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Instructions for Continued Airworthiness

Talon LC Hydraulic Cargo Hook Kit
For the
Airbus Helicopters AS350 Series Helicopter

Part Numbers 200-281-01, 200-281-02

STC SR01166SE

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Record of Revisions

Revision	*Date*	*Page(s)*	*Reason for Revision*
0	06/19/06	All	First Issue
1	10/25/07	Section 0, Section 5 page 1, Section 12 pages 5, 6, 7, Section 25 pages 2, 8, 9, 11, 14	Added kit P/N 200-281-02. Added section 0.12 Warnings, Cautions and Notes and updated format of these where applicable.
2	03/17/10	05-00-00 Page 5, 6	Changed overhaul frequency criteria.
3	08/09/10	00-00-00, P2 05-00-00, P1, P5 12-00-00, P5-10 25-00-00, P8-9, P14	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	12/19/11	12-00-00 Page 3, 4	Replaced Cup Seal 556-038-00 with Quad Ring 556-097-00 inside Slave Cylinder Assembly.
5	07/25/12	Section 5, Section 25 page 3	Updated maintenance section (section 5) to remove daily check, expand annual inspection, and update detail inspection at cargo hook overhaul. Updated troubleshooting table.
6	09/11/17	Section 4, Section 12 pages 1, 5 Section 25 pages 2, 3	Updated Airworthiness Limitations section. Added MIL-PRF-87257 hydraulic fluid as a compatible fluid. Added references to CMM 122-015-00 in sections 25.12 and section 25.15.

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Section 0
Introduction

0.4 Scope

The following information is necessary to carry out the service, maintenance, and inspection of the Cargo Hook Kit P/N's 200-281-01 and P/N 200-281-02.

0.5 Purpose

The purpose of this Instructions for Continued Airworthiness (ICA) manual is to provide the information necessary to inspect, service, and maintain in an airworthy condition the P/N 200-281-01 and 200-281-02 Cargo Hook Kits.

0.6 Arrangement

This manual contains instructions for the service, maintenance, inspection and operation of Cargo Hook Kit P/N's 200-281-01 and 200-281-02 on Airbus Helicopters Model AS350 helicopters. The manual is arranged in the general order that maintenance personnel would use to install, maintain and operate the Cargo Hook in service.

The arrangement is:

Section 0 Introduction
Section 4 Airworthiness limitations (None apply to this System.)
Section 5 Inspection and Overhaul Schedule
Section 11 Placards and Markings
Section 12 Servicing
Section 25 Equipment and Furnishings

0.7 Applicability

These Instructions for Continued Airworthiness are applicable to Cargo Hook Kits P/N 200-281-01 and P/N 200-281-02 (with Cargo Hook P/N 528-028-00) for the Airbus Helicopters AS350 helicopter. Refer to the appropriate Airbus Helicopters maintenance documentation for instructions regarding parts of the aircraft that interface with these kits.

0.9 Abbreviations

FAA Federal Aviation Administration
FAR Federal Aviation Regulation
ICA Instructions for Continued Airworthiness

0.12 Precautions

The following definitions apply to precaution used in this manual.

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

Draws the reader's attention to important or unusual information not directly related to safety.

Used to address practices not related to personal injury.

0.19 Distribution of Instructions for Continued Airworthiness

Before performing maintenance ensure that the Instructions for Continued Airworthiness (ICA) in your possession is the most recent revision. Current revision levels of all manuals are posted on Onboard Systems Int'l web site at www.onboardsystems.com. Current revision levels of all manuals are available from the factory.

Section 4
Airworthiness Limitations

The Airworthiness Limitations section is FAA approved and specifies inspections and other maintenance required under Secs. 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

No airworthiness limitations are associated with this type design change.

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Section 5
Inspection and Overhaul Schedule

5.1 Cargo Hook Kit Inspection Schedule

The scheduled inspection interval(s) presented below are maximums and are not to be exceeded. If the cargo hook is subjected to unusual circumstances, extreme environmental conditions, etc., it is the responsibility of the operator to perform the inspections more frequently to ensure proper operation. Refer to cargo hook component maintenance manual 122-015-00 for damage and wear tolerances for the cargo hook.

