to the Cargo Release switch on the cyclic.

2.9 Installation Check-Out

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

1. Swing the installed cargo hook and suspension to their full extremes to ensure that the hydraulic hose and the electrical harnesses have enough slack to allow full swing without straining or damaging the cables. The hose or harnesses must not be the stops that prevent the cargo hook and suspension from swinging freely in all directions.
2. With no load on the cargo hook load beam, pull the release lever on the collective to operate the cargo hook hydraulic release, the Cargo Hook should release. Reset the cargo hook load beam.
3. Actuate the release lever on the collective and observe its range of motion. Ensure that it is accessible and that there is no interference throughout its range of motion (refer to Figure 2.9.1). If necessary adjust the lever position by loosening the set screw and turning the lever adjustment screw (ref. Figure 2.9.2) in the required direction. Re-tighten set screw.

Figure 2.9.1 Lever Position

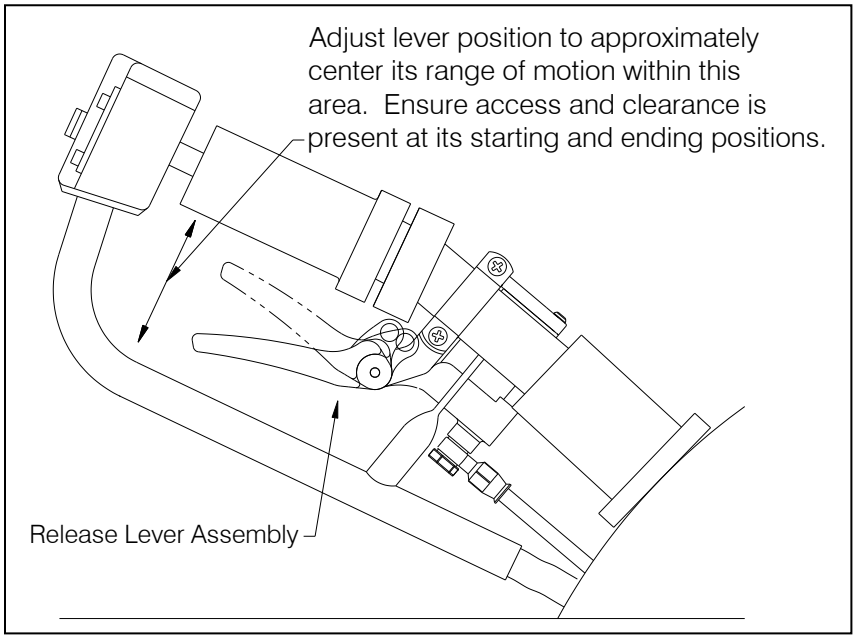
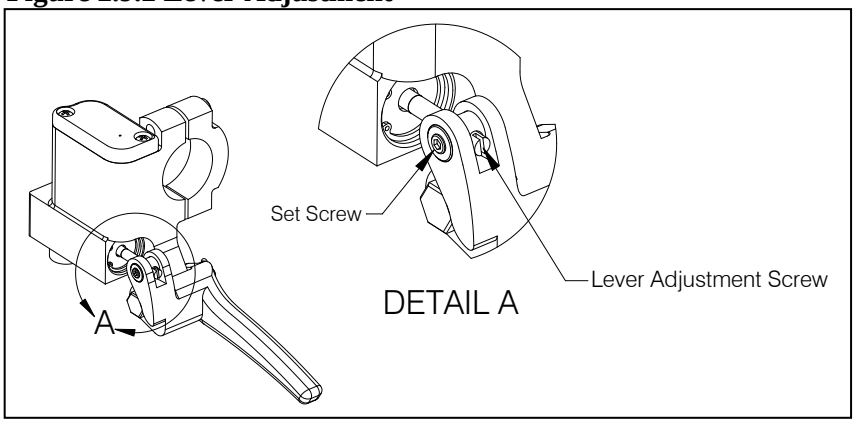


Figure 2.9.2 Lever Adjustment



2.9 Installation Check-Out continued

4. Provide power to the electrical release system. Electrical release system operation depends on the cargo hook P/N installed. The following instructions are applicable to cargo hook P/N 528-028-02 which is equipped with Surefire electrical release. With no load on the cargo hook perform the following.

   - *Very* briefly press the Cargo Release switch, the cargo hook should not actuate and the load beam should remain closed.
   - Press and hold the Cargo Release switch for a few seconds, the load beam should fall to the open position and the cargo hook solenoid should continue to cycle repeatedly.
   - Push up on the load beam and verify that it latches and the hook lock indicator is aligned with the engraved line on the manual release cover.

   The following instructions are applicable to cargo hook P/N 528-028-00.

   - Press and release the Cargo Release switch on the cyclic, the load beam should immediately fall to the open position.
   - Push up on the load beam and verify that it latches and the hook lock indicator is aligned with the engraved line on the manual release cover.

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.

NOTICE

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.

2.9 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).

2.10 Component Weights

The weights and centers of gravity of the Cargo Hook Swing Suspension System components are listed below.

Table 2.10.1 Component Weights

Item	Weight	Station
Removable Provisions*	30.0 lbs (13.6 kg)	133 in (3375 mm)
Fixed Provisions**	5.9 lbs (2.7 kg)	110 in (2794 mm)
Total	35.9 lbs (16.3 kg)	129.4 in (3288 mm)

***** The removable provisions include the swing suspension w/ hook, external hydraulic plumbing assembly and slave cylinder, and external electrical release cable. These items are easily removed if they are not needed on the helicopter's mission.

****** The fixed provisions are those items of the kit that remain on the aircraft. These include the fixed hydraulic plumbing assembly and master cylinder, internal electrical wire harnesses, the load weigh indicator, and the miscellaneous brackets that support these items.

*** May or may not be present depending on kit configuration.

2.11 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. Place the Rotorcraft Flight Manual Supplement P/N 121-012-02 or 121-073-00 (for kit P/N 200-280-07 or 200-280-08) in the aircraft Flight Manual.

2.12 Cargo Hook Upgrade Kit Installation

These instructions are provided for installing upgrade kit P/N 200-306-00 or P/N 200-306-01 which are used to convert the P/N 200-280-01 to the P/N 200-280-02 or P/N 200-280-03 configuration respectively. This converts the installation's backup release system to a hydraulic release system from mechanical cable release.

Convert the fixed provisions per the following.

- ❑ Remove the internal manual release cable and all supporting hardware.
- ❑ Remove existing connector bracket at aft fuel tank support frame.
- ❑ Install Connector Bracket (P/N 290-884-00) per Section 2.1 of this manual.
- ❑ If installing kit P/N 200-306-01 (for the B3 model) install friction knob (P/N 291-105-00) per Section 2.2 of this manual.
- ❑ Install the hydraulic release lever assembly and plumbing (P/N 232-165-00 or P/N 232-165-01) per Section 2.2 of this manual.

At the swing frame assembly perform the following.

- ❑ Remove the external manual release cable and all supporting hardware.
- ❑ Cut ty-wraps securing electrical harnesses and ground strap at cargo hook bumper and remove the existing cargo hook (P/N 528-023-01) and bumper. Retain the attach bolt (P/N 290-775-00) and hardware.
- ❑ Remove the ground strap (P/N 270-126-00) from the existing cargo hook and retain the screw (P/N 510-391-00).
- ❑ Prepare cargo hook surface for installation of ground strap by lightly removing the anodize layer around the tapped hole on the new cargo hook (the ground strap is installed in the same location as on P/N 528-023-01). Apply a suitable conductive chemical surface treatment, such as Alodine 1201, to the bare metal.
- ❑ Attach the ground strap using the screw removed from previous cargo hook.
- ❑ Attach the new electrical release harness (P/N 270-129-00) onto the cargo hook connector.
- ❑ Fit the new Bumper (P/N 290-839-02) over the cargo hook.
- ❑ Align the Bumper and Cargo Hook with the load cell and assemble attach bolt and hardware removed previously and cotter pin P/N 510-178-00 (refer to ICA 123-011-02 section 25.17 for orientation and hardware).
- ❑ Route the load cell harness, slave cylinder plumbing, ground strap, and electrical release harness through the bumper grooves (refer to ICA 123-011-02 section 25.17 for routing).
- ❑ Connect the electrical connectors, ground strap connector, and slave cylinder plumbing connector to the mating fittings at the Connector Bracket.
- ❑ Bleed the hydraulic system per Section 2.7.

Perform installation check-out per Section 2.9.

2.13 C-40 Indicator Upgrade Kit Installation

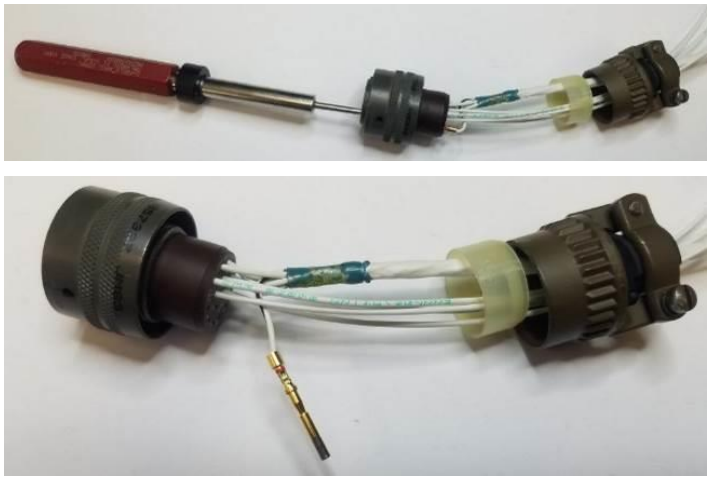
These instructions are for installing the C-40 Indicator upgrade kit (P/N 200-472-00). This kit is intended to upgrade a current C-39 Indicator installation on the AS350B3 with the C-40 Indicator and optionally connect to the VEMD for the function to increase the main rotor RPM when an external load of over 150 kg is measured by the load cell. To connect to the VEMD, the existing electrical harness (P/N 270-106-02) used with the C-39 Indicator must be modified and wire, shield terminations, and contacts are provided with the upgrade kit. Optionally a new harness (P/N 270-106-03) may be purchased to completely replace the P/N 270-106-02 harness.

2.13.1 Remove and Replace Indicator

1. Disconnect the electrical connector from the back of the C-39 Indicator.
2. Remove the four screws securing the C-39 Indicator to its mounting bracket.
3. Remove the screws securing the mounting bracket to the door post (this C-39 mounting bracket is not compatible with the C-40).
4. Install the C-40 Indicator and the provided C-40 Mount bracket (P/N 235-259-00) per Section 2.3.2 of this manual.

2.13.2 Modify the Electrical Harness (only required for VEMD connection)

1. Disassemble the 30M connector. Slit and discard heat shrink. Use contact removal tool M81969/19-06 (DMC DRK20B) to remove the contact from location "L" as shown. This wire is the shield termination drain from the shielded four-conductor wire installed in connector contacts B, C, D, and E.

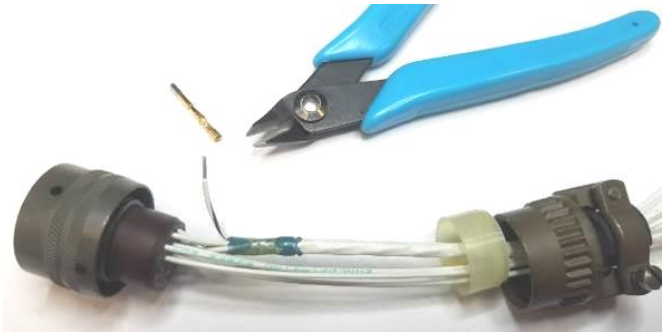


2. At this point, the four-conductor wire of the DATA line (for optional equipment) can be removed from the connector unless it is being used. Use contact remove tool to remove each of the four contacts from the connector.

