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Owner's Manual

For the

Cargo Hook Sling Suspension System

with

Talon LC Hydraulic Cargo Hook

on the

Airbus Helicopters AS350 Series

System Part Numbers

200-282-01

200-282-02

Owner's Manual Number 120-138-00
Revision 6
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Record of Revisions

Revision	*Date*	*Page(s)*	*Reason for Revision*
0	06/19/08	All	Initial Release
1	10/22/08	TOC, 6-6	Replaced 232-167-00 systems part number figure with 232-165-00 and –01 figure.
2	01/27/09	1-3, 1-4, 2-17, 6-3, 6-7, 6-9	Updated p/n of slave cylinder assembly to 232-368-00 in System Part Numbers. Added spiral wrap to BOMs (Table 1.4 and 1.5) and to instructions on page 2-17.
3	07/30/10	Section 1 through 4	Replaced P/N 212-014-00 with 212-014-01 and updated hydraulic fluid filling instructions to use new kit. Updated warnings, cautions and notes section to safety label section. Updated safety label format throughout document.
4	02/07/13	2-5, 2-6, 4-3, 5-1, 6-3, 6-8	Replaced load cell P/N 210-203-01 with 210-203-03. Changed Cup Seal P/N 556-038-00 to Quad Ring P/N 556-097-00 on Slave Cylinder Assembly P/N 232-169-00. Updated RMA info to reflect current procedures. Updated caution flags to warning flags in operational procedures. Updated electrical schematic to reflect other aircraft side wiring configurations.
5	10/11/13	2-5, 2-6, 6-7	Replaced Slave Cylinder Plumbing P/N 232-367-01 with P/N 232-367-02. Revised electrical schematic to update wiring interfaces of aircraft.
6	09/12/17	1-1, 2-24, Section 3-6	Clarified required equipment in Introduction section. Removed Load Weigh operation instructions (was Section 3) and replaced with reference to 120-039-00. Changed supplied bleed kit to 212-014-02 which uses MIL-PRF-87257 fluid. Updated load rigging instructions. Updated installation check-out section.

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Section 1
General Information

Introduction

This Owner's Manual contains installation and operation instructions for the cargo hook "sling" suspension kit part number 200-282-01 and 200-282-02. These kits are approved for installation on the Airbus Helicopters AS350 series helicopter. The helicopter must be equipped with the Sling Support Fitting at the forward fuel tank cradle (reference Airbus Service Bulletin No. 25.00.04 Capability and Fixed Part for Cargo Sling).

The P/N 200-282-02 Cargo Hook Sling Suspension System kit is the same as the –01 kit except it includes a different manual release lever assembly and a friction knob for the collective. It is intended for installation on the AS350B3 model.

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 1.2 Sling Suspension System Specifications

Design load	1,660 lb. (750 kgs.)
Design ultimate strength	6,225 lb. (2823 kgs.)
Unit weight, Fixed Provisions	5.5 lbs (2.5 kgs.)
Unit weight, Removable Provisions	6.5 lbs. (2.95 kgs.)

Table 1.3 P/N 528-028-00 Cargo Hook Specifications

Design load	3,500 lbs. (1,580 kgs.)
Design ultimate strength	13,125 lbs. (5,952 kgs.)
Electrical release capacity	8,750 lbs. (3,970 kgs.)
Mechanical release capacity	8,750 lbs. (3,970 kgs.)
Force required for mechanical release at 3,500 lb.	12 lbs max. @ master cylinder lever
Hydraulic release system – operating temperature rating	-49°F to 158°F (-45°C to 70°C)
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.

Inspection

Inspect the kit items for evidence of damage, corrosion and security of lock wire and fasteners. If damage is evident, do not use the items until they are repaired.

Bill of Materials

The following items are included with the 200-282-01 Sling Suspension Kit. The kit includes a removable provisions kit (P/N 210-228-00) and a fixed provisions kit (P/N 210-204-01). If shortages are found contact the company from whom the system was purchased.

Table 1.4 Bill of Materials – Sling Suspension Kit P/N 200-282-01

Part No.	Description	Kit 210-204-01 Qty	Kit 210-228-00 Qty
232-312-00	Cargo Hook Sling Suspension Assembly	-	1
215-167-00	Label, External Load Limit 1660 lbs	-	1
122-015-00	Service Manual	-	1
590-017-00	Spiral Wrap	-	16”
232-165-00	Master Cylinder Assembly	1	-
270-125-00	Ground Strap, Fixed	1	-
210-095-00	C-39 Indicator Assembly	1	-
210-095-04*	C-39 Indicator Assembly	1	-
212-014-02	Bleed Kit	1	-
290-772-00	Indicator Mount Bracket	1	-
290-783-00	Relay Bracket	1	-
445-005-00	Relay	1	-
500-065-00	Grommet Edging	1	-
290-884-00	Connector Bracket	1	-
270-108-00	Electrical Release Internal Harness	1	-
270-106-02	Load Weigh Internal Harness	1	-
215-165-00	Multiple Sticker Sheet	1	-
505-014-00	Grommet	1	-
510-029-00	Nut	8	-
510-042-00	Washer	2	-
510-062-00	Washer	8	-
510-095-00	Washer	3	-
510-102-00	Nut	2	-
510-277-00	Screw	2	-
510-278-00	Washer	2	-
510-279-00	Nut	2	-
510-453-00	Bolt	2	-
510-457-00	Screw	4	-
510-475-00	Screw	3	-
510-481-00	Screw	8	-
512-005-00	Adel Clamp	4	-
512-003-00	Ty-wrap	5	-
510-486-00	CherryMax Rivet	3	-
120-039-00	Owner’s Manual, C-39 Indicator	1	-
120-138-00	Owner’s Manual	1	-
123-033-00	ICA	1	-
121-052-00	RFMS	1	-

** 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.*

Bill of Materials **continued**

The following items are included with the 200-282-02 Sling Suspension Kit. The kit includes a removable provisions kit (P/N 210-228-00) and a fixed provisions kit (P/N 210-204-02). If shortages are found contact the company from whom the system was purchased.

Table 1.5 Bill of Materials – Sling Suspension Kit P/N 200-282-02

Part No.	Description	Kit 210-204-02 Qty	Kit 210-228-00 Qty
232-312-00	Cargo Hook Sling Suspension Assembly	-	1
215-167-00	Label, External Load Limit 1660 lbs	-	1
122-015-00	Service Manual	-	1
590-017-00	Spiral Wrap	-	16”
232-165-01	Master Cylinder Assembly	1	-
270-125-00	Ground Strap, Fixed	1	-
210-095-00	C-39 Indicator Assembly	1	-
210-095-04*	C-39 Indicator Assembly	1	-
290-772-00	Indicator Mount Bracket	1	-
290-783-00	Relay Bracket	1	-
291-105-00	Friction Knob	1	-
445-005-00	Relay	1	-
500-065-00	Grommet Edging	1	-
290-884-00	Connector Bracket	1	-
270-108-00	Electrical Release Internal Harness	1	-
270-106-02	Load Weigh Internal Harness	1	-
215-165-00	Multiple Sticker Sheet	1	-
505-014-00	Grommet	1	-
510-029-00	Nut	8	-
510-042-00	Washer	2	-
510-062-00	Washer	8	-
510-095-00	Washer	3	-
510-102-00	Nut	2	-
510-277-00	Screw	2	-
510-278-00	Washer	2	-
510-279-00	Nut	2	-
510-453-00	Bolt	2	-
510-457-00	Screw	4	-
510-475-00	Screw	3	-
510-481-00	Screw	8	-
512-005-00	Adel Clamp	2	-
512-003-00	Ty-wrap	5	-
510-486-00	CherryMax Rivet	3	-
120-039-00	Owner’s Manual, C-39 Indicator	1	-
120-138-00	Owner’s Manual	1	-
123-033-00	ICA	1	-
121-052-00	RFMS	1	-

** 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.*

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).

NOTICE

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

Table 1.4 Airbus Helicopters Part Numbers

P/N	Description	Quantity
DHS751-160.62	Grommet	1
SL211M5-1	Nut	3
350A86-0020-33	Bracket	1

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

P/N	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 1.6 Airbus Helicopters Electrical Parts – with Mod. #07-3274

P/N	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

Theory of Operation

The Cargo Hook Sling Suspension Systems are comprised of:

- The cargo hook and suspension system. The suspension system includes a load cell and gimbal assembly. The gimbal assembly allows the cargo hook to swing side-to-side and fore and aft.
- An electrical release system that provides means for cargo hook load release by pilot actuation of a push-button switch in the cockpit. When the push-button switch is pressed, it energizes the DC solenoid in the cargo hook, and the solenoid opens the latch in the internal mechanism.
- A hydraulic release system, which provides a means of releasing the cargo hook load in the event of an electrical release system failure. A lever mounted to the collective actuates it.
- Ground personnel may also release a load by the actuation of a lever located on the side of the cargo hook.
- A load weigh system, which is comprised of an indicator mounted to the RH door pillar within the cockpit, the load cell above the cargo hook, and the interconnecting wire harness.

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 sling 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.

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.

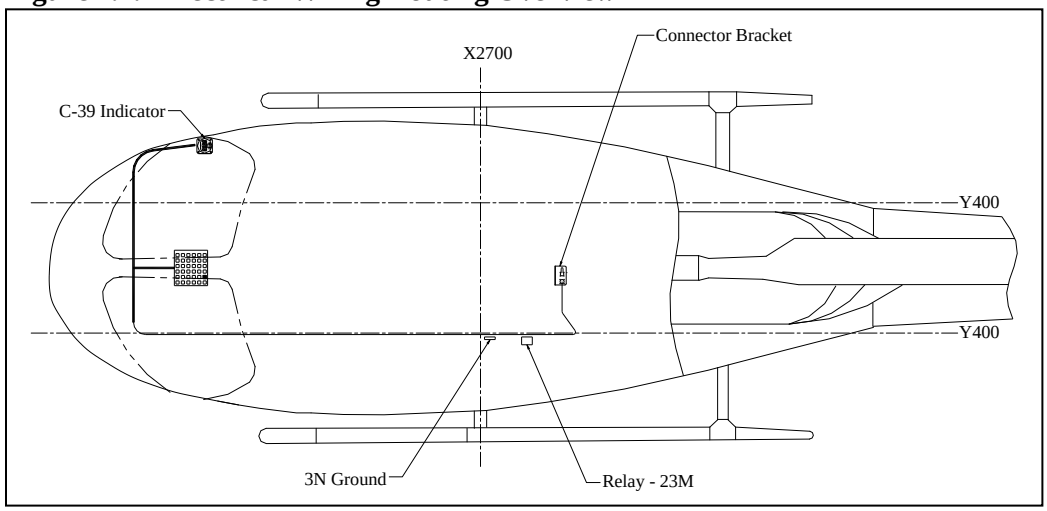
2.1 Electrical Wiring Installation

Install electrical harnesses (P/N 270-106-02 and P/N 270-108-00). Route them along the existing harnesses (reference Figure 2.1.1) while observing the following precautions:

- 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".

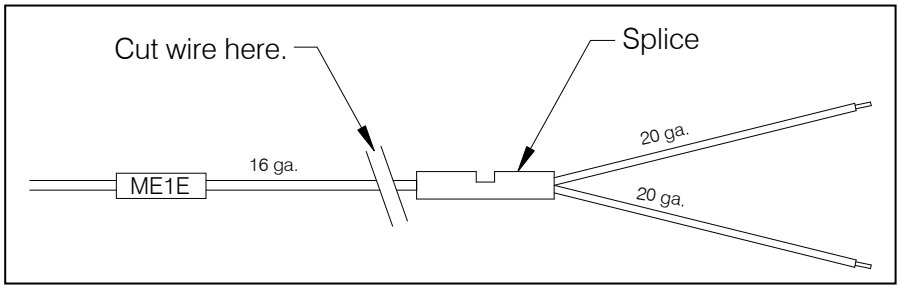
Make the appropriate connections with the contacts provided with the harnesses. Secure the C-39 indicator harness along the canopy with clamps and connect to the C-39 indicator (refer to Section 2.2 for C-39 indicator installation, refer to Figure 2.1.6 for electrical schematic).

Figure 2.1.1 Electrical Wiring Routing Overview



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 20 ga. wires.

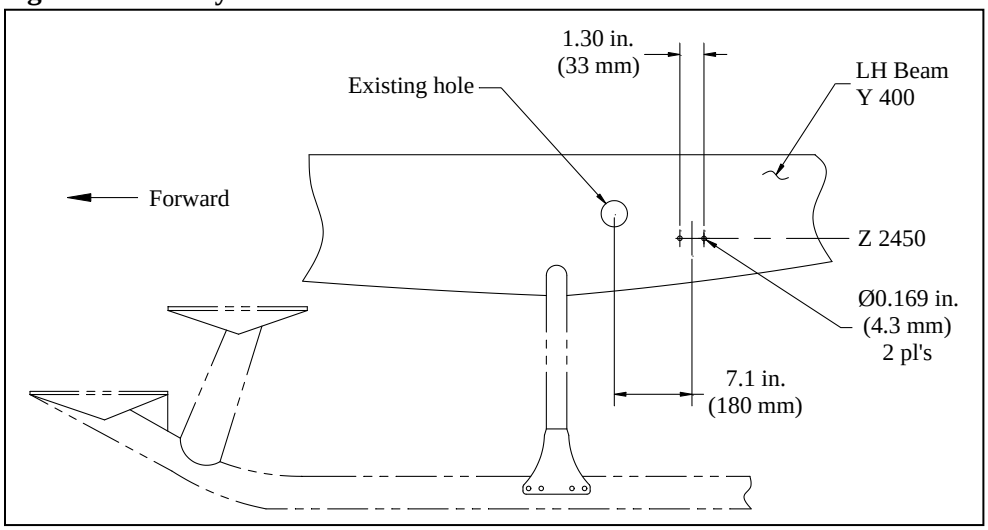
Figure 2.1.2 P/N 270-108-00 Harness Modification



2.1 Electrical Wiring Installation continued

- In preparation for installing the Relay Bracket (P/N 290-783-00) create two holes in the LH beam at Y400 as illustrated in Figure 2.1.3.

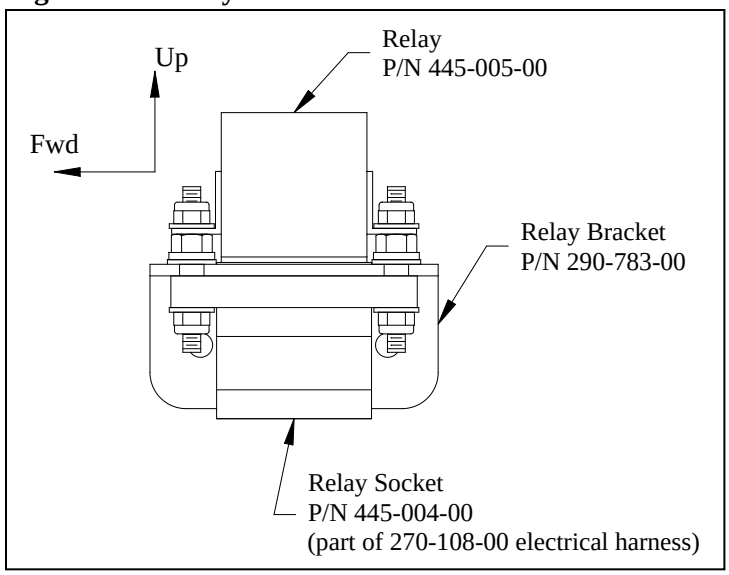
Figure 2.1.3 Relay Bracket Installation



- 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).