Annually or 100 hours of external load operations, whichever comes first, inspect the cargo hook kit per the following.

*Hours of external load operations should be interpreted to be **(1)** anything is attached to the primary cargo hook (whether or not a useful load is being transported) and **(2)** the aircraft is flying. If these conditions are **NOT** met, time does **NOT** need to be tracked.*

1. Activate the helicopter electrical system and press the Cargo Release button to ensure the cargo hook electrical release system is operating correctly. The cargo hook must release. Reset the hook by hand after release. If the hook does not release or re-latch, do not use the unit until the problem is fixed.

Energizing the cargo hook electrical release solenoid continuously in excess of 20 seconds will cause the release solenoid to overheat, possibly causing permanent damage.

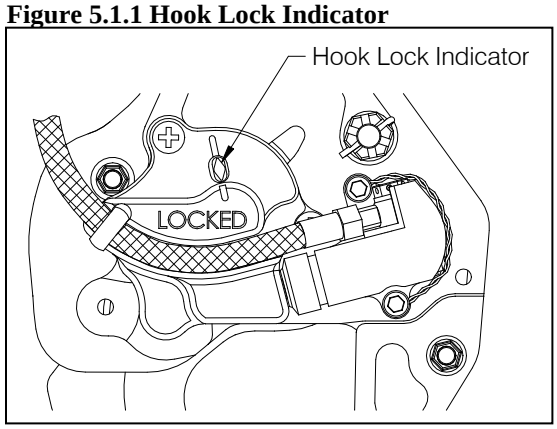
5.1 Cargo Hook Kit Inspection Schedule continued

2. Activate the hydraulic release system by pulling the release lever located on the collective in the cockpit. The mechanism should operate smoothly and the cargo hook must release. After release, return the load beam to its closed and locked position 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 5.1.1). If the hook does not release or re-latch, do not use the unit until the problem is resolved.

CAUTION

In the fully locked position the hook lock indicator must align with the lines on the manual release cover (see Figure 5.1.1).

Figure 5.1.1 Hook Lock Indicator



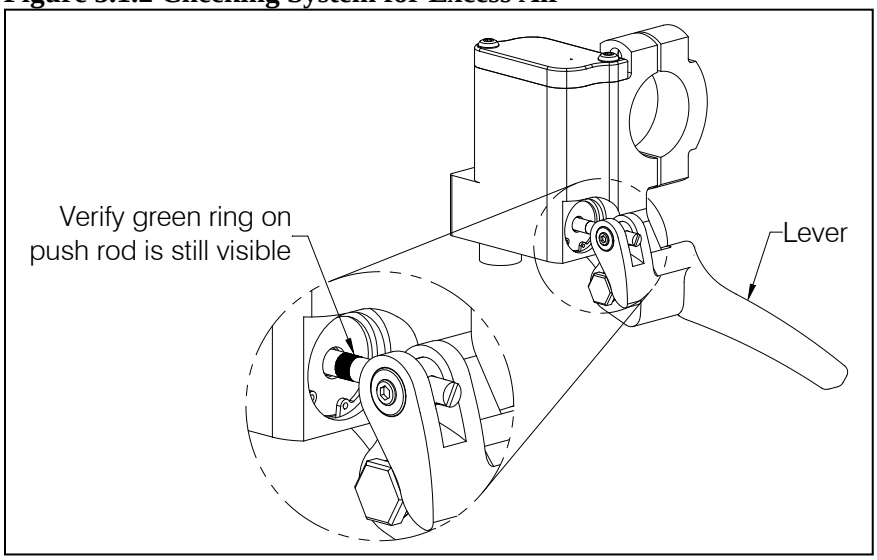
3. Swing the cargo hook and the suspension system throughout their full ranges of motion to ensure the hydraulic hose and electrical release harnesses have enough slack. The hose or harness must not be the stops that prevent the cargo hook or suspension from swinging freely in all directions.
4. Visually inspect for presence and security of fasteners and electrical connections.
5. Visually inspect the hydraulic hose and its connection to the cargo hook for damage and security.
6. Visually inspect the cargo hook bumper for damage.

