PLEASE CHECK WEB SITE AT WWW.ONBOARDSYSTEMS.COM FOR THE LATEST REVISION OF THIS MANUAL

Owner's Manual

For the

Cargo Hook Suspension System

with

Talon LC Hydraulic Cargo Hook

On the

Airbus Helicopters EC120B

System Part Number 200-308-00

Owner's Manual Number 120-123-00
Revision 17
12/22/20

ONBOARD™ SYSTEMS INTERNATIONAL

13915 NW 3rd Court Vancouver, Washington 98685 USA
Phone: 360-546-3072 Fax: 360-546-3073 Toll Free: 800-275-0883
www.OnboardSystems.com

This page intentionally left blank.

Record of Revisions

Revision	*Date*	*Page(s)*	*Reason for Revision*
6	10/17/08	6-7	Updated Master Cylinder Plumbing Assembly P/N from 232-210-00 to 232-210-02.
7	02/10/09	TOC, 6-10 & 6-12	Deleted illustrated parts list figure for P/N 232-263-00. Updated illustrated parts list figure 232-262-00 to use 232-263-01 instead of 232-263-00.
8	07/29/10	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 through out document.
9	03/15/11	1-3 & 2-12	Replaced Washer P/N 510-454-00 with 510-085-00.
10	03/28/11	5-1 & 6-6	Replaced Screw P/N 510-157-00 with P/N 510-902-00. Updated RMA information.
11	05/05/11	6-6	Updated Master Cylinder Assembly figure. Changed screw P/N 510-390-00 to P/N 510-987-00.
12	12/19/11	6-10	Replaced Cup Seal (P/N 556-038-00) with Quad Ring (P/N 556-097-00) inside Slave Cylinder assembly.
13	06/06/13	6-3	Replaced Bumper P/N 290-839-01 with 290-839-02.
14	10/11/13	6-10	Replaced Slave Cylinder Plumbing P/N 232-263-01 with P/N 232-263-02.
15	02/11/16	1-4, 2-22, 4-3, 4-4	Updated Airbus switch panel P/Ns, updated cargo hook rigging instructions, updated installation check-out.
16	11/01/17	2-17 – 2-19	Replaced fluid MIL-PRF-5606 with MIL-PRF-87257 and bleed kit 212-014-01 with 212-014-02.
17	12/22/20	2-13, 2-14	Corrected cotter pin P/N in Figure 2.4.2 and Figure 2.4.3 from 510-222-00 to 510-113-00. Removed C-39 operating instructions, these are contained in 120-039-00. Added reference to 120-039-00.

Register Your Products for Automatic Notifications

Onboard Systems offers a free notification service via fax or email for product alerts and documentation updates. By registering your Onboard Systems products at our website, we will be able to contact you if a service bulletin is issued, or if the documentation is updated.

You can choose to receive notices on an immediate, weekly, or monthly schedule via fax, email or both methods. There is no charge for this service. Please visit our website at www.onboardsystems.com/notify.php to get started.

This page intentionally left blank.

CONTENTS

This page intentionally left blank.

Section 1
General Information

Introduction

The P/N 200-308-00 Cargo Hook Suspension System is approved for installation on Airbus Helicopters EC120B model helicopters.

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

⚠ CAUTION

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

Table 1.1 Suspension System Specifications

Design load	1,543 lbs. (700 kgs.)
Design ultimate strength	5,786 lbs. (2,624 kgs.)
Unit weight - Fixed Provisions	6.5 lbs. (2.95 kgs.)
Unit weight - Removable Provisions	15.5 lbs. (7.03 kgs.)

Table 1.2 P/N 528-028-00 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. (3,968 kg.)
Mechanical release capacity	8,750 lbs. (3,968 kg.)
Force required for mechanical release at 3,500 lb.	12 lbs max. @ release lever on master cylinder.
Electrical requirements	22 - 32 VDC, 6.9 - 10 amps
Minimum release load	0 pounds
Unit weight	3.0 pounds (1.36 kg.)
Mating electrical connector	PC05A8-2S

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 200-308-00 Cargo Hook Suspension System. If shortages are found contact the company from whom the system was purchased.

Table 1.3 Onboard Systems Bill of Materials

Part No.	Description	Qty
232-259-00	Suspension Assembly	1
291-066-00	RH Aft Hard Point Fitting	1
291-067-00	Forward Hard Point Fitting	2
215-196-00	Placard	1
215-197-00	Electrical Code Label Set	1
270-141-00	Electrical Release Internal Harness	1
270-142-00	Internal Load Weigh Harness	1
232-208-00	Master Cylinder with Plumbing	1
210-095-00	C-39 Indicator	1
232-286-00	C-39 Bracket Assembly	1
290-783-00	Relay Bracket	1
235-137-00	Connector Bracket	1
291-127-00	LH Aft Hard Point Fitting	1
410-258-00	Ring Terminal	1
445-005-00	Relay	1
510-588-00	Screw	4
510-590-00	Washer	4
510-593-00	Nut	4
510-589-00	Bolt	4
510-596-00	Washer	2
510-113-00	Cotter Pin	4
510-591-00	Washer	2
510-592-00	Washer	2
510-277-00	Screw	2
510-278-00	Washer	2
510-279-00	Nut	2
510-486-00	CherryMax Rivet	3
512-005-00	Loop Clamp	3
510-453-00	Bolt	3
510-042-00	Washer	3
510-102-00	Nut	5
510-457-00	Screw	7
510-481-00	Screw	8
510-062-00	Washer	8
510-029-00	Nut	8
510-642-00	Screw	2
510-085-00	Washer	2
510-475-00	Screw	2
120-039-00	Owner's Manual – C-39 Indicator	1
120-123-00	Owner's Manual	1
121-031-00	RFMS	1
123-024-00	ICA	1
122-015-00	Cargo Hook Component Maintenance Manual	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 for the Switch panel must be on the aircraft or purchased from Airbus Helicopters (AH) to complete the installation.

Table 1.4 Airbus Helicopters Part Numbers

AH P/N	Description	Qty
321VM01A002AN0B	Switch Base Body	1
100M01Z34*	Head Light	1

*Newer EC120s use the following AH P/N's, refer to the IPC for your aircraft to verify correct P/Ns:
045004A112A - Button "Sling"
100M01K00242BPV - Head Light

Theory of Operation

The 200-308-00 Cargo Hook Suspension System is comprised of:

- A suspended frame that supports the cargo hook and load cell.
- An electrical release system that provides means for release by pilot actuation of the push-button switch in the cockpit. When the push-button switch is pressed, it energizes the DC solenoid in the cargo hook, and the solenoid opens the latch in the internal mechanism.
- A 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.
- Ground personnel may also release a load by the actuation of a lever located on the side of the cargo hook.
- A load weigh system, which is comprised of an indicator, mounted to the RH door pillar within the cockpit, connected to a load cell between the cargo hook and suspended frame.

A load is attached to the cargo hook by passing a cargo sling ring into the throat of the load beam and pushing the ring against the upper portion of the load beam throat, which will 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.

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

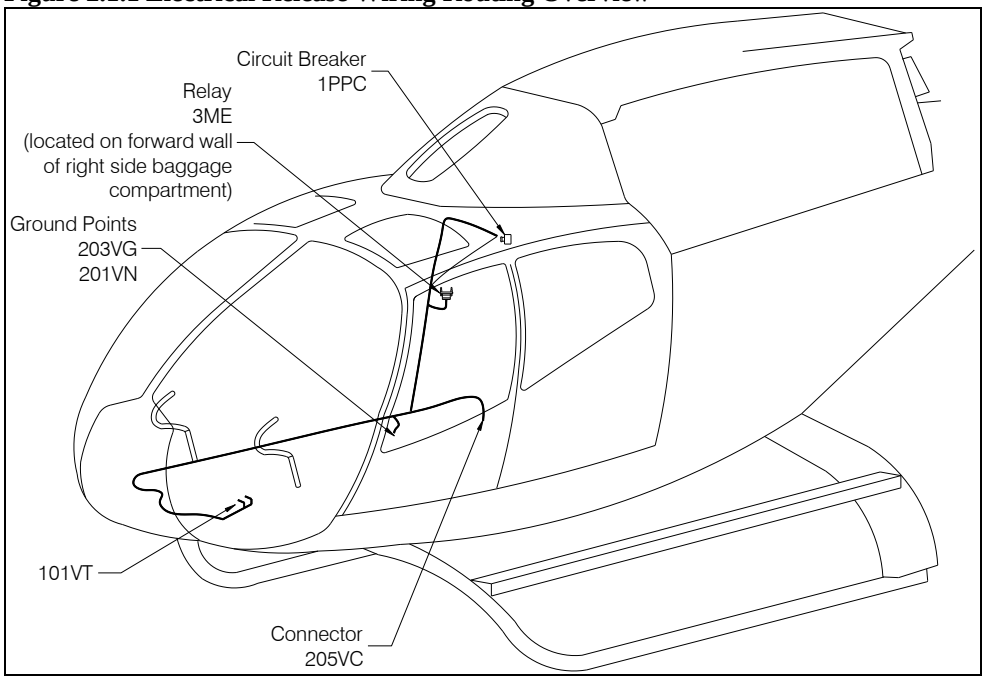
The internal electrical release harness (P/N 270-141-00) wiring is routed as shown in Figure 2.1.1. The electrical release harness interfaces with terminal block 101VT. The 200-308-00 kit requires that the helicopter be wired from 101VT to the cyclic switch wiring connections at 6001VC and 7001VC and to the LACU (reference Figure 2.1.2 for schematic). The load weigh system harness (P/N 270-142-00) wiring is routed as shown in Figure 2.1.5. Route the harnesses along existing harnesses 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 electrical contacts (P/N 410-228-00, P/N 410-229-00, and P/N 410-230-00) provided with the harnesses. Use the supplied ring terminal (P/N 410-258-00) to connect to ground point 201VN.

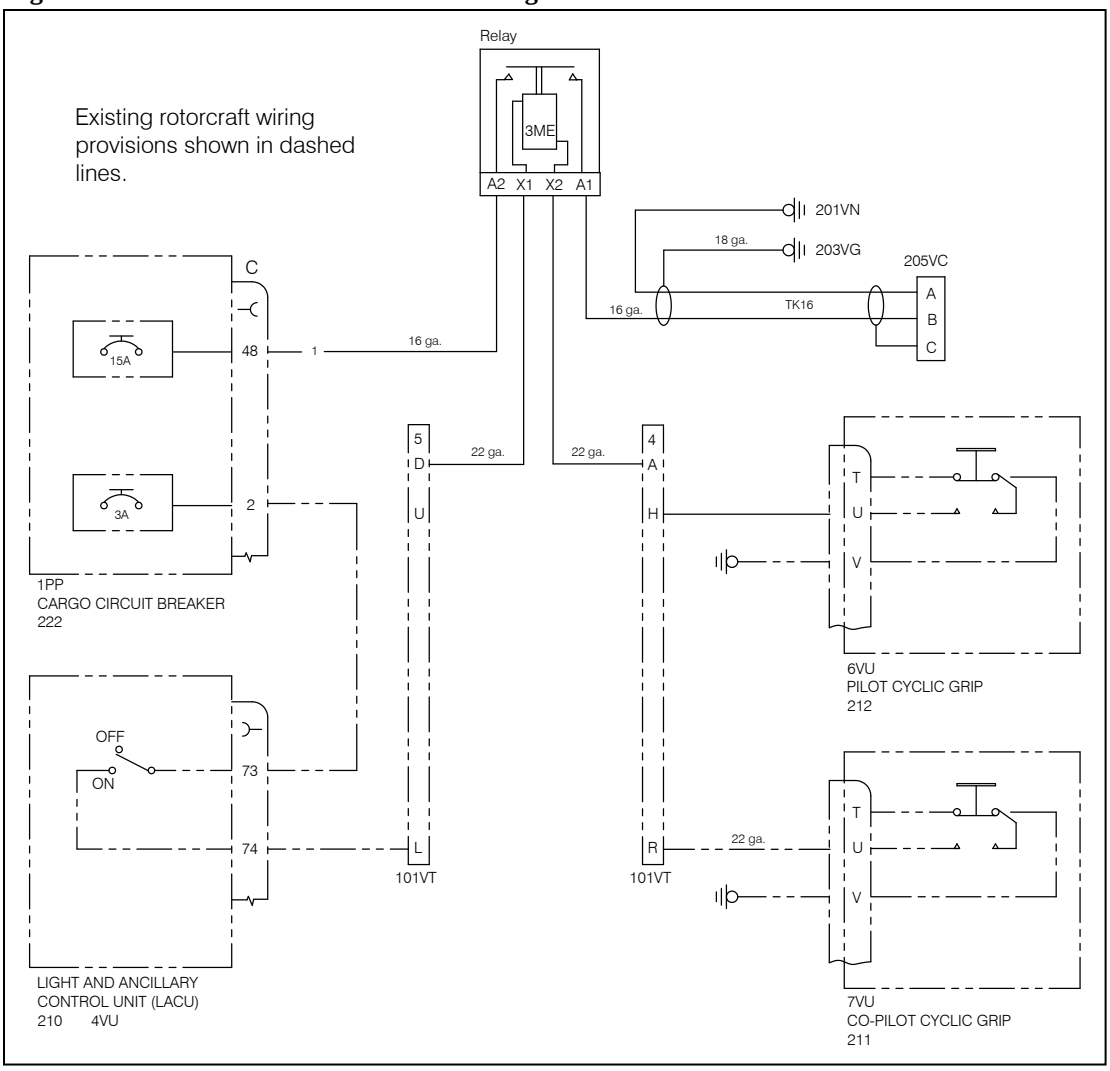
Install the Relay Bracket and Connector Bracket per Figures 2.1.3, 2.1.4 and 2.1.5.

Figure 2.1.1 Electrical Release Wiring Routing Overview



2.1 Electrical Wiring Installation continued

Figure 2.1.2 Internal Electrical Release Wiring Schematic

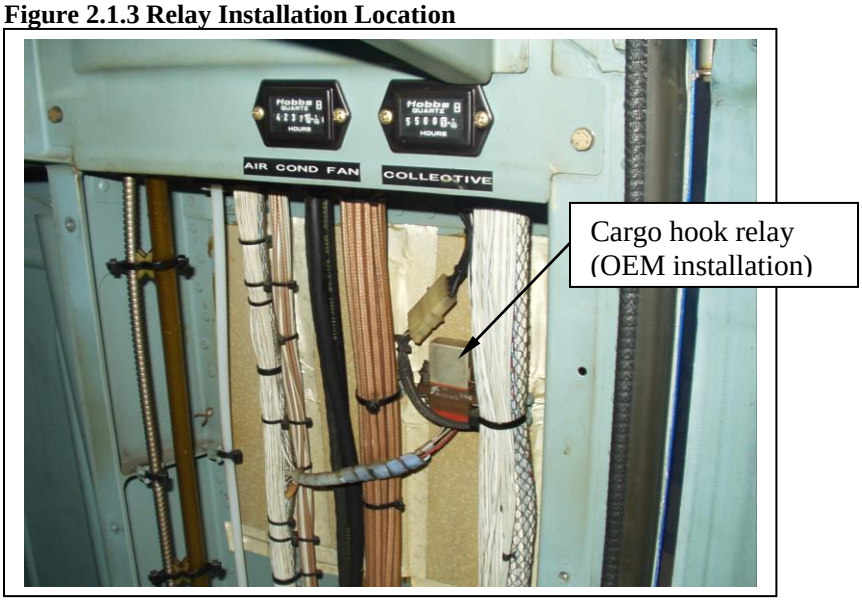


2.1 Electrical Wiring Installation continued

The cargo hook relay (3ME) is to be installed on the right side of the forward wall of the helicopter's cargo compartment (aft of the cabin).

- Install the relay in the location reserved behind the protection plate under the electrical master box (reference Figure 2.1.3).

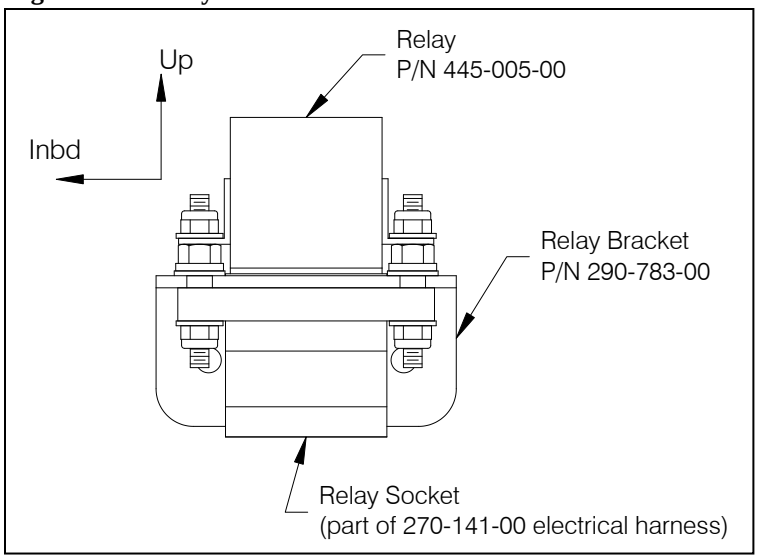
Figure 2.1.3 Relay Installation Location



If this location is not available use the supplied Relay Bracket (P/N 290-783-00) to mount the relay in this area.