2.13 C-40 Indicator Upgrade Kit Installation continued

2.13.2 Modify the Electrical Harness continued

3. Cut the wire (from L) as close as possible to the socket contact and strip the wire approximately ¼". Discard socket contact. This wire will be daisy chained to the shield of the new two-conductor wire.



4. Slide the provided twisted pair two-conductor wire (P/N 420-087-00, M27500-20SD2T23) through the backshell, grommet, and plastic sleeve (with the existing wires).

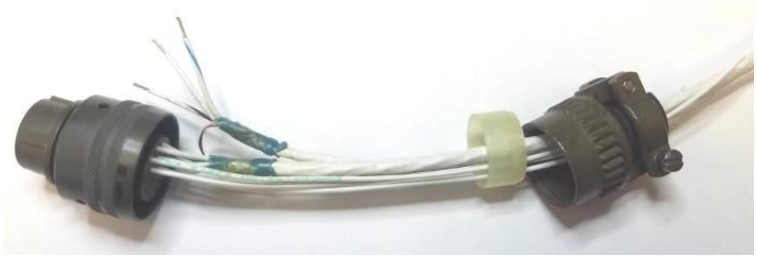
5. Form the shield termination wire removed from location L as shown. Prepare the two-conductor wire by cutting back outer jacket back 1 ½" and cutting shield to leave ¼" remaining.

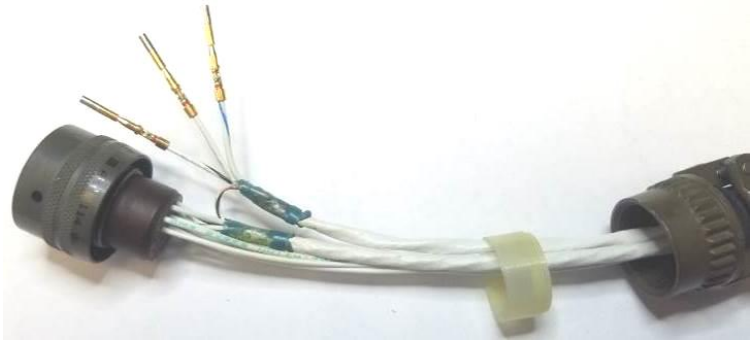
6. Place the shield termination (P/N 410-199-00) with solder ring centered over exposed shield. Insert formed wire from location L into shield termination. Shrink solder termination with heat gun until solder flows and red indicator band disappears.

2.13 C-40 Indicator Upgrade Kit Installation continued

2.13.2 Modify the Electrical Harness continued

7. Cut the shield termination drain wire to the same length as other two wires. Strip wires approximately ¼" and crimp on contacts P/N 410-375-00 (M39029/32-259).





8. Insert contacts into connector per the table below using installation tool M81969/17-03 (DMC DAK20B).

Wire Function	Wire Color	30M Location
Analog out common	White/Blue	F
Analog out signal	White	G
Shield termination	White/Black	L

9. Wrap the wires with approximately 6 inches of self-fusing silicone tape (MIL-I-46852) to the bundle of wires with tape and re-assemble the connector over the wire bundle.

2.13 C-40 Indicator Upgrade Kit Installation continued

2.13.3 Connect to VEMD

1. Connect the 30M connector to the back of the C-40 Indicator.
2. Route the new two-conductor wire to the back of the VEMD to connector P2 and trim to length as needed.
3. Prep the end of the wire for the shield termination (as done at 30M)
4. Crimp on the supplied contacts (P/N 410-461-00) and connect the three wires to the VEMD connector P2 per the table below.

Connection to VEMD Connector P2 - Indicator

Wire Function	Color	Pin of Connector P2
Analog out common	White/Blue	t
Analog out signal	White	Y
Shield termination	White/Black	FF

5. Crimp a P/N 410-461-00 contact to the length of P/N 420-084-00 wire (22 AWG, M22759/34) provided with the kit and connect this to the VEMD connector P2 per the table below (this is the "Sling Activation" wire).
6. 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.

Connection to VEMD Connector P2 - Activation

Wire Function	Color	Pin of Connector P2
Activation signal	White	Z

2.13 C-40 Indicator Upgrade Kit Installation continued

2.13.4 Installation Check-out for Modification

1. Power on the load weigh system. 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. Enter the settings menu and enter the calibration code (Cal Code) from the installed load cell into the C-40 Indicator. Refer to the C-40 Indicator Owner's Manual 120-152-00 for instructions for changing the calibration code.
3. 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

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.

4. For the C-40 Indicator's connection to the VEMD perform the following.
   - In the C-40 settings menu, verify that the C-40 Indicator's Analog Full Scale setting is set to 9309.
   - In the C-40 settings menu, select the Analog Test option in the menu and follow the instructions to initiate a self-test. The load displayed on the VEMD should be 475 lbs (215 kg) +/- 30lbs (+/-15kg) for three seconds and then return to 0.
5. 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 0 (the C-40 Indicator undergoes testing at the factory which "accumulates" 15-18 hours).
6. Replace RFMS 121-012-02 with RFMS 121-073-00 in the Flight Manual.

Section 3

Operation Instructions

Operating Procedures

Refer to Owner's Manual No. 120-039-00 for detailed operation instructions for the C-39 Indicator. Refer to Owner's Manual No. 120-152-00 for detailed operation instructions for the C-40 Indicator.

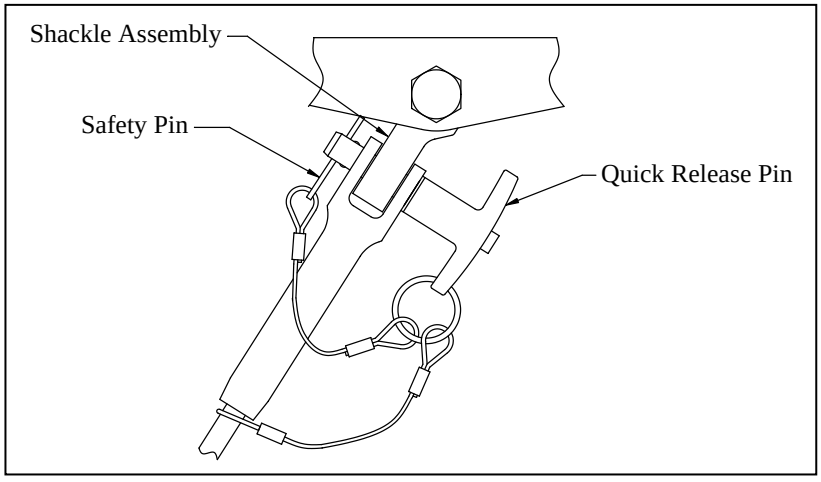
Refer to the RFMS provided with the kit for pre-flight checks prior to a flight involving external load operations.

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. Disconnect the electrical cables, the ground strap, and the hydraulic release hose at the belly of the helicopter.
2. Remove the Swing Suspension by removing the safety pins and then the quick release pins that secure the cables to each of Shackle Assemblies at the aircraft hard points.

Figure 3.2 Suspension Removal



Re-installing Removable Provisions

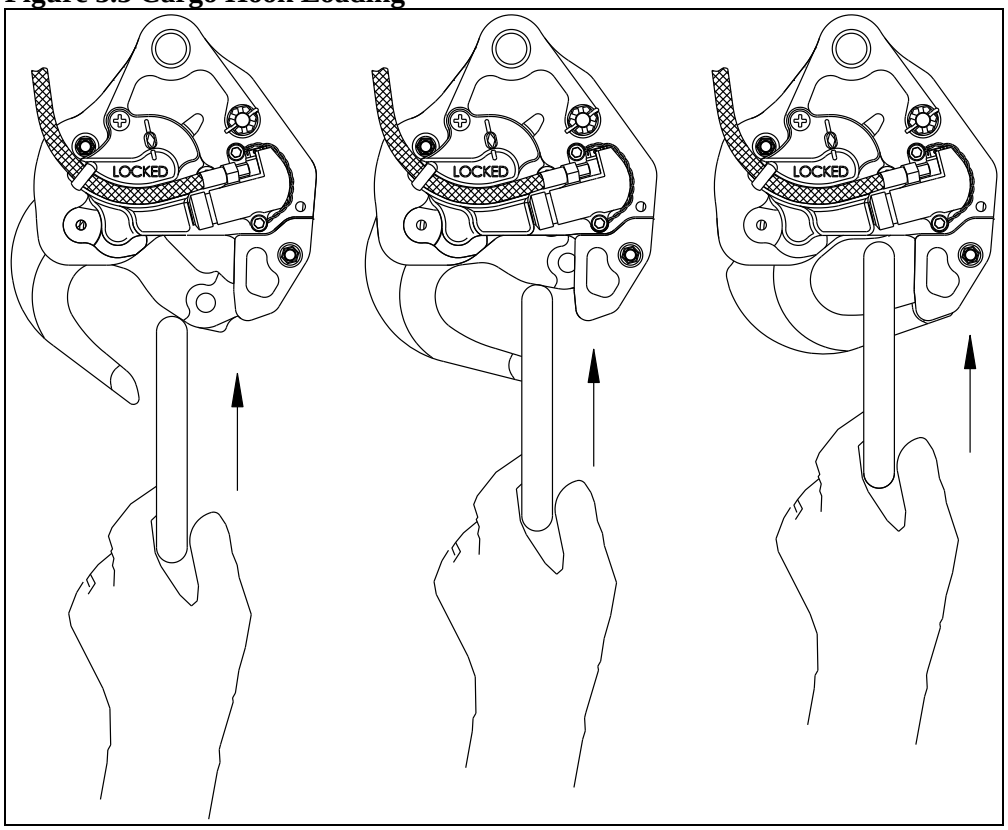
Re-install the removable provisions per the following instructions:

1. Wipe off electrical connectors and the hydraulic quick disconnect fitting to remove any debris.
2. Connect the electrical release and load cell connectors and the hydraulic quick disconnect fitting to the mating fittings on the connector bracket.
3. Position the Swing Suspension under the helicopter with the cargo hook pointing to the left. Attach it by placing each of its cable assemblies over the inboard hole of the adjacent shackle assembly and inserting the quick release pins. Secure the quick release pins with the attached safety pins.

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 3.3, until an internal latch engages the load beam and latches it in the closed position.

Figure 3.3 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.

WARNING

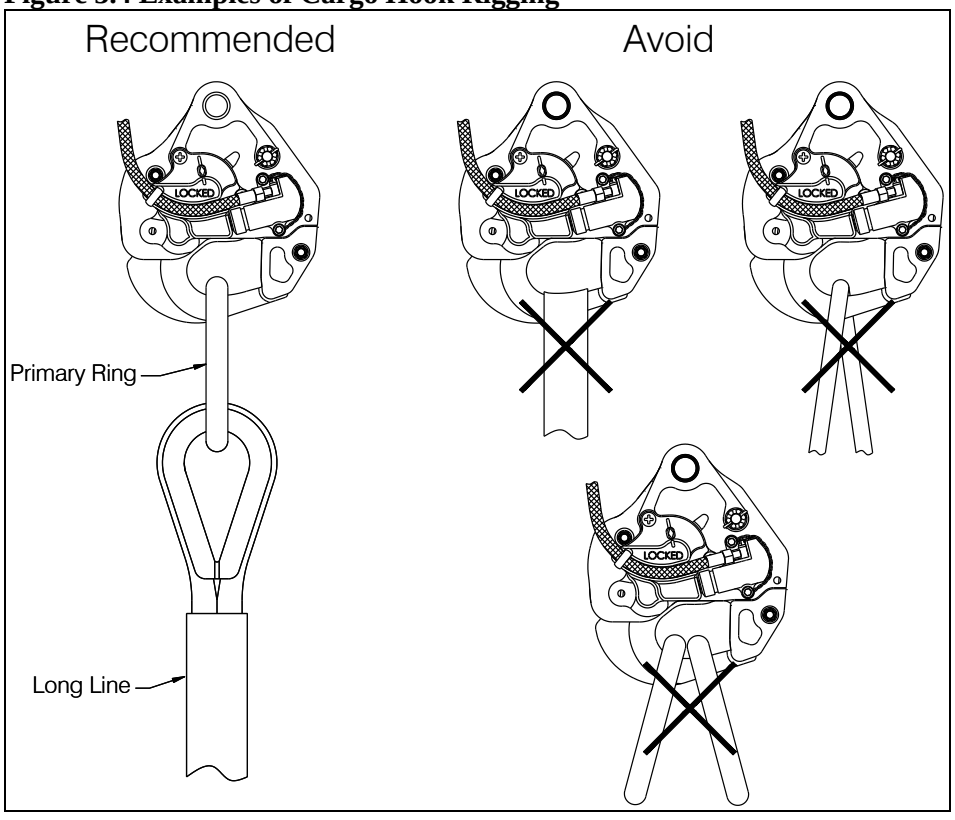
It is the responsibility of the operator to assure the cargo hook will function properly with each rigging.