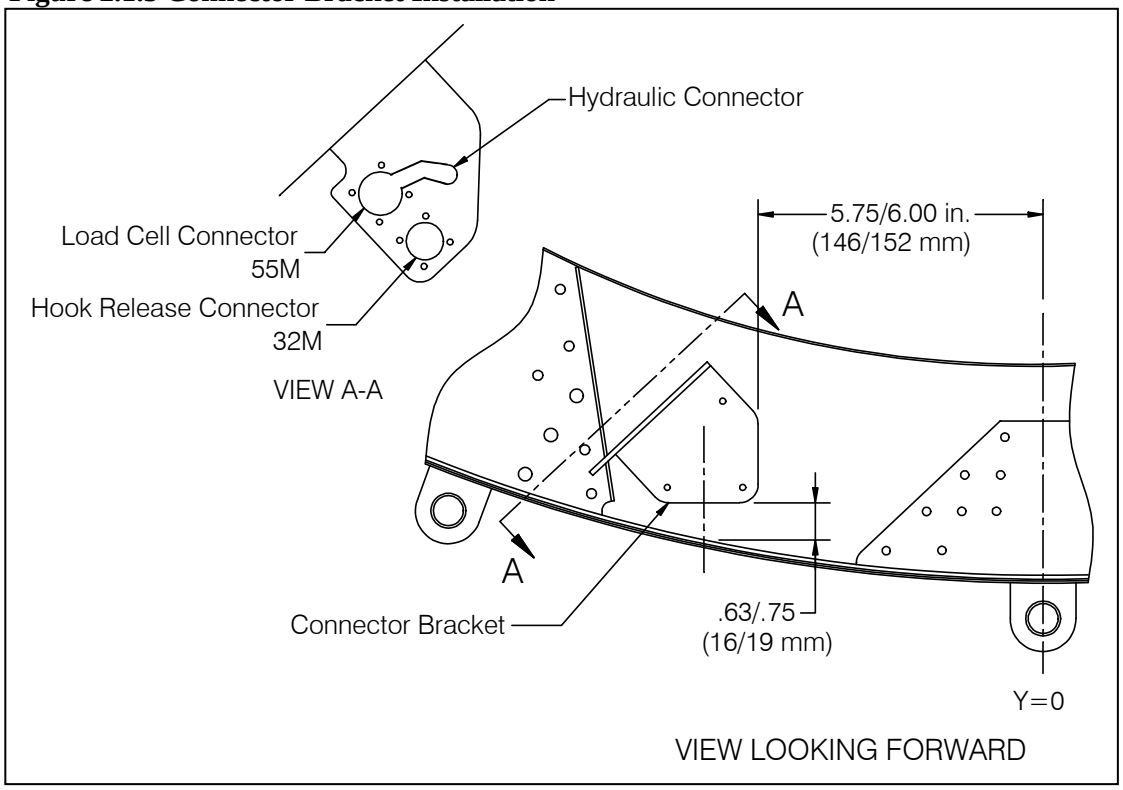
Figure 2.1.4 Relay Installation



2.1 Electrical Wiring Installation continued

- 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 electrical connectors.

Figure 2.1.5 Connector Bracket Installation

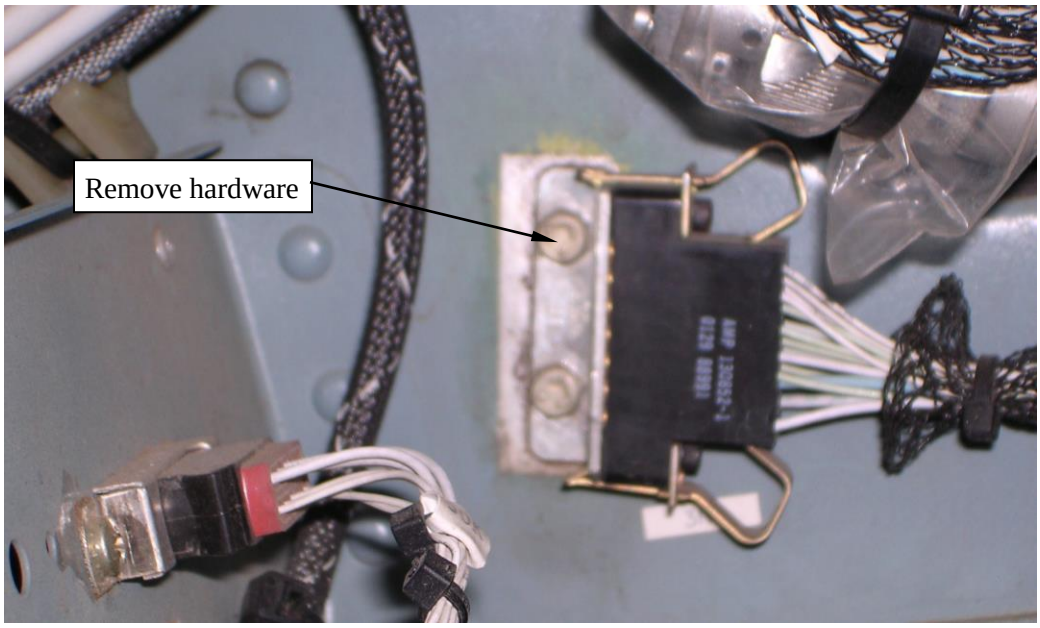


2.1 Electrical Wiring Installation continued

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 2.1.6 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-wraps, 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).

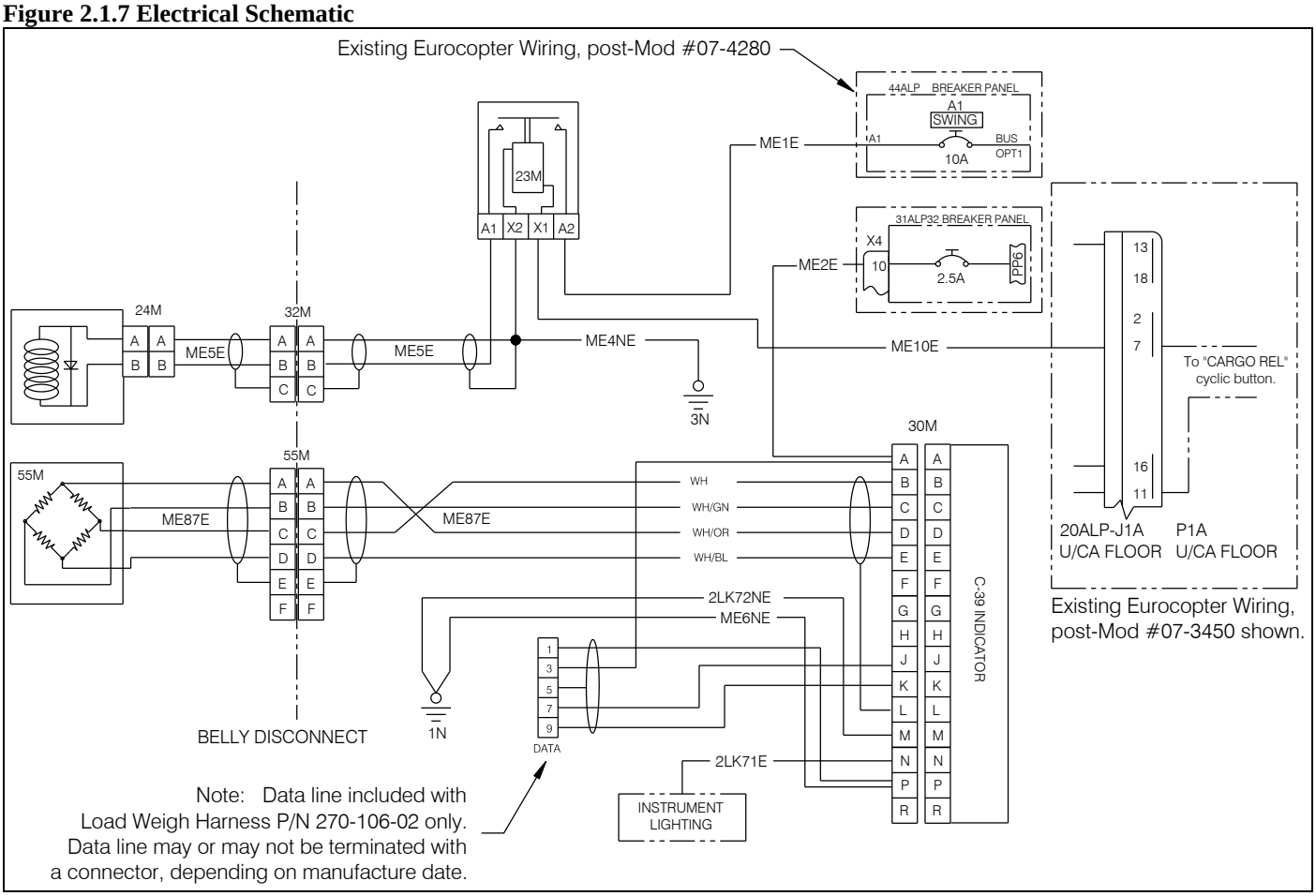
2.1 Electrical Wiring Installation continued

The electrical schematic for the electrical release system and the load weigh system is shown below along with the aircraft's interface points. Airbus Helicopters modification #'s 07-4280 and 07-3450 are reflected below. Earlier Airbus Helicopters configurations which affected how and where wire numbers ME1E, ME2E and ME10E of the electrical release harness and load weigh harness interface with the helicopter are shown on the following page. Refer to the applicable Airbus Helicopters Wiring Diagrams Manual for additional information and for other cargo hook aircraft side wiring configurations that may not be shown.

For the C-39 Indicator backlighting, install wire 2LK71E to an available pin in the instrument panel or console lighting circuit (31L for pre-mod 07-4280), at 28 volts the indicator's internal bulb draws 25 mA.

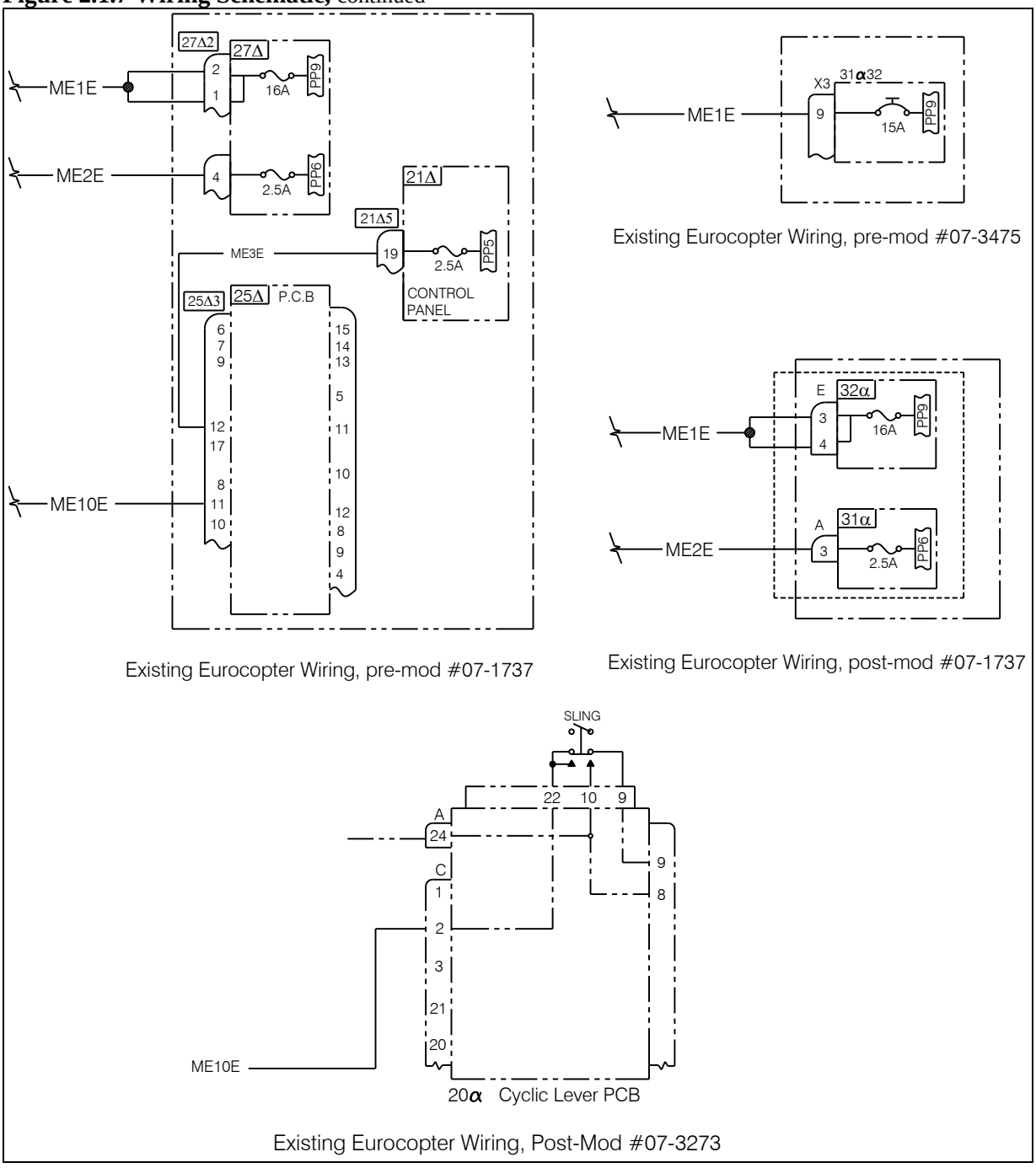
If existing Airbus Helicopters cargo hook or load weigh wiring is installed and terminated at the locations below, remove the wires completely or remove from connectors and cap and stow them.

Figure 2.1.7 Electrical Schematic



2.1 Electrical Wiring Installation continued

Figure 2.1.7 Wiring Schematic, continued

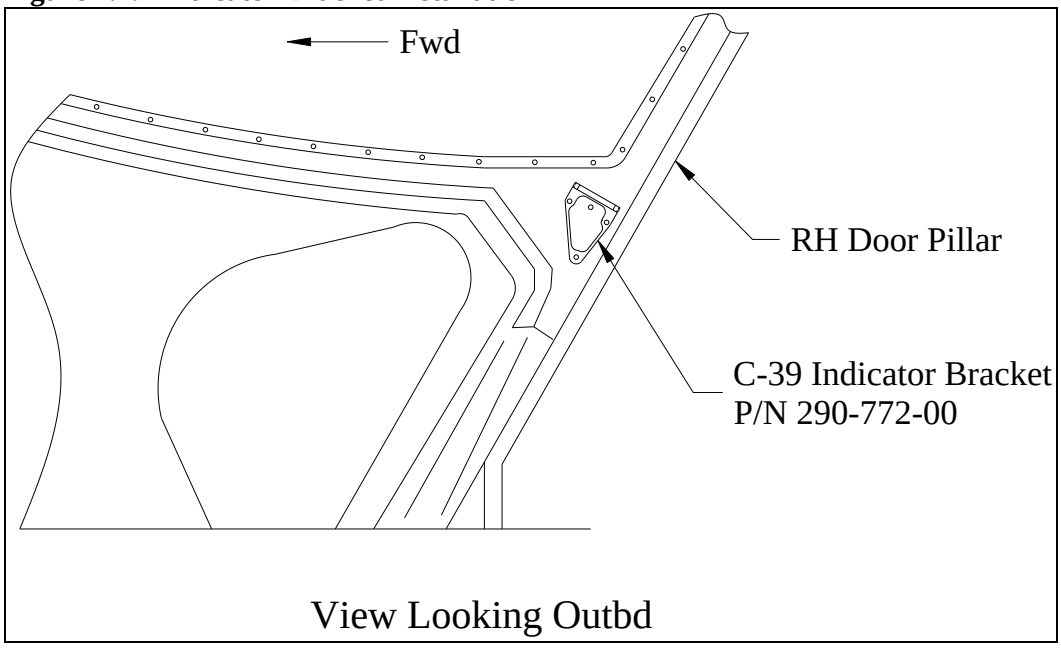


2.2 Cockpit Indicator Installation

The Indicator is mounted on the RH door pillar. 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.