- Drill two 0.169 inch (4.3 mm) holes in the forward wall to match the hole pattern in the Relay Bracket.
- 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 270-141-00 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

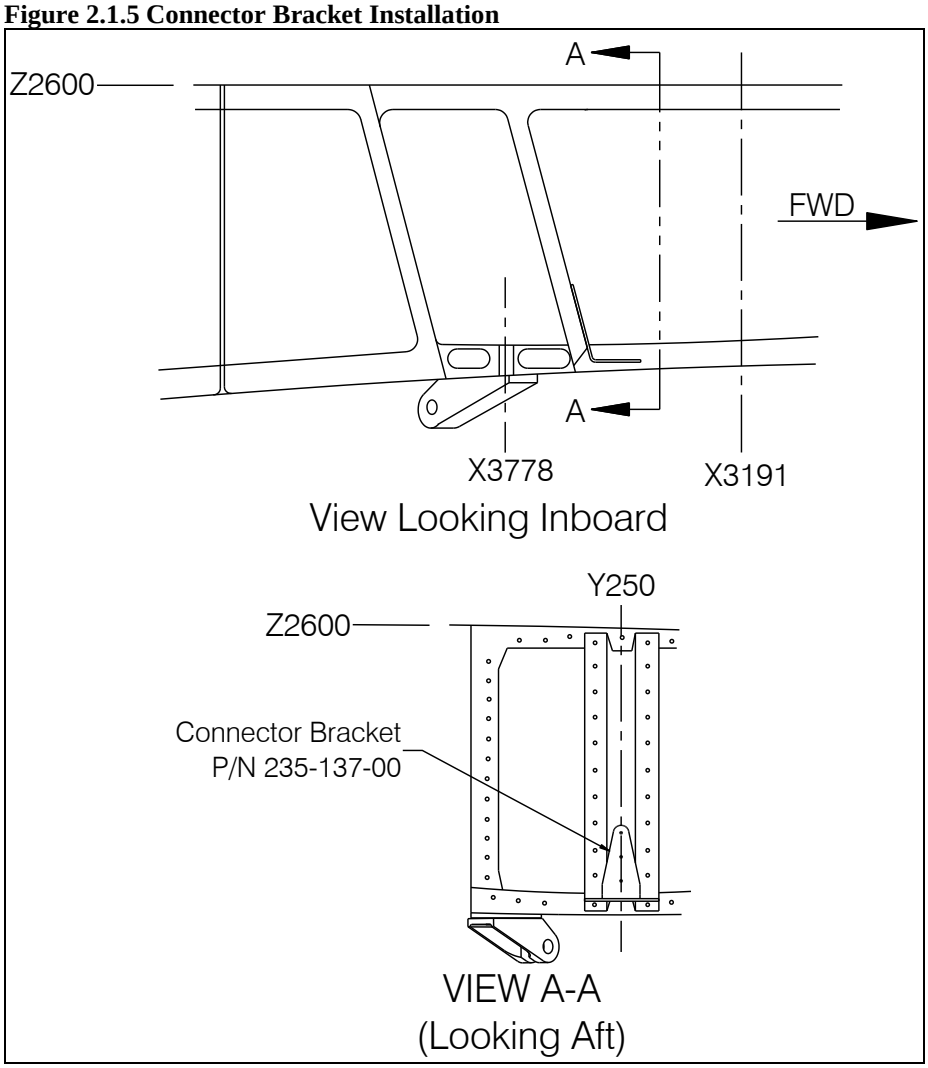
- Locate Connector Bracket (P/N 235-137-00) at the frame just forward of the right forward hard point location (at X3778). Locate it on the frame stiffener at Y250 as illustrated below.

NOTICE

The Connector Bracket (P/N 235-137-00) is designed to attach to the airframe using the same hole pattern as the Airbus Helicopters connector bracket

- If the Airbus Helicopters connector bracket is present, remove rivets to remove it.
- Drill out pilot holes in Connector Bracket P/N 235-137-00 to 0.129/0.132" (3.2/3.4 mm) diameter and drill frame stiffener to match (if necessary).
- Secure Connector Bracket to frame stiffener with three rivets (P/N 510-486-00).

Figure 2.1.5 Connector Bracket Installation

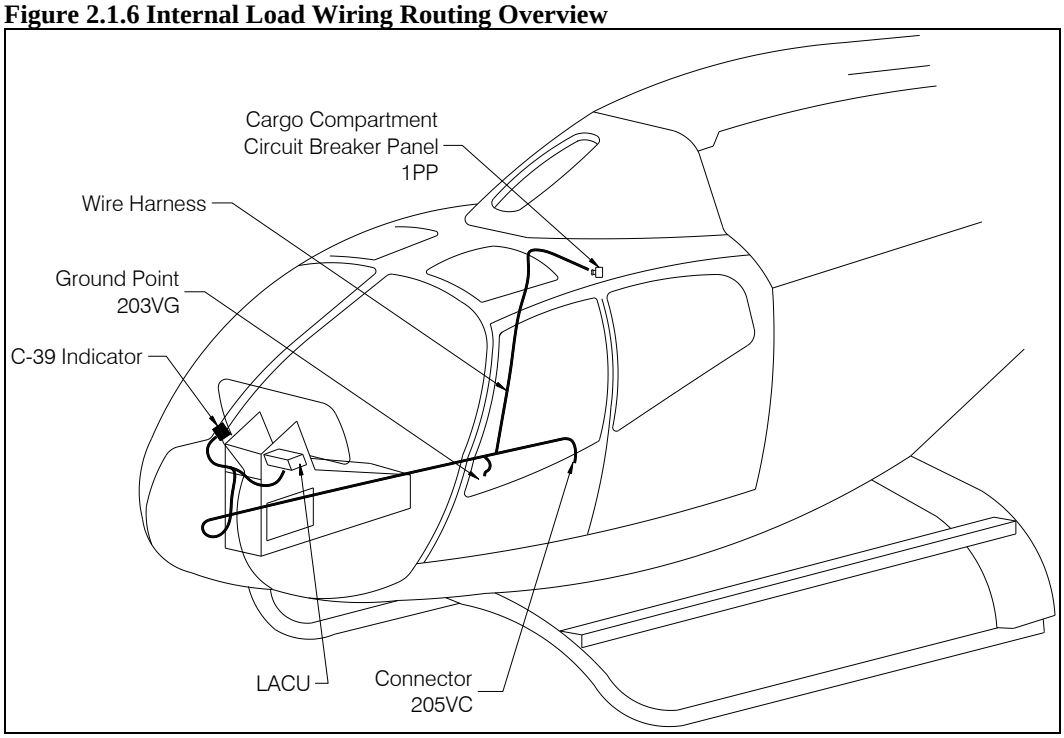


2.1 Electrical Wiring Installation continued

The load weigh system harness (P/N 270-142-00) wiring is routed as shown below, refer to Figure 2.1.7 for the electrical schematic. The C-39 indicator is installed per Section 2.3.

If the C-39 indicator is to be mounted on the right side of the instrument panel shroud (reference Section 2.3) create a hole in the instrument panel shroud, aft of the indicator location to route the indicator connector through.

Figure 2.1.6 Internal Load Wiring Routing Overview



- Fasten hook electrical release connector to the Connector Bracket with screws (P/N 510-481-00), washers (P/N 510-062-00), and nuts (P/N 510-029-00).

NOTICE

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

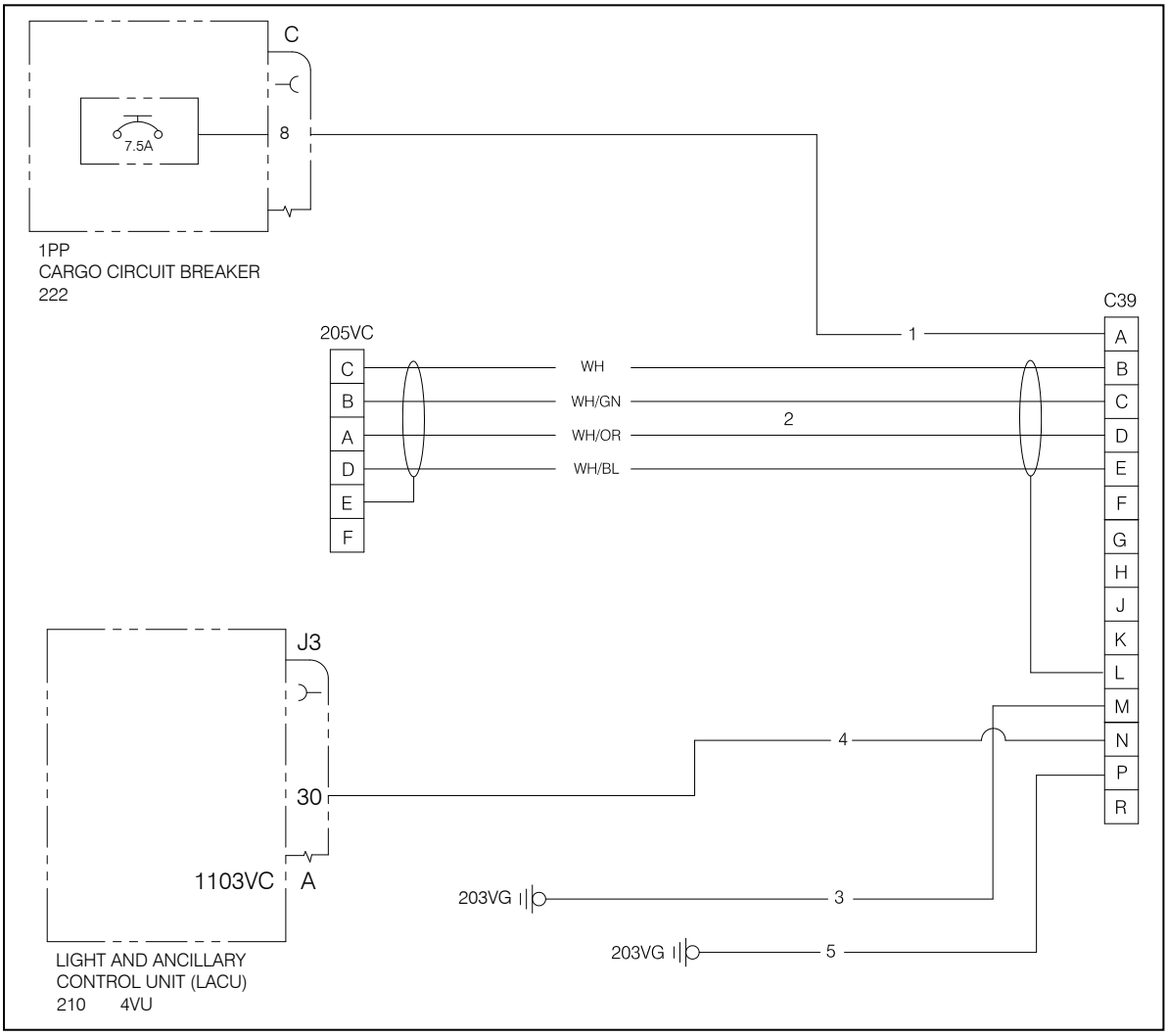
NOTICE

Install the load weigh connector after the hydraulic connector is installed per section 2.2.

2.1 Electrical Wiring Installation continued

The electrical schematic for the load weigh system is shown below. If connections shown for power (1PP) and lights (LACU) are unavailable, pick up another point at these locations. The load weigh system requires less than 100 mA for power and less than 25 mA for lights.

Figure 2.1.7 Internal Load Weigh System Wiring Schematic



2.2 Fixed Hydraulic Release System Installation

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

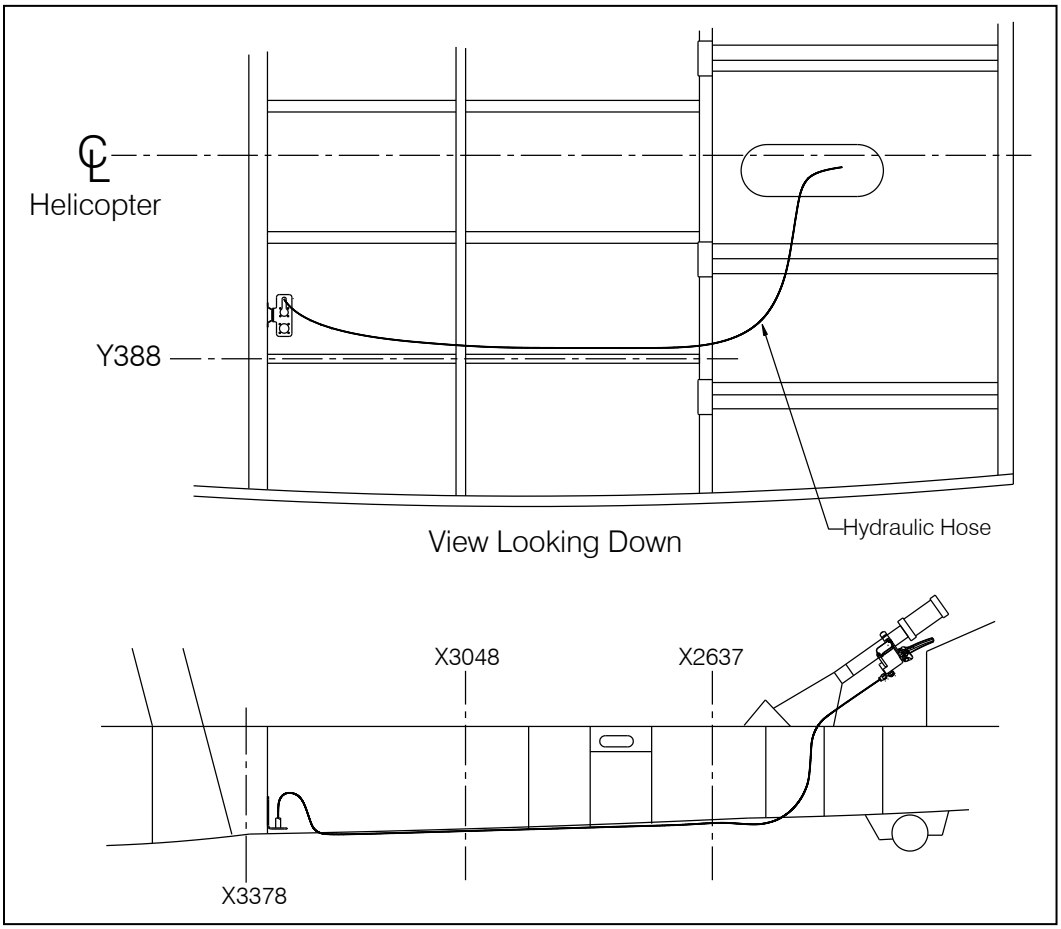
Remove lower fairings on the helicopter as necessary in order to obtain access to hydraulic hose routing areas.

NOTICE

The hole in the forward lower fairing will need to be enlarged to accommodate the two electrical connectors and the hydraulic connector.

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, then outboard towards the right side of the helicopter, and then aft along the beam at Y388. 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



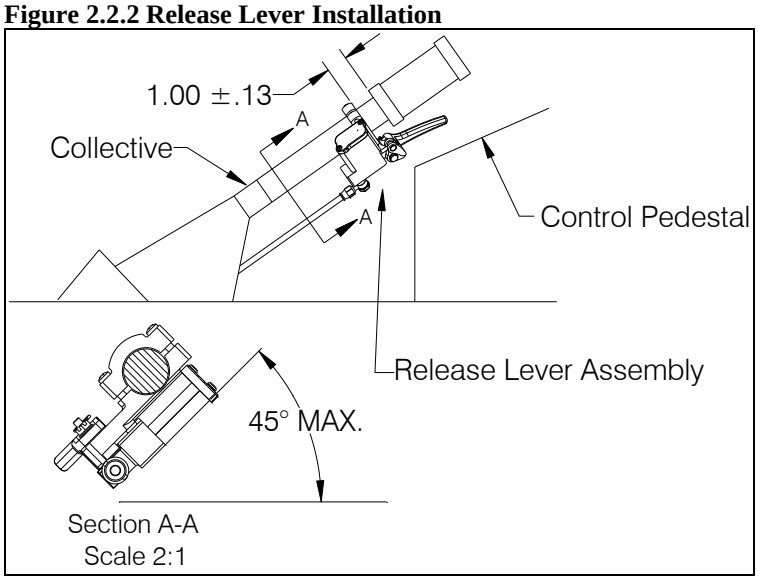
2.2 Fixed Hydraulic Release System Installation continued

- Mount the Release Lever Assembly (P/N 232-204-00) to the collective shaft as shown below with the two screws provided pre-assembled. Adjust the lever position (refer to Figure 2.2.3) as necessary and rotate the release lever assembly as necessary to clear the control pedestal (do not rotate more than 45º). Check that there is no interference with the circuit breakers or knobs on the control pedestal when the collective is in its full down position.
- Tighten the Release Lever Assembly clamp until contact with the collective shaft is made, then tighten each screw approximately half a turn. Check that the Release Lever Assembly does not rotate on the shaft and that the collective pitch lever twist grip operates correctly.