Nylon Type Straps and Rope

WARNING

Nylon type straps (or similar material) or rope must not be used directly on the cargo hook load beam. If nylon straps or rope must be 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 load beam.

Figure 3.4 Examples of Cargo Hook Rigging



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Section 4
Maintenance

Refer to the Instructions for Continued Airworthiness (ICA) manual 123-011-02 for maintenance of the cargo hook suspension system. For maintenance of the cargo hook refer to Cargo Hook Component Maintenance Manual 122-015-00.

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.

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

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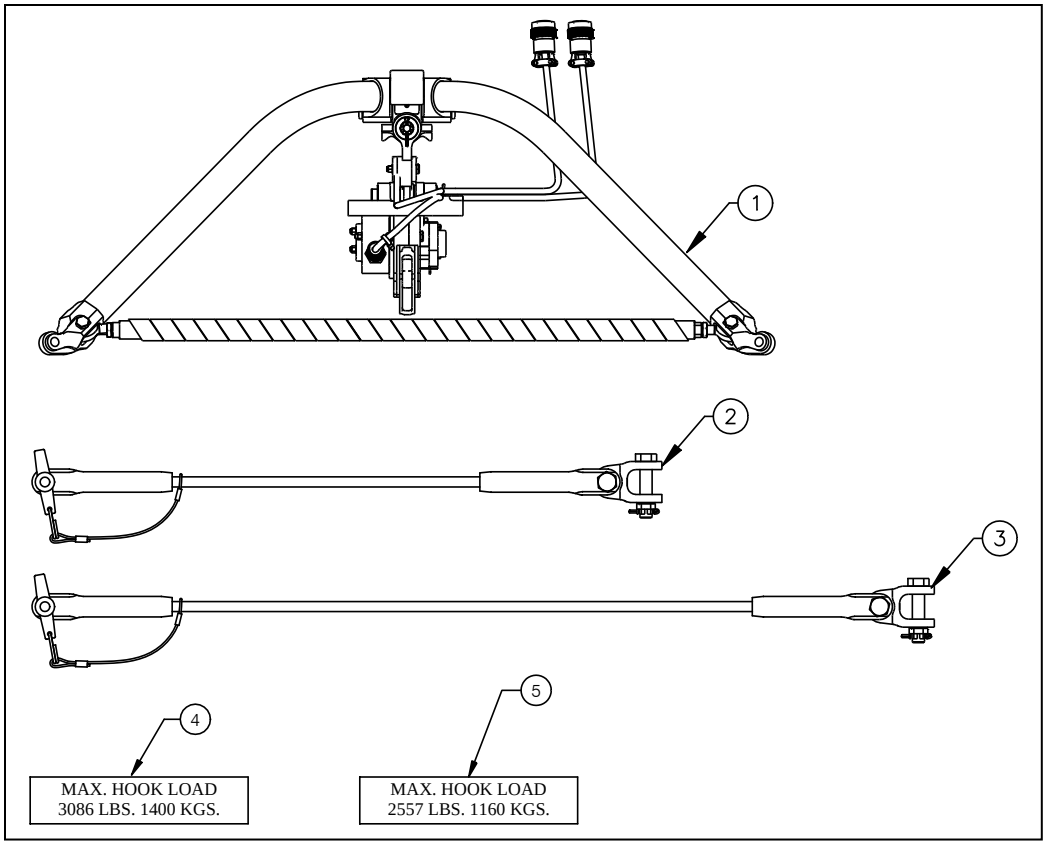
Section 5
System Part Numbers

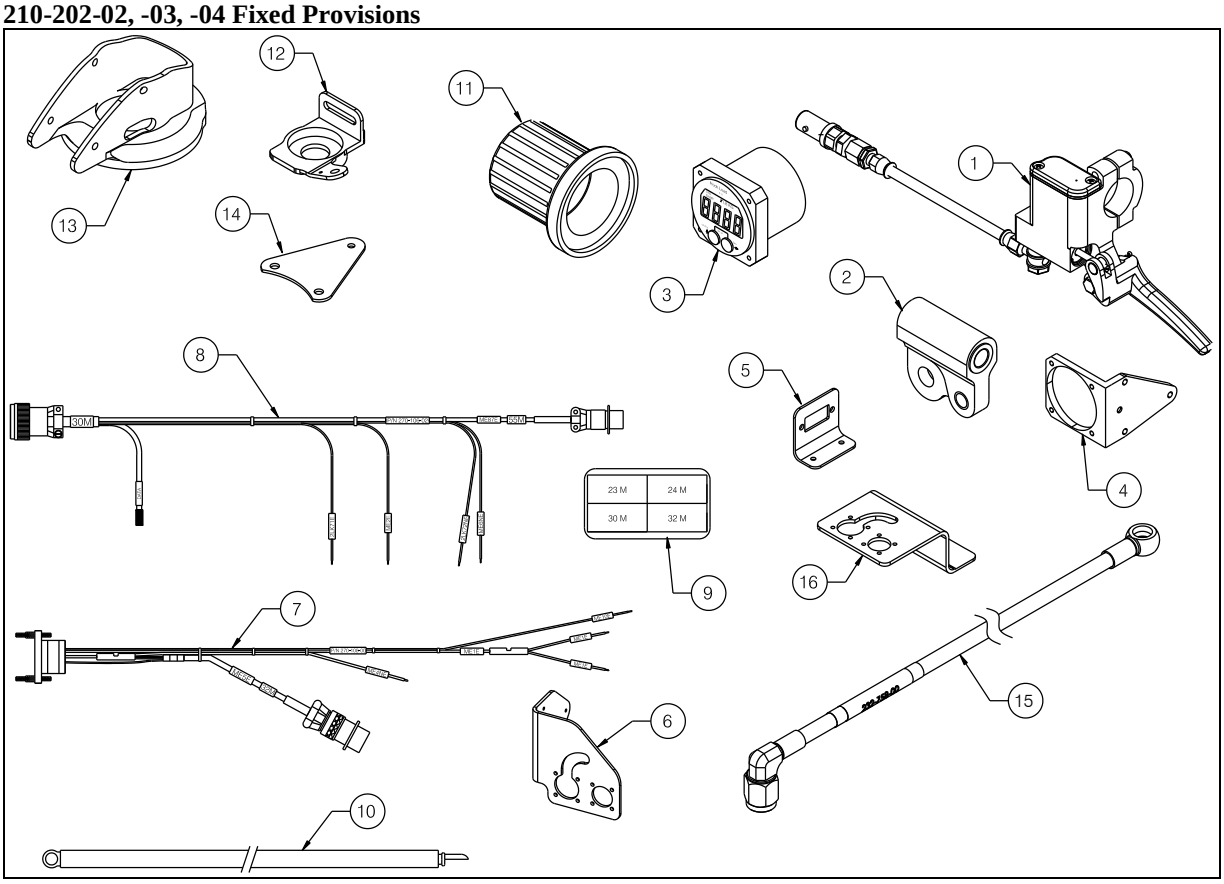
210-201-02, 210-201-04 Removable Provisions



Item	Part Number	Description	Qty -02	Qty -04
1	232-145-02	Swing Hook Frame Assembly	1	-
1	232-145-04	Swing Hook Frame Assembly	-	1
2	232-140-01	Forward Attach Cable Assembly	2	2
3	232-141-01	Aft Attach Cable Assembly	2	2
4	215-166-00	Max Hook Load 3086 Decal	1	1
5	215-168-00	Max Hook Load 2557 Decal	1	1

System Part Numbers continued

210-202-02, -03, -04 Fixed Provisions

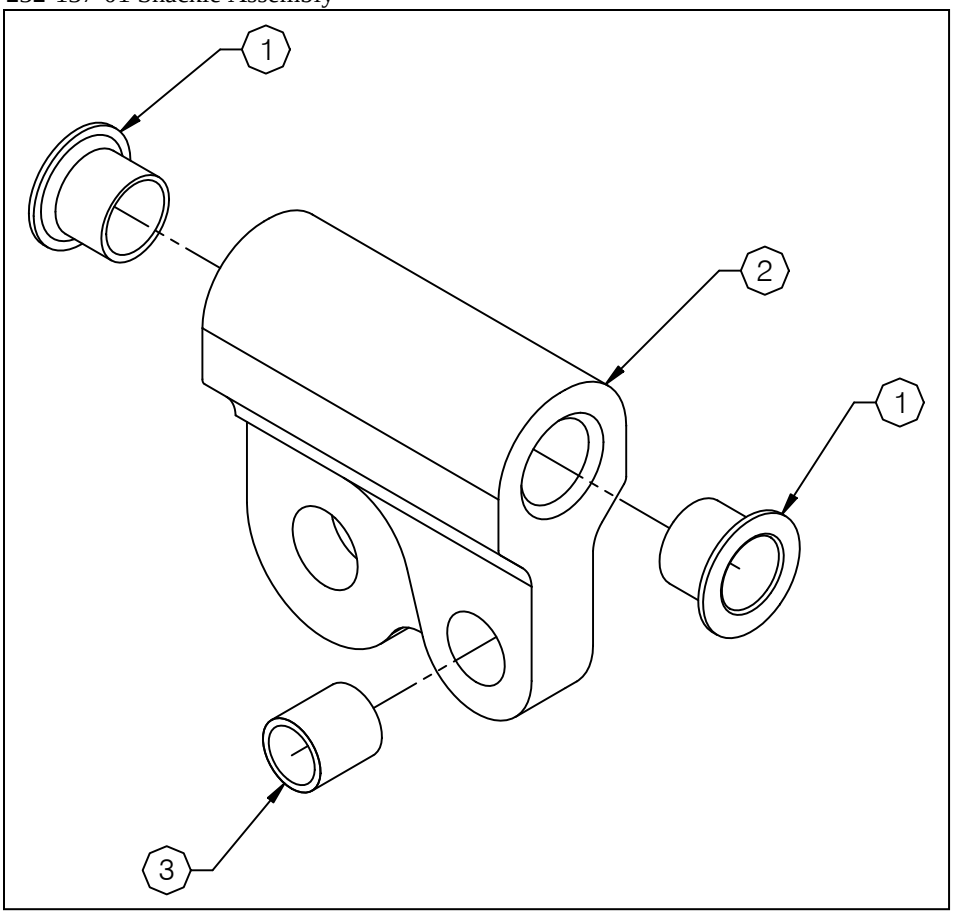


Item	Part No.	Description	Qty		
			-02	-03	-04
1	232-165-00	Master Cylinder Assembly	1	-	-
	232-165-01	Master Cylinder Assembly	-	1	1
2	232-137-01	Shackle Assembly	4	4	4
3	210-095-00	C-39 Indicator	1	1	-
	210-293-00	C-40 Indicator	-	-	1
4	290-772-00	Indicator Mount Bracket	1	1	-
	235-259-00	C-40 Mount	-	-	1
5	290-783-00	Relay Bracket	1	1	1
6	290-884-00	Connector Bracket	1	1	1
7	270-108-00	Electrical Release Internal Harness	1	1	1
8	270-106-02	Load Weigh Internal Harness	1	1	-
	270-106-03	Load Weigh Internal Harness, C-40	-	-	1
9	215-165-00	Multiple Sticker Sheet	1	1	1
10	270-125-00	Ground Strap, Fixed	1	1	1
11	291-105-00	Friction Handle	-	1	1
12	290-888-00*	Retainer	1	1*	-
13	290-889-01*	Guard	1	1*	-
14	290-893-00*	Bracket	1	1*	-
15	232-758-00	Master Cylinder Plumbing Assembly	1	1	-
16	235-274-00	Connector Bracket	-	1	-

*May or not be installed, refer to page 1-1 for more information.