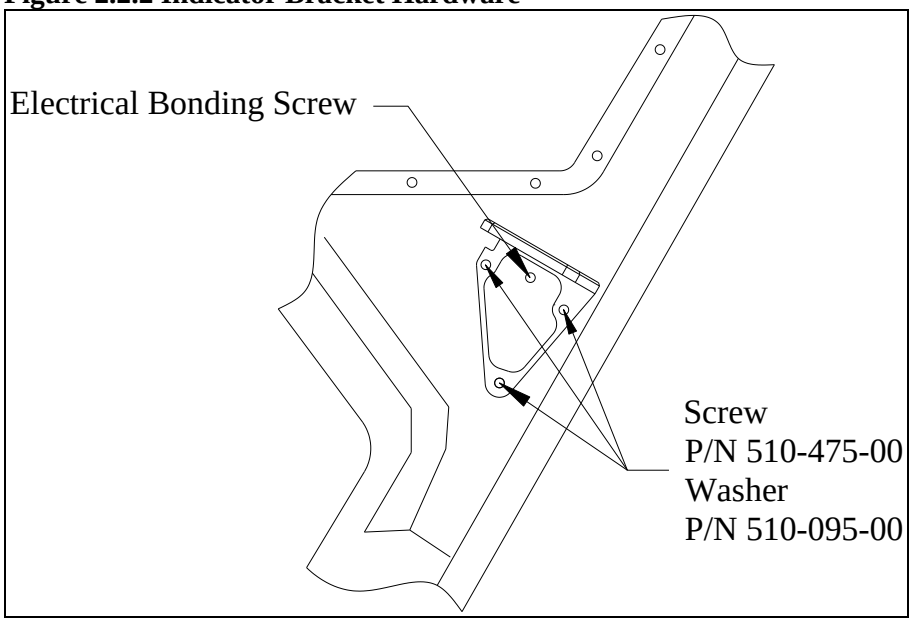
Figure 2.2.1 Indicator Bracket Installation



2.2 Cockpit Indicator Installation continued

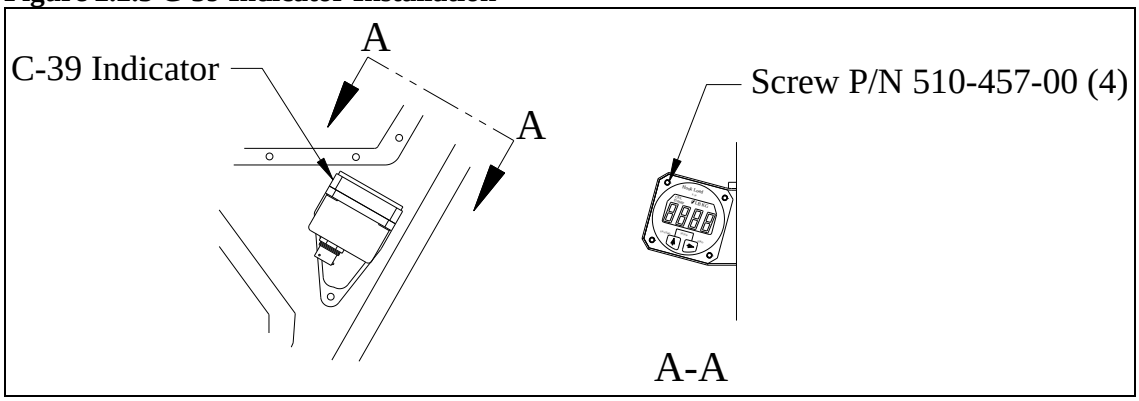
- Drill three mounting holes in the RH door pillar to install the nut clips. Reuse the electrical bonding screw at the fourth location (see below).
- After completing electrical bonding, install the three nut clips (Airbus Helicopters P/N SL211M5-1) and fasten Indicator Bracket with three screws (P/N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

Figure 2.2.2 Indicator Bracket Hardware



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

Figure 2.2.3 C-39 Indicator Installation

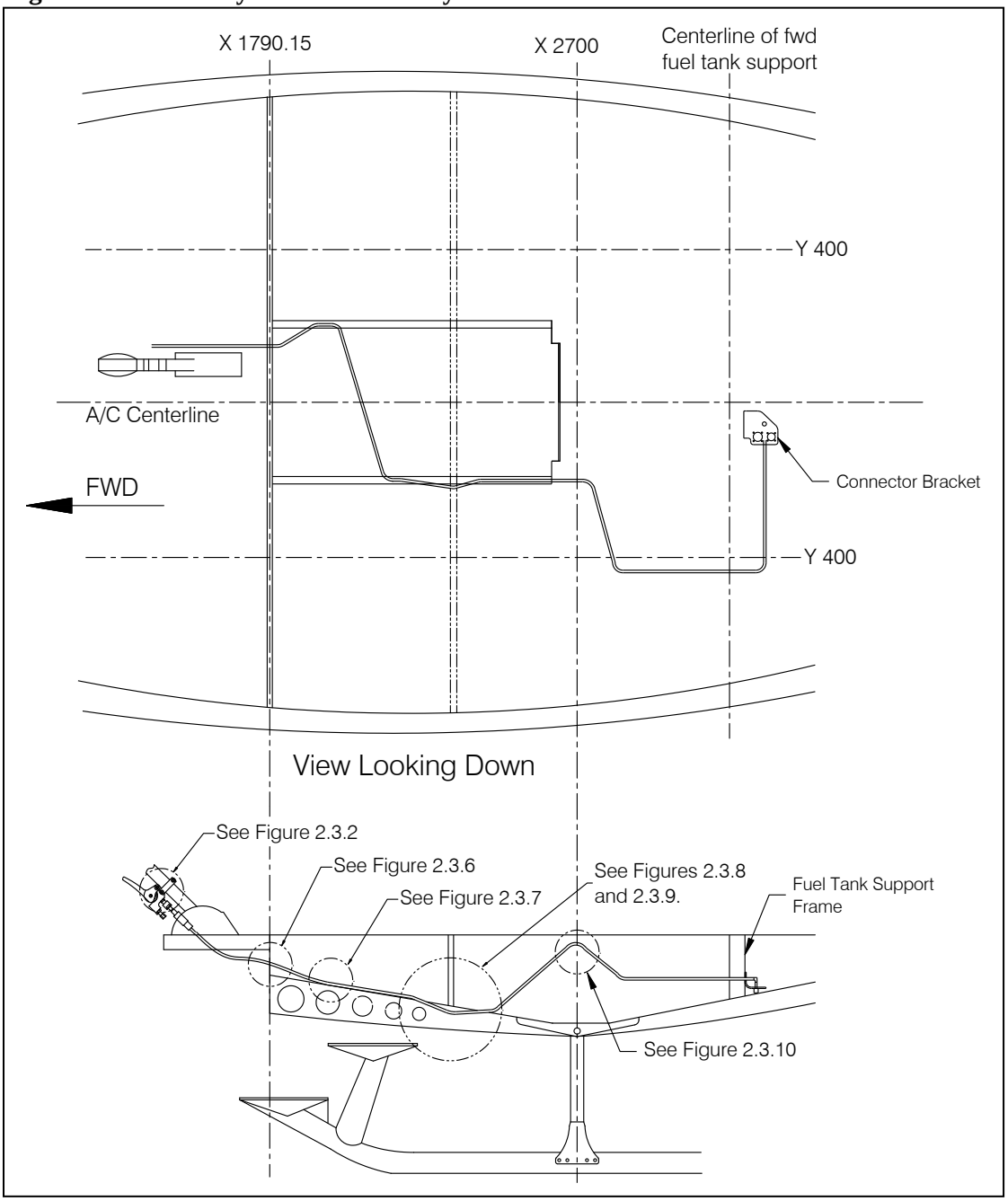


2.3 Fixed Hydraulic Release System Installation

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 2.3.1 is an overview of the hose routing and the figures following detail the support installations at various points.

Figure 2.3.1 Fixed Hydraulic Release System Installation Overview

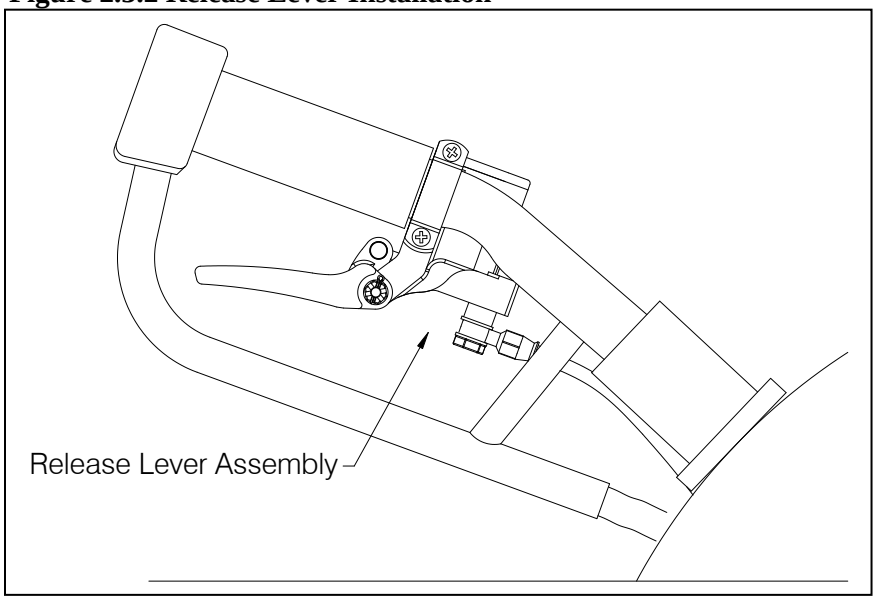


2.3 Fixed Hydraulic Release System Installation continued

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.

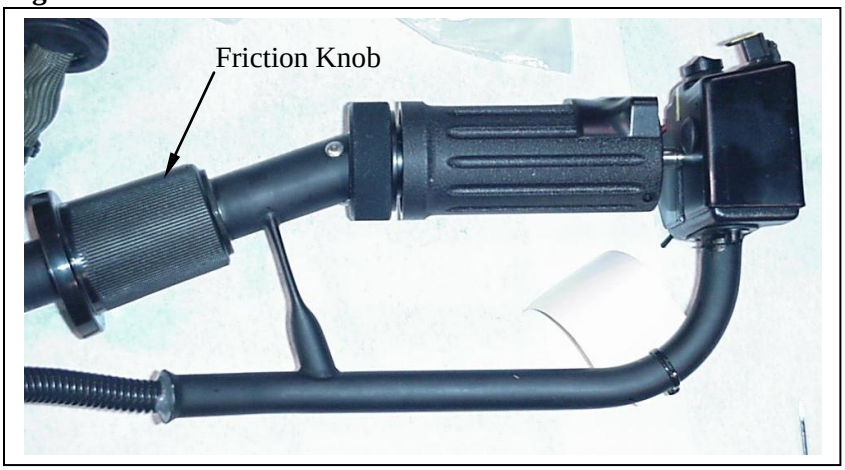
Figure 2.3.2 Release Lever Installation



NOTICE

If installing kit P/N 200-282-02 (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 2.3.3 B3 Collective



2.3 Fixed Hydraulic Release System Installation continued

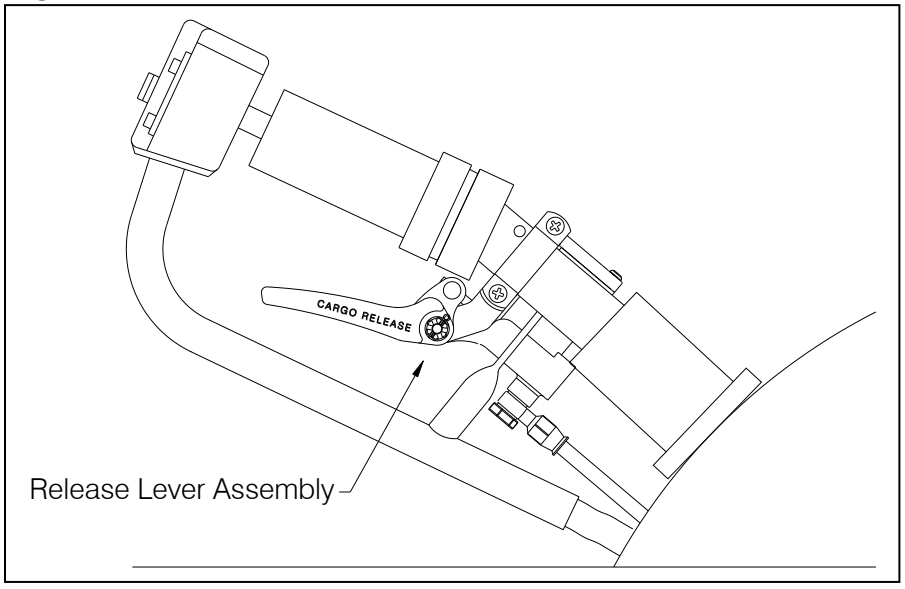
- Remove the collective to the extent necessary to remove the friction knob. Refer to Airbus Helicopters maintenance manual for removal and re-installation instructions.
- Replace the OEM friction knob with the friction knob P/N 291-105-00 provided.
- Re-install collective per Airbus Helicopters maintenance 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 2.3.4).

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

Figure 2.3.4 AS350B3 Release Lever Installation



NOTICE

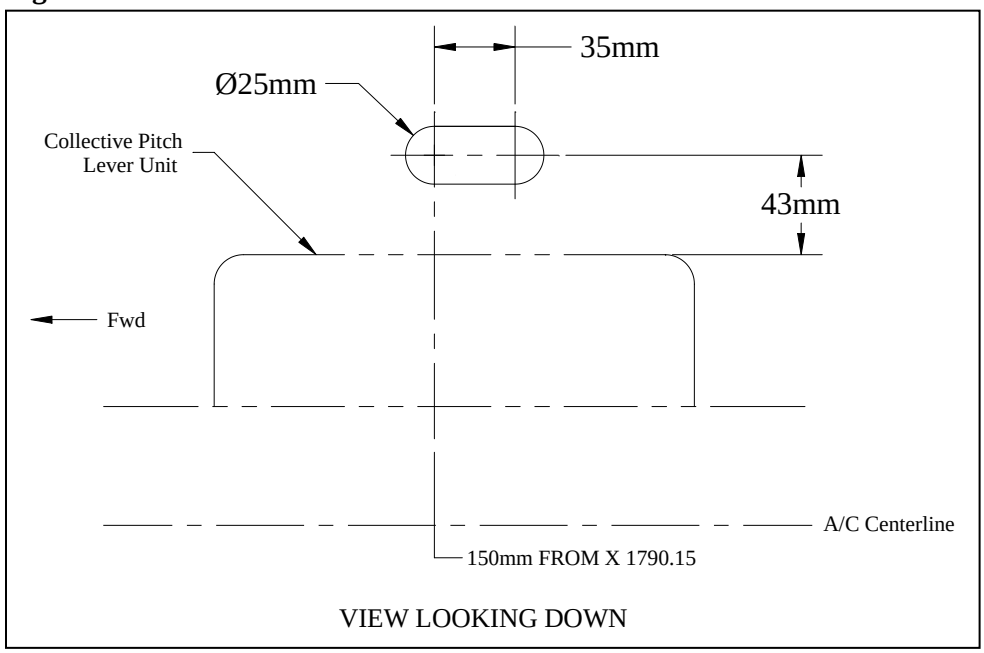
The lever position is to be adjusted, if necessary, at installation check out, after the system is filled and bled.