CAUTION

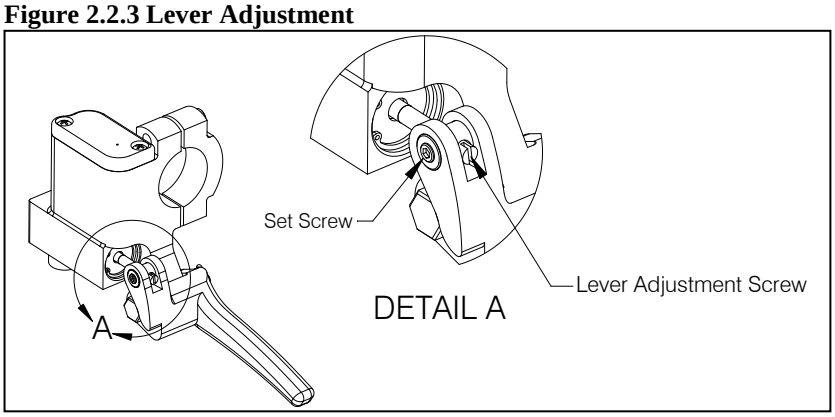
Do not over-tighten the two screws that secure the release lever assembly to the collective shaft. The shaft can be deformed and interfere with twist grip operation.

Figure 2.2.2 Release Lever Installation



- If necessary adjust position of lever (see below) on master cylinder to give full stroke of lever. Secure lever adjustment screw with set screw. Ensure there is no interference in any combination of control movements.

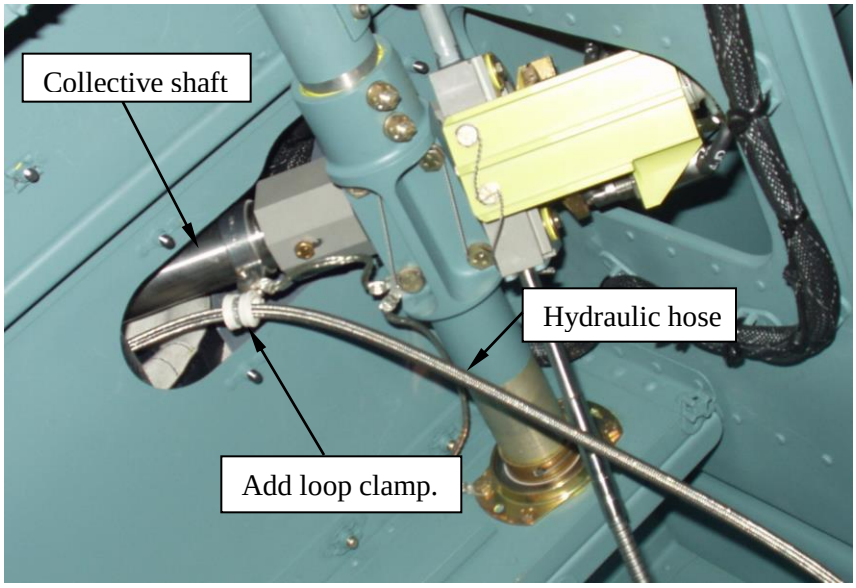
Figure 2.2.3 Lever Adjustment



2.2 Fixed Hydraulic Release System Installation continued

- Aft of the collective, route the hose underneath the cabin floor through the Velcro seam of the collective pitch lever boot.
- Underneath the cabin floor, at the base of the collective, secure the hose with loop clamp (P/N 512-005-00), bolt (P/N 510-453-00), washer (P/N 510-042-00), and nut (P/N 510-102-00).

Figure 2.2.4 Hose Tie Off at Collective



NOTICE

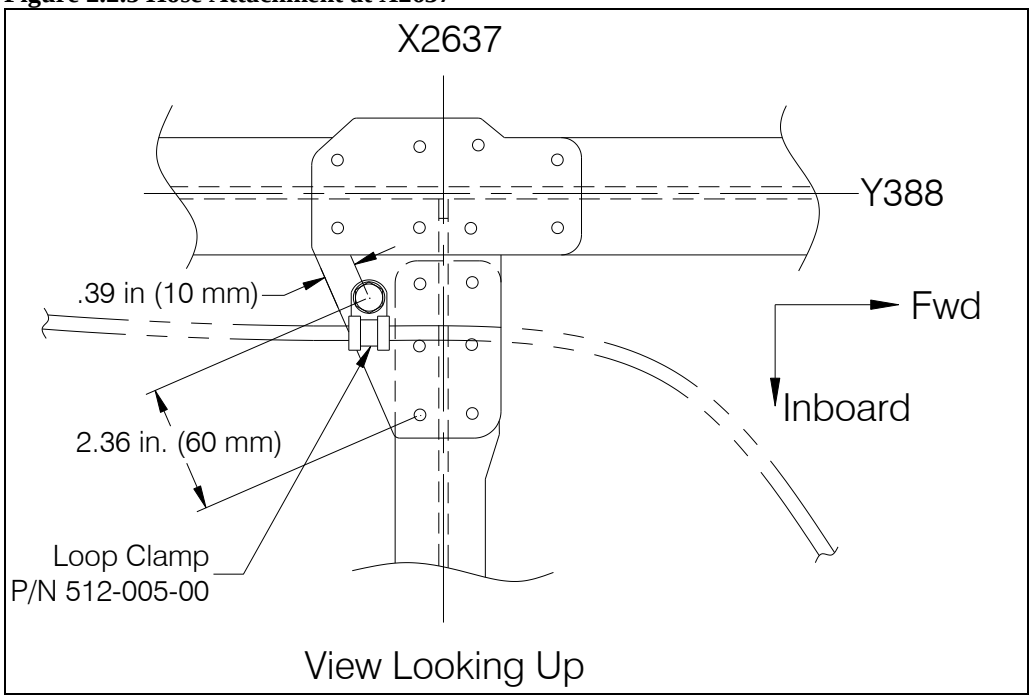
The hydraulic hose uses the same loop clamp mounting points as the OEM manual release cable.

- Route the hose down and to the right side of the aircraft to the beam at Y388 and secure near frame at X2637 with loop clamp (P/N 512-005-00). Secure loop clamp with bolt (P/N 510-453-00), washer (P/N 510-042-00), and nut (P/N 510-102-00). If hole is not present at this location, drill one at 0.196 in. (5.2 mm) diameter. Refer to Figure 2.2.5.

CAUTION

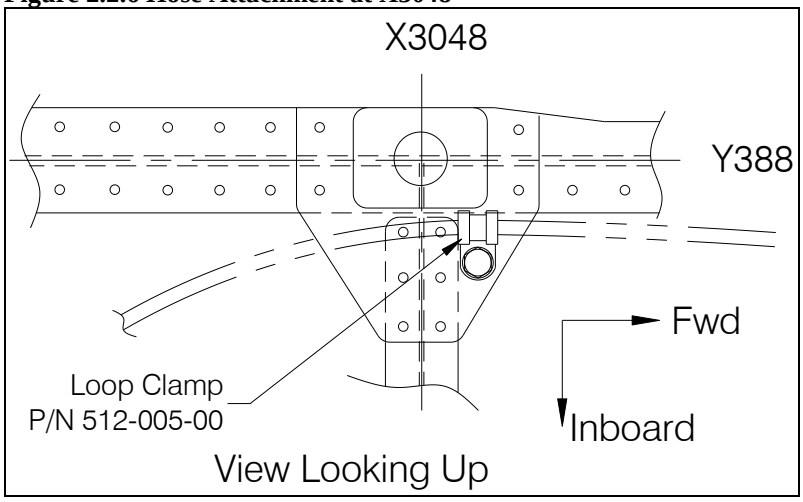
Cycle collective and verify hydraulic hose is secured clear of flight controls.

Figure 2.2.5 Hose Attachment at X2637



- Route the hose aft along the beam at Y388 and secure near frame at X3048 with loop clamp (P/N 512-005-00). Secure loop clamp with bolt (P/N 510-453-00), washer (P/N 510-042-00), and nut (P/N 510-102-00). If hole is not present at this location, drill one at 0.196 in. (5.2 mm) diameter.

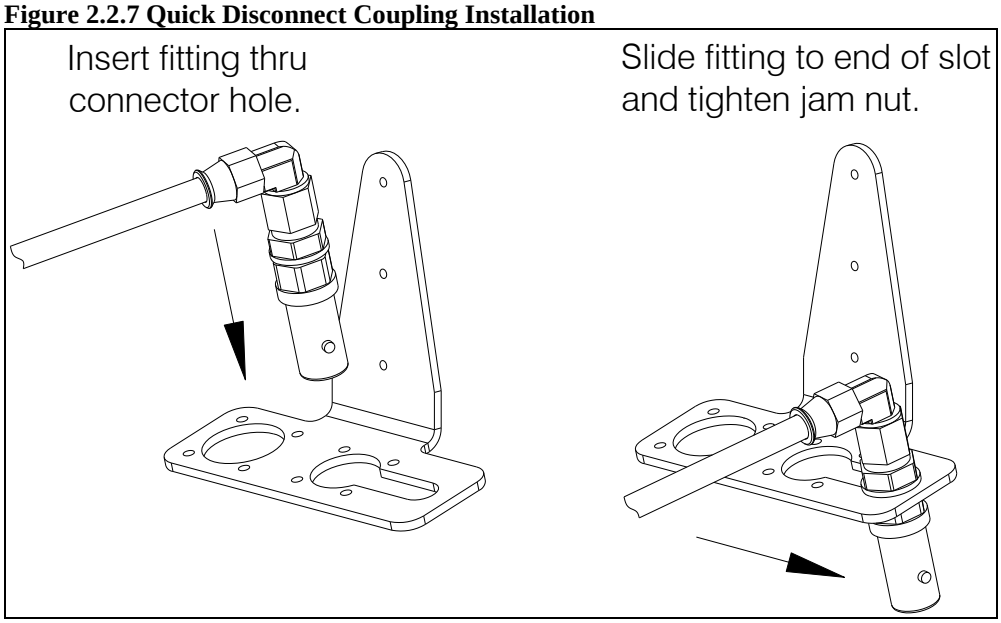
Figure 2.2.6 Hose Attachment at X3048



2.2 Fixed Hydraulic Release System Installation continued

- ❑ Aft of the loop clamp at X3048 route the hose directly to the connector bracket installed per Section 2.1 at Y250.
- ❑ Pass the hydraulic quick disconnect coupling through the slotted hole. Slide the fitting to the end of the slot and tighten the jam nut securely against the Connector Bracket.

Figure 2.2.7 Quick Disconnect Coupling Installation



- ❑ Install the electrical release harness connector and load cell harness connector 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).

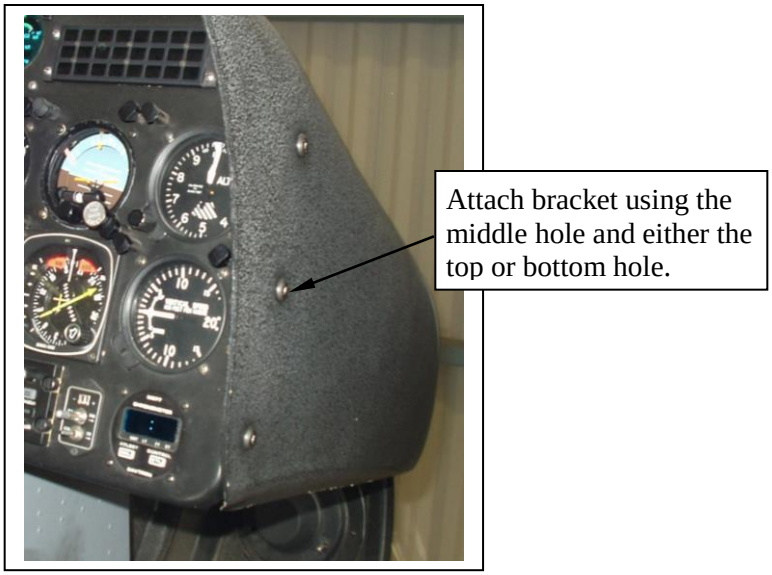
- ❑ Install electrical marker 205VC (P/N 215-197-00) near or on the Connector Bracket.
- ❑ Enlarge the hole in the forward lower fairing to approximately 4 inches (100 mm) in diameter to accommodate the connectors.
- ❑ Re-install lower fairings if both the hydraulic and electric systems have been installed.

2.3 C-39 Indicator Installation

A bracket (P/N 232-286-00) is provided to mount the C-39 Indicator to the right side of the instrument panel. The C-39 Indicator may also be mounted within the instrument panel.

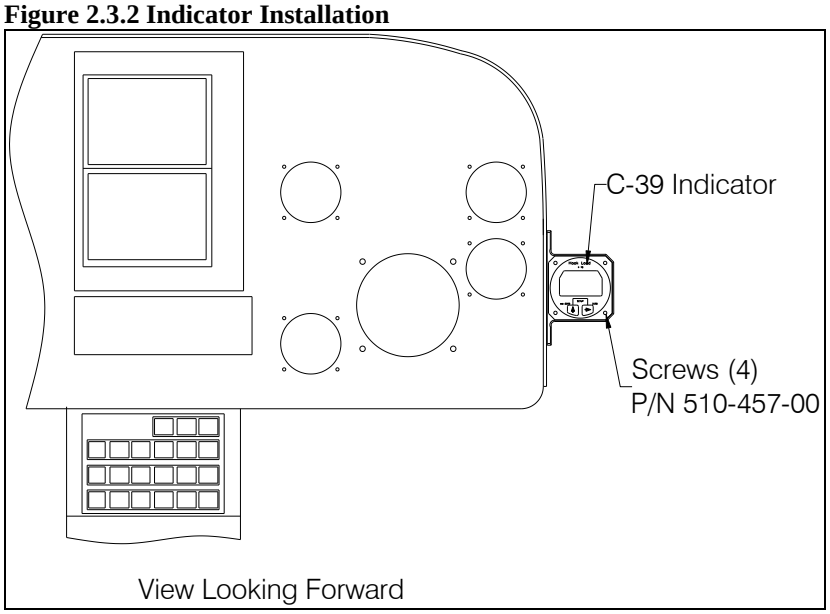
- The bracket mounting holes are spaced and slotted to allow it to pick up either two of the three existing holes (see below) that secure the instrument panel shroud to the instrument panel. Attach with the supplied screws (P/N 510-475-00).
- The bracket can also be mounted forward of the instrument panel by transferring its hole pattern to the shroud and installing it with the supplied hardware (two (2) screws P/N 510-642-00, washers P/N 510-085-00, and nuts P/N 510-102-00).

Figure 2.3.1 Indicator Bracket Installation Location



- Place C-39 Indicator (P/N 210-095-00 or P/N 210-095-04) into the bracket and secure with four screws (P/N 510-457-00).