System Part Numbers continued

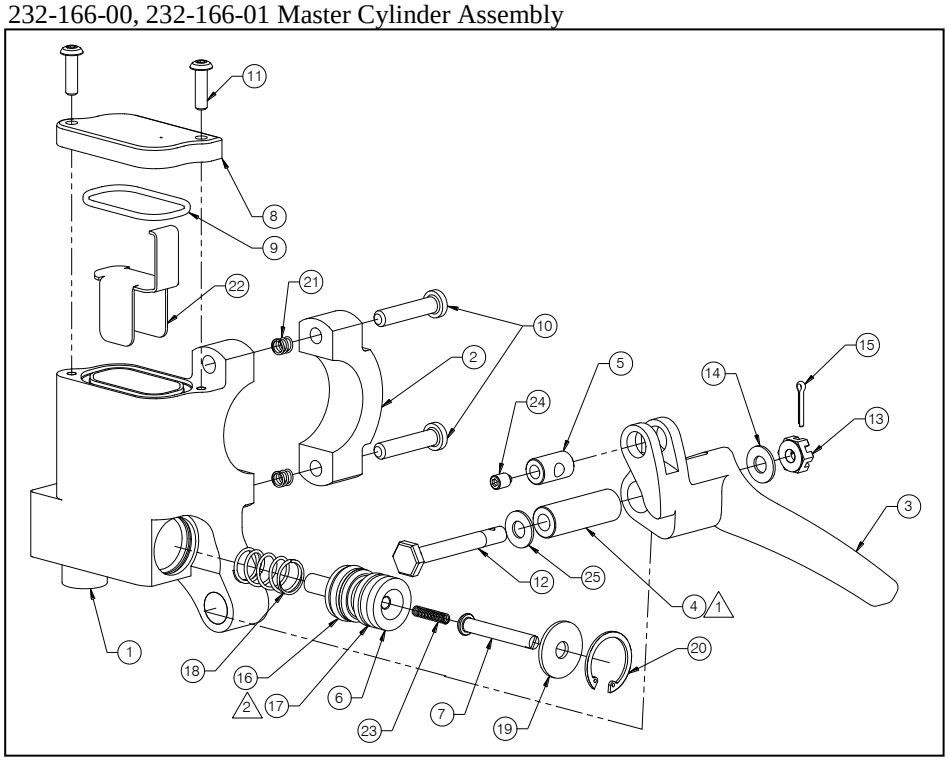
232-137-01 Shackle Assembly



Item	Part No.	Description	Qty
1	517-047-00	Bushing	2
2	290-850-00	Shackle	1
3	517-016-00	Bushing	1

System Part Numbers continued

232-166-00, 232-166-01 Master Cylinder Assembly

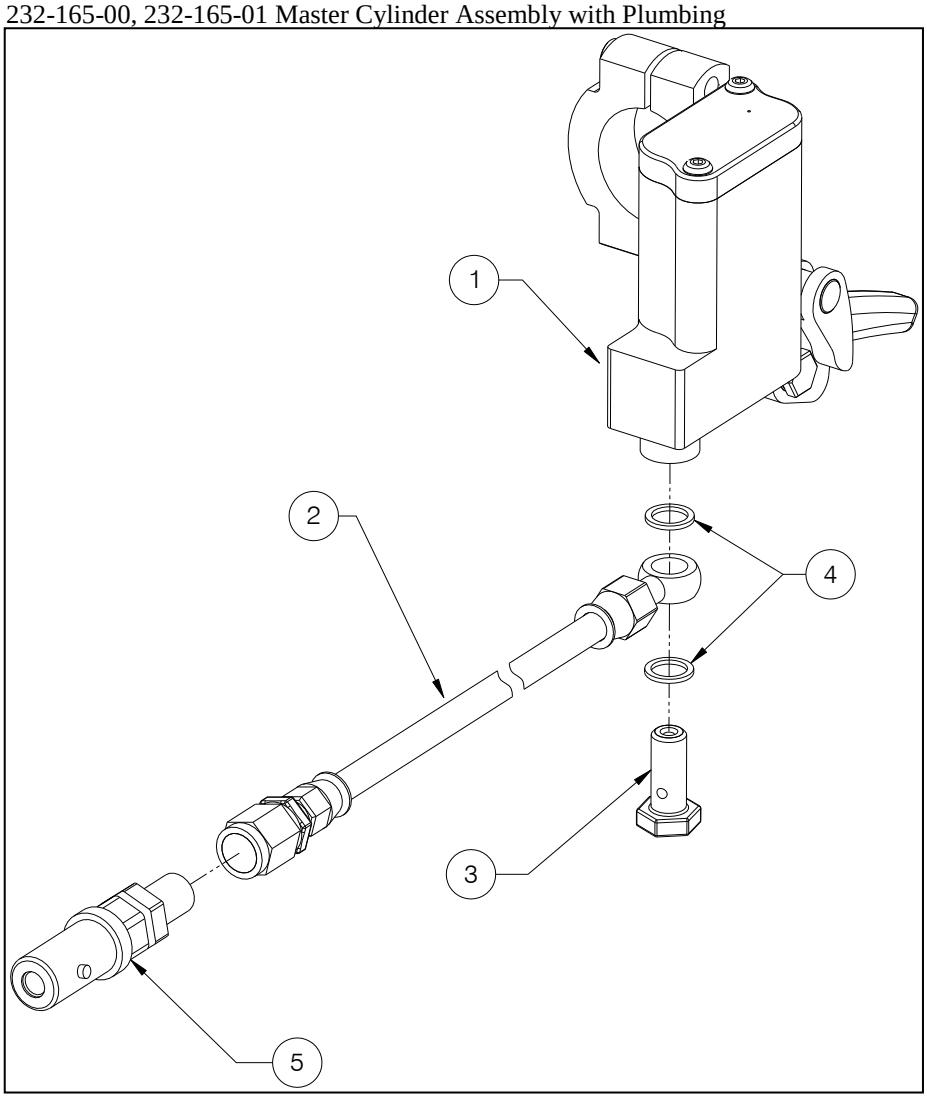


Item	Part No.	Description	Qty
1	290-810-01	Master Cylinder	1
2	290-753-00	Clamp Half	1
3	290-811-00**	Lever	1
4	290-816-00	Shaft	1
5	290-812-00	Barrel Nut	1
6	290-814-01	Piston	1
7	290-813-00	Push Rod	1
8	290-921-00	Reservoir Lid	1
9	556-044-00	O-Ring	1
10	510-390-00	Screw	2
11	510-157-00	#6-32 x ½" Button Head Cap Screw	2
12	510-487-00	Bolt	1
13	510-082-00	Nut	1
14	510-095-00	Washer	1
15	510-125-00	Cotter Pin	1
16	556-048-00	Cup Seal	1
17	556-047-00	O-Ring	1
18	514-055-00	Compression Spring	1
19	510-532-00	Washer – Piston Stop	1
20	515-008-00	Snap Ring	1
21	510-248-00	Helicoil	2
22	235-118-00	Master Cylinder Baffle	1
23	514-060-00	Compression Spring	1
24	510-530-00	#8-32 x 3/16" Nylon Tip Set Screw	1
25	510-042-00	Washer	1

** 232-166-01 (for the B3 collective) uses lever P/N 290-811-01.

System Part Numbers continued

232-165-00, 232-165-01 Master Cylinder Assembly with Plumbing

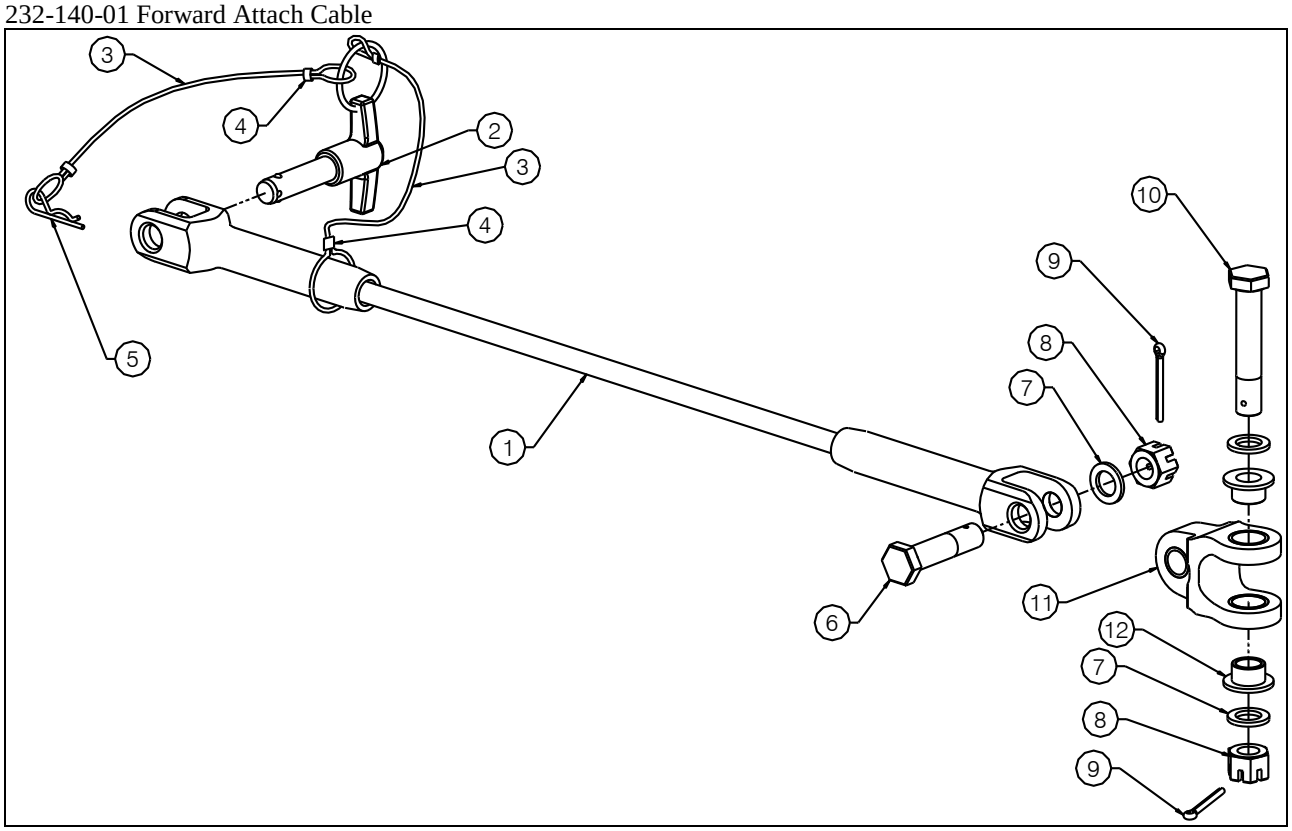


Item	Part No.	Description	Qty
1**	232-166-00	Master Cylinder Assembly	1
2***	232-165-01	Master Cylinder Plumbing Assembly	1
3	558-021-00	Banjo Bolt	1
4	556-040-00	Crush Washer	2
5	560-005-00	Quick Disconnect	1

** 232-165-01 (for the B3 collective) uses Master Cylinder Assembly P/N 232-166-01.
***Optional plumbing assembly is P/N 232-758-00 which is for use with aircraft with the Airbus crash resistant fuel tank installed.