5.1 Cargo Hook Kit Inspection Schedule continued

7. Visually inspect for fluid leaks in the hydraulic release system. Some seeping or dampness is acceptable, but if drips or areas cleaned by fluid leaking are present the hook must not be used until the condition is repaired. See troubleshooting section to determine the course of action.

8. Check the hydraulic release system for air by actuating the lever firmly until it bottoms out. Check the push rod position (see Figure 5.1.2). If some of the green ring on the push rod is visible, the system is adequately bled. If some of the green on the push rod is NOT visible with the lever completely pulled, the system has too much air in it and must be bled, see Section 12.2 for bleeding instructions.

Figure 5.1.2 Checking System for Excess Air



5.2 Cargo Hook Kit Inspection Schedule

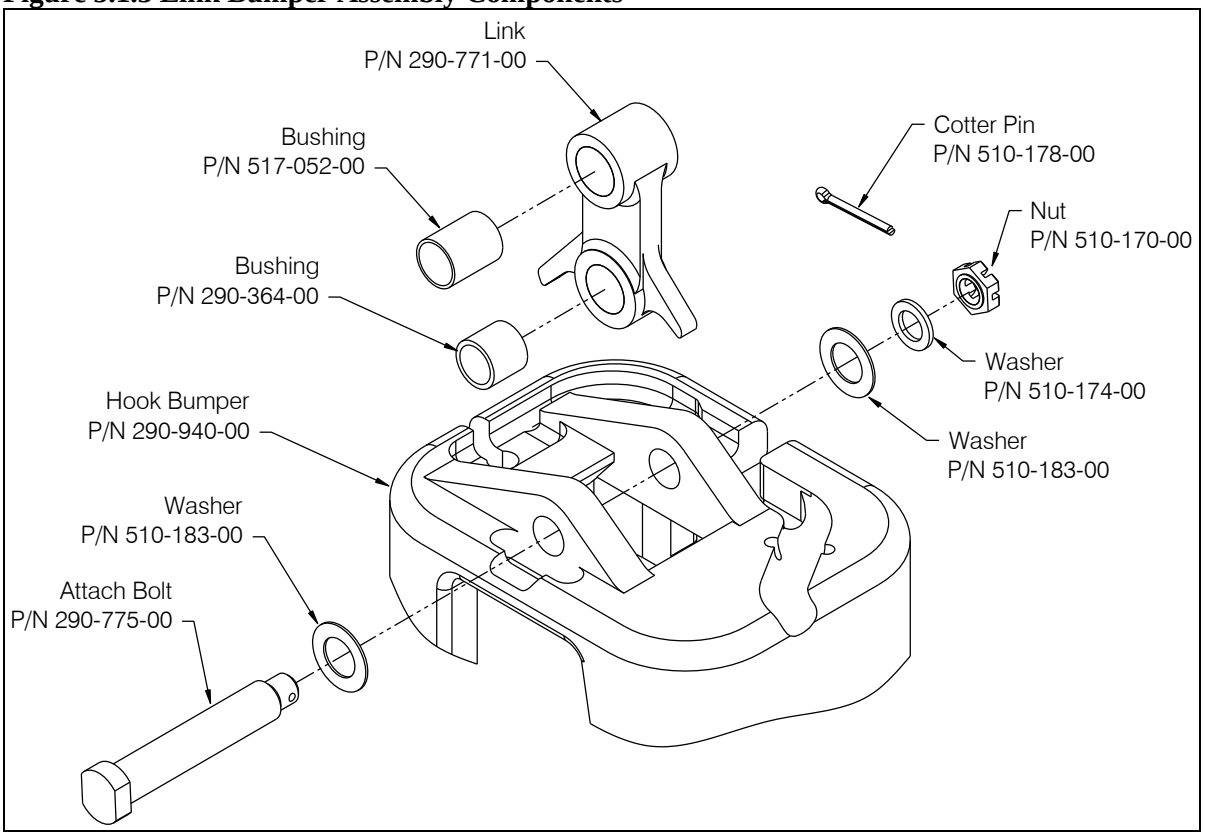
At cargo hook overhaul (see section 5.2 for schedule), remove the kit components from the helicopter, disassemble, and inspect the component parts except cargo hook per this section. Refer to CMM 122-015-00 for cargo hook overhaul instructions.