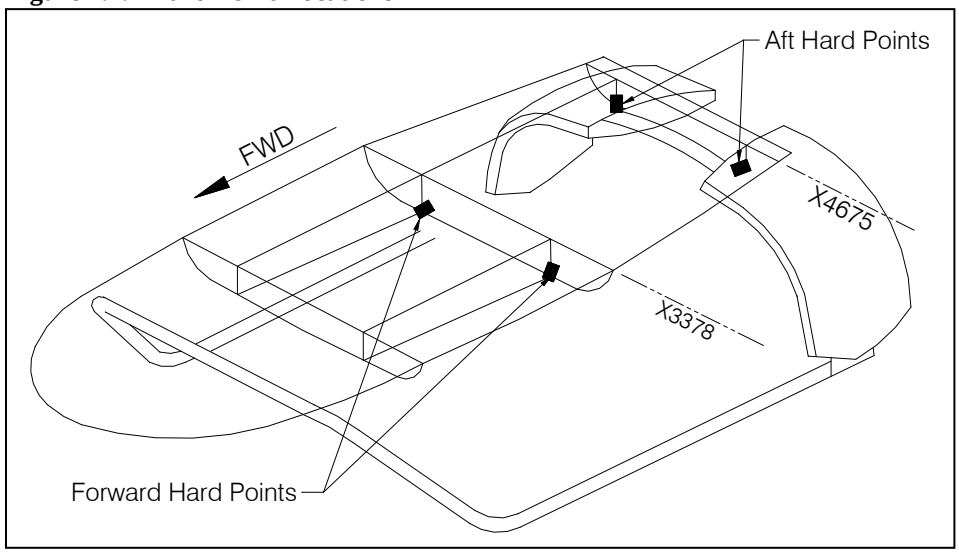
Figure 2.3.2 Indicator Installation



2.4 Hard Point Installation

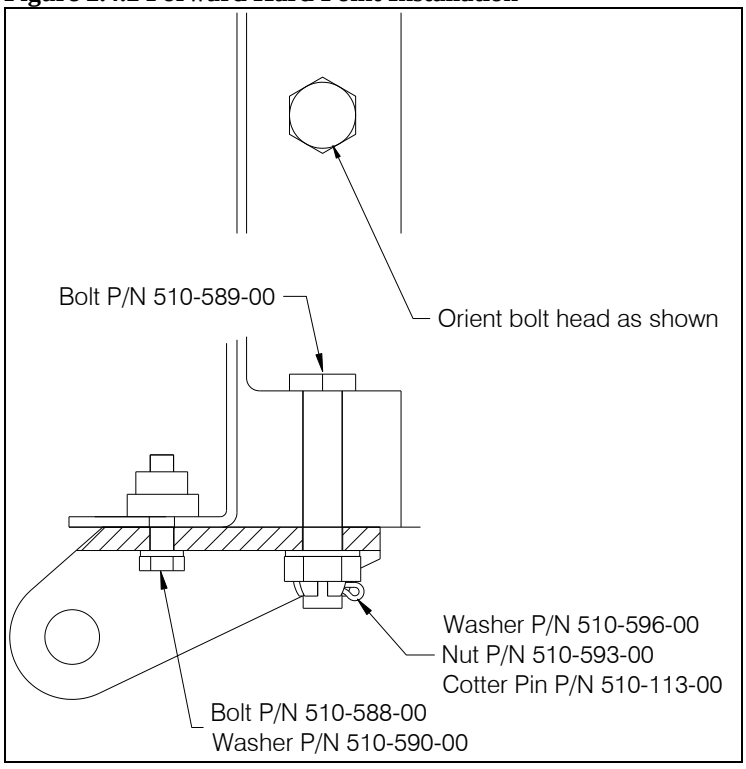
The hard point fittings are bolted to the underside of the helicopter using existing holes at X3378 and X4675.

Figure 2.4.1 Hard Point Locations



- Apply a corrosion preventative compound to the faying surfaces of the hard point fittings and airframe.
- Attach the forward hard point fittings with hardware as shown below. Orient bolt head as shown to clear the radius of the structure. Torque nut P/N 510-593-00 to between 30 and 35 ft-lbs (41 - 48 N-m). Torque bolt P/N 510-590-00 to between 66 and 79 in-lbs (7.5 - 9 N-m).

Figure 2.4.2 Forward Hard Point Installation



2.4 Hard Point Installation continued

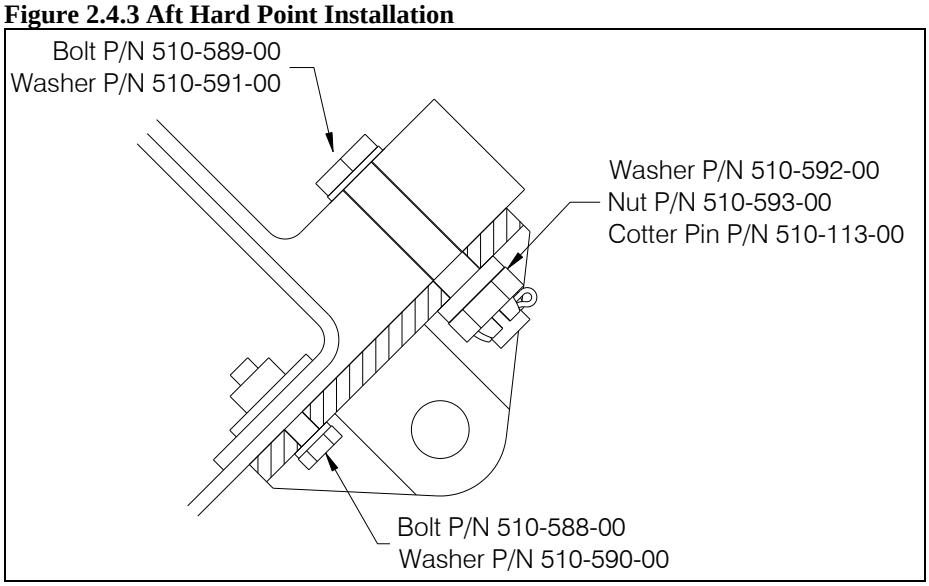
Attach the aft hard point fittings (P/N 291-066-00 and 291-127-00) with hardware as shown below.

NOTICE

*P/N 291-127-00 has a wider slot and must be attached at the **left side** to accept the rod end on the adjustable cable of the suspension system.*

Orient bolt head as shown in Figure 2.4.2 to clear the radius of the structure. Torque nut P/N 510-593-00 to between 30 and 35 ft-lbs (41 - 48 N-m). Torque bolt P/N 510-590-00 to between 66 and 79 in-lbs (7.5 - 9 N-m).

Figure 2.4.3 Aft Hard Point Installation



2.5 Suspension Assembly Installation

- ❑ Install the Cargo Hook Suspension onto the aircraft by attaching the pair of shorter suspension cables to the **forward** hard points and the two aft suspension cables to the **aft** hard points with the Quick Release Pins as shown in Figure 2.5.1. The FWD arrow on top of the suspension frame can also be used to verify correct installation. Install the attached safety pins at each Quick Release Pin.

CAUTION

The shorter pair of suspension cables must be attached to the forward hard points and the longer two suspension cables must be attached to the aft hard points.

NOTICE

The aft LH suspension cable is adjustable, refer to following page for adjustment instructions.

Figure 2.5.1 Cargo Hook Suspension Assembly Installation

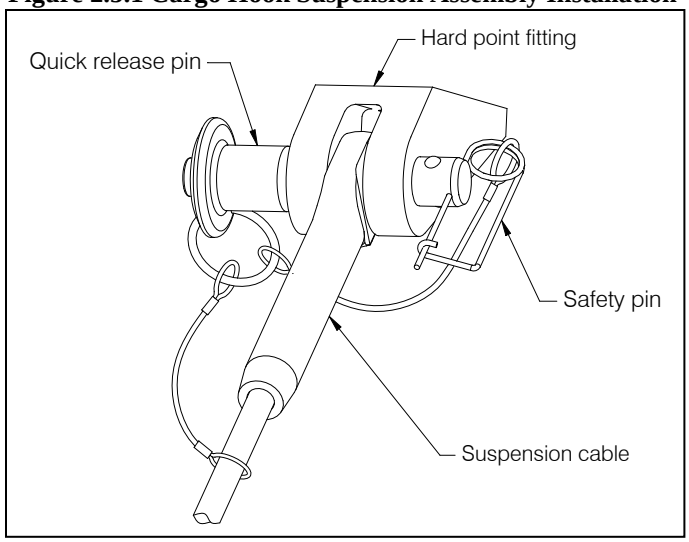
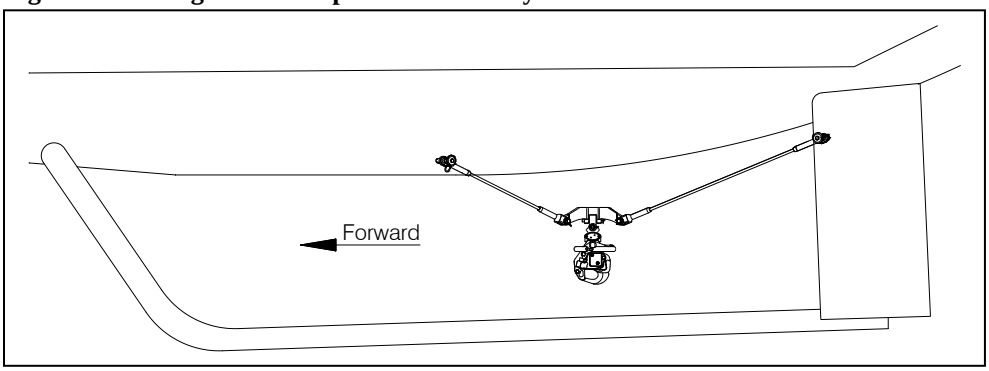


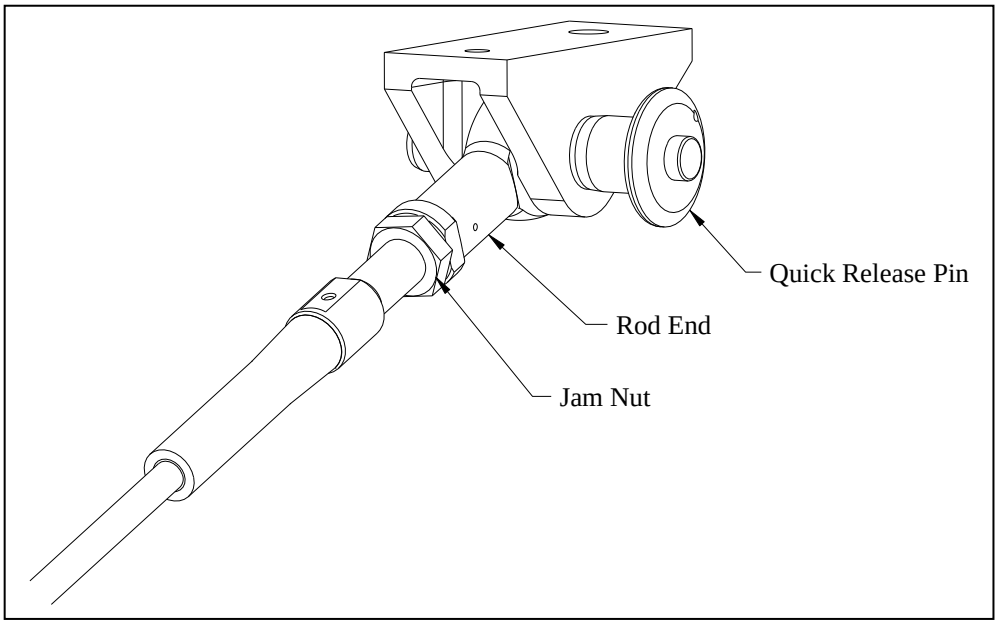
Figure 2.5.2 Cargo Hook Suspension Assembly Orientation



2.5 Suspension Assembly Installation continued

- Attach an approximate load of 25 pounds to the cargo hook. Check to see if there is slack in any of the suspension cables. If necessary, adjust the aft LH suspension cable as needed to remove any slack from cables. Adjust the cable length by removing the release pin, loosening the jam nut and rotating the rod end in the required direction. After adjustment to satisfactory length, re-tighten the jam nut.

Figure 2.5.3 Cable Adjustment



- 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 per Section 2.2 at the belly of the helicopter.

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 mechanism.

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 123-024-00, 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.

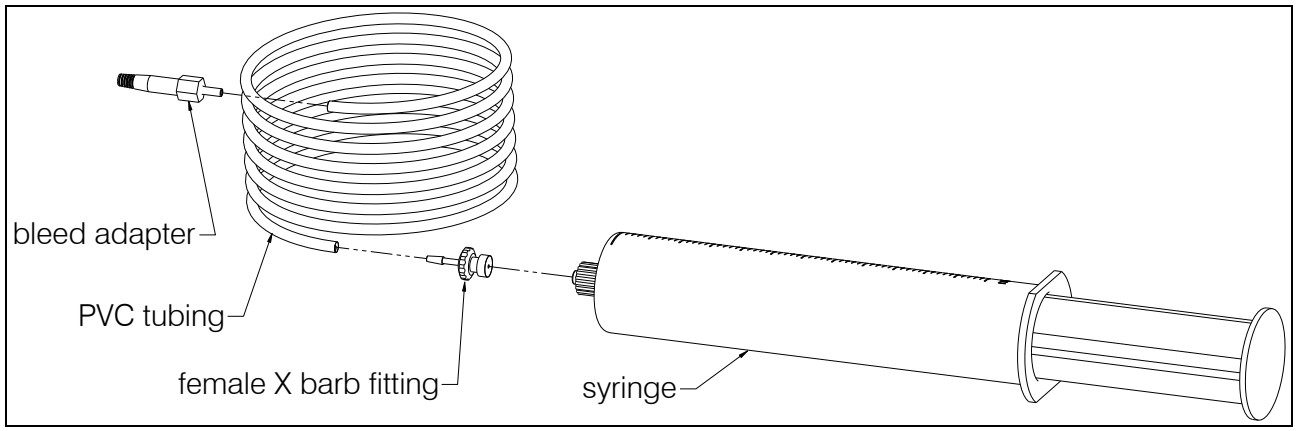
NOTICE

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

Bleeding procedure:

1. Obtain the hydraulic hook bleed kit, 212-014-02. This kit consists of 2 ounces of hydraulic fluid, a syringe, a female barb fitting, a length of PVC tubing, and a bleed adapter fitting. The bleed kit is included in new Hydraulic Hook kits. Assemble the bleed kit by press fitting each component as shown.

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.

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 2.6.2 Hose Arrangements

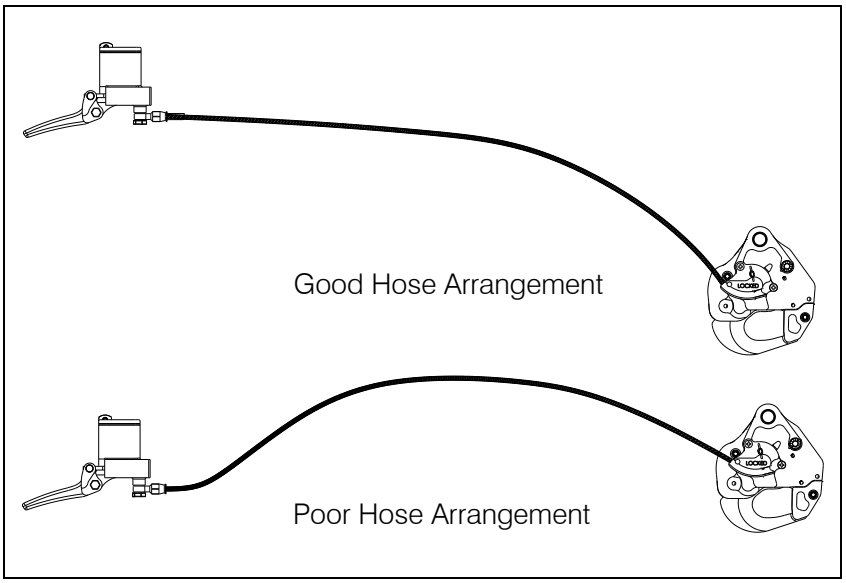
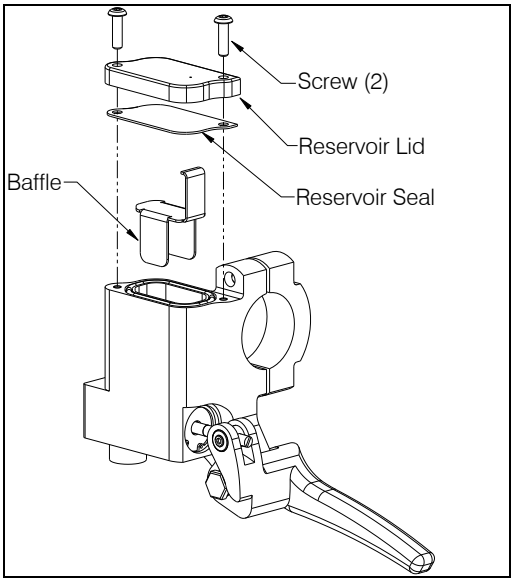