System Part Numbers continued

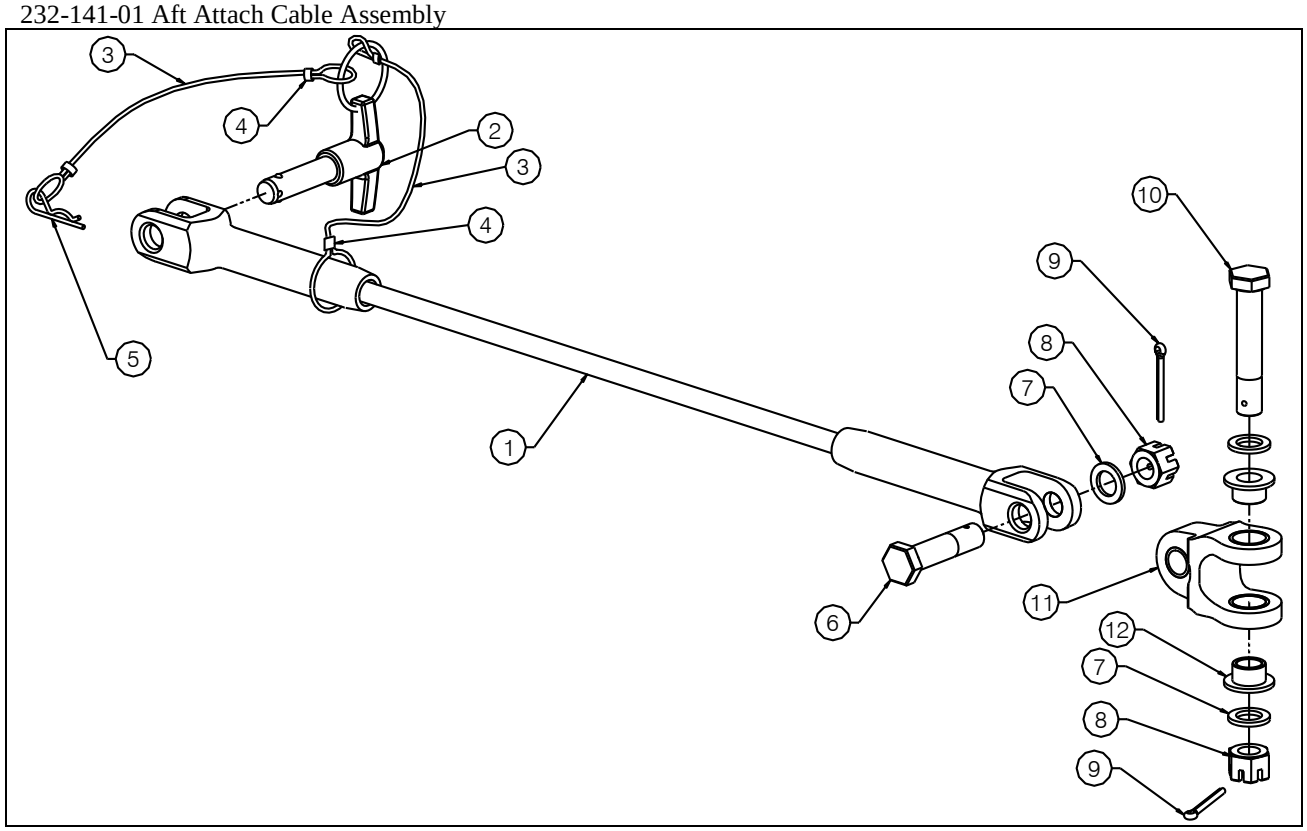
232-140-01 Forward Attach Cable



Item	Part No.	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

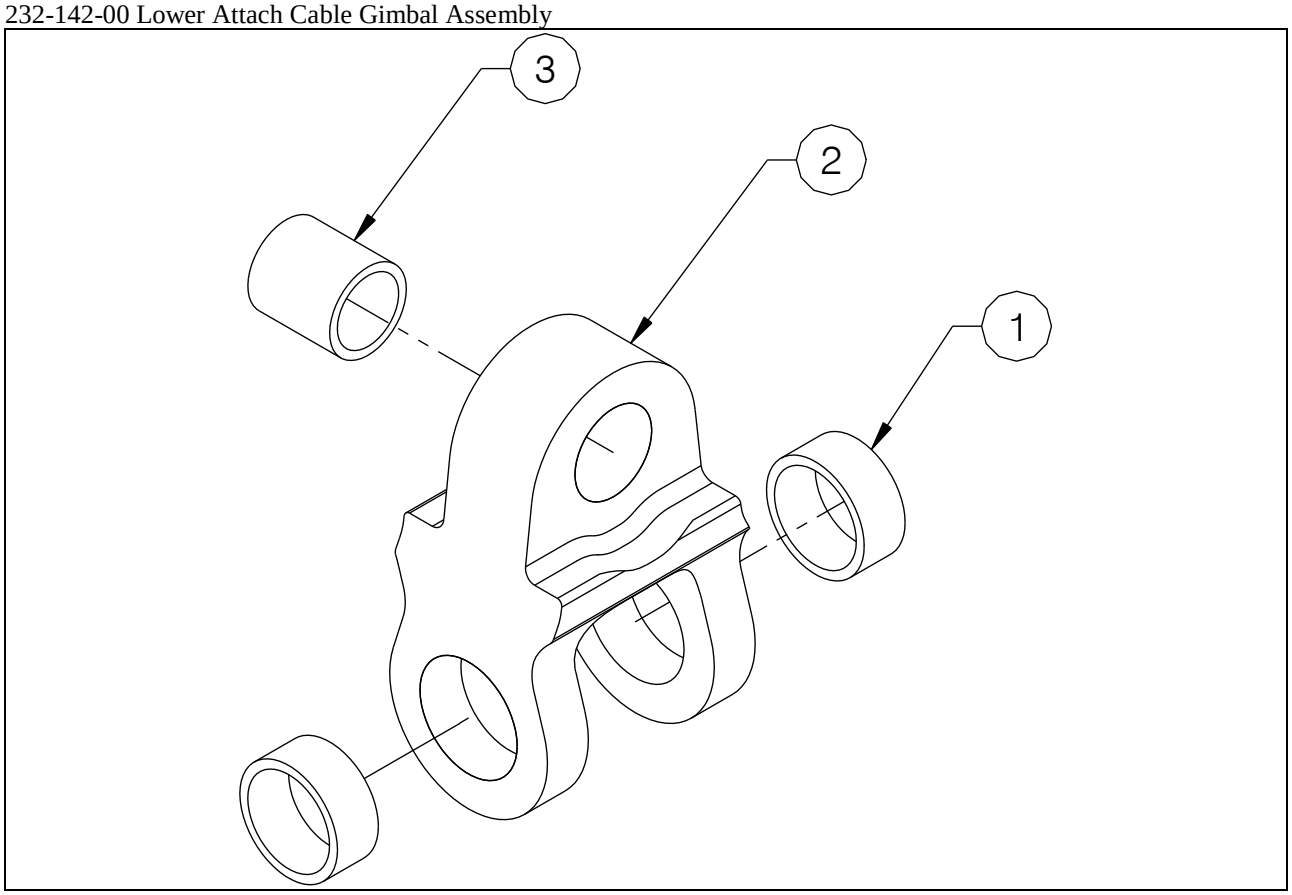
232-141-01 Aft Attach Cable Assembly



Item	Part No.	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

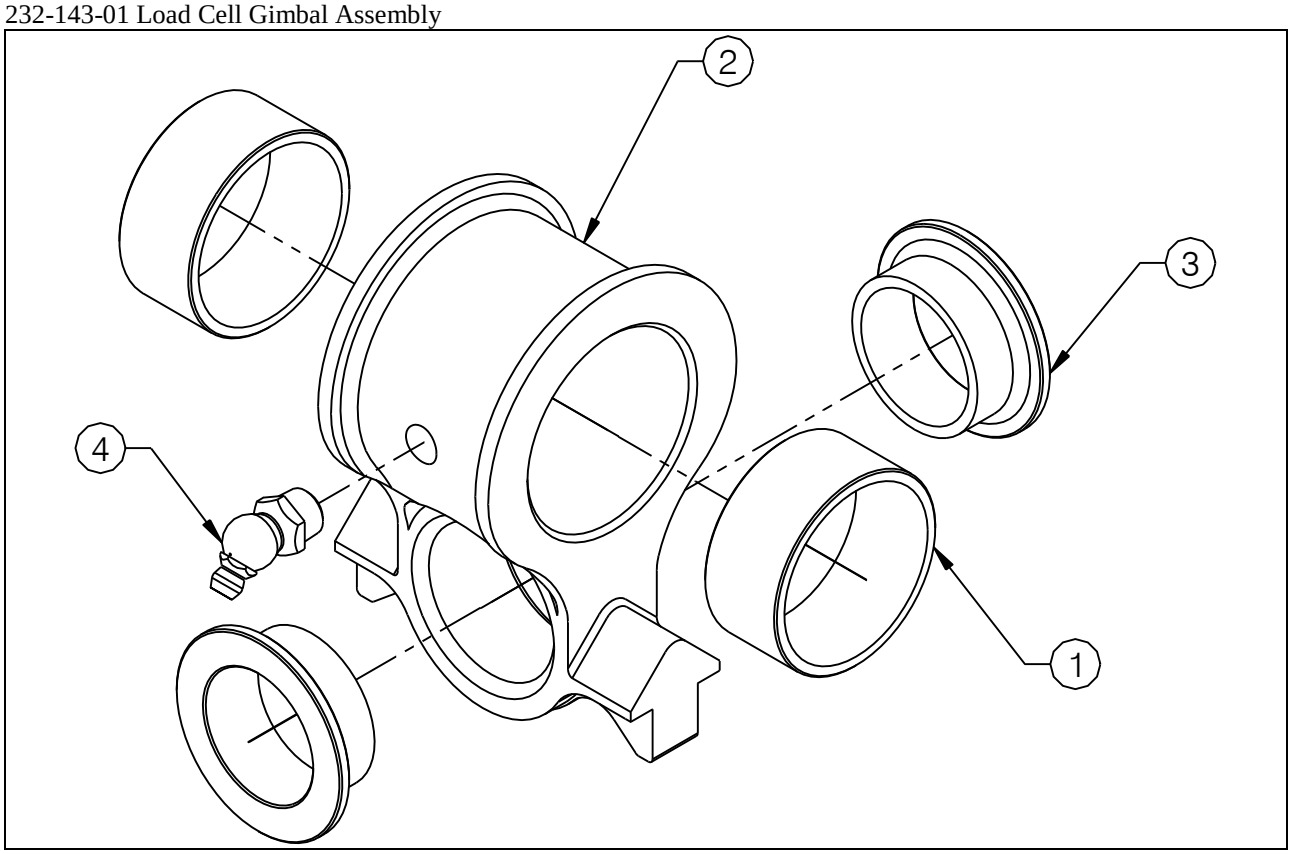
232-142-00 Lower Attach Cable Gimbal Assembly