72.3 Fixed Hydraulic Release System Installation continued

- Route the hose to underneath the cabin floor through the existing slot.

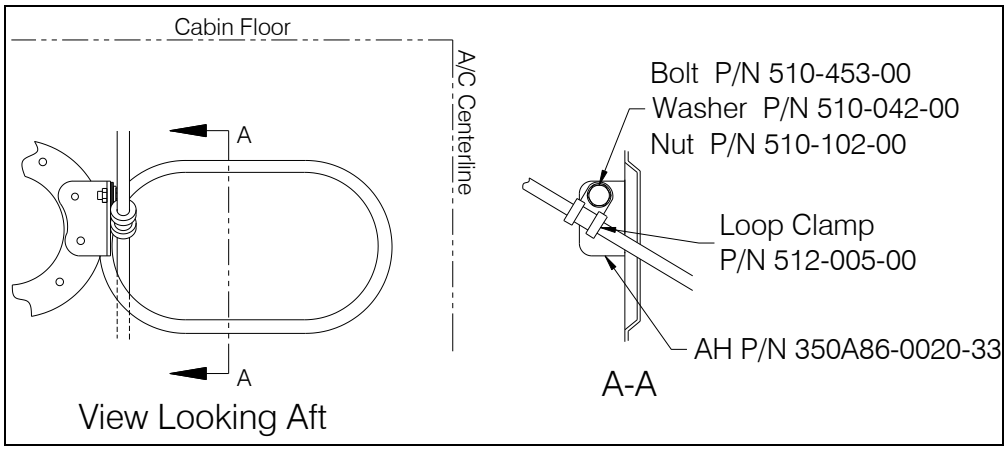
  If the slot in floor does not exist, create one with dimensions as shown below in the cabin floor 43 mm from the collective pitch lever unit and 150 mm forward of X1790.15 (see below) and install the grommet (Airbus Helicopters P/N DHS751-160.62).

Figure 2.3.5 Cabin Floor Hole Detail



- 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.

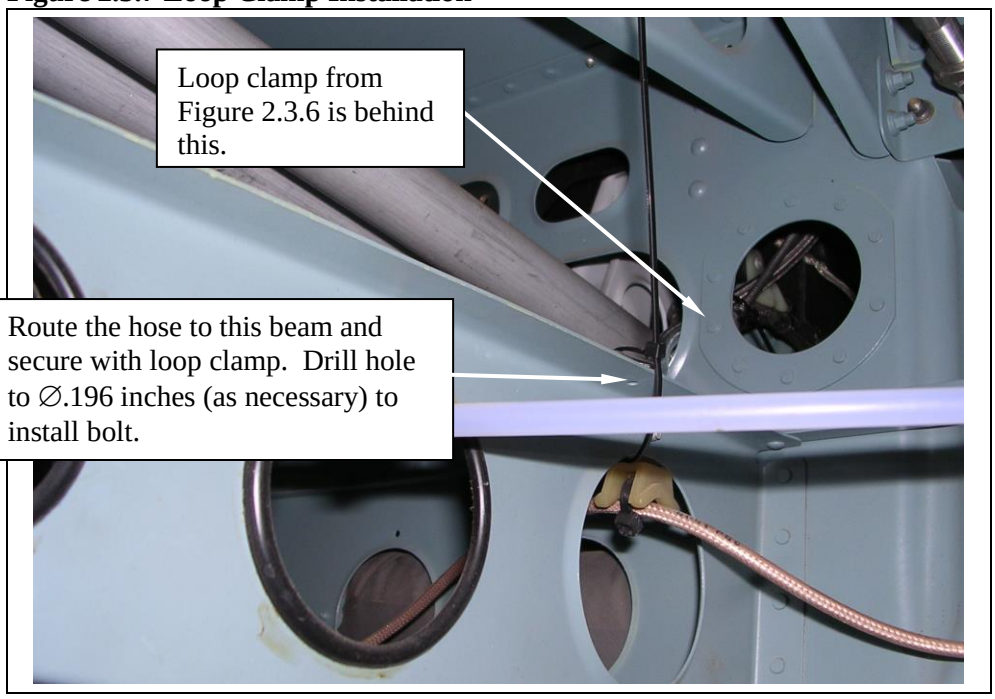
Figure 2.3.6 Hose Routing Through Frame



2.3 Fixed Hydraulic Release System Installation continued

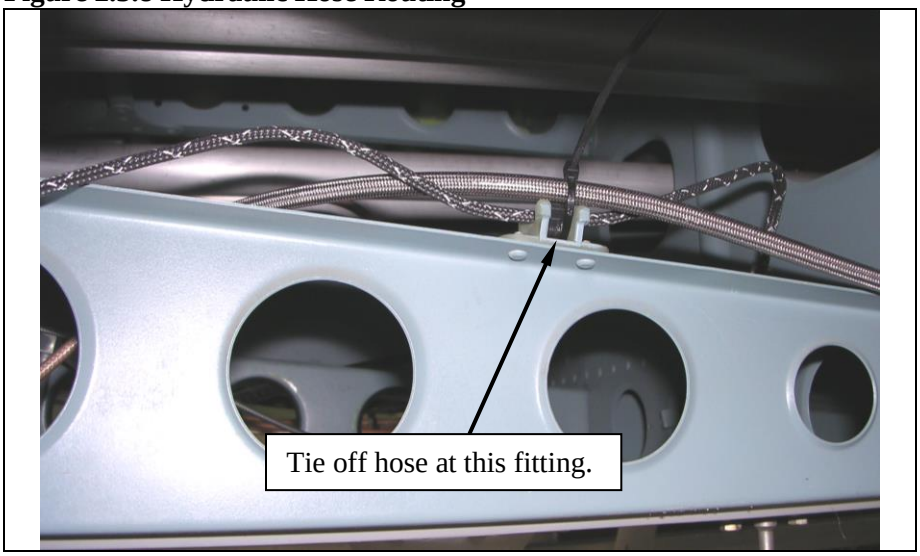
- Aft of the frame, route the hose along the top of the structural member (shown below) and secure with cushioned loop clamp (P/N 512-005-00) at location shown below with bolt P/N 510-453-00, washer P/N 510-042-00, and nut P/N 510-102-00.

Figure 2.3.7 Loop Clamp Installation



- Aft of the clamp installed in Figure 2.3.7, 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-wrap as shown below. Ensure the hose is secured so that it does not interfere with the control rods.

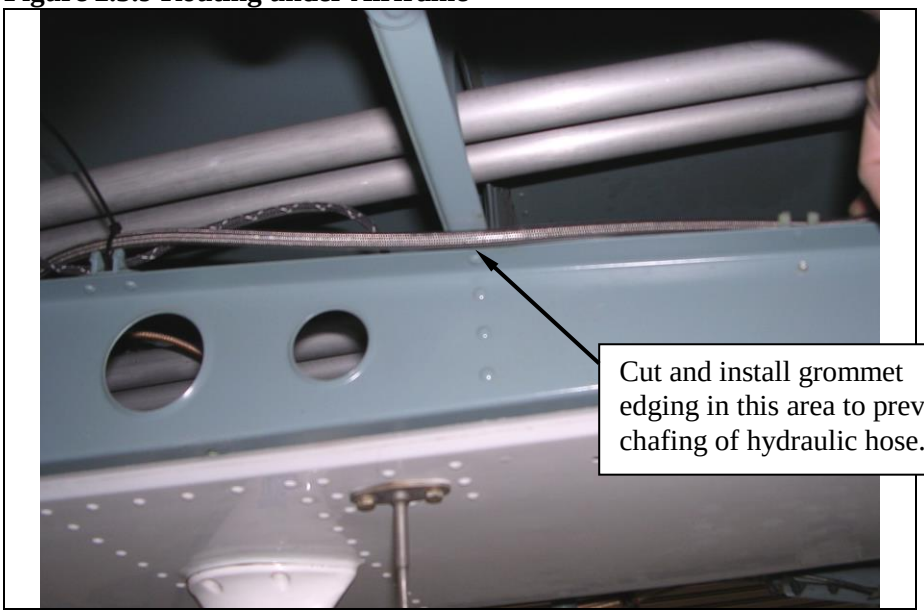
Figure 2.3.8 Hydraulic Hose Routing



2.3 Fixed Hydraulic Release System Installation continued

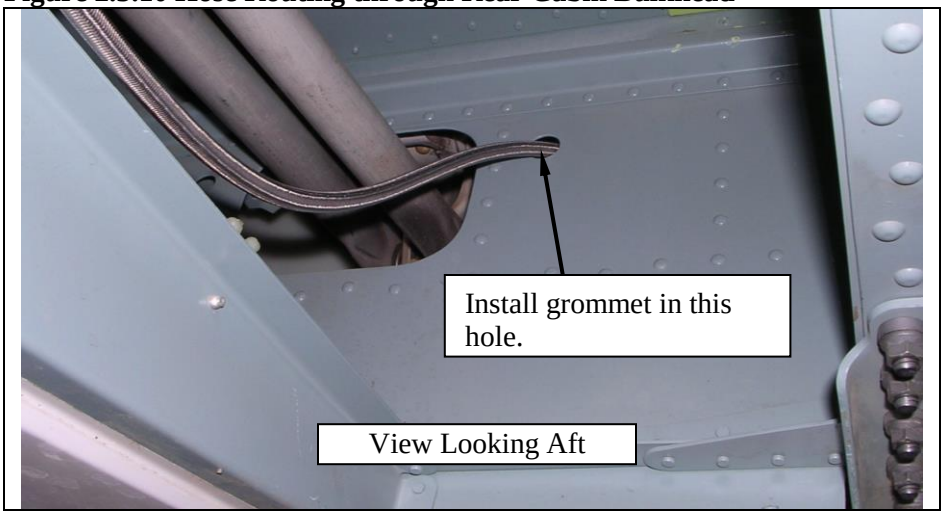
- Route the hose under the airframe support (as shown below) and secure the hose to the fitting on top of the structural member aft of the airframe support. Install grommet edging (P/N 500-065-00) as necessary to protect hydraulic hose from chafing.

Figure 2.3.9 Routing under Airframe



- Route the hose up through the rear cabin bulkhead as shown in Figure 2.3.10. Split and install grommet (P/N 505-014-00) in hole after hose is routed through.

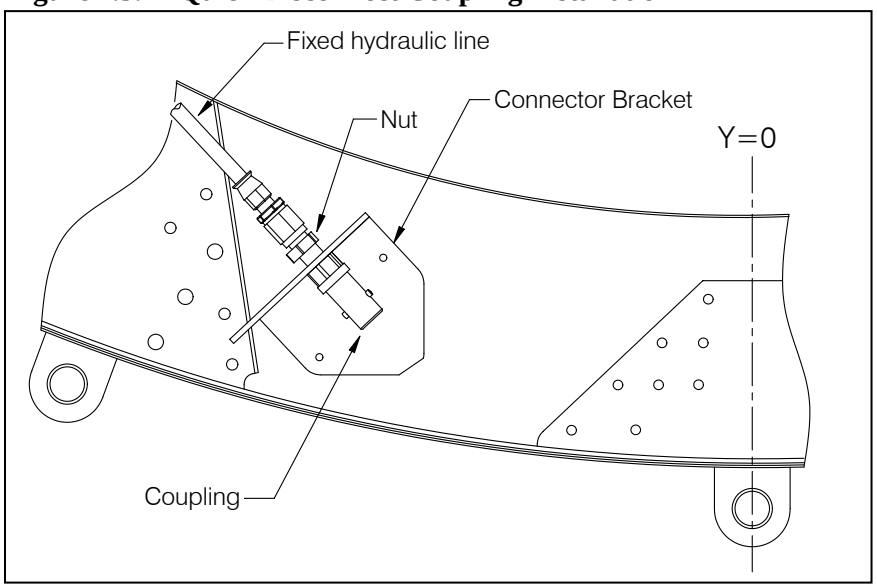
Figure 2.3.10 Hose Routing through Rear Cabin Bulkhead



2.3 Fixed Hydraulic Release System Installation continued

- ❑ Aft of the rear cabin bulkhead pick up existing electrical harness runs and secure hydraulic hose using ty-wraps. The hose will route outboard of Y400 and 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 2.3.11 Quick Disconnect Coupling Installation



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

NOTICE

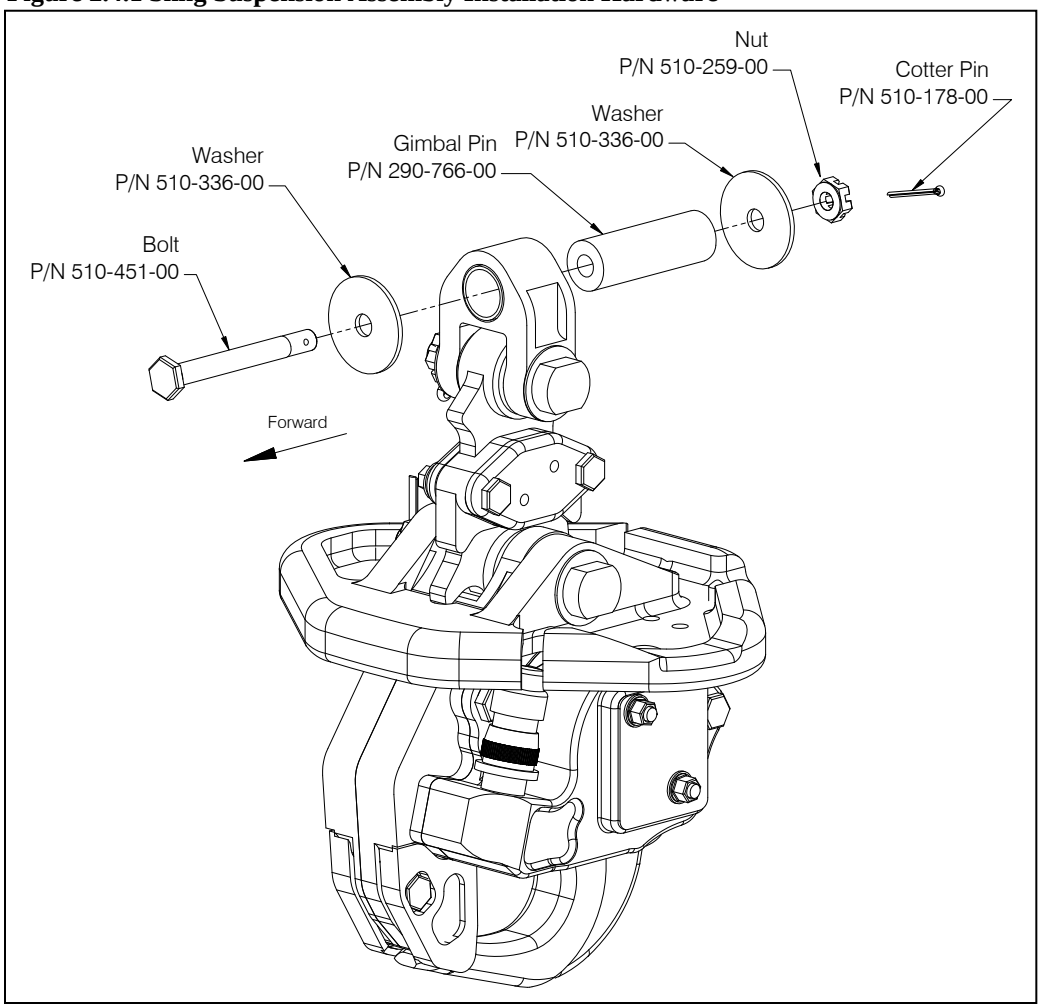
Install screws with their heads on the bottom side of bracket flange (if nuts are installed on bottom side they will interfere with mating connector).