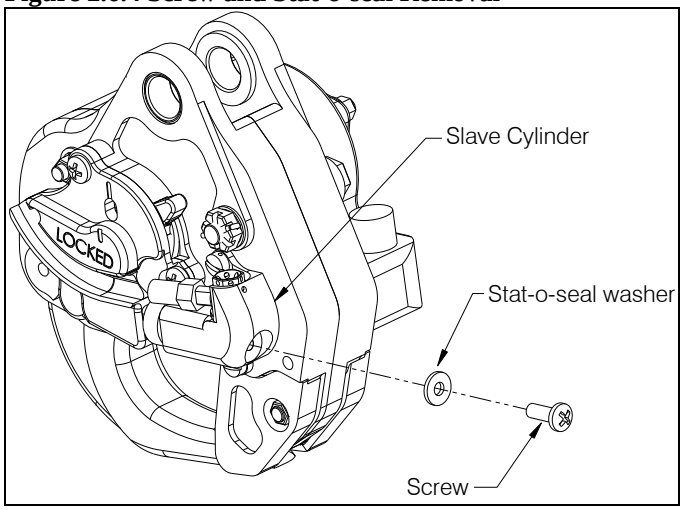
Figure 2.6.3 Reservoir Disassembly



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

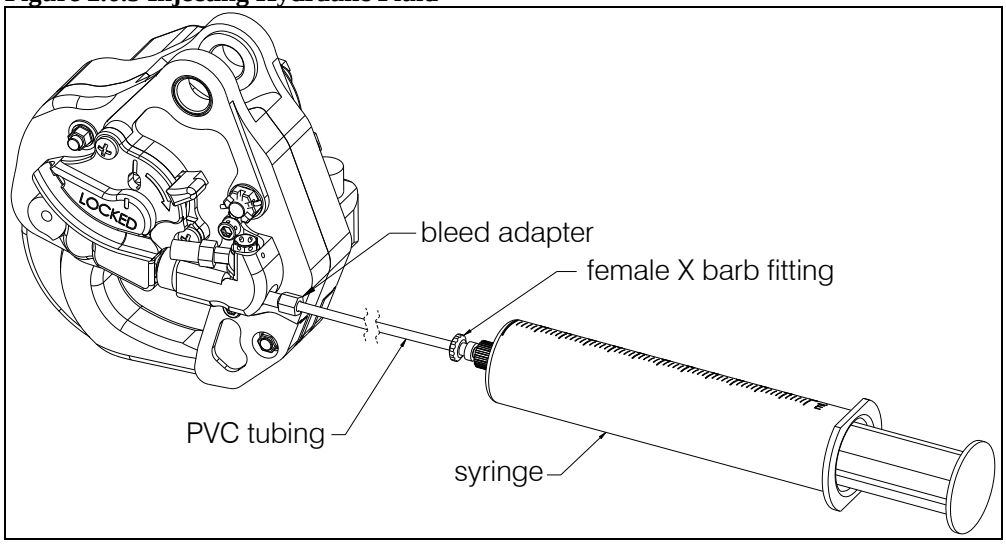


6. Fill the syringe with approximately 35 cc of hydraulic fluid and purge any remaining air in the syringe and tubing. Screw the end of the bleed adapter into the screw hole on the slave cylinder to create a tight seal. See Figure 2.6.5.
7. While observing the reservoir, **slowly** push on the syringe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

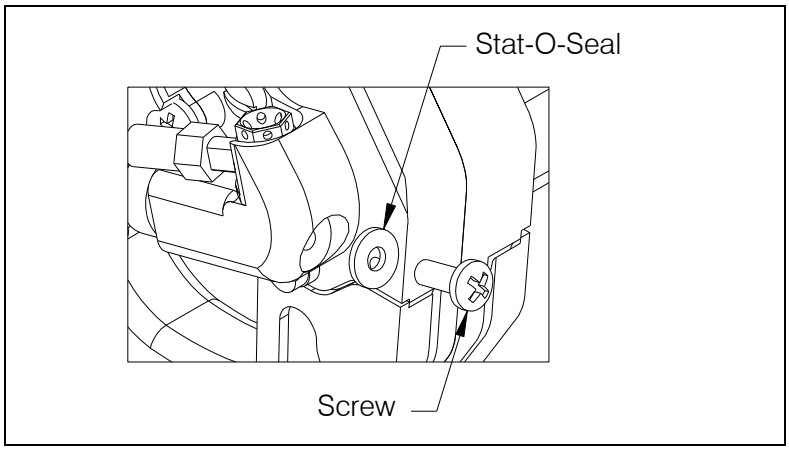
8. Continue to force fluid into the master cylinder reservoir until the reservoir is approximately half full.

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.

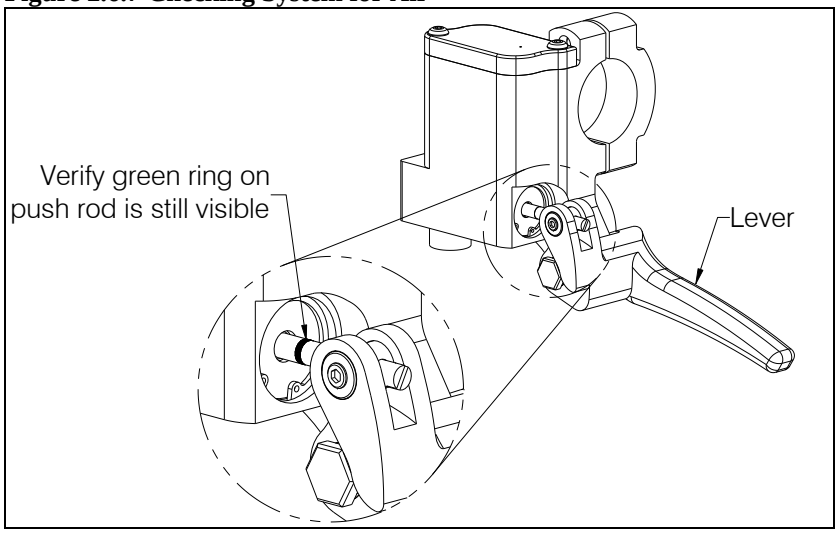
CAUTION

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 Placard Installation

- Install load limitation placard, P/N 215-196-00 (1543 lb. max. hook load). Locate the placard on the belly of the helicopter, visible to the ground operator and near the cargo hook.

2.8 Installation Check-Out

After installation of the Cargo Hook Suspension 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 hose or harnesses. The hose or 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 handle operated cargo hook hydraulic release, the cargo hook should release. Reset the cargo hook load beam.
- 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.

2.9 Component Weights

The weights of the Cargo Hook Suspension System components are listed below.

Table 2.9.1 Component Weights

Item	Weight
Removable Provisions*	15.5 lbs (7.03 kg)
Fixed Provisions**	6.5 lbs (2.95 kg)
Total	22.0 lbs (10.0 kg)

***** The removable provisions include the suspension with cargo hook and load cell, external hydraulic, and external electrical release harness. 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 hose, internal electrical wire harnesses, the load weigh indicator, hard point fittings, and the miscellaneous brackets that support these items.

2.10 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 121-031-00 in the aircraft Flight Manual.

This page intentionally left blank.

Section 3

Operation Instructions

Operating Procedures

Refer to Owner's Manual 120-039-00 for operating procedures for the C-39 load indicator.

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

1. Activate the electrical system and press the electrical 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.

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

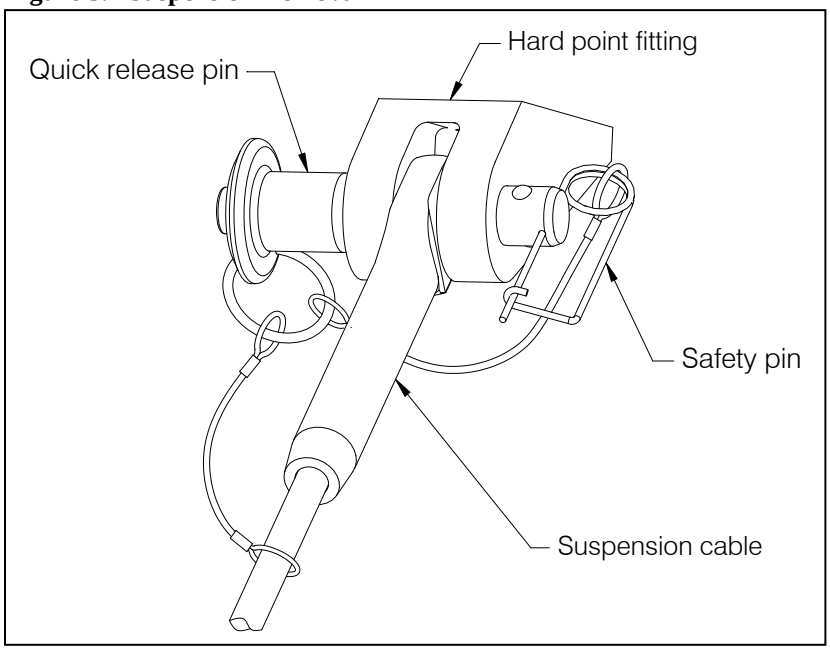
2. Activate the release lever on the collective to test the cargo hook manual release mechanism. The Cargo Hook must release. Reset the hook by hand after release and verify that the hook lock indicator is aligned with the lines on the cover. If the hook does not release or re-latch, do not use the unit until the difficulty is resolved.
3. Swing the installed Cargo Hook and the suspension to ensure that the hydraulic hose and electrical harnesses 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.
5. 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.

Disconnecting Removable Provisions

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

1. Disconnect the electrical release and the load cell connectors and the hydraulic release hose at the belly of the helicopter.
2. Remove the suspension system by removing the safety pins and then the quick release pins that secure the cables to each of the hard point fittings.

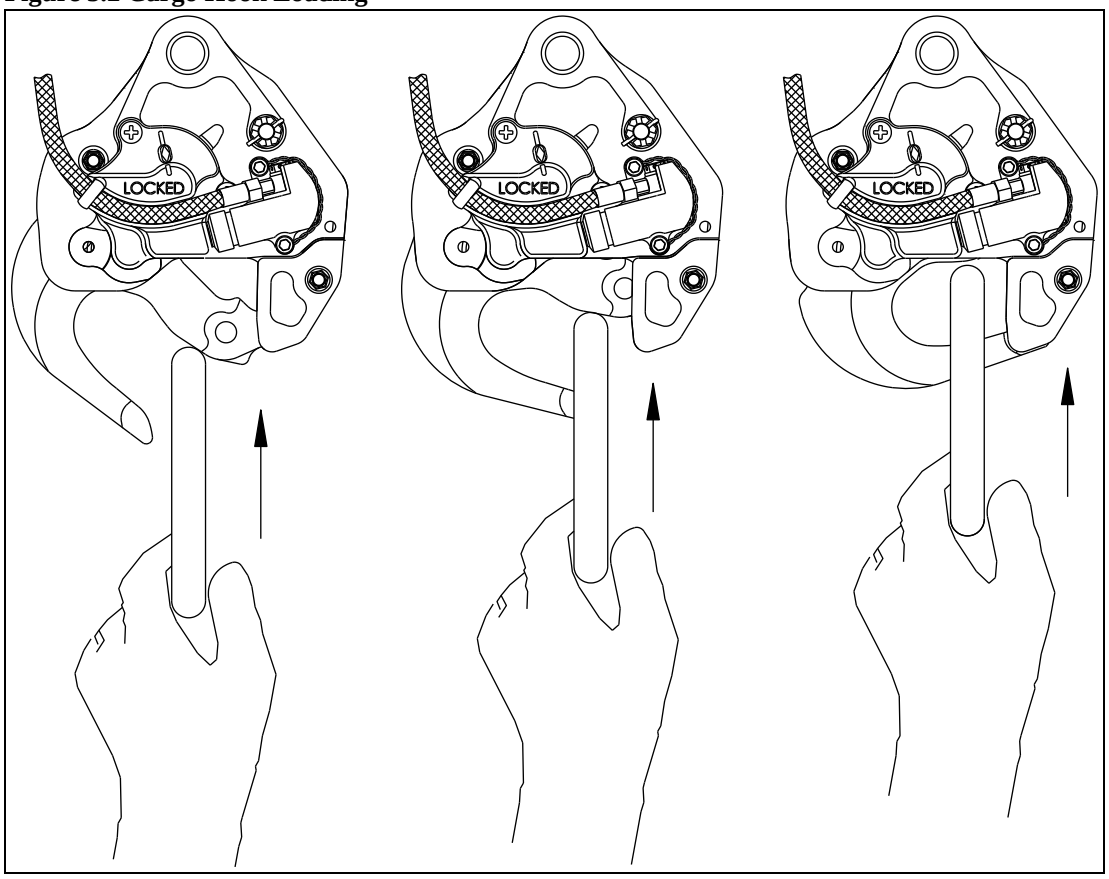
Figure 3.1 Suspension Removal



Cargo Hook Loading

The cargo hook can easily be loaded with one hand. A load is attached to the hook by pushing the ring upward against the upper portion of the load beam throat, as illustrated in Figure 3.2, 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.

WARNING

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

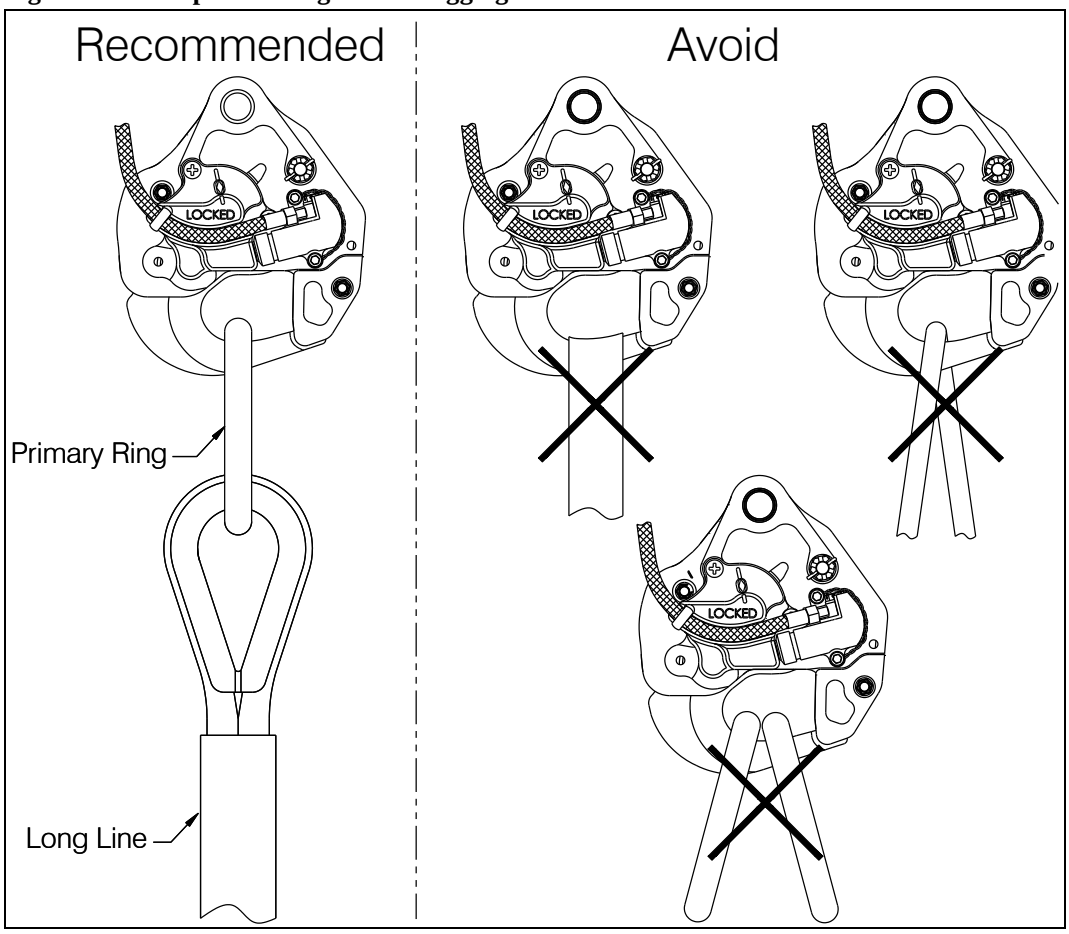
Cargo Hook Rigging continued

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 cargo hook load beam.

Figure 3.3 Examples of Cargo Hook Rigging



Section 4
Maintenance

Refer to the Instructions for Continued Airworthiness (ICA) manual 123-024-00 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.

NOTICE

An RMA number is required for all equipment returns.