Item	Part No.	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

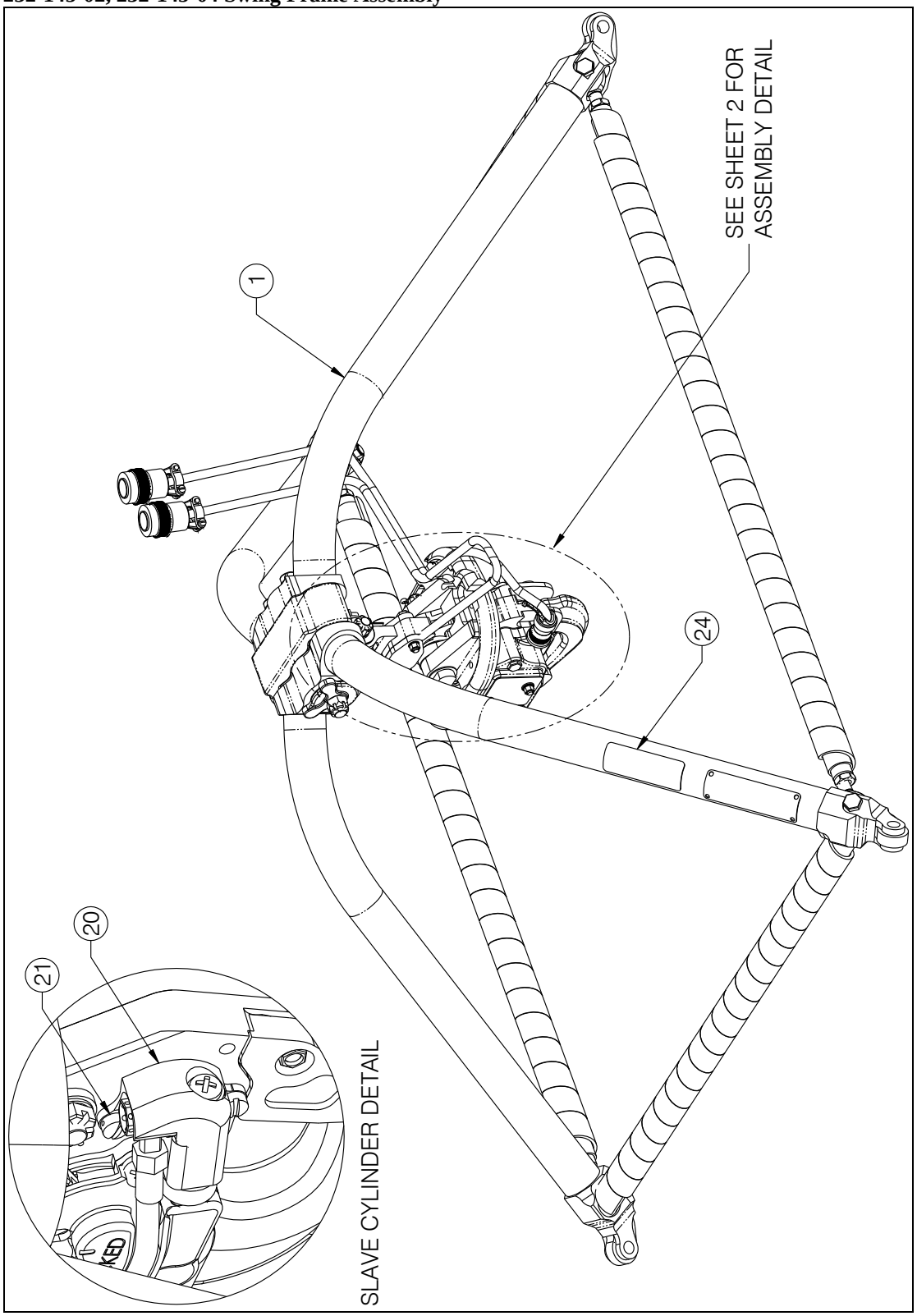
232-143-01 Load Cell Gimbal Assembly



Item	Part No.	Description	Qty
1	517-056-00	Bushing	2
2	290-841-00	Gimbal Link	1
3	517-046-00	Flange Bushing	2
4	518-003-00	Grease Fitting	1

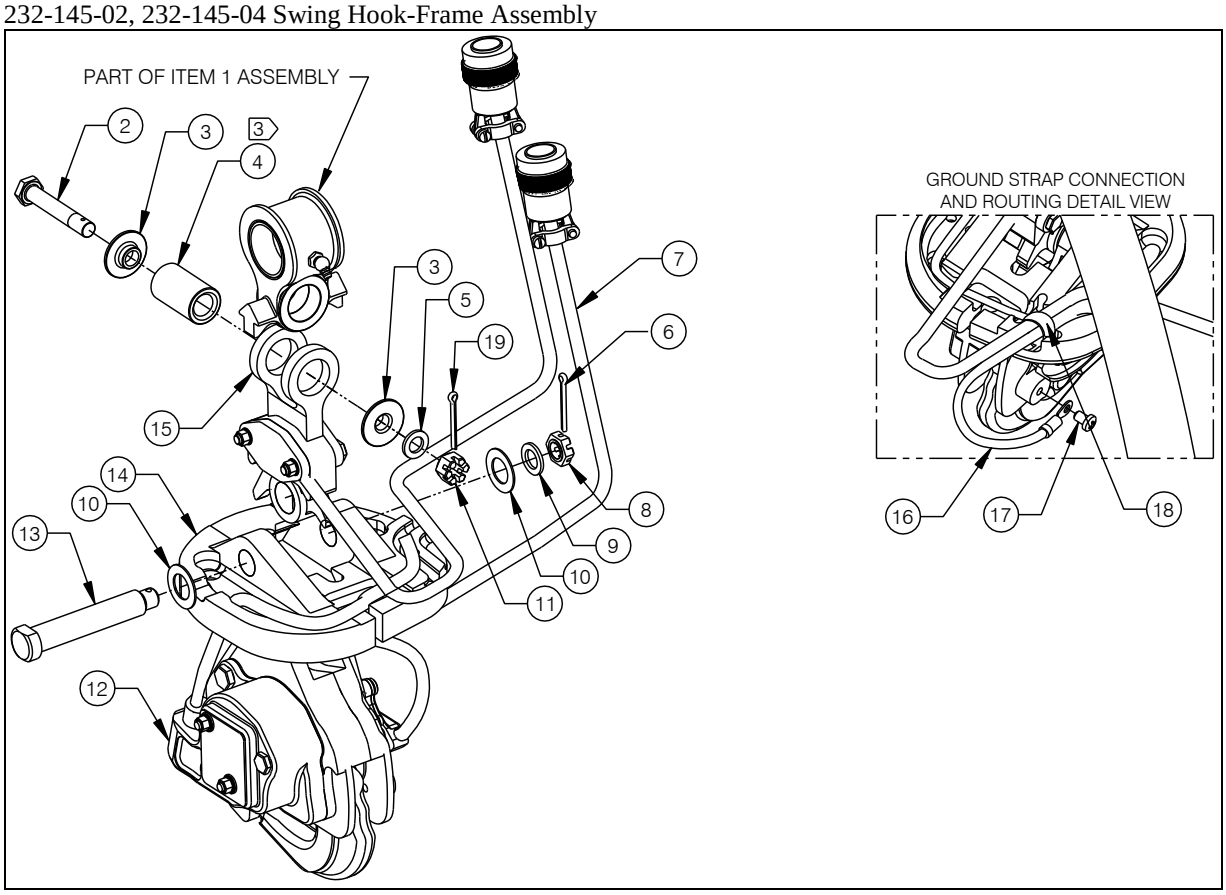
System Part Numbers continued

232-145-02, 232-145-04 Swing Frame Assembly



System Part Numbers continued

232-145-02, 232-145-04 Swing Hook-Frame Assembly



Item	Part No.	Description	Qty 232-145-02	Qty 232-145-04
1	232-145-25	Swing Frame Assembly	1	1
2	510-443-00	Bolt	1	1
3	290-740-00	Shaft Retaining Bushing	2	2
4	290-739-00	Shaft – Gimbal	1	1
5	510-220-00	Washer	1	1
6	510-178-00	Cotter Pin	1	1
7	270-129-00	Lower Electrical Release Cable	1	1
8	510-170-00	Nut	1	1
9	510-174-00	Washer	1	1
10	510-183-00	Washer	2	2
11	510-320-00	Nut, Castellated	1	1
12	528-028-00	Talon LC Hydraulic Cargo Hook	1	-
12	528-028-02	Talon LC Hydraulic Cargo Hook	-	1
13	290-775-00	Long Hook Attach Bolt	1	1
14	290-839-02**	Hook Bumper	1	1
15	210-249-03*	Swing Load Cell Assembly	1	1
16	270-126-00	Ground Strap	1	1

* Supersedes P/N 210-243-00, P/N 210-199-01 and P/N 210-199-00. These assemblies are interchangeable.

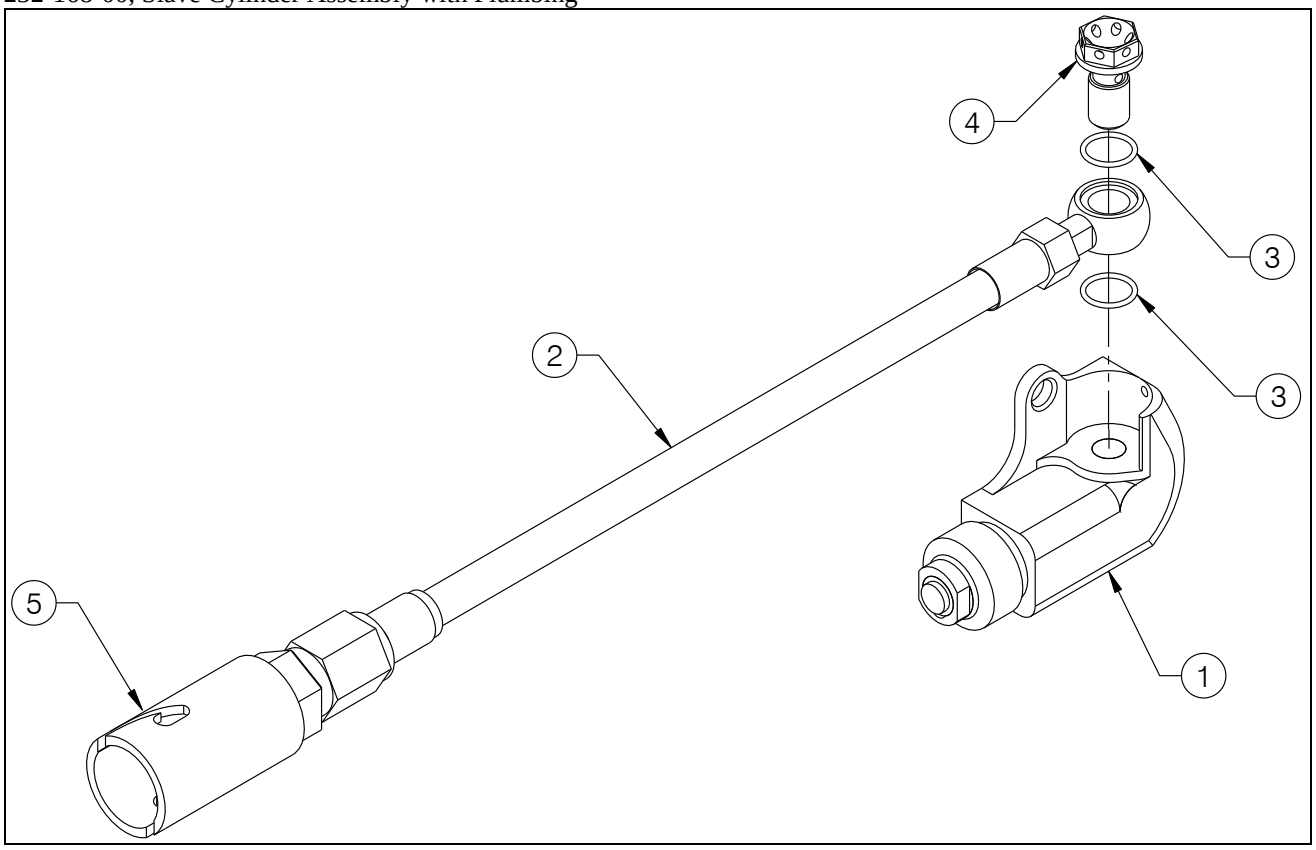
** Supersedes 290-839-01 and 290-839-00. These parts are interchangeable.