NOTICE

The Link Assembly is attached to the swing suspension load cell using existing Airbus Helicopters hardware, reference Airbus Helicopters maintenance information for part numbers.

Disassemble the Link Bumper Assembly referring to the figure below. The bushings do not need to be pressed out of the Link unless they need to be replaced per the criteria in Table 5.1.1.

Figure 5.1.3 Link Bumper Assembly Components



5.1 Cargo Hook Kit Inspection Schedule continued

Carefully inspect, and if necessary repair, the detail parts in accordance with the instructions in Table 5.1.1.

Table 5.1.1 Link Bumper Assembly Inspection Criteria

Component	Damage Permitted without Repair	Repair	Maximum Damage which Causes Replacement
Link P/N 290-771-00	Dents, gouges, and scratches less than .010" deep.	Blend at 20:1 ratio, length to depth, to provide smooth transitions.	Dents, gouges and scratches greater than .030". Visible cracks.
Bushing P/N 517-052-00	These bushings have a Teflon type film overlaid on a layer of sintered copper. Teflon film still covers more than 50% of the bushing wear area.	None.	If copper is visible over more than 50% of the bushing wear area, remove and replace the bushing.
Bumper, P/N 290-773-00	Gouges less than .060" deep.	None.	Gouges greater than .060" deep.
Attach Bolt, P/N 290-775-00	Wear on outside diameter, diameter greater than .495".	None.	Wear on outside diameter, diameter less than .495". Visible cracks.
Bushing P/N 290-364-00	Wear on inside diameter, diameter less than .510".	None.	Wear on inside diameter, diameter greater than .510".

5.2 Cargo Hook Overhaul Schedule

Overhaul the cargo hook in accordance with the guidelines below.

Time Between Overhaul (TBO): 1000 hours of external load operations or 5 years, whichever comes first.

*Hours of external load operations should be interpreted to be **(1)** anything is attached to the primary cargo hook (whether or not a useful load is being transported) and **(2)** the aircraft is flying. If these conditions are **NOT** met, time does **NOT** need to be tracked.*

Overhaul the cargo hook per component maintenance manual 122-015-00. Contact Onboard Systems for guidance in locating authorized overhaul facilities.

Section 11
Placards and Markings
11.1 Placards

The 200-281-01 Cargo Hook Kit is a replacement hook kit, which utilizes the helicopter's existing cargo hook suspension system placards (reference Airbus Helicopters's maintenance documentation). Additionally it includes the following placard shown in Table 11-1.

Table 11.1 Cargo Hook Kit Placard

Placard part number and appearance	Location
P/N 215-169-00 INOP	Installed over the hook load indicator lights in the cockpit (the P/N 528-028-00 cargo hook does not have a load indicator switch).

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Section 12
Servicing

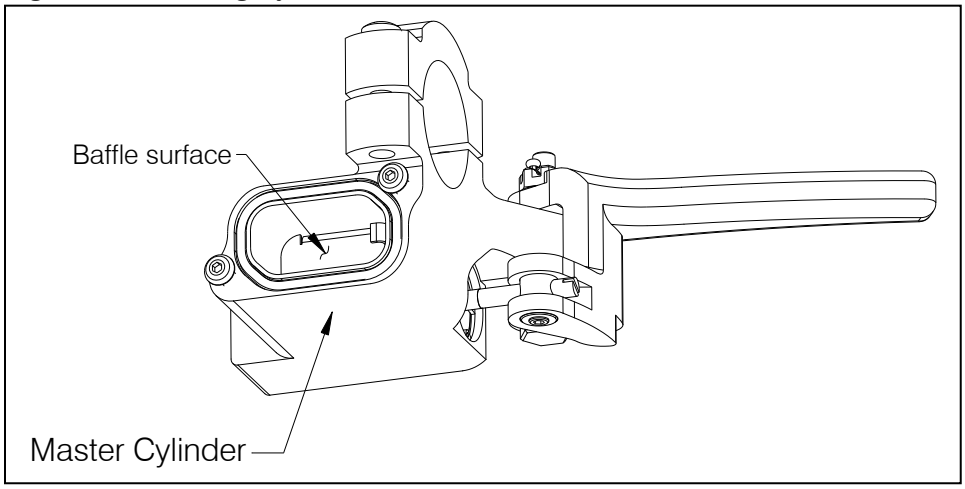
12.1 Maintenance of the Hydraulic Release System