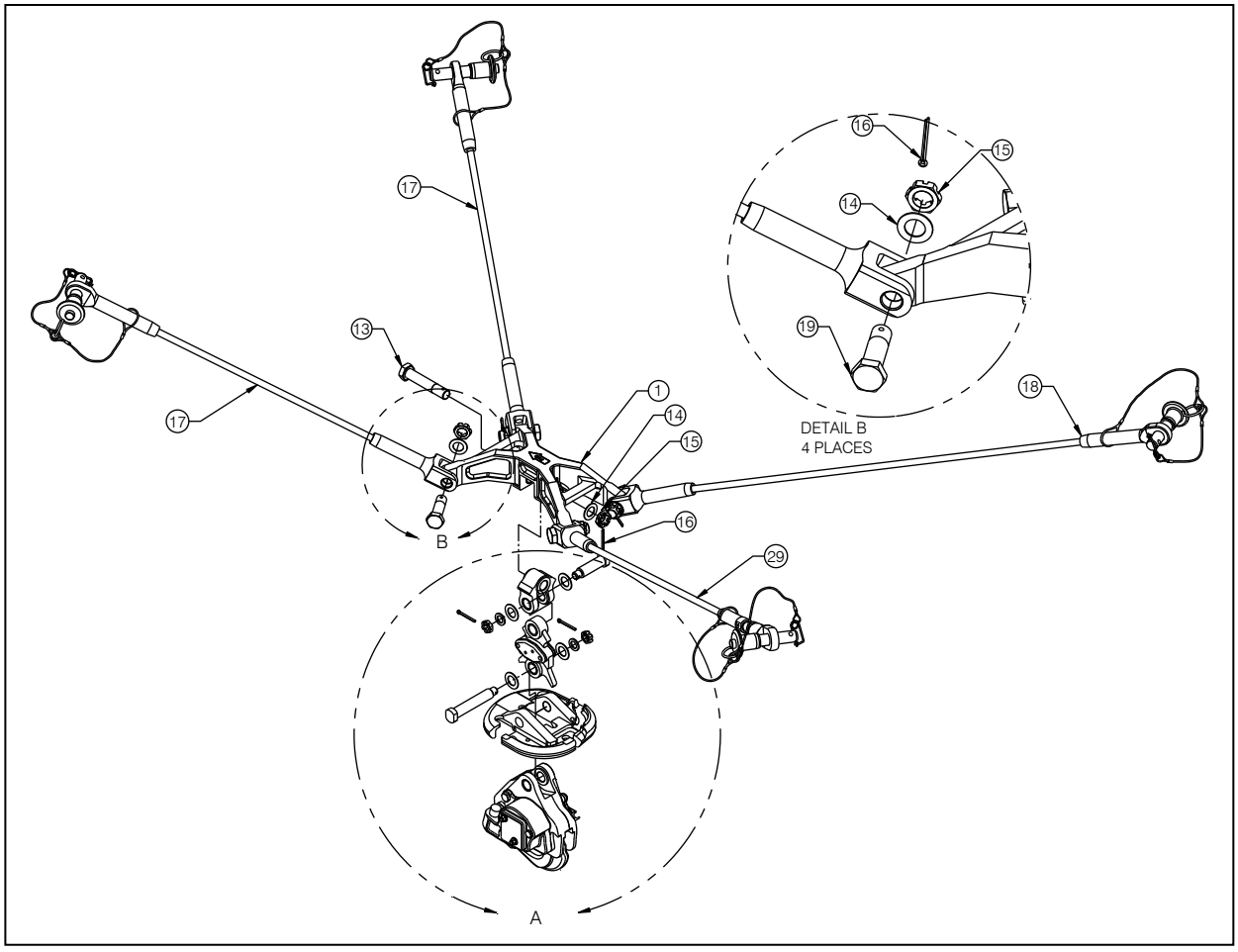
- To obtain an RMA, please use one of the listed methods.
  - Contact Technical Support by phone or e-mail (Techhelp@OnboardSystems.com).
  - Generate an RMA number at our website: http://www.onboardsystems.com/rma.php
- After you have obtained the RMA number, please be sure to:
  - Package the component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

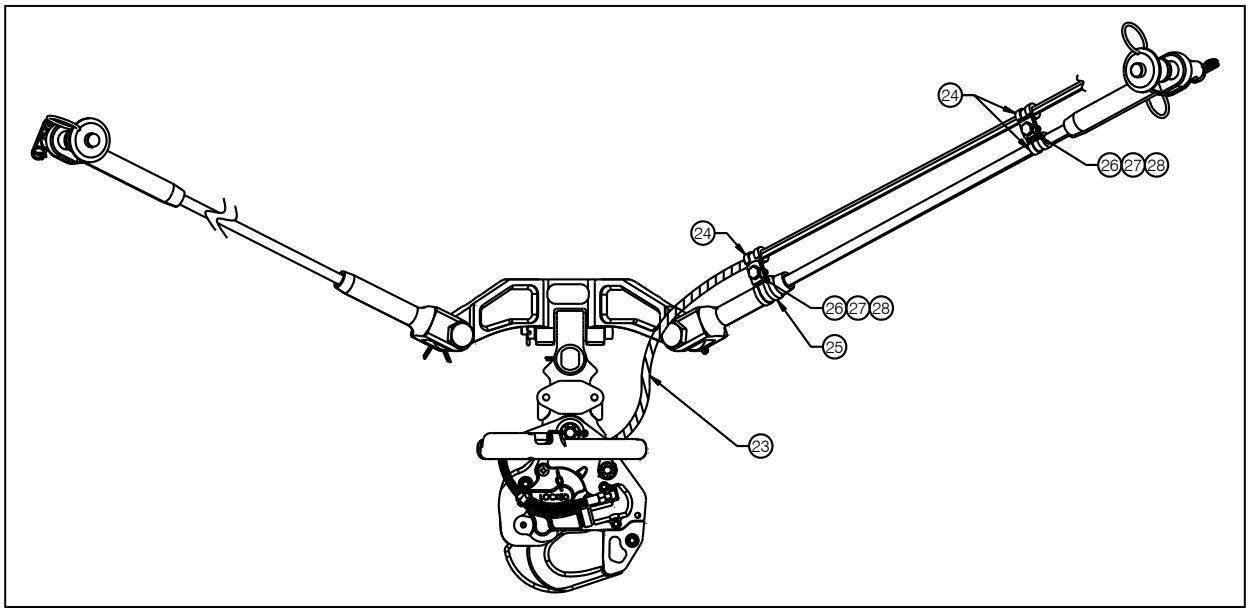
    Onboard Systems International
    13915 NW 3rd Court
    Vancouver, Washington 98685
    USA
    Phone: 360-546-3072

This page intentionally left blank.

Section 5
System Part Numbers

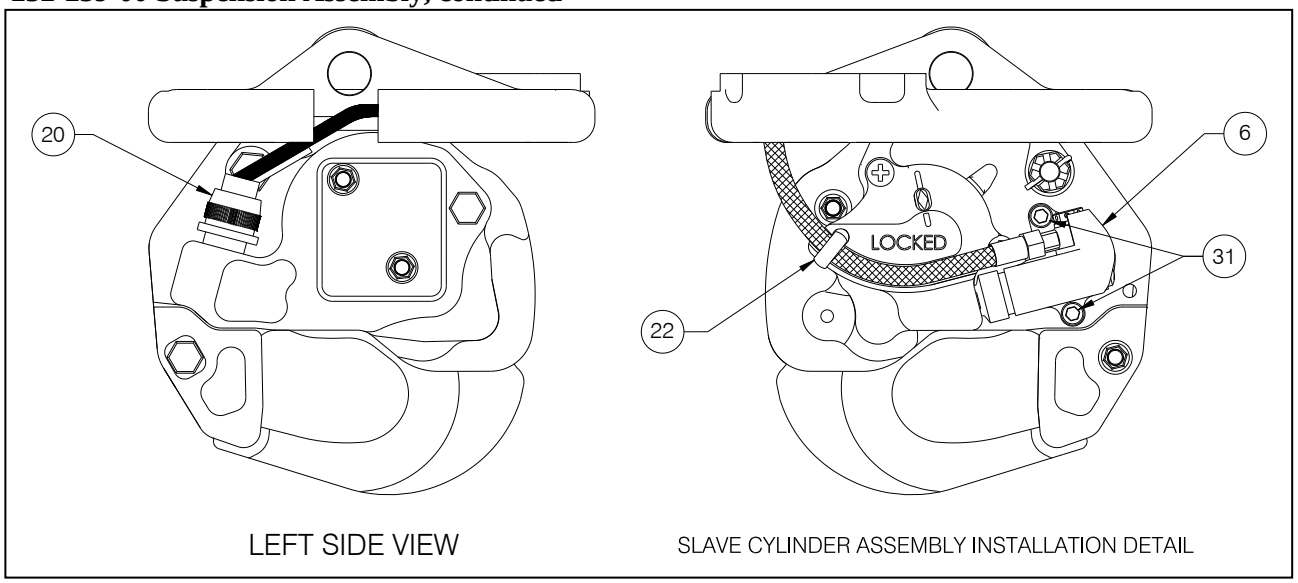
232-259-00 Suspension Assembly

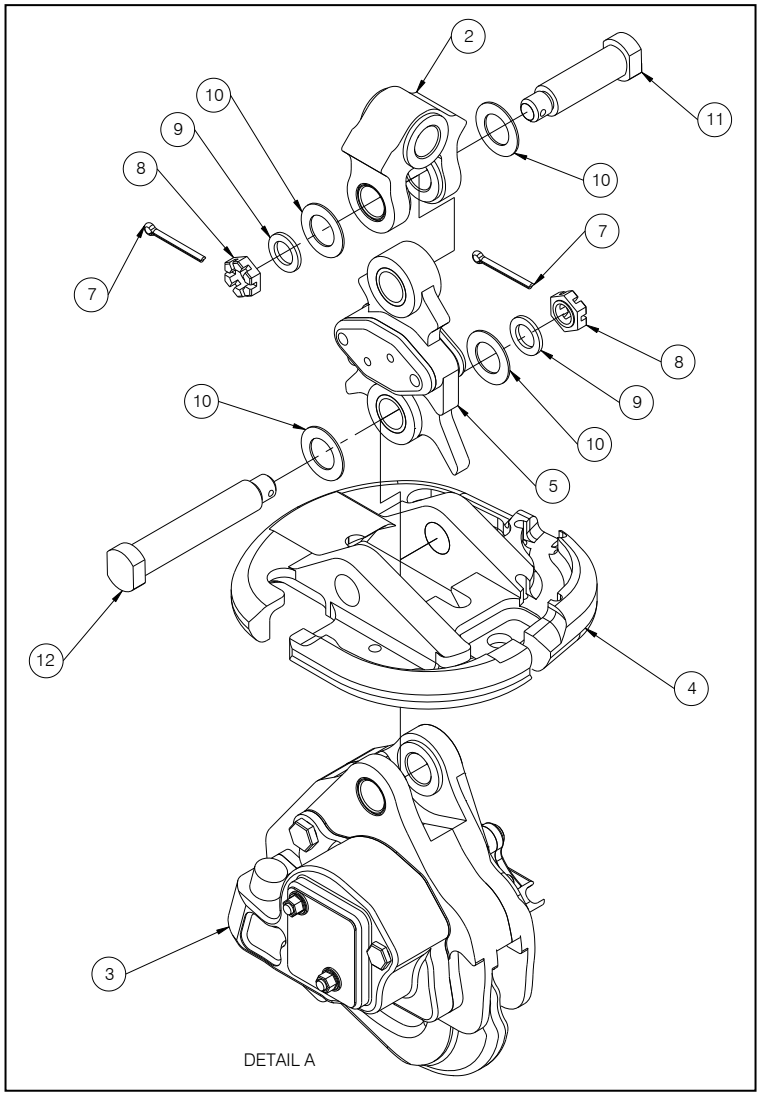




System Part Numbers continued

232-259-00 Suspension Assembly, continued





System Part Numbers continued

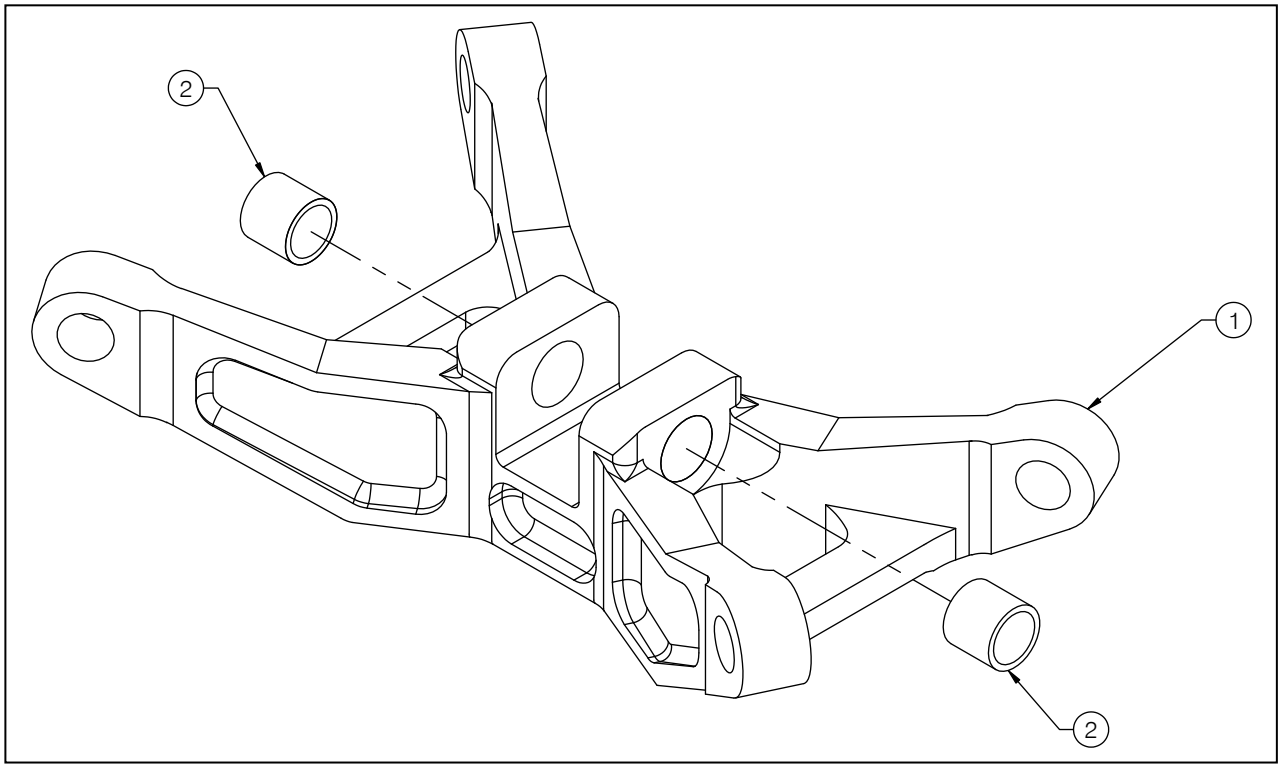
232-259-00 Suspension Assembly, continued

Item	Part Number	Description	Qty
1	232-260-00	Center Frame Assembly	1
2	232-261-00	Gimbal Assembly	1
3	528-028-00	Cargo Hook	1
4	290-839-02*	Cargo Hook Bumper	1
5	210-222-00	Load Cell Assembly	1
6	232-262-00	Slave Cylinder Assembly W/ Plumbing	1
7	510-178-00	Cotter Pin	2
8	510-170-00	Nut	2
9	510-174-00	Washer	2
10	510-183-00	Washer	4
11	290-332-00	Attach Bolt	1
12	290-775-00	Long Hook Attach Bolt	1
13	510-595-00	Bolt	1
14	510-598-00	Washer	5
15	510-036-00	Nut	5
16	510-113-00	Cotter Pin	5
17	232-223-00	Forward Suspension Cable Assembly	2
18	232-224-00	Aft Suspension Cable Assembly	1
19	510-594-00	Bolt	4
20	270-144-00	External Electrical Release Harness	1
21	512-011-00	Ty-Wrap	4
22	512-001-00	Ty-Wrap	1
23	590-017-00	Spiral Wrap	18”
24	512-006-00	Loop Clamp	2
25	512-033-00	Loop Clamp	1
26	510-102-00	Nut	4
27	510-042-00	Washer	2
28	510-453-00	Screw	2
29	232-284-00	Aft Adjustable Suspension Cable Assembly	1
30	512-005-00	Loop Clamp	1
31	510-531-00	Screw	2

*Supersedes P/N 290-839-01. These P/Ns are interchangeable.