232-145-02, 232-145-04 Swing Hook-Frame Assembly, continued

Item	Part No.	Description	Qty 232-145-02	Qty 232-145-04
17	510-391-00	Screw	1	1
18	512-011-00	Ty-Wrap	4	4
19	510-115-00	Cotter Pin	1	1
20	232-168-00	Slave Cylinder Assembly	1	1
21	510-531-00	Screw	2	2
22	420-033-00	Safety Wire	AR	AR
23	512-003-00	Ty-Wrap	1	1
24	215-271-00	Fuel Drain Warning Placard	1	1

System Part Numbers continued

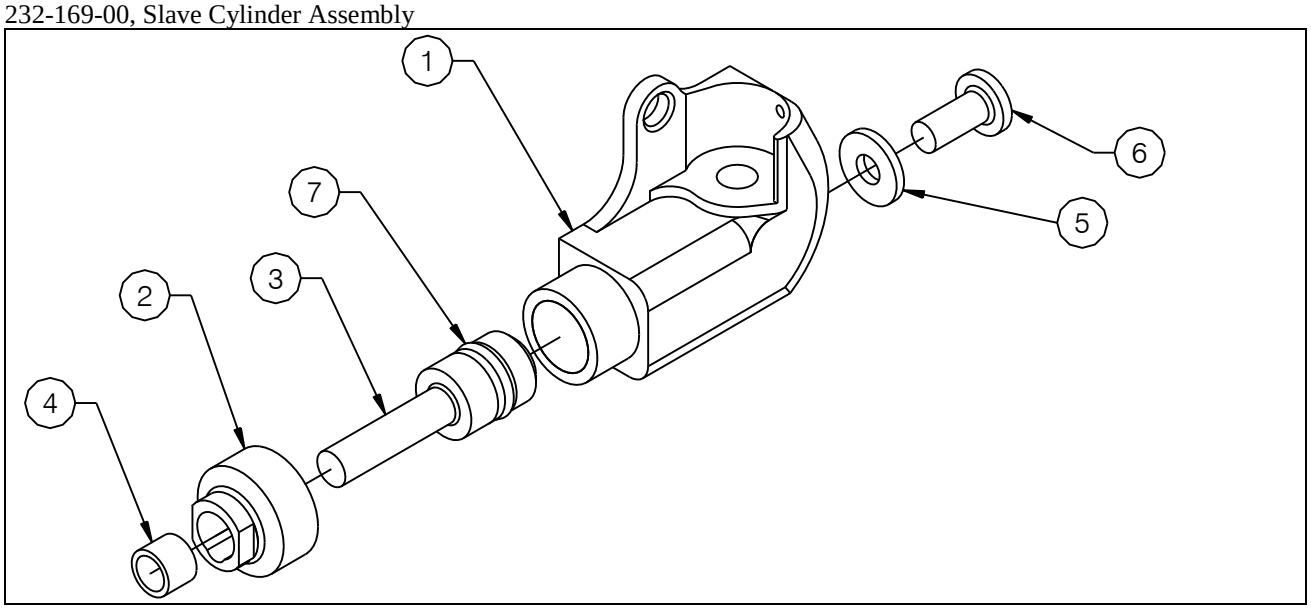
232-168-00, Slave Cylinder Assembly with Plumbing



Item	Part Number	Description	Qty
1	232-169-00	Slave Cylinder Assembly	1
2	232-170-02*	Slave Cylinder Plumbing Assy	1
3	556-041-00	O-Ring	2
4	558-031-00	Banjo Bolt	1
5	560-006-00	Quick Disconnect	1

*This item supersedes P/N 232-170-00 and 232-170-01. These assemblies are fully interchangeable.

232-169-00, Slave Cylinder Assembly



Item	Part No.	Description	Qty
1	290-803-00	Slave Cylinder	1
2	290-802-00	Cylinder Cap	1
3	290-805-00	Piston	1
4	517-040-00	Bushing	1
5	510-496-00	Stat-O-Seal	1
6	510-493-00	Screw	1
7	556-097-00	Quad Ring	1

Section 6
Certification

FAA STC

United States of America
Department of Transportation
Federal Aviation Administration

Supplemental Type Certificate

Number: **SR01164SE**

This certificate issued to: **Onboard Systems International**
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* 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 Swing Suspension System in accordance with the Master Drawing List (MDL) No. 155 086 00, Revision 50, dated May 12, 2021, or later Federal Aviation Administration (FAA) approved revision.

This modification must be installed in accordance with FAA approved Onboard Systems Owner's Manual No. listed in the table below, or later FAA approved revision. This modification must be inspected and maintained in accordance with the FAA accepted Onboard Systems Instructions for Continued Airworthiness (ICA) listed in the table below, or later FAA accepted revision.

Limitations and Conditions:

Approval of this change in type design applies to the 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 rotorcraft. Rotorcraft modified in accordance with this STC must be operated in accordance with a copy of a FAA-approved Onboard Systems Rotorcraft Flight Manual Supplement (RFMS) listed in the table below, or later FAA-approved revision.

(See Continuation Sheet Page 3 of 3 Pages)

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: March 29, 2002 *Date Reissued:*

Date of Issuance: January 22, 2003 *Date Amended:* 10/26/04; 2/4/05; 10/30/07; 4/13/10; 5/31/16; 9/10/21

By Direction of the Administrator

Signature: DOUGLAS Y TSUJI
Digitally signed by DOUGLAS Y TSUJI
Date: 2021.09.10 13:23:47 -07'00'

Title: For Acting Manager, Seattle ACO 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).

United States of America
Department of Transportation
Federal Aviation Administration

Supplemental Type Certificate

(Continuation Sheet)

Number: **SR01164SE**

Date of Issuance: January 22, 2003

Description of the Type Design Change continued:

SYSTEM PART NUMBER (P/N)	OWNER'S MANUAL NO.	INSTRUCTIONS FOR CONTINUED AIRWORTHINESS
200-280-01	120-104-01, Revision 17, dated May 9, 2014	123-011-01, Revision 11, dated September 14, 2015
200-280-02	120-104-02, Revision 37, dated May 10, 2021	123-011-02, Revision 24, dated May 11, 2021
200-280-03	120-104-02, Revision 37, dated May 10, 2021	123-011-02, Revision 24, dated May 11, 2021
200-280-04	120-104-03, Revision 8, dated May 9, 2014	123-011-03, Revision 6, dated September 10, 2015
200-280-05	120-104-02, Revision 37, dated May 10, 2021	123-011-02, Revision 24, dated May 11, 2021
200-280-06	120-104-02, Revision 37, dated May 10, 2021	123-011-02, Revision 24, dated May 11, 2021
200-280-07	120-104-02, Revision 37, dated May 10, 2021	123-011-02, Revision 24, dated May 11, 2021
200-280-08	120-104-02, Revision 37, dated May 10, 2021	123-011-02, Revision 24, dated May 11, 2021

Limitations and Conditions condtions

SYSTEM PART NUMBER	ROTORCRAFT FLIGHT MANUAL SUPPLEMENT
200 280 01	121 012 01, Revision 3, dated July 31, 2015
200 280 02	121 012 02, Revision 6, dated April 25, 2016
200 280 03	121 012 02, Revision 6, dated April 25, 2016
200 280 04	121 012 03, Revision 1, dated July 31, 2015
200 280 05	121 012 02, Revision 6, dated April 25, 2016
200 280 06	121 012 02, Revision 6, dated April 25, 2016
200 280 07	121-073-00, Revision 1, dated August 23, 2021
200 280 08	121-073-00, Revision 1, dated August 23, 2021

A copy of this certificate, the MDL, the Owner's Manual, the FAA approved RFMS, and the ICA 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.

End

Canadian Approval

Transport Canada
Aviation

Transports Canada
Aviation

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

Your file *Votre référence*
102S-GA-05-98
Our file *Notre référence*
P-05-0225

May 26, 2005

Mr. Mark Hanson
Onboard Systems
13915 NW 3rd Court
Vancouver, WA
98685 USA

Subject: Acceptance of revised FAA STC SR01164SE

Dear Mr. Hanson,

This is in response to the FAA Seattle ACO letter dated April 29, 2005, requesting Transport Canada approval of the subject STC.

In accordance with our current policy associated with the review of foreign STCs, 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
Aircraft Certification Engineer

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

Canada

1/1

Brazilian CHST

ANAC
AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL

CERTIFICADO SUPLEMENTAR DE TIPO
(*Supplemental Type Certificate*)

NÚMERO: 2007S04-12
(Number)

Este Certificado, emitido com base na Lei nº 7565 "Código Brasileiro de Aeronáutica", de 19 de dezembro de
This Certificate, issued in the basis of the Law No 7565 "Código Brasileiro de Aeronáutica", dated 19 December

1986, é conferido ao (à): Onboard Systems International
1986, is granted to:
13915 NW 3rd Court
Vancouver, WA 98685
USA

por ter a modificação ao projeto de tipo do produto abaixo citado, observadas as limitações e condições
for having the change to the type design of the product mentioned below, with the limitations and conditions

especificadas, satisfeito aos requisitos de aeronavegabilidade aplicáveis.
conditions there for as specified hereon, met the applicable airworthiness requirements.

Produto Original - Número do Certificado de Tipo: 8812 (ANAC)
Original Product - Type Certificate No:

Fabricante: Airbus Helicopters
Manufacturer:

Modelo(s): AS 350 BA, AS 350 B1, AS 350 B2, AS 350 B3.
Model (s):

DESCRIÇÃO DA MODIFICAÇÃO AO PROJETO DE TIPO:
Description of Type Design Change:

Installation of Onboard Systems International Cargo Hook Swing Suspension System in accordance with Onboard Systems International Master Drawing List (MDL), Document No. 155-086-00, Rev. 49, dated 05 Apr. 2021, or later approved revision, AND Onboard Systems International Owner's Manual, Document No. as specified in the table listed in sheet 02 of 03 of this CST.

This CST validates in Brazil the STC No. SR01164SE, issued by FAA (USA).

LIMITAÇÕES E CONDIÇÕES:
Limitations and Conditions:

See continuation sheet for applicable data.

DATAS: *Dates of:*
Do requerimento: 21 Dec. 2006 *Aplication:*
Da emissão: 13 Apr. 2007 *Issuance:*
Da reemissão: *Reissuance:*
Da emenda: 08 Oct. 2021 *Amendment:*

Gerência de Certificação de Projeto de Produto Aeronáutico
(Aeronautical Product Design Certification Branch)

Superintendência de Aeronavegabilidade
(Department of Airworthiness)

Certificado assinado digitalmente (Digitally signed Certificate)

F-400-01G

Fl. 01 de 03
Sheet of

H.02-2656-0

ANAC
AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL

Folha de Continuação ao
(*Continuation Sheet to*)

CERTIFICADO SUPLEMENTAR DE TIPO
(*Supplemental Type Certificate*)

NÚMERO: 2007S04-12
(Number)

DESCRIÇÃO DA MODIFICAÇÃO AO PROJETO DE TIPO: [continuação]
Description of Type Design Change: [continued]

SYSTEM PART NUMBER (P/N)	OWNER'S MANUAL No.*
200-280-01	120-104-01, Rev. 17, dated 09 May 2014
200-280-02	120-104-02, Rev. 36, dated 13 Nov. 2020
200-280-03	120-104-02, Rev. 36, dated 13 Nov. 2020
200-280-04	120-104-03, Rev. 10, dated 27 July 2016
200-280-05	120-104-02, Rev. 36, dated 13 Nov. 2020
200-280-06	120-104-02, Rev. 36, dated 13 Nov. 2020

* or later FAA approved revision.