The system is filled with fluid at installation and does not consume fluid unless it leaks out. If any leakage is detected, the fluid level should be immediately checked.

To check the fluid level:

1. Position the collective against the lower stop.
2. The Master Cylinder features a transparent lid through which the fluid level can be checked. Hydraulic fluid must be visible over the baffle surface (see Figure 12.1).
3. Remove lid and add MIL-PRF-87257 (or MIL-PRF-5606) hydraulic fluid as required until the baffle surface is submerged (fill so that there is approximately 1/16" of fluid above the baffle surface).

Figure 12.1 Checking Hydraulic Fluid Level



If leakage is noted around any plumbing fittings, the fittings may be tightened until the leakage quits. If leakage is noted around the pistons in either the master or slave cylinders the leaking cylinder must be repaired. See the instructions for repair in this Section.

12.1 Maintenance of the Hydraulic Release System, continued

Master Cylinder Repair

If fluid is leaking around the piston, the only repair is to remove and replace the cup seal and O-ring. The master cylinder must be disassembled, inspected and then re-assembled with new seals.

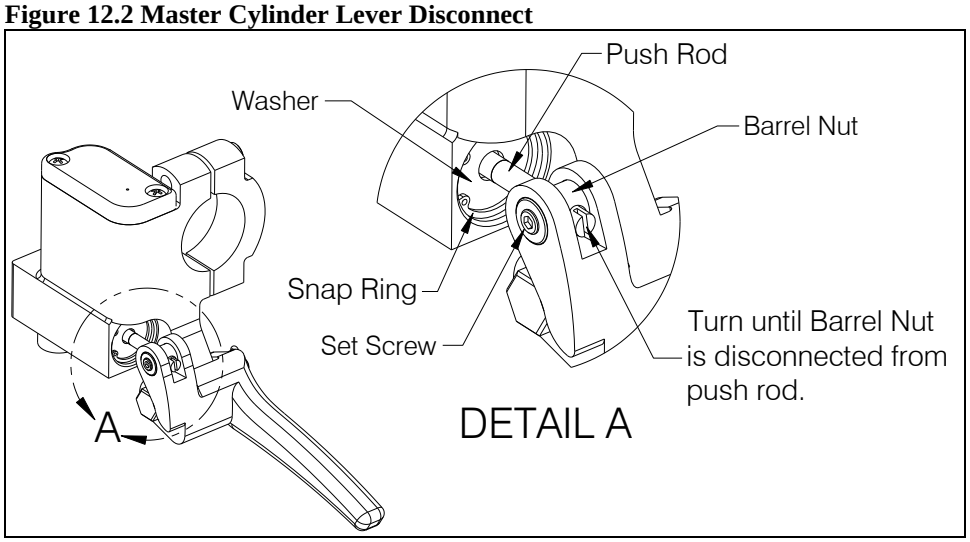
Disassembly:

1. Remove snap ring. Use caution when removing snap ring since the piston is spring loaded against the washer and snap ring. The piston will pop out of the housing when the snap ring is removed. Use the lever to put pressure on the piston while removing snap ring.
2. Loosen the set-screw and disconnect barrel nut on lever from the push rod. See Figure 12.2.
3. Remove the piston and spring. See Figure 12.3 for parts breakdown.
4. Inspect the master cylinder bore for scratches. If any scratches or gouges are visible in the bore, the master cylinder must be replaced.