System Part Numbers continued

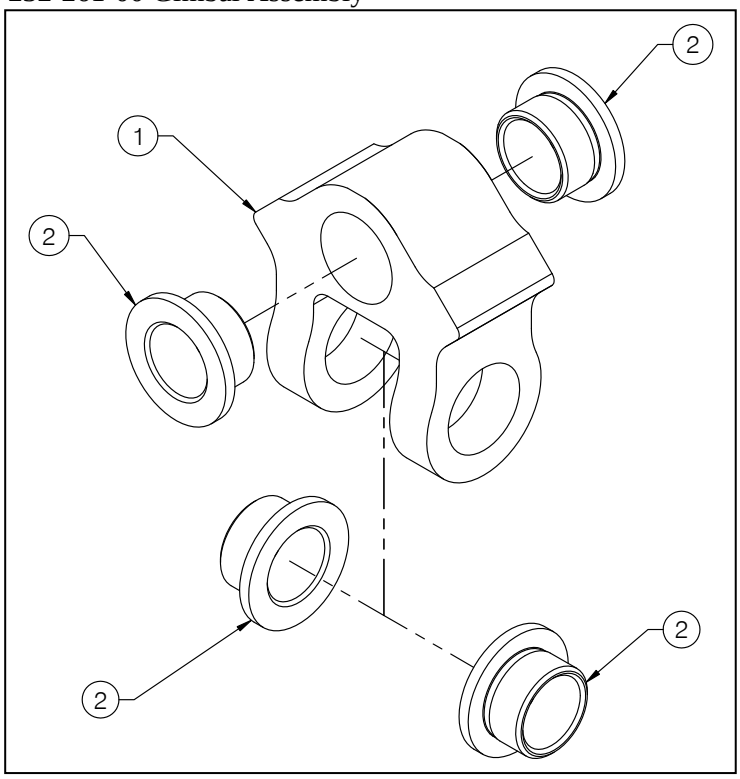
232-260-00 Center Frame Assembly



Item	Part Number	Description	Qty
1	290-364-00	Center Frame	2
2	291-056-00	Bushing	1

System Part Numbers continued

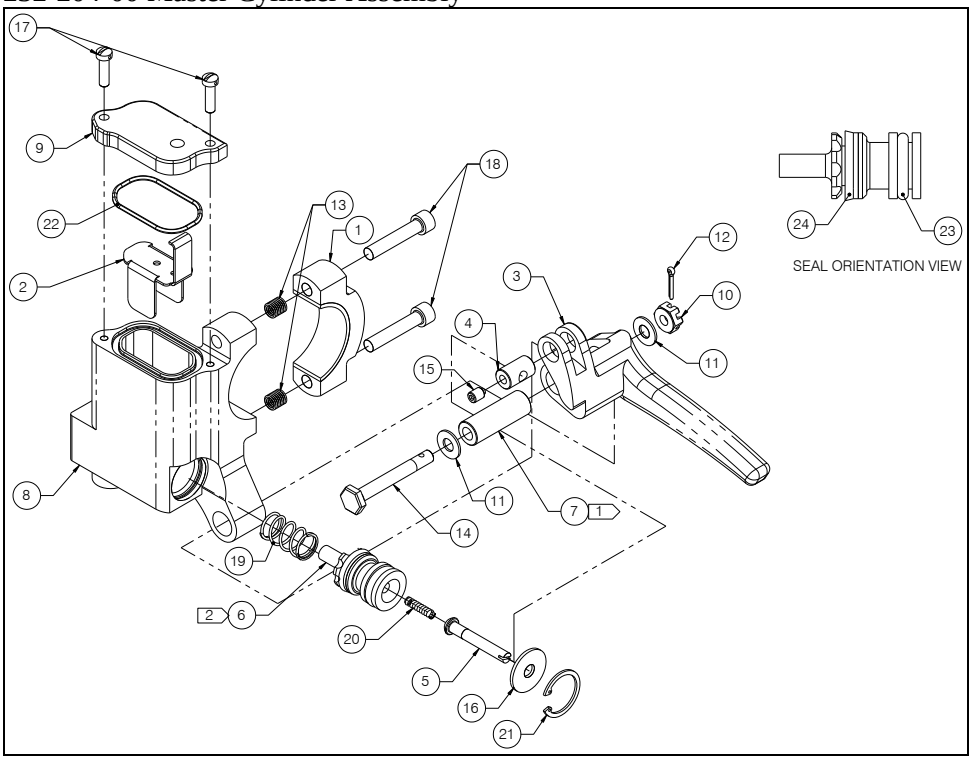
232-261-00 Gimbal Assembly



Item	Part Number	Description	Qty
1	291-068-00	Gimbal	1
2	290-294-00	Attach Bushing	4

System Part Numbers continued

232-204-00 Master Cylinder Assembly

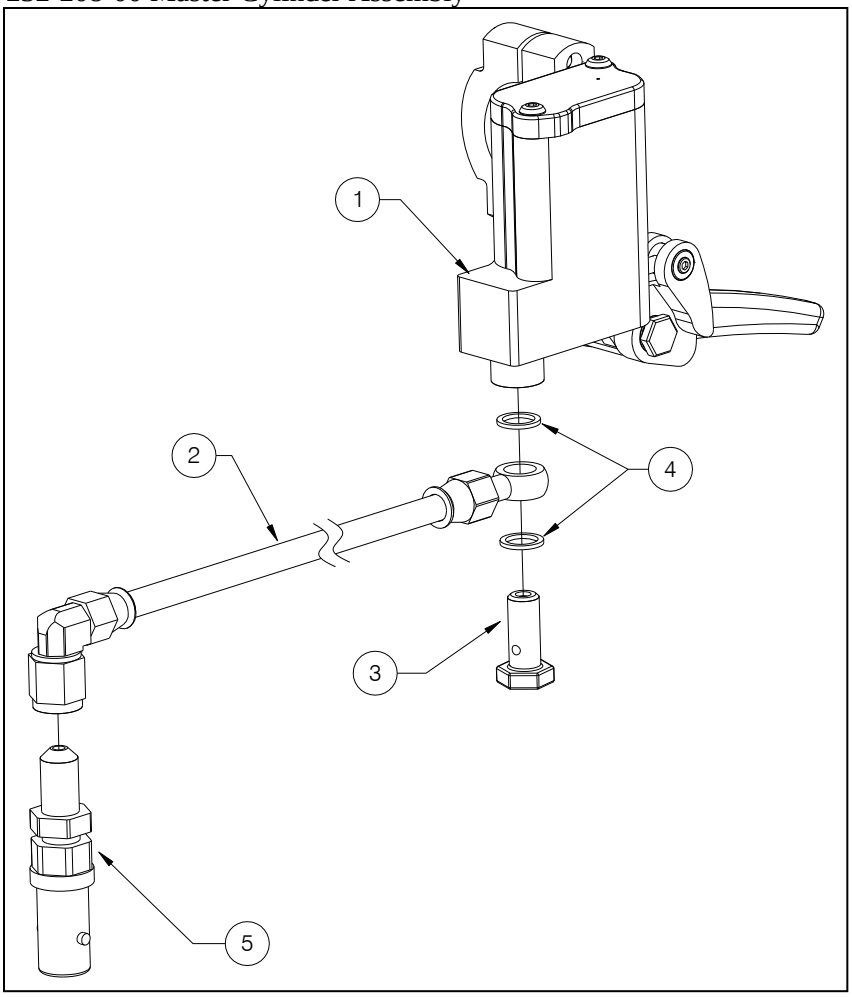


ITEM	P/N	DESCRIPTION	QTY
1	232-307-00	Clamp Half	1
2	235-118-00	Master Cylinder Baffle	1
3	290-811-00	Lever	1
4	290-812-00	Barrel Nut	1
5	290-813-00	Push Rod	1
6	290-814-01	Piston	1
7	290-816-00	Shaft	1
8	290-911-00	Master Cylinder	1
9	290-921-00	Reservoir Lid	1
10	510-082-00	Nut	1
11	510-095-00*	Washer	1
12	510-125-00	Cotter Pin	1
13	510-248-00	Helicoil	2
14	510-487-00	Bolt	1
15	510-530-00	#8-32 x 3/16” Nylon Tip Set Screw	1
16	510-532-00	Washer – Piston Stop	1
17	510-902-00	#6-32 x ½” Phillister Head Screw	2
18	510-987-00	Screw	2
19	514-055-00	Compression Spring	1
20	514-060-00	Compression Spring	1
21	515-008-00	Snap Ring	1
22	556-044-00	O-Ring	1
23	556-047-00	O-Ring	1
24	556-048-00	Cup Seal	1

*Optionally use thick washer, P/N 510-042-00, MFG. P/N NAS1149F0363P, in place of either instance of item 14.

System Part Numbers continued

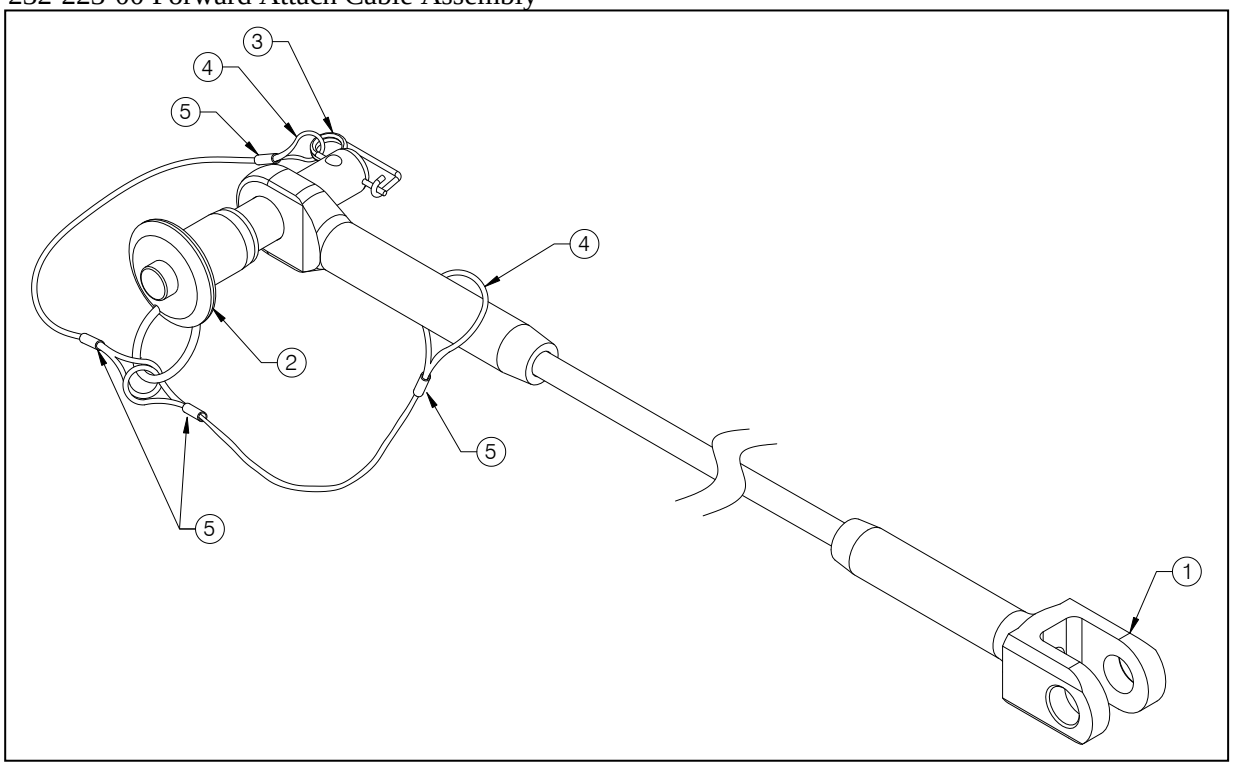
232-208-00 Master Cylinder Assembly



ITEM	P/N	DESCRIPTION	QTY
1	232-204-00	Master Cylinder Assembly	1
2	232-210-02	Master Cyl. Plumbing Assembly	1
3	558-021-00	Banjo Bolt – Size 3	1
4	556-040-00	Crush Washer	2
5	560-005-00	Quick Disconnect	1

System Part Numbers continued

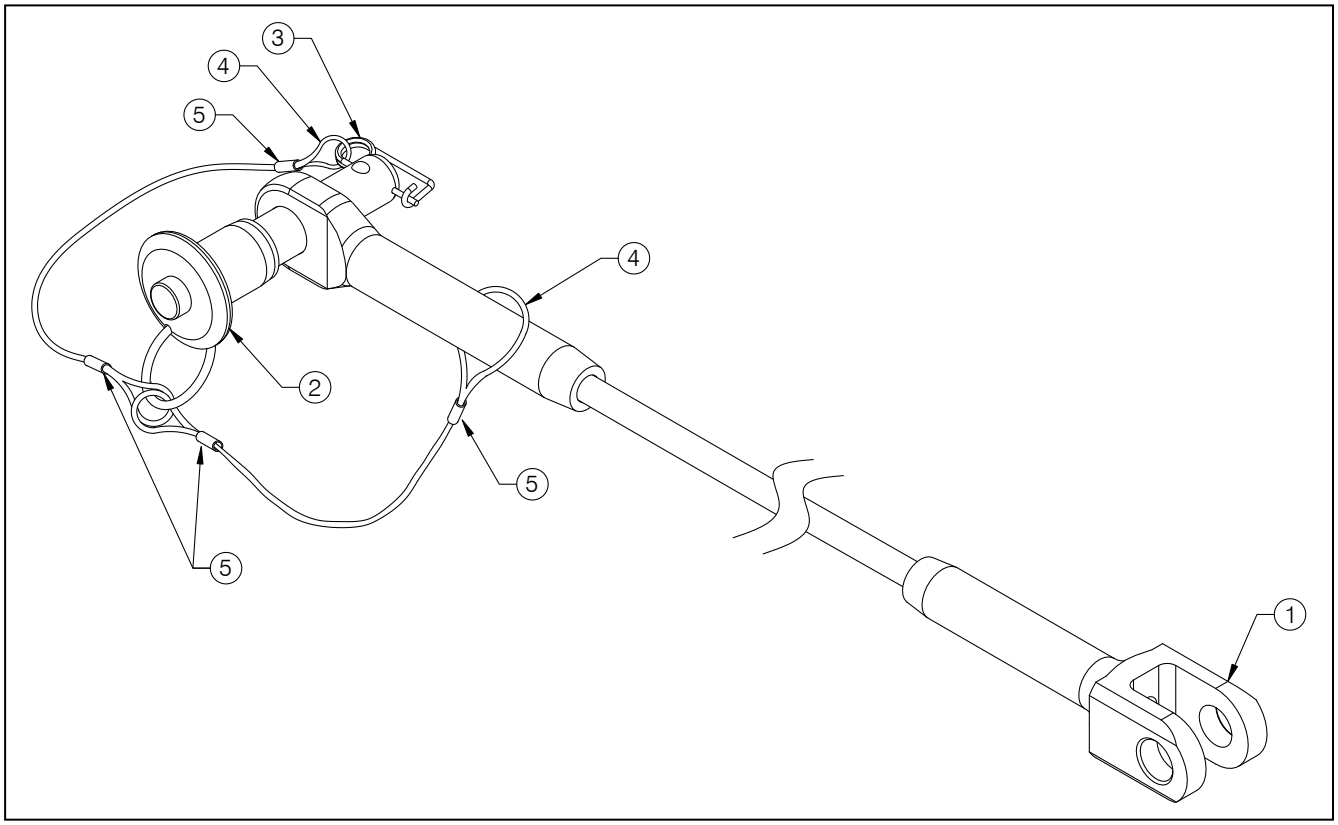
232-223-00 Forward Attach Cable Assembly



Item	Part Number	Description	Qty
1	232-269-00	Forward Suspension Cable	1
2	291-060-00	Modified Quick Release Pin	1
3	510-606-00	Retaining Pin	1
4	531-015-00	Lanyard Cable	17”
5	531-016-00	Nicopress Sleeve	4