F-400-01G

Fl. 02 de 03
Sheet of

H.02-2656-0

Folha de Continuação ao
(*Continuation Sheet to*)

CERTIFICADO SUPLEMENTAR DE TIPO
(*Supplemental Type Certificate*)

NÚMERO: 2007S04-12
(Number)

LIMITAÇÕES E CONDIÇÕES:
Limitations and Conditions:

I. The approval of this type design change 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 rotorcraft.

II. 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.

III. Operation must be performed in accordance with the applicable Onboard Systems International FAA approved Rotorcraft Flight Manual Supplement (RFMS), specified below:

- For System P/N 200-280-01: Document No. 121-012-01, Rev. 3, dated 31 July 2015, or later FAA approved revision;
- For System P/N 200-280-02, 200-280-03, 200-280-05, and 200-280-06: Document No. 121-012-02, Rev. 6, dated 25 Apr. 2016, or later FAA approved revision;
- For System P/N 200-280-04: Document No. 121-012-03, Rev. 1, dated 31 July 2015, or later FAA approved revision.

IV. The maintenance of the rotorcraft shall be performed in accordance with the applicable Onboard Systems International Instructions for Continued Airworthiness (ICA), specified below:

- For System P/N 200-280-01: Document No. 123-011-01, Rev. 13, dated 24 Sep. 2021, or later FAA accepted revision;
- For System P/N 200-280-02, 200-280-03, 200-280-05, and 200-280-06: Document No. 123-011-02, Rev. 23, dated 30 Apr. 2020, or later FAA accepted revision;
- For System P/N 200-280-04: Document No. 123-011-03, Rev. 8, dated 21 Feb. 2018, or later FAA accepted revision.

V. A copy of this Certificate, the MDL, the Supplement referred on item III above, and the ICA referred on item IV above shall be maintained as part of the permanent records of the modified rotorcraft.

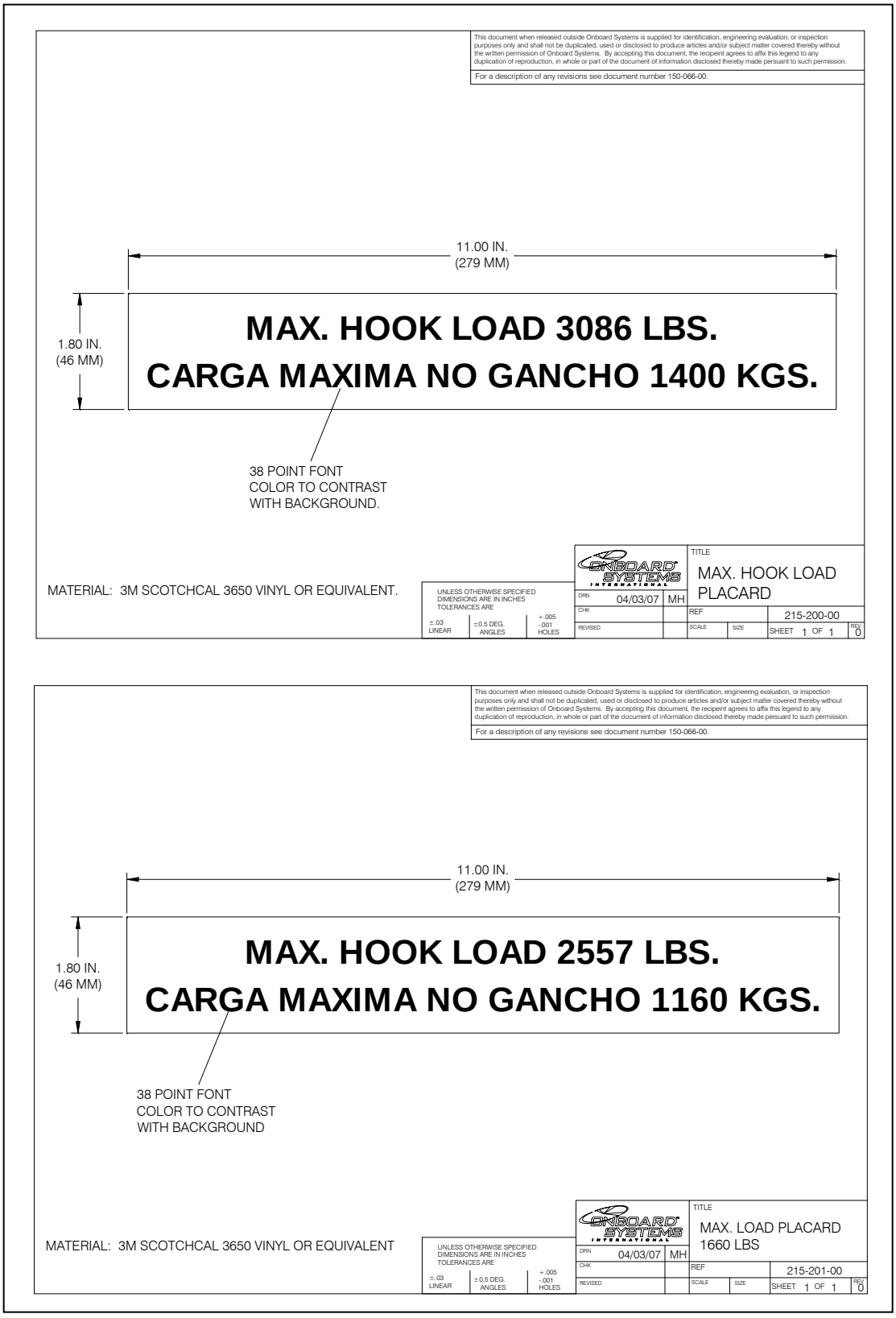
VI. Amended on 08 Oct. 2021 to reflect the changes in the project since the last validated amendment and to update all the CST applicable documents.

----------END----------

F-400-01G | Fl. 03 de 03 *Sheet of* | H.02-2656-0

Required Placards

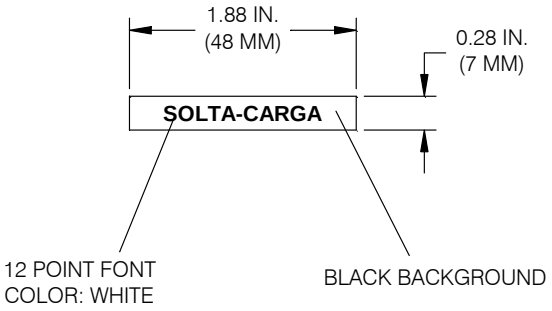
Install one of the following per section 2.7.



Brazilian CHST

Required Placards continued
Install the following per section 2.7.

For a description of any revisions see document number 150-066-00.



MATERIAL: 3M SCOTCHCAL 3650 VINYL OR EQUIVALENT.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE

±.03 LINEAR	±0.5 DEG. ANGLES	+.005 -.001 HOLES

ONBOARD SYSTEMS INTERNATIONAL

DRN	04/03/07	MH
CHK		
REVISED		

TITLE: CARGO RELEASE PLACARD

REF	215-202-00	
SCALE	SIZE	SHEET 1 OF 1 REV 0

EASA STC

EASA
European Union Aviation Safety Agency

SUPPLEMENTAL TYPE CERTIFICATE

10016937 REV. 3

This Certificate/Approval is issued by EASA, acting in accordance with Regulation (EU) 2018/1139 on behalf of the European Union, its Member States and of the European third countries that participate in the activities of EASA under Article 129 of that Regulation and in accordance with Commission Regulation (EU) No. 748/2012 to

ONBOARD SYSTEMS INTERNATIONAL

13915 NW 3RD COURT
VANCOUVER WA 98685
UNITED STATES OF AMERICA

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, if applicable, environmental protection requirements when operated within the conditions and limitations specified below:

Type Certificate Number: EASA.R.008
Type Certificate Holder: Airbus Helicopters
Type: AS 350 / EC 130 T2
Model: AS 350 B, AS 350 B1, AS 350 B2
AS 350 B3, AS 350 BA, AS 350 D
Original STC Number: FAA STC SR01164SE

Description of Design Change:

External Load Swing Suspension System models 200-280-01 and -04 (with Keeperless Cargo Hooks) and model 200-280-02 and -03 (with Hydraulic Cargo Hooks)
Revision 1 - introduced cargo hook kit 200-280-03 with a collective friction knob and a new release lever to accommodate the AS350B3 style collective configuration
Revision 2 - introduced cargo hook kit 200-280-04 (with Keeperless Cargo Hook 528-029-00)
Revision 3 - introduced cargo hook kit 200-280-05, -06 (incorporating a time-delayed electrical release system) and -07, -08 (equipped with the C-40 load weigh indicator). (Validation of FAA STC SR01164SE as reissued on 7 Oct 2021)

EASA Certification Basis:

The Certification Basis for the original product remains applicable to this certificate/approval.

See Continuation Sheet(s)

For the European Union Aviation Safety Agency

Cologne, Germany, 13 September 2022

Fabrice LEGAY
Section Manager
Medium & Light Rotorcraft

An Agency of the European Union

Task Number: EASA.IM.R.S.01324
ONBOARD SYSTEMS INTERNATIONAL - 302945

EASA STC continued

The requirements for environmental protection and the associated certified 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 International Master Drawing List No. 155-086-00, Rev. 50, dated 12 May 2021

Onboard Systems International Owner's Manual:
No. 120-104-01, Rev. 17, dated 9 May 2014 (for system model 200-280-01), or
No. 120-104-02, Rev. 37, dated 10 May 2021 (for system model 200-280-02, -03, -05, -06, -07 and -08), or
No. 120-104-03, Rev. 8, dated 9 May 2014 (for system model 200-280-04)

Inspection and maintenance:
Onboard Systems International Instructions for Continued Airworthiness:
No. 123-011-01, Rev. 11, dated 14 September 2015, (for system model 200-280-01), or
No. 123-011-02, Rev. 24, dated 11 May 2021, (for system model 200-280-02, -03, -05, -06, -07 and -08), or
No. 123-011-03, Rev. 6, dated 10 September 2015, (for system model 200-280-04)

Onboard Systems International Service Manual:
No. 122-005-00, Rev. 17, dated 9 March 2010, (for Keeperless Cargo Hook 528-023-01), or
No. 122-015-00, Rev. 10, dated 26 March 2010, (for Hydraulic Cargo Hook 528-028-00 and -01), or
No. 122-017-00, Rev. 8, dated 10 March 2010, (for Keeperless Cargo Hook 528-029-00)

Onboard Systems International RFMS:
No. 121-012-01, Rev. 3, dated 31 July 2015, (for system model 200-280-01), or
No. 121-012-02, Rev. 6, dated 25 April 2016, (for system model 200-280-02, -03, -05 and -06), or
No. 121-012-03, Rev. 1, dated 31 July 2015, (for system model 200-280-04), or
No. 121-073-00, Rev. 1, dated 23 August 2021, (for system model 200-280-07 and -08)

or later revisions of the above listed document(s) approved/accepted on behalf of EASA in accordance with the Technical Implementation Procedures of EU/ USA Bilateral Agreement.

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

Installation and operation of the system on AS350B3 with the modification OP-3369 and/or 07.20034 incorporated is not approved.

See Continuation Sheet(s)

EASA STC continued

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