Re-assembly:

1. If the bore condition is acceptable, replace the lip seal and O-ring on the piston assembly. Maintain orientation as shown in Figure 12.4. Stretch seals over piston into grooves.
2. To assemble the master cylinder, lubricate the piston seals and cylinder bore generously with hydraulic fluid.
3. Place the spring in the cylinder bore.
4. Pass the push rod through the washer.
5. Thread the push rod into the barrel nut until approximately 1/16” of thread is visible through the opposite side of the barrel nut.
6. Insert the small spring into the piston assembly and insert the piston assembly into the master cylinder bore using a firm rocking motion.
7. Use the lever to compress the spring and hold the piston in place.
8. Use snap ring pliers to install the snap ring.
9. Secure push rod threads by tightening set screw.

Figure 12.2 Master Cylinder Lever Disconnect



12.1 Maintenance of the Hydraulic Release System, continued

Master Cylinder Repair continued

Figure 12.3 Master Cylinder Piston Removal

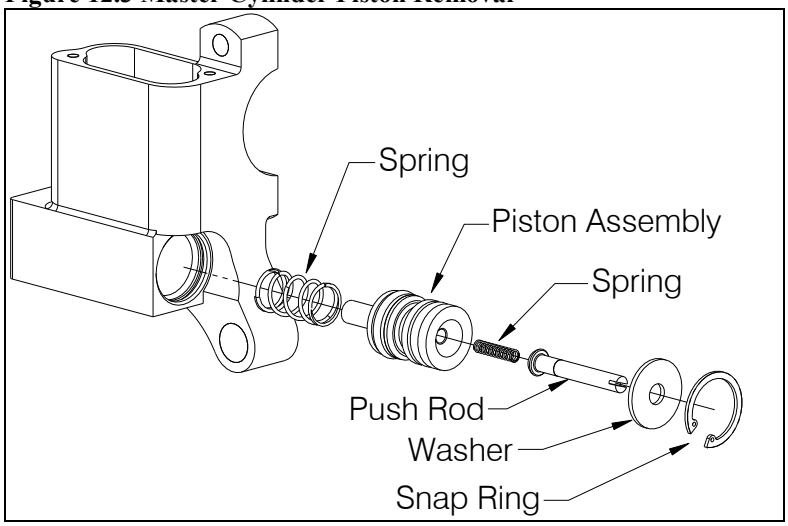
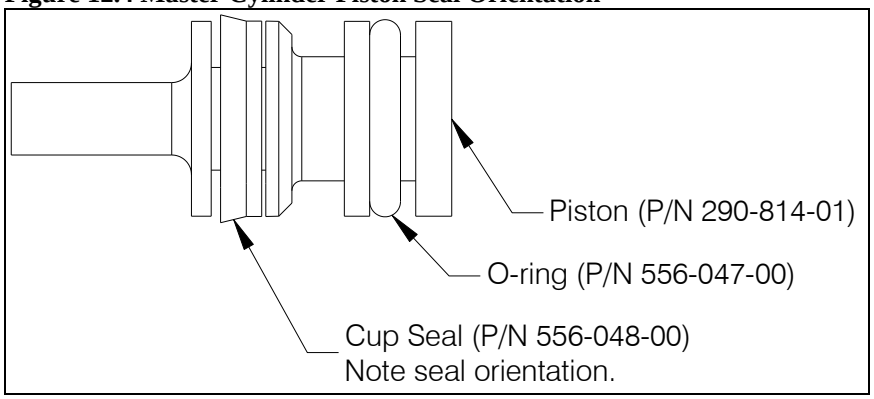


Figure 12.4 Master Cylinder Piston Seal Orientation



12.1 Maintenance of the Hydraulic Release System, continued

Slave Cylinder Repair

If the slave cylinder is leaking fluid around the piston rod, the only repair possible is to remove and replace the quad ring or cup seal (earlier production units of the slave cylinder assembly used a cup seal instead of the quad ring).