- ❑ Install electrical markers (P/N 215-165-00) on the Connector Bracket adjacent to the corresponding connectors.
- ❑ Re-install lower fairings if both the hydraulic and electric systems have been installed.

2.4 Sling Suspension Installation

Attach the Cargo Hook Sling Suspension Assembly (P/N 232-312-00) onto the Sling Support Fitting at the helicopter centerline on the forward fuel tank cradle using the hardware supplied, as illustrated below. Orient the cargo hook such that its load beam points forward (as shown below).

Figure 2.4.1 Sling Suspension Assembly Installation Hardware



2.4 Sling Suspension Installation continued

- Connect the end of the cargo hook electrical release harness to the fixed electrical release connector installed per Section 2.1. See Table 2.1 for pin out information.

Table 2.1 Cargo Hook Connector

Pin	Function
A	Ground
B	Power

CAUTION

The cargo hook is equipped with a suppression diode that will be damaged if the cargo hook electrical connection is reversed.

- Connect the end of the load cell harness to the fixed load weigh harness connector installed per Section 2.1.
- Connect the hydraulic hose from the hook to the fitting installed at the belly of the helicopter.
- Install supplied spiral wrap (P/N 590-017-00) over hose, harnesses, and ground strap from their exit point at the bumper. Wrap approximately 12" of their length from the bumper and cut off excess.

2.5 Placard Installation

Install the load limitation placard P/N 215-167-00 (1660 lbs, 750 kgs). Locate the placard on the belly of the helicopter, visible to the ground operator and near the hook.

2.6 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.

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 or installation 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 123-033-00, 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.

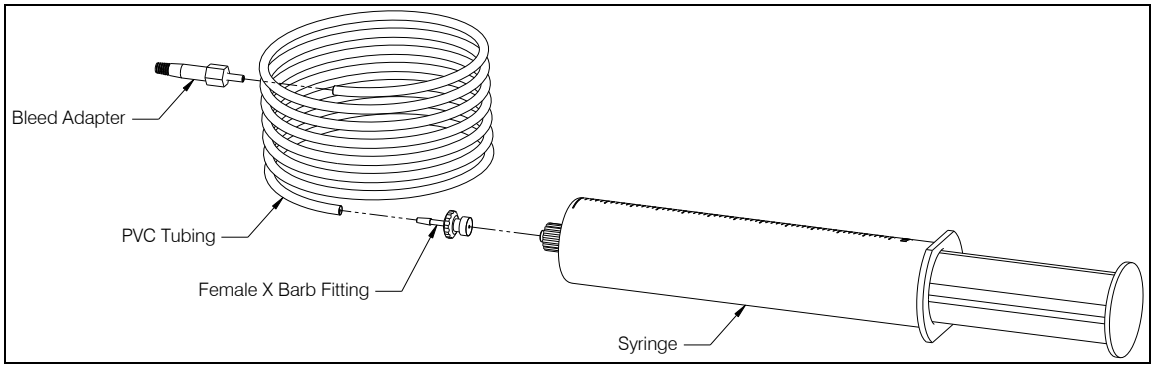
Bleeding procedure:

1. Assemble the hydraulic hook bleed kit, P/N 212-014-02. This kit consists of 2 ounces of MIL-PRF-87257 fluid, a syringe, a female barb fitting, a length of PVC tubing, and a bleed adapter fitting. This bleed kit is included in new hook kits. Assemble the bleed kit by press fitting each component together.

NOTICE

MIL-PRF-5606 fluid is also compatible with the hydraulic system and was formerly included with new cargo hook kits. It is interchangeable and miscible with MIL-PRF-87257 fluid.

Figure 2.6.1 Hydraulic Hook Bleed Kit



2.6 Filling Hydraulic Release System continued

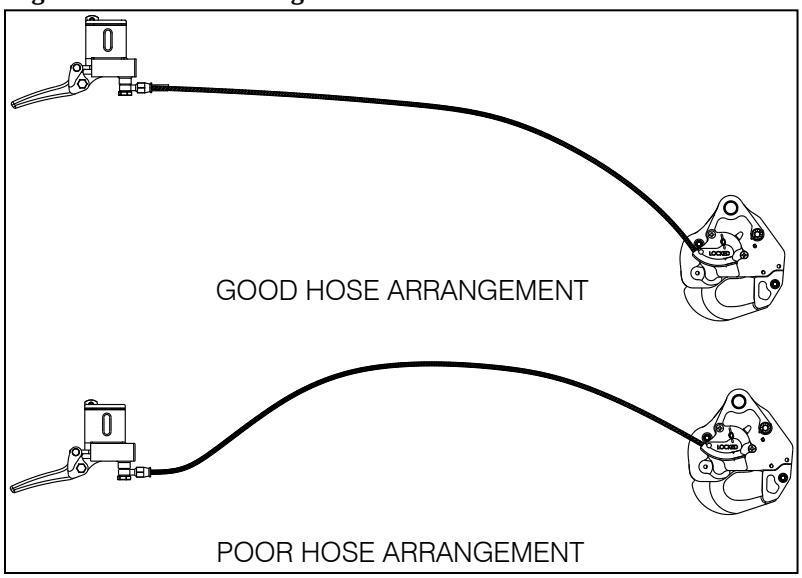
2. If the system is already installed on the aircraft, place an absorbent towel under the master cylinder. If the master cylinder is not installed on the aircraft, lightly clamp the master cylinder in a vise to hold it in a vertical position and position the slave cylinder so that its level is below 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. See figure 2.6.2.

Figure 2.6.2 Hose Arrangements



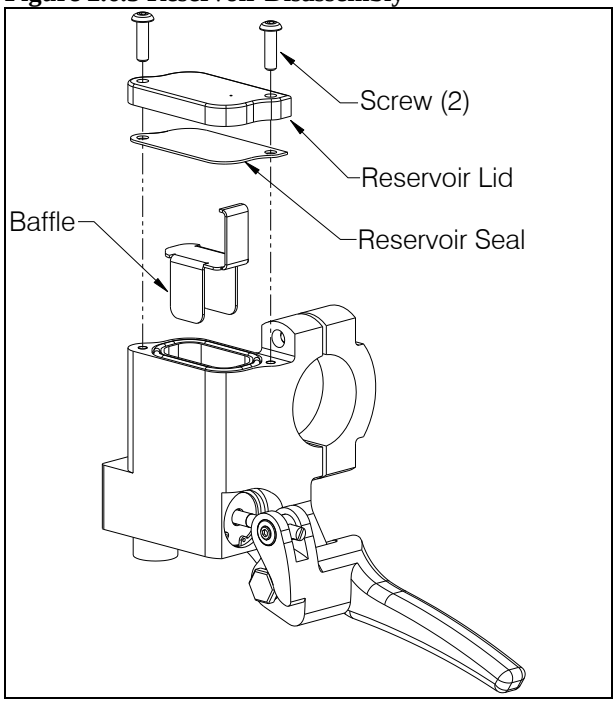
2.6 Filling Hydraulic Release System continued

4. Remove screws, reservoir lid, reservoir seal, and baffle from the master cylinder reservoir as shown in Figure 2.6.3 (the reservoir seal is for shipping purposes only, after removal discard or retain for future shipping or storage).

NOTICE

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

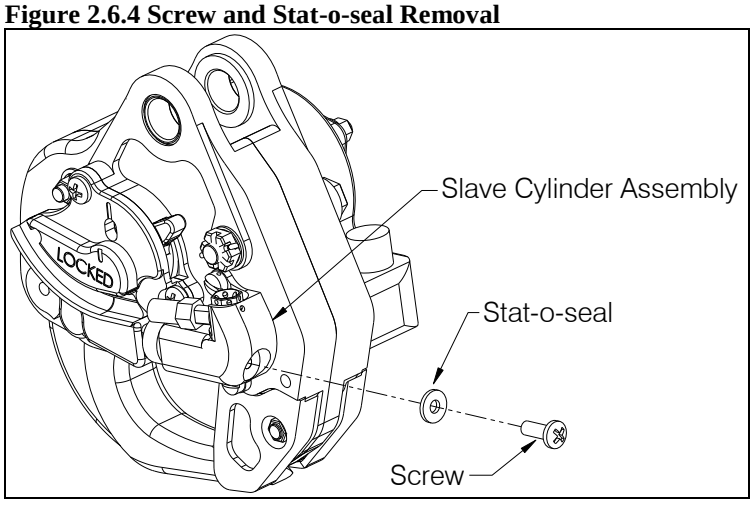
Figure 2.6.3 Reservoir Disassembly



2.6 Filling Hydraulic Release System continued

5. Remove the screw and stat-o-seal on the slave cylinder, see Figure 2.6.4.

Figure 2.6.4 Screw and Stat-o-seal Removal



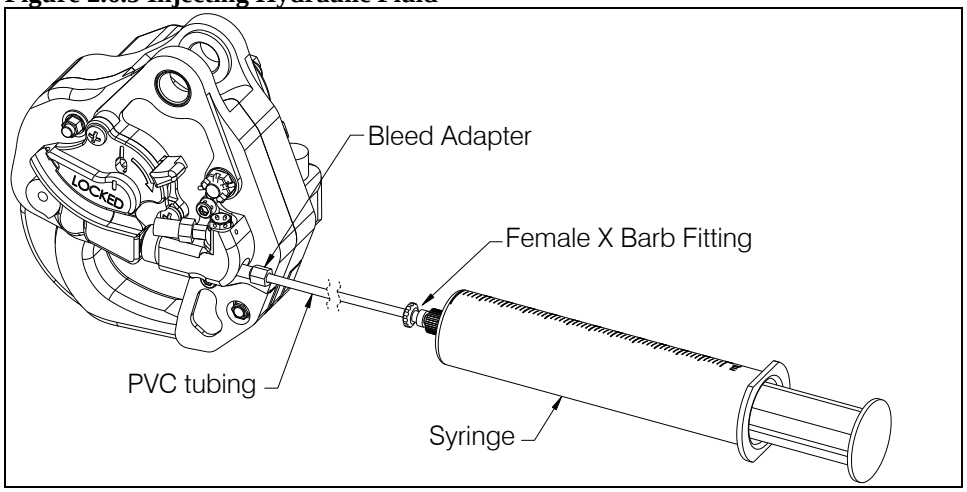
6. Fill the syringe with approximately 35 cc of hydraulic fluid and purge any remaining air in the syringe and tubing. Screw the end of the bleed adapter into the screw hole on the slave cylinder to create a tight seal. See Figure 2.6.5.

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.

⚠ 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 2.6.5 Injecting Hydraulic Fluid



2.6 Filling Hydraulic Release System continued

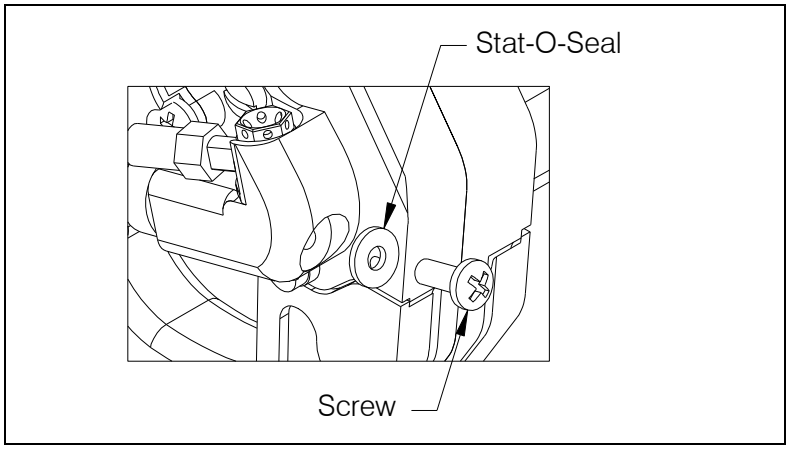
8. Continue to force fluid into the master cylinder reservoir until the reservoir is approximately half full.

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 2.6.6.

Figure 2.6.6 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.

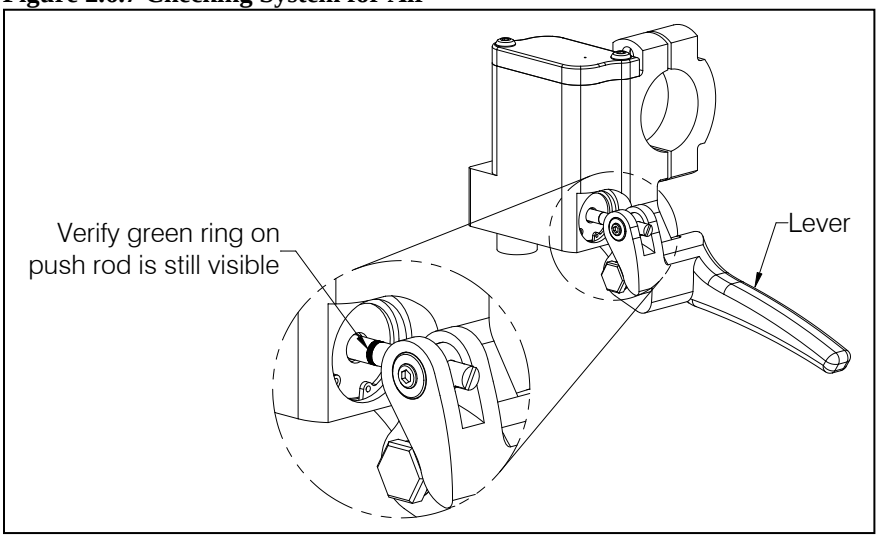
CAUTION

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.

2.6 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 2.6.7). 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 2.6.7 Checking System for Air



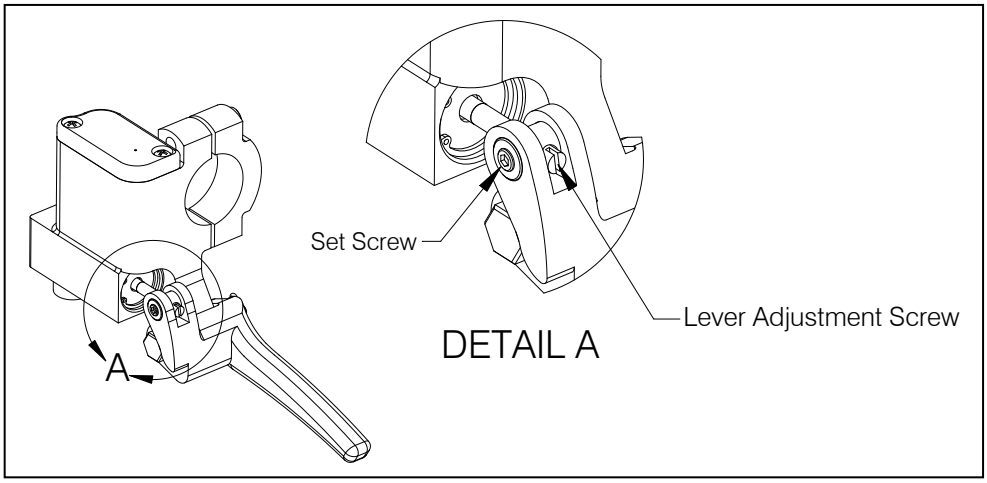
13. After the system is properly bled, verify that the reservoir is approximately half full of hydraulic fluid. Fluid should be visible above the baffle.
14. Re-install the baffle, and the reservoir lid.
15. Check the system for proper operation. Fully actuate the release lever. The hook must open and the lever must have a firm feel.
16. 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.