System Part Numbers continued

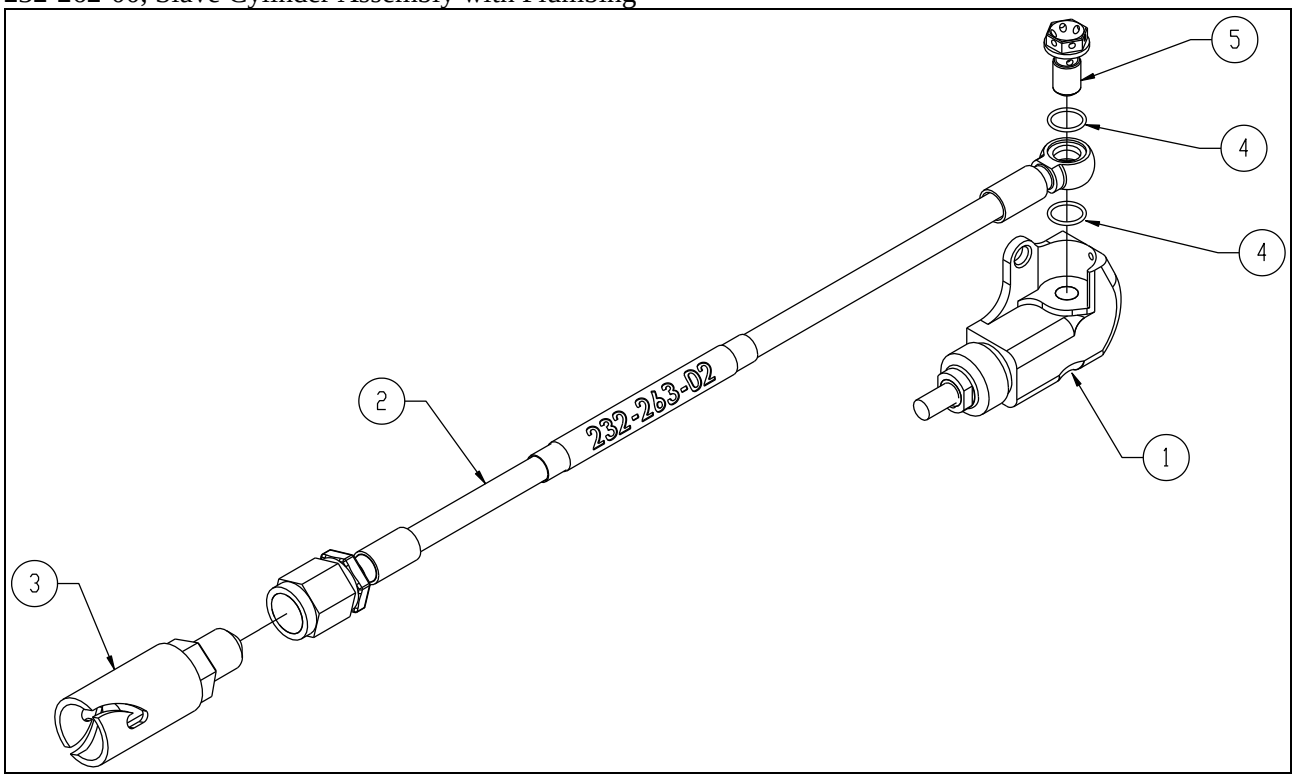
232-224-00 Aft Attach Cable Assembly



Item	Part Number	Description	Qty
1	232-270-00	Aft Suspension Cable	1
2	291-060-00	Modified Quick Release Pin	1
3	510-606-00	Retaining Pin	1
4	531-015-00	Lanyard Cable	17”
5	531-016-00	Nicopress Sleeve	4

System Part Numbers continued

232-262-00, Slave Cylinder Assembly with Plumbing

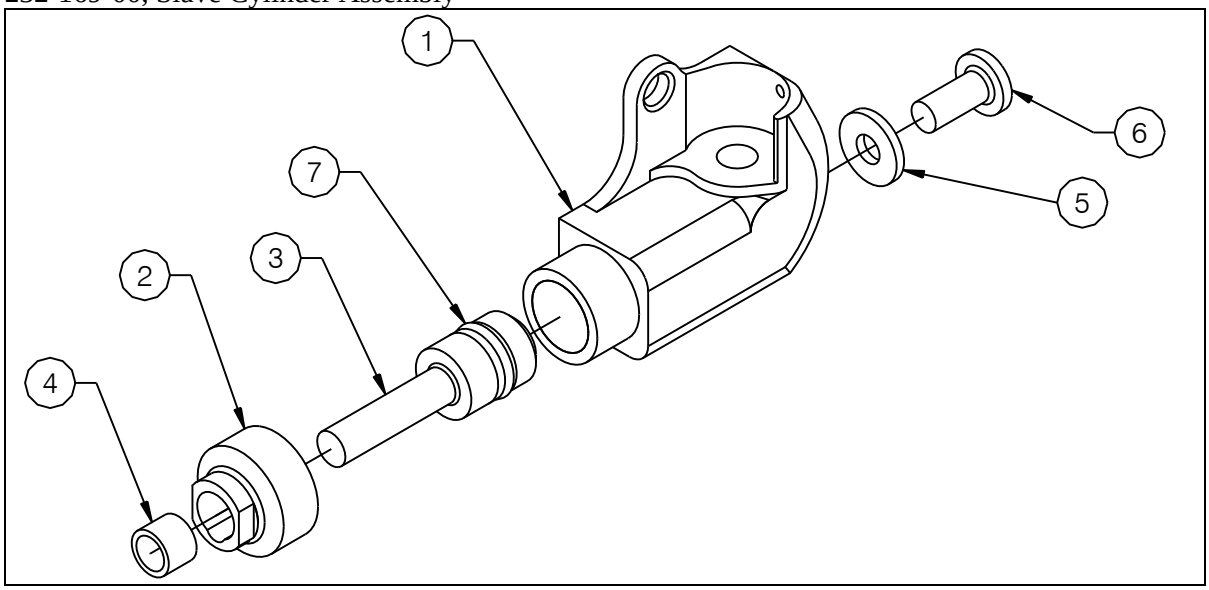


Item	Part Number	Description	Qty
1	232-169-00	Slave Cylinder Assembly	1
2	232-263-02[1]	Slave Cylinder Plumbing Assembly	1
3	560-006-00	Quick Disconnect	1
4	556-041-00	O-Ring	2
5	558-031-00	Banjo Bolt	1

[1]This item supersedes P/N 232-263-00 and 232-263-01. These parts are interchangeable.

System Part Numbers continued

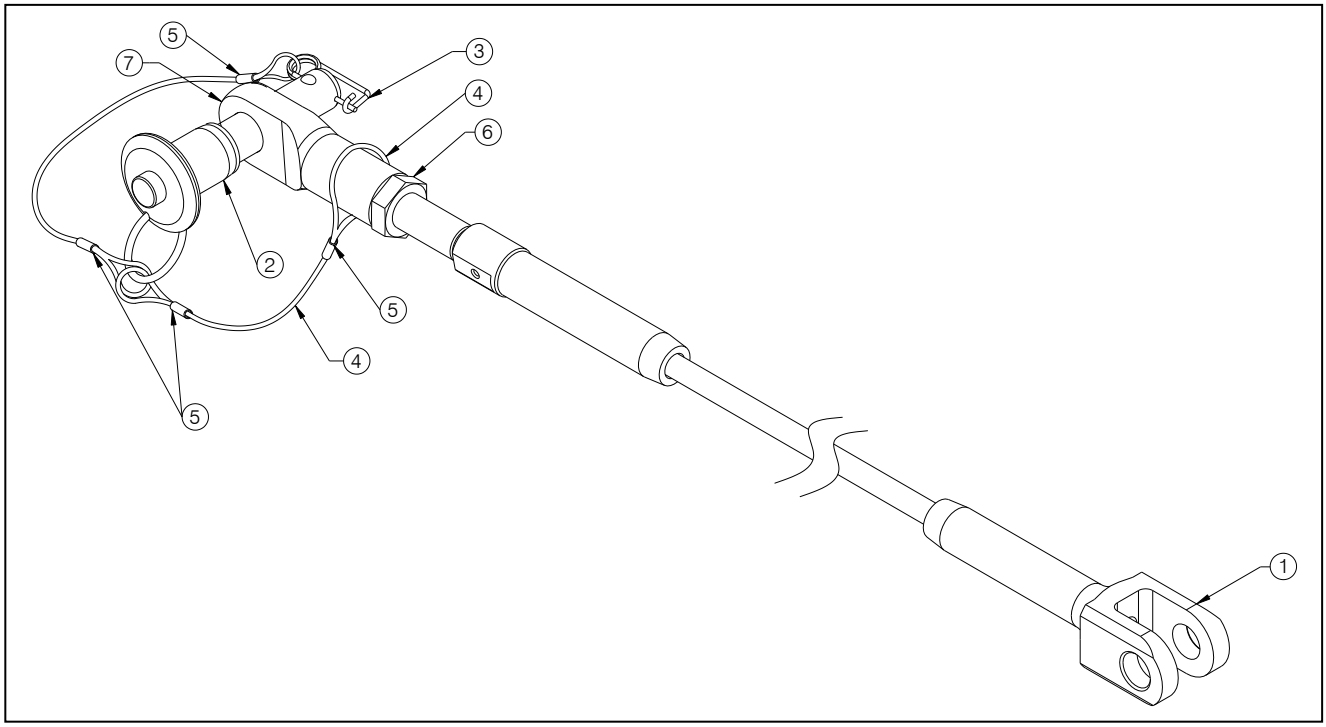
232-169-00, Slave Cylinder Assembly



Item	Part Number	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

System Part Numbers continued

232-284-00 Aft Adjustable Suspension Cable Assembly



Item	Part Number	Description	Qty
1	232-283-00	Aft Adjustable Suspension Cable	1
2	291-060-00	Modified Quick Release Pin	1
3	510-606-00	Retaining Pin	1
4	531-015-00	Lanyard Cable	23”
5	531-016-00	Nicopress Sleeve	4
6	510-444-00	Jam Nut	1
7	517-072-00	Rod End Fitting	1

Section 6
Certification

FAA STC

United States of America

Department of Transportation—Federal Aviation Administration

Supplemental Type Certificate

Number **SR01795SE**

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: R00001RD
Make: Eurocopter France
Model: EC120B

Description of the Type Design Change: Fabrication of Onboard Systems Model 200-308-00, Cargo Hook Suspension Kit, in accordance with FAA-approved Onboard Systems Master Drawing List No. 155-115-00, Revision 1, dated October 22, 2007, or later FAA-approved revision; and installation of the 200-308-00, Cargo Hook Suspension Kit, in accordance with FAA-approved Onboard Systems Owner's Manual No. 120-123-00, Revision 1, dated October 17, 2007, 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. 123-024-00, Revision 0, dated February 6, 2007, or later FAA-approved revision and Onboard Systems Cargo Hook Service Manual No. 122-015-00, Revision 2, dated November 9, 2005, or later FAA-approved revision.

Limitations and Conditions: Approval of this change in type design applies only to those Eurocopter 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 Rotorcraft Flight Manual Supplement (RFMS) No. 121-031-00, revision 0, dated October 31, 2007, 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: January 30, 2007 *Date reissued:*

Date of issuance: November 6, 2007 *Date amended:*

FEDERAL AVIATION ADMINISTRATION

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(10-68)

Canadian Approval

Transport Canada / Transports Canada
Civil Aviation / Aviation Civile

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

Your file *Votre référence*
130S-GA-07-146
Our file *Notre référence*
P-08-0070
RDIMS 3921108

February 19, 2008

Mr. Mark Hanson
Onboard Systems International
13915 NW 3rd Court
Vancouver, WA 98685
U.S.A.

Dear Mr. Hanson,

Subject: Acceptance of FAA STC SR01795SE

This is in response to the FAA Seattle ACO letter dated December 7, 2007, 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

c.c. Mr. Philip L. Forde, A/ Manager Seattle Aircraft Certification Office

Canada

1/1

European Aviation Safety Agency

SUPPLEMENTAL TYPE CERTIFICATE

EASA.IM.R.S.01402

This certificate, established in accordance with Regulations (EC) No 1592/2002 and (EC) No 1702/2003 and issued to:

Onboard Systems International
13915 NW 3rd Court
Vancouver, WA 98685
United States

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

Original Product Type Certificate number: *DGAC TC 189*
Manufacturer: *Eurocopter*
Model: *EC 120 B*
Original STC Number: *FAA STC SR01795SE*

Description of Design Change:

Installation of Cargo Hook Suspension Kit P/N 200 - 308 – 00.

European Aviation Safety Agency

Associated Technical Documentation:

1. Definition and Installation in accordance with:
   - Onboard Systems Model 200-308-00,Cargo Hook Suspension Kit;
   - Onboard Systems Master Drawing List 155-115-00,Revision 1, dated October 22,2007 or later approved Revision;
   - Onboard Systems Owner's Manual 120-123-00,Revision 1, dated October 17,2007 or later approved Revision.

2. Inspection and Maintenance in accordance with:
   - Onboard Systems Instruction for Continued Airworthiness 123-024-00, Revision 0, dated February 6,2007 or later approved Revision;
   - Onboard Systems Cargo Hook Service Manual 122-015-00,Revision 2, dated November 9,2005 or later approved Revision.

3. Operation in accordance with:
   - Onboard Systems Rotorcraft Flight Manual Supplement (RFMS) 121-031-00, Revision 0, dated October 31,2007 or later approved Revision.

Limitations and Conditions:

1. All limitations of RFM supplement apply;

2. Prior to installation of this modification the installer must determine that the interrelationship between this modification and any other previously installed modification will introduce no adverse effect upon the airworthiness of the product. The installation of this modification by third persons is subject to written permission of the approval holder.

This certificate shall remain valid unless otherwise surrendered or revoked.

For the European Aviation Safety Agency,
Date of Issue: 22 January 2008

p/o Massimo MAZZOLETTI
Certification Manager
Rotorcraft, Balloons, Airships

DCAM (Malaysia) STC

JABATAN PENERBANGAN AWAM MALAYSIA
(DEPARTMENT OF CIVIL AVIATION MALAYSIA)
ARAS 1-4, BLOK PODIUM
NO. 27, PERSIARAN PERDANA, PRESINT 4
PUSAT PENTADBIRAN KERAJAAN PERSEKUTUAN
62618 PUTRAJAYA
MALAYSIA

Telefon : 6-03-88714000
Faks : 6-03-88901640
AFTN : WMKKYAYX
Teleks : PENAMA MA 30128
Kawat : CIVIL KUALA LUMPUR
Web : http://www.dca.gov.my

Your Ref. :

Our Ref. : DCA/AW/VSTC/2017/015

Date : 25 May 2017

Onboard Systems
13915 N.W. 3rd Court
Vancouver, WA 98685
United States of America

Attn: **Mr. Mark Hanson**
Certification Manager

Dear Sir,

VALIDATION OF FAA SUPPLEMENTAL TYPE CERTIFICATE NO. SR01795SE

This is in reference to FAA letter 102S-17-34 dated Feb 15, 2017 and your letter to the FAA dated January 19, 2017 requesting validation of FAA Supplemental Type Certificate (STC) No. SR01795SE date issued 06 November 2007.

This letter certifies that the following Supplemental Type Certificate (STC) is acceptable for Malaysian Airworthiness Certification: -

STC Validation Reference No:	**VSTC/2017/015**
STC Holder:	**Onboard Systems**
STC Reference Number:	**SR01795SE date issued 06 November 2007 or later FAA approved revision.**
National Aviation Authority / State of Design:	**FAA / USA**
Description of Design Change:	**Fabrication and Installation of Onboard Systems Model 200-308-00 Cargo Hook Suspension Kit.**
STC applicable to Aircraft/ Engine type or model:	**Eurocopter France EC120B**
DCA Type Acceptance:	**DCA/AW/AT/EC120**

(Sila catat rujukan Jabatan ini apabila berhubung)

DCAM (Malaysia) STC continued

Limitations and Conditions: -

1. Fabrication of Onboard Systems Model 200-308-00, Cargo Hook Suspension Kit, in accordance with FAA-approved Onboard Systems Master Drawing List No. 155-115-00 Revision 1, dated October 22, 2007, or later FAA-approved revision.
2. Installation of the 200-308-00, Cargo Hook Suspension Kit, in accordance with FAA-approved Onboard Systems Owner's Manual No. 120-123-00, Revision 1, dated October 17, 2007, or later FAA-approved revision.
3. Modified rotorcraft shall be inspected and maintained in accordance with Section ATA 5 of the FAA-approved Onboard Systems Instruction for Continued Airworthiness Document No. 123-024-00, Revision 0, dated February 6, 2007, or later FAA-approved revision, and Onboard Systems Cargo Hook Service Manual No. 122-015-00, Revision 2, dated November 9, 2005, or later FAA-approved revision.
4. This approval should not be extended to 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.
5. Modified rotorcraft shall be operated in accordance with FAA-approved Onboard Rotorcraft Flight Manual Supplement (RFMS), No. 121-031-00, Revision 0, dated October 31, 2007, or later FAA-approved revision.
   Notes:
   a. Maximum operational air speed of the modified rotorcraft with external loads is dependent upon the load configuration and sling length. **The operator shall establish the maximum operational speed for each specific configuration.**
   b. Performance of modified rotorcraft will be reduced depending on the size, weight and shape of the external load. **The operator shall establish the performance criteria for each specific configuration.**
   c. **Centre of gravity limits shall be checked by the operator with and without the external load** to verify that the rotorcraft is within the approved centre of gravity limits.
6. A copy of STC SR01795SE certificate, FAA-approved RFMS, and Maintenance Manual shall be maintained as part of the permanent records of the modified rotorcraft.
7. If the holder agrees to permit another person to use STC SR01795SE to alter the product, the holder shall give the other person written evidence of that permission.
8. Appropriate installation approval shall be obtained for the embodiment of STC SR01795SE.
9. Human External Cargo (HEC) operation is prohibited.
10. **The validation of this STC does not constitute operational approval.**
11. All other limitations and conditions as stated in STC SR01795SE apply.

This validation letter shall remain valid unless otherwise cancelled, superseded or revoked by the Director General of Civil Aviation.

Thank You.

"BERKHIDMAT UNTUK NEGARA"

Yours faithfully,

(SAMSUDIN AB MAJID)
Airworthiness Sector
For Director General Civil Aviation
MALAYSIA

Page 2 of 2