2.7 Installation Check-Out

After installation of the system, perform the following functional checks.

- 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 and harnesses must not be the stops that prevent the cargo hook and suspension from swinging freely in all directions.
- With no load on the cargo hook load beam, pull the lever on the collective, the Cargo Hook should release. Ensure that the lever is reachable and that it does not "bottom out" on the collective twist grip. If necessary adjust the lever position by loosening the set-screw and turning the lever adjustment screw (ref. Figure 2.7.1) in the required direction. Re-tighten set-screw.

Figure 2.7.1 Lever Adjustment



- With no load on the cargo hook load beam, depress the cargo hook electrical release button, the Cargo Hook should release. Reset the cargo hook load beam.
- 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 is 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-2001-01.

- Power on the Indicator and allow it to warm up for 5 minutes (with no load on the hook). Press both Indicator buttons at the same time to go to the Setup Mode. Scroll through the menu until the symbol "0 in" is displayed, then press the right button. Remove any weight that is not to be zeroed out and press either button to complete the procedure.

2.8 Component Weights

Table 2.8.1 Weight & CG – Sling Suspension Kits

Item	Weight	Station
Removable Provisions*	6.0 lbs (2.7 kg)	124.4 in (3160 mm)
Fixed Provisions**	5.5 lbs (2.5 kg)	67 in (1700 mm)
Total	11.5 lbs (5.2 kg)	96.9 in (2461 mm)

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

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

2.9 Paper Work

In the US, fill in FAA form 337 for the initial installation. This procedure may vary in different countries. Make the appropriate aircraft log book entry. Place the Rotorcraft Flight Manual Supplement document number 121-052-00 in the aircraft Flight Manual.

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Section 3
Operation Instructions

Operating Procedures

Refer to Owner's Manual 120-039-00 for operation instructions for the load weigh system.

Prior to a flight involving external load operations perform the following:

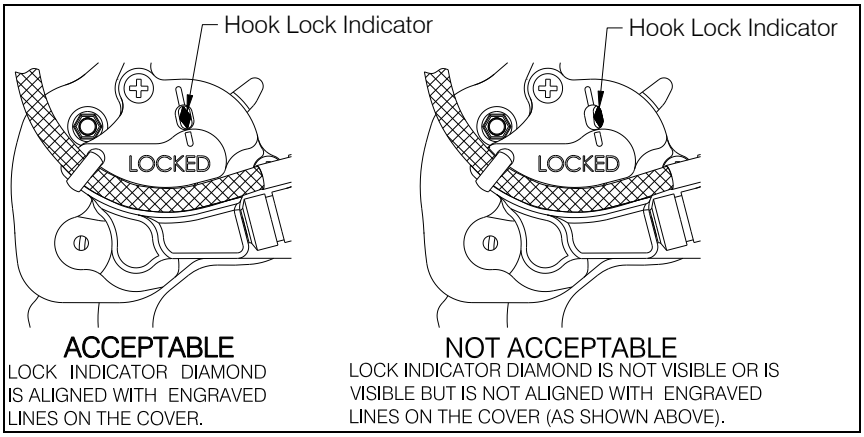
1. Activate the electrical system and press the Cargo Hook release button to ensure the cargo hook electrical release is operating correctly. The Cargo Hook must release. Reset the hook by hand after the release.

CAUTION

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

2. Activate the manual release lever in the cockpit to test the cargo hook manual release mechanism. The mechanism should operate smoothly and the Cargo Hook must release. Reset the load beam by hand. Verify that the hook lock indicator on the side of the hook returns to the fully locked position. In the fully locked position the hook lock indicator should align with the lines on the manual release cover (see Figure 3.1).

Figure 3.1 Hook Lock Indicator



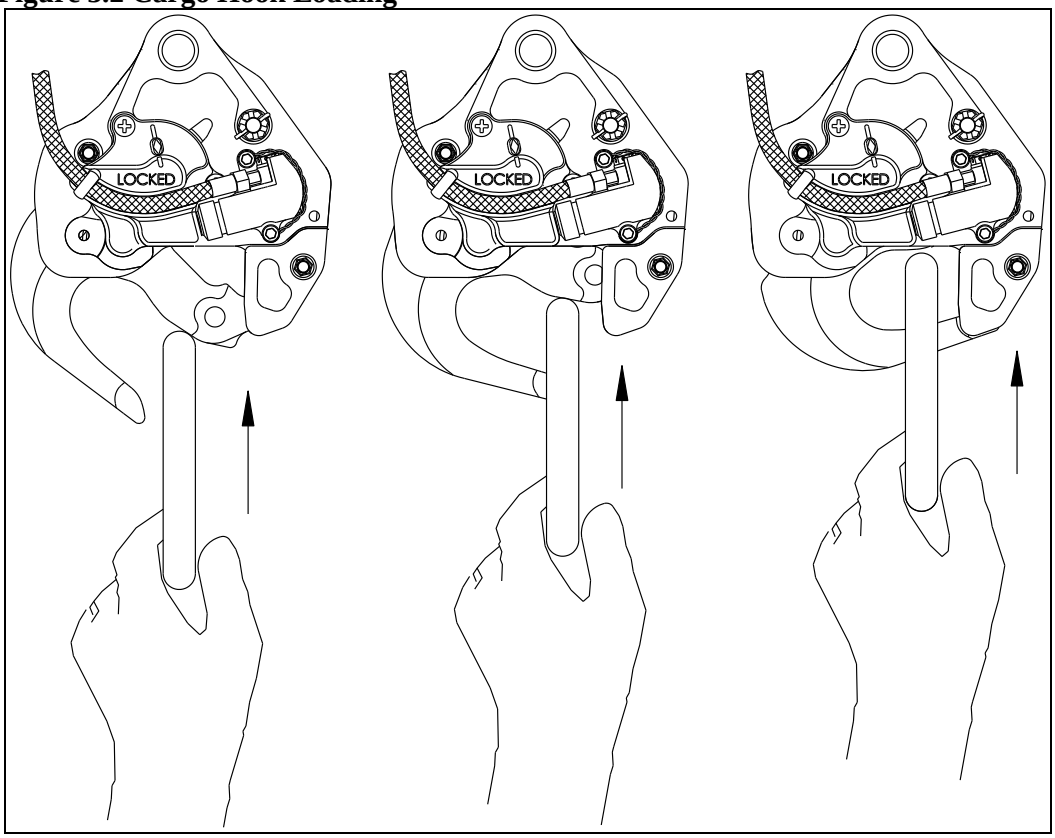
Operating Procedures continued

3. Swing the installed Cargo Hook and the suspension to ensure that the hydraulic hose, electrical harnesses and ground strap have enough slack to allow full swing of each component without straining or damaging the harnesses and hose. The hose and/or harnesses must not be the stops that prevent the Cargo Hook or the suspension from swinging freely in all directions.
4. Visually check for presence and security of fasteners, and condition of cables. Swing the Cargo Hook and the suspension in fore and aft and side to side directions to check for freedom of rotation at all joints.

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

Figure 3.2 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.

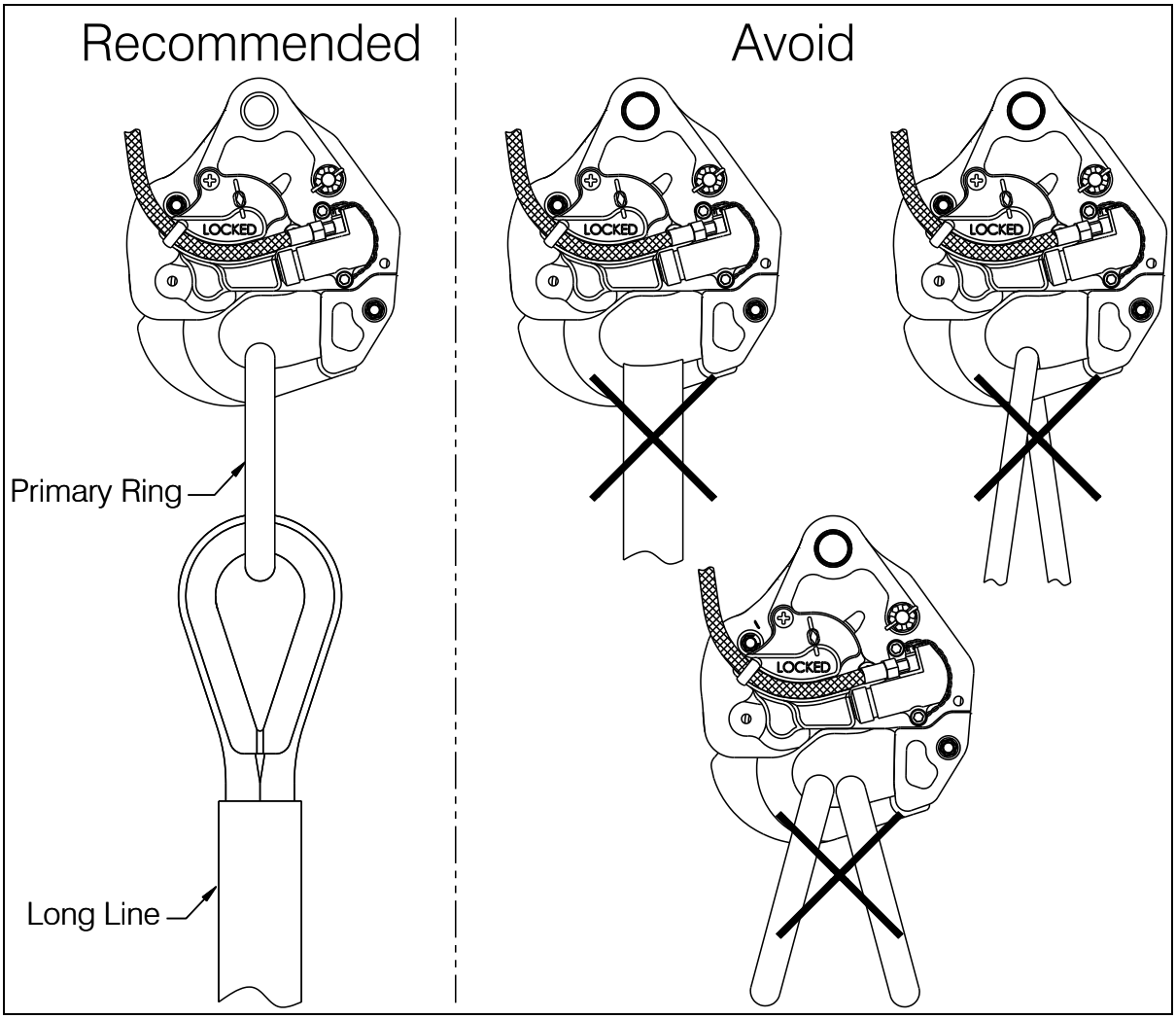
It is the responsibility of the operator to ensure the cargo hook will function properly with each rigging.

Nylon Type Straps and Rope

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 cargo hook load beam.

Cargo Hook Rigging, continued

Figure 3.3 Cargo Hook Rigging Examples



Section 4
Maintenance

Refer to ICA 123-033-00 for maintenance of the cargo hook sling suspension kits. 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.

NOTICE

An RMA number is required for all equipment returns.

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

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

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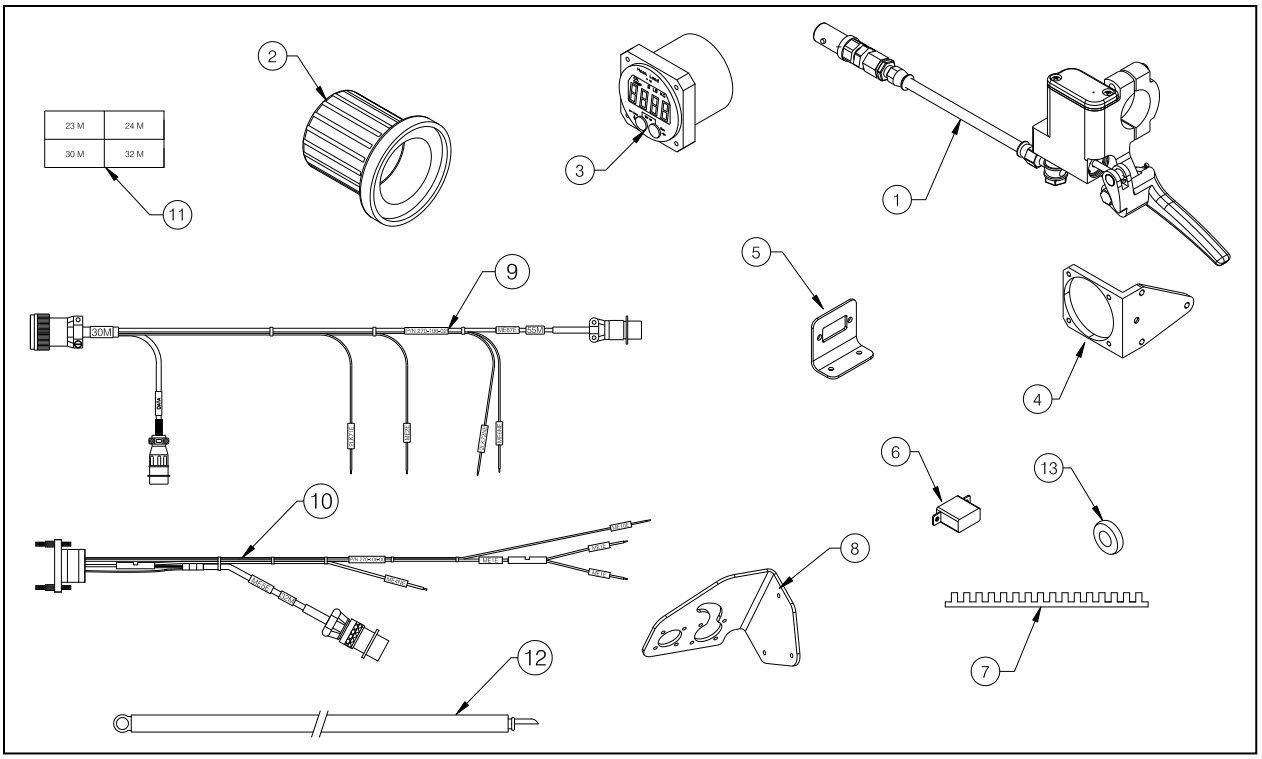
Section 5
System Part Numbers

210-204-01, 210-204-02, Sling Fixed Provisions

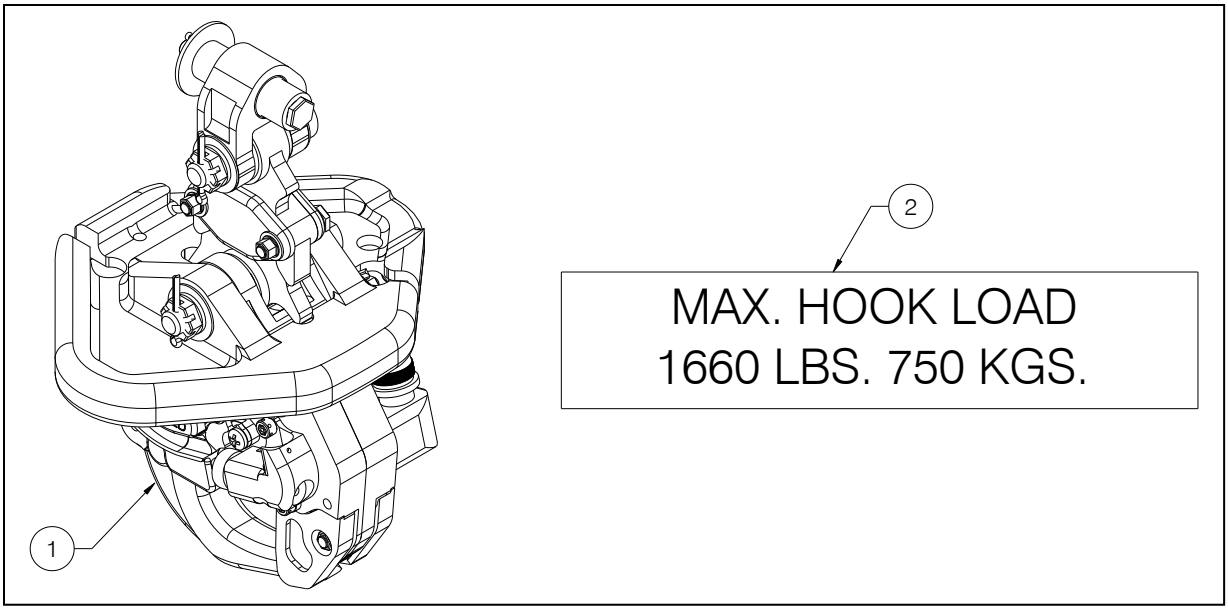


ITEM	P/N	DESCRIPTION	QTY.
1	232-165-01*	Master Cylinder Assembly w/ Plumbing	1
2	291-105-00**	Friction Handle	1
3	210-095-00	C-39 Indicator Assembly	1
4	290-772-00	Indicator Mount Bracket	1
5	290-783-00	Relay Bracket	1
6	445-005-00	Relay	1
7	500-065-00	Grommet Edging	1
8	290-884-00	Connector Bracket	1
9	270-108-00	Electrical Release Internal Harness	1
10	270-106-02	Load Weigh Internal Harness	1
11	215-165-00	Multiple Sticker Sheet	1
12	270-125-00	Ground Strap, Fixed	1

*Fixed provisions kit p/n 210-204-01 includes 232-165-00 instead of 232-165-01.
** 291-105-00 is included with fixed provisions kit p/n 210-204-02 only.

System Part Numbers **continued**

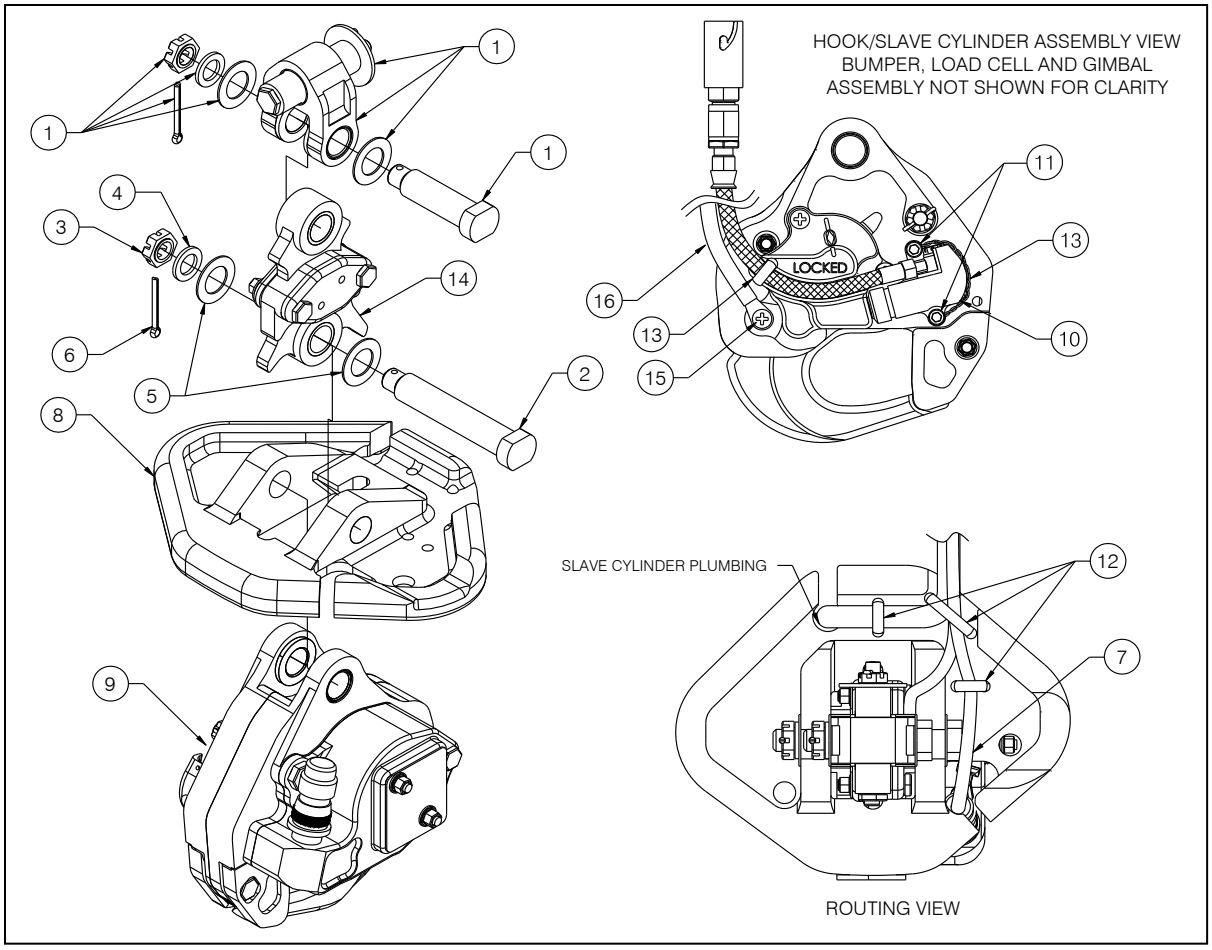
210-228-00, Sling Removable Provisions



ITEM	P/N	DESCRIPTION	QTY
1	232-312-00	Cargo Hook Gimbal Assembly	1
2	215-167-00	Label, External Load Limit 1660 Lbs.	1
3	590-017-00	Spiral Wrap	16”

System Part Numbers **continued**

232-312-00, Cargo Hook Gimbal Assembly

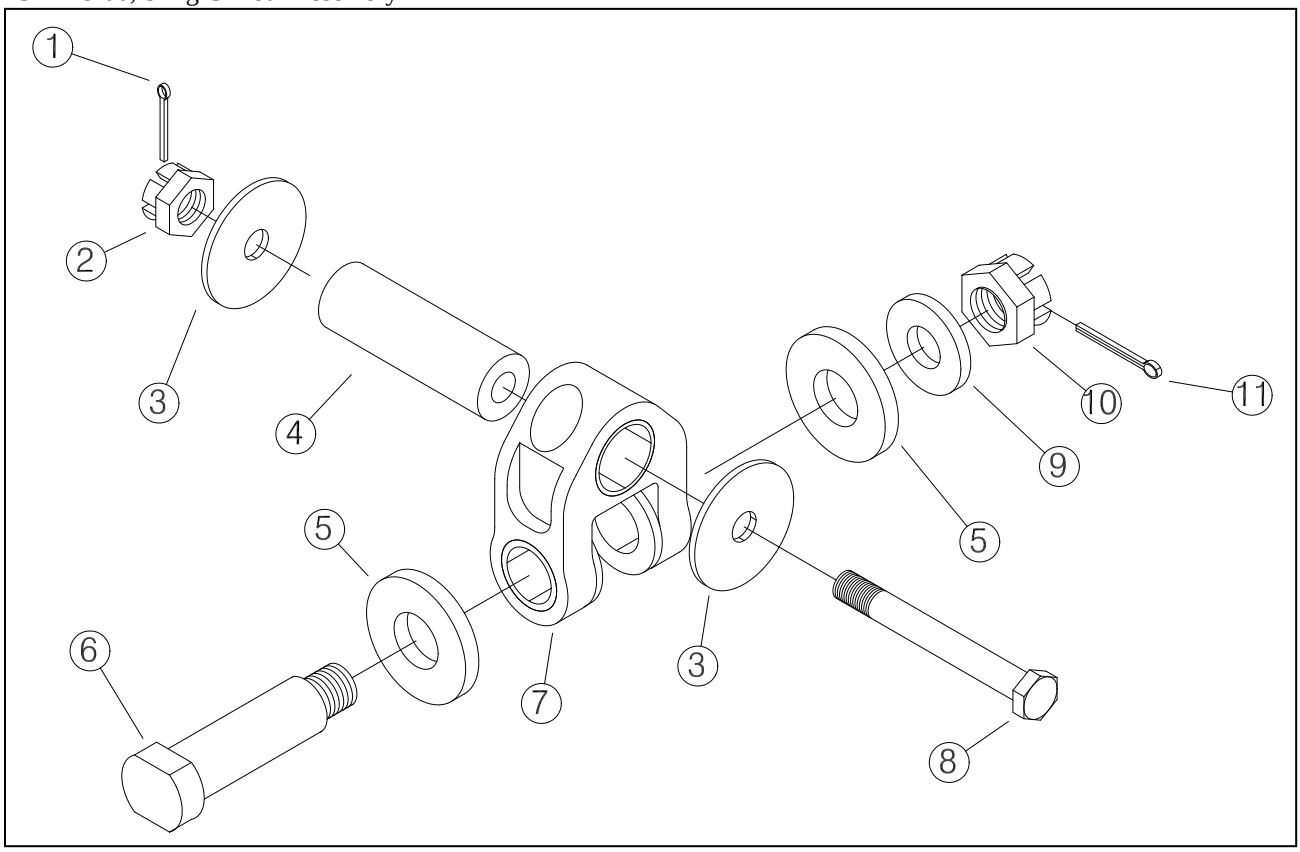


ITEM	P/N	DESCRIPTION	QTY
1	232-148-00	Sling Gimbal Assembly	1
2	290-775-00	Long Hook Attach Bolt	1
3	510-170-00	Nut	1
4	510-174-00	Washer	1
5	510-183-00	Washer	2
6	510-178-00	Cotter Pin	1
7	270-150-00	Electrical Release Harness	1
8	291-138-00	Hook Bumper	1
9	528-028-00	Hydraulic Cargo Hook	1
10	232-368-00	Slave Cylinder Assembly W/ Plumbing	1
11	510-531-00	Screw	2
12	512-003-00	Ty-Wrap	4
13	420-033-00	Safety Wire	AR
14	210-203-03	Load Cell Assembly	1
15	510-391-00	Screw	1
16	270-126-02	Ground Strap	1

*Supersedes P/N 210-203-01, these part numbers are interchangeable.

System Part Numbers **continued**

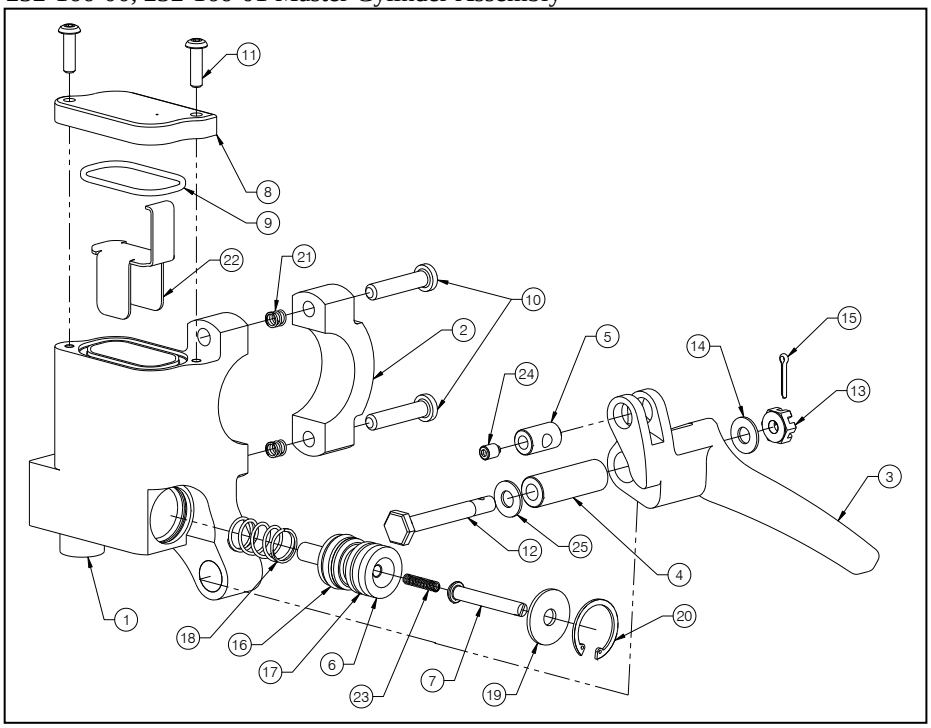
232-148-00, Sling Gimbal Assembly



ITEM	P/N	DESCRIPTION	QTY
1	510-081-00	Cotter pin	1
2	510-259-00	Nut	1
3	510-336-00	Washer	2
4	290-766-00	Gimbal Pin	1
5	510-183-00	Washer	2
6	290-332-00	Attach Bolt	1
7	232-144-00	Swing Gimbal Sub Assembly	1
8	510-451-00	Bolt	1
9	510-174-00	Washer	1
10	510-170-00	Nut	1
11	510-178-00	Cotter pin	1

System Part Numbers continued

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

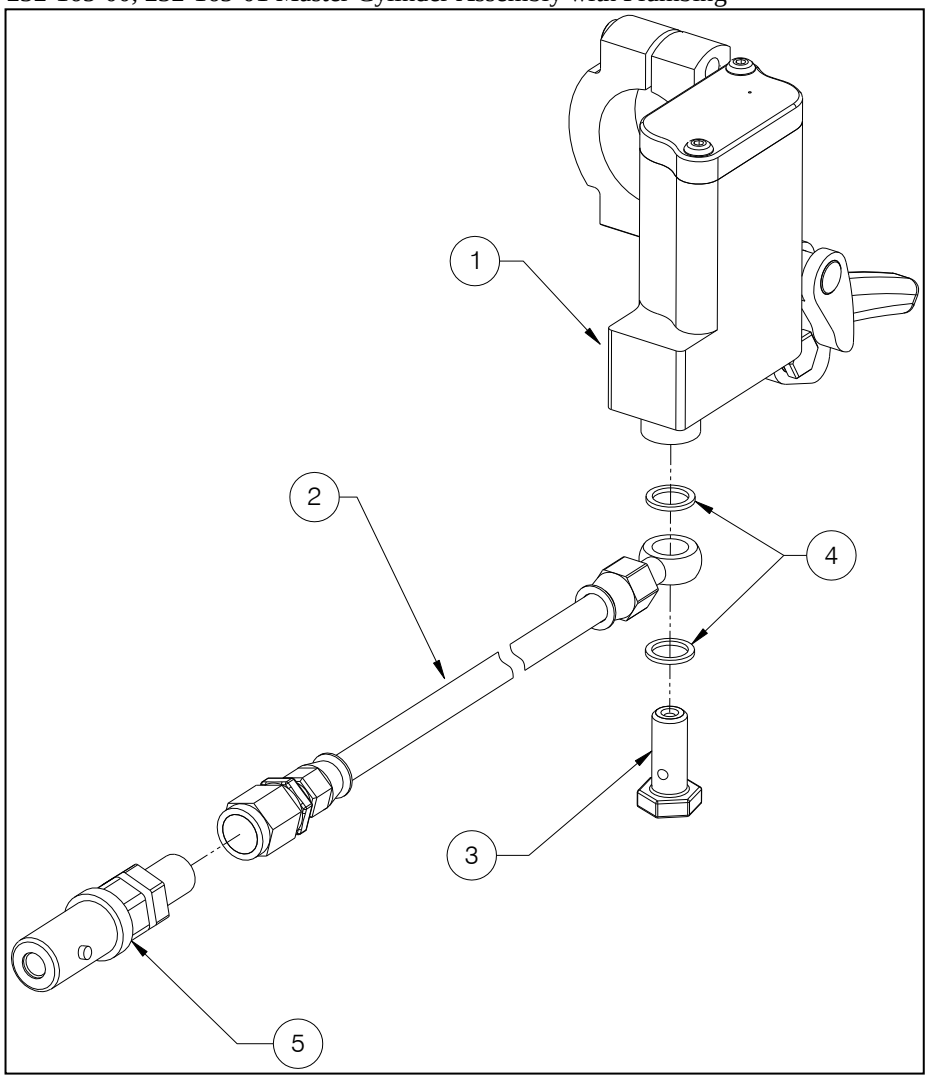


ITEM	P/N	DESCRIPTION	QTY
1	290-810-01	Master Cylinder	1
2	290-753-00	Clamp Half	1
3	290-811-00**	Lever	1
4	290-816-00	Shaft	1
5	290-812-00	Barrel Nut	1
6	290-814-01	Piston	1
7	290-813-00	Push Rod	1
8	290-921-00	Reservoir Lid	1
9	556-044-00	O-Ring	1
10	510-390-00	Screw	2
11	510-157-00	#6-32 x ½" Button 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

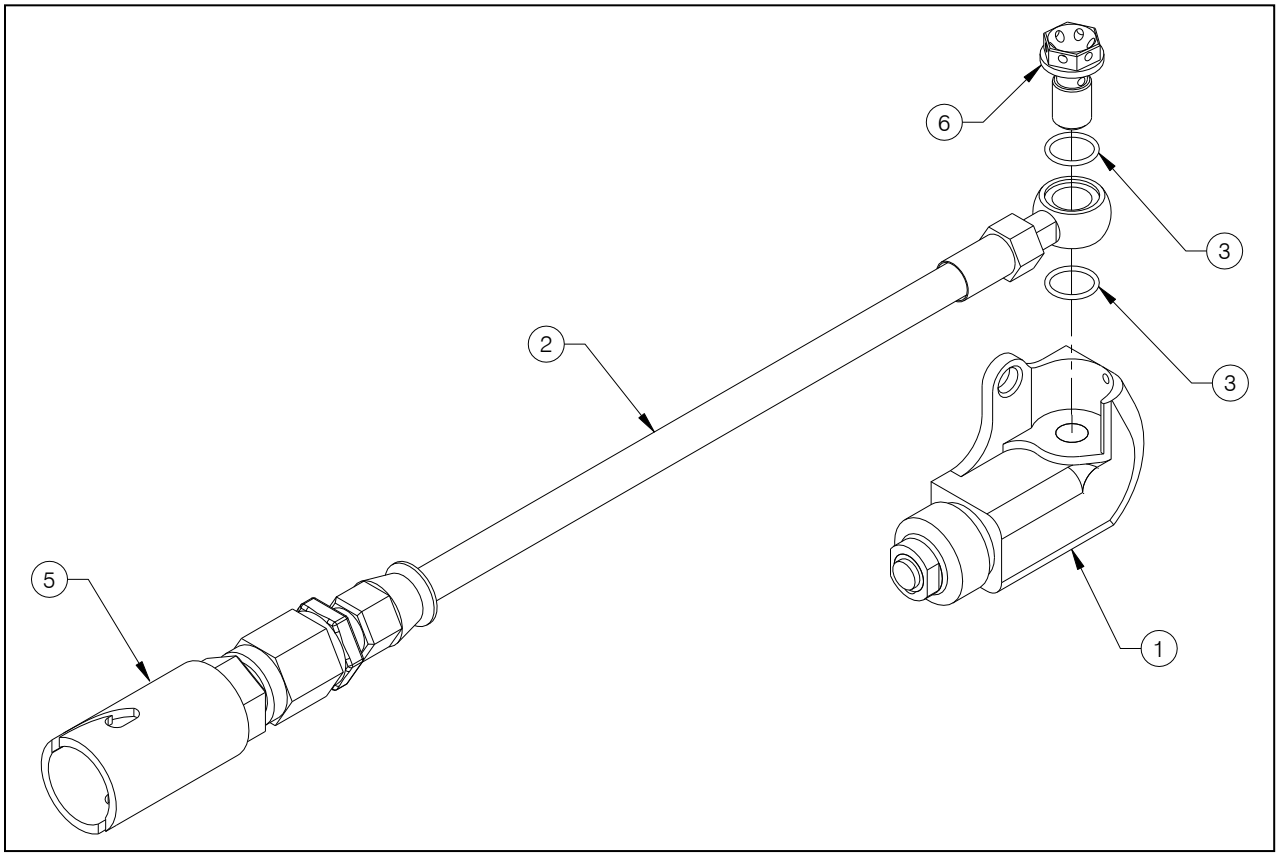


ITEM	P/N	DESCRIPTION	QTY
1**	232-166-00	Master Cylinder Assembly	1
2	232-167-01	Master Cyl Plumbing Assembly	1
3	558-021-00	Banjo Bolt	1
4	556-040-00	Crush Washer	2
5	560-005-00	Quick Disconnect	1

**** 232-165-01 (for the B3 collective) uses Master Cylinder Assembly P/N 232-166-01.**

System Part Numbers continued

232-368-00, Slave Cylinder Assembly with Plumbing

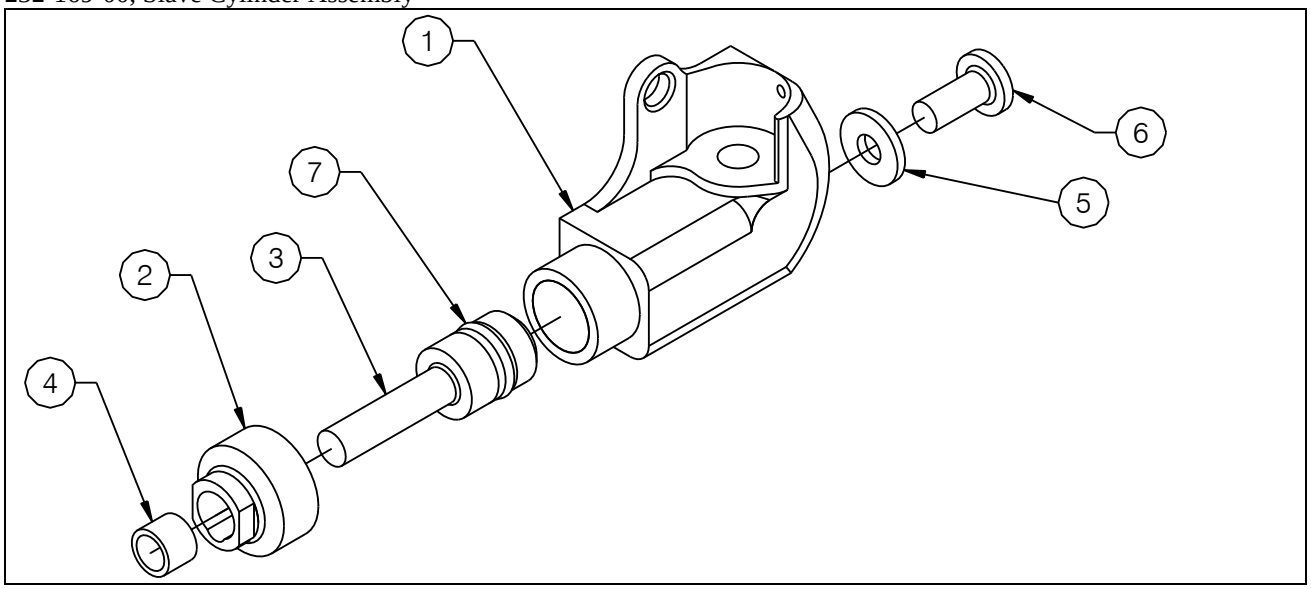


ITEM	P/N	DESCRIPTION	QTY
1	232-169-00	Slave Cylinder Assembly	1
2[1]	232-367-02	Slave Cylinder Plumbing Assembly	1
3	556-041-00	O-Ring	2
4[2]	420-033-00	Safety Wire	AR
5	560-006-00	Quick Disconnect	1
6	558-031-00	Banjo Bolt	1

[1] This P/N supersedes P/N 232-367-00 and P/N 232-367-01. These assemblies are interchangeable.
[2] Item Not Shown.

System Part Numbers continued

232-169-00, Slave Cylinder Assembly



ITEM	P/N	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 **SR01862SE**

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

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

Original Product—Type Certificate Number: H9EU
Make: Eurocopter France
Model: AS350B, AS350B1, AS350B2, AS350B3, AS350BA, & AS350D

Description of the Type Design Change: Fabrication of Onboard Systems Model 200-282-01 or 200-282-02, Cargo Hook Sling Suspension System in accordance with FAA-approved Onboard Systems Master Drawing List No. 155-128-00, Revision 0, dated June 30, 2008, or later FAA-approved revision; and installation of this system in accordance with FAA-approved Onboard Systems Owner's Manual No. 120-138-00, Revision 0, dated June 19, 2008, or later FAA-approved revision. This modification must be inspected and maintained in accordance with Section ATA 5 of the FAA-approved Onboard Systems Instructions for Continued Airworthiness Document No. 123-033-00, Revision 0, dated June 20, 2008, or later FAA-approved revision, and Onboard Systems Cargo Hook Service Manual No. 122-015-00, Revision 5, dated June 5, 2005, or later FAA-approved revision.

Limitations and Conditions: Approval of this change in type design applies only to those Eurocopter 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 an FAA-approved copy of Onboard Systems Rotorcraft Flight Manual Supplement (RFMS) No. 121-052-00, dated July 23, 2008, or later FAA-approved revision. A copy of this certificate, FAA-approved RFMS, and Maintenance Manual must be maintained as part of the permanent records of the modified rotorcraft.

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

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

Date of application: March 27, 2008
Date of issuance: August 7, 2008
Date reissued:
Date amended:

By direction of the Administrator

(Signature)
Acting Manager, Seattle Aircraft Certification Office
(Title)

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 in accordance with FAR 21.47.

FAA FORM 8110-2(10-88)

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Canadian Approval

Transport Canada / Transports Canada
Civil Aviation / Aviation Civile

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

Your file Votre référence

Our file Notre référence
NAPA# P-08-0364
RDIMS 4432309

October 09, 2008

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

Subject: Acceptance of Foreign STC SR01862SE

Dear Mr. Hanson,

This is in response to FAA letter dated 2008/09/18, 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,

John Nehera
Regional Manager
Aircraft Certification

Cc. Seattle Aircraft Certification Office

Canada

1/1

ANAC STC

ANAC

CERTIFICADO SUPLEMENTAR DE TIPO

(Supplemental Type Certificate)

NÚMERO (Number) **2012S04-03**

Este certificado, emitido com base na Lei nº 7565 "Código Brasileiro de Aeronáutica", de 19 de dezembro de 1986,
(This certificate, issued in the basis of the Law No. 7565 "Código Brasileiro de Aeronáutica", dated 19 December 1986,

é conferido ao (à): (is granted to:) Onboard System International
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 therefor as)

especificadas, satisfeito aos requisitos de aeronavegabilidade aplicáveis.
(specified hereon, met the applicable airworthiness requirements.)

Produto Original - Número do Certificado de Tipo: (Original Product – Type Certificate No:) * See attached ANAC Approved Model List (AML), Rev. I.R., dated 09 Apr. 2011, or later approved revision.

Fabricante: (Manufacturer:) *

Modelo(s): (Model(s):) *

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

Installation of Onboard System Model 200-282-01 or 200-282-02, Cargo Hook Sling Suspension System in accordance with Onboard System Master Drawing List, document No. 155-128-00, Rev. 2, dated 30 Sep. 2010, or later approved revision.

This CST validates in Brazil the STC No. SR01862SE, issued by FAA (USA).

LIMITAÇÕES E CONDIÇÕES:
(Limitations and Conditions:)

See continuation sheet for applicable data.

DATAS:
(Dates of:)

Do Requerimento: (Application:) 02 Feb. 2012 **Da emissão:** (Issue:) 09 Apr. 2012 **Da reemissão:** (Reissue:)

HÉLIO TARQUINIO JÚNIOR
Gerente-Geral, Certificação de Produto Aeronáutico
(General Manager, Aeronautical Product Certification)

DINO ISHIKURA
Superintendente de Aeronavegabilidade
(Airworthiness Superintendent)

F-400-01F (03.11) Fl. 01 de 02 (Sheet) (of) H.02-3844-0

ANAC

Folha de Continuação ao
(Continuation Sheet to)

CERTIFICADO SUPLEMENTAR DE TIPO
(Supplemental Type Certificate)

NÚMERO **2012S04-03**
(Number)

LIMITAÇÕES E CONDIÇÕES:
(Limitations and Conditions:)

I. The approval of this type design change should not be extended to other aircraft 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 aircraft.

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 FAA approved Airplane Flight Manual Supplement (AFMS) Document No. 120-052-00, Rev. 0, dated 23 July 2008, or later approved revision.

IV. Instructions for Continued Airworthiness (ICA), Document No. 123-033-00, Rev. 1, dated 18 Mar. 2010, or later FAA approved revision and Onboard Systems Component Maintenance Manual, document No. 122-015-00, Rev. 15, dated 15 Nov. 2011 or later FAA approved revision are required for this installation.

V. A copy of this Certificate, the ANAC Approved Model List (AML) for CST No. 2012S04-03 and the Supplement referred on item III above shall be maintained as part of the permanent records of the modified aircraft.

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

F-400-01F (03.11) Fl. 02 de 02 (Sheet) (of) H.02-3844-0

ANAC AML

ANAC

ANAC APPROVED MODEL LIST
FOR CST 2012S04-03

Item	Aircraft Make	Aircraft Model	Type Certification Number	Certification Basis for Alteration
1	Eurocopter France	AS350B	R008 (EASA)	14 CFR PART 27
2	Eurocopter France	AS350B1, AS350B2, AS350B3 and AS350BA	8812 (ANAC)	14 CFR PART 27

ANAC Approved:

HÉLIO TARQUINIO JÚNIOR
Gerente-Geral, Certificação de Produto Aeronáutico
(General Manager, Aeronautical Product Certification)

ANAC Approved Date: **09 Apr. 2012.**

Revision: **I.R.**

Fl. 01 de 01
(Sheet) (of)

H.02-3844-0