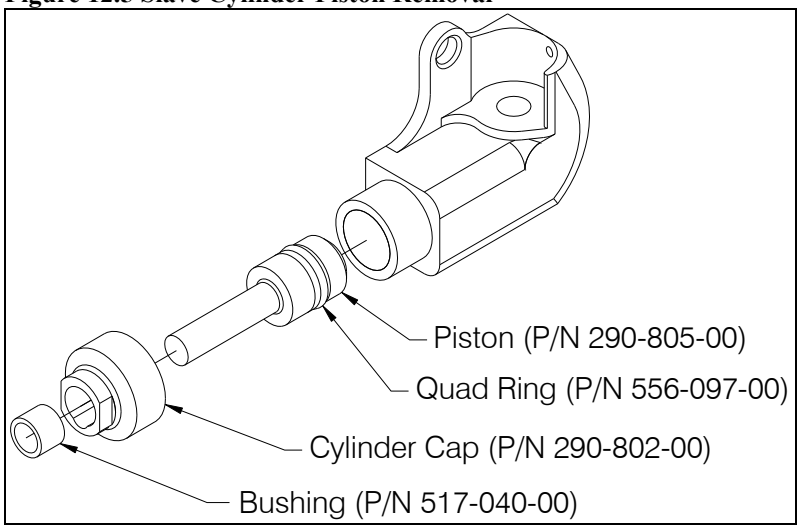
Disassembly:

1. Remove cap, piston, and seal (see Figure 12.5).
2. Inspect bore of slave cylinder for scratches or gouges. If any are present the assembly must be replaced.
3. Remove bushing in cap by pressing it out.
4. Remove quad ring (or cup seal) by stretching it over the piston.

Re-assembly:

1. Press new bushing into cap.
2. Stretch new quad ring over piston into groove.
3. Clean and lubricate cylinder bore and piston seal with hydraulic fluid.
4. Insert piston into cylinder taking care not to damage edges of quad ring.
5. Screw on cap and torque to 50-60 inch pounds.

Figure 12.5 Slave Cylinder Piston Removal



12.2 Bleeding Hydraulic System

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.

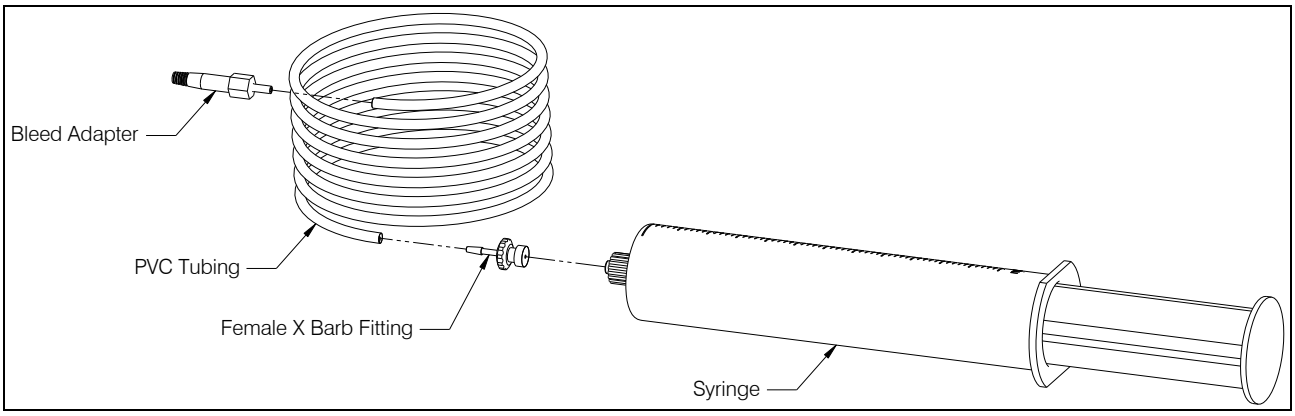
Bleeding procedure:

1. Obtain the hydraulic hook bleed kit, 212-014-02. This kit consists of 2 ounces of MIL-PRF-87257 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 hook kits. Assemble the bleed kit by press fitting each component as shown.

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 12.6 Hydraulic Hook Bleed Kit



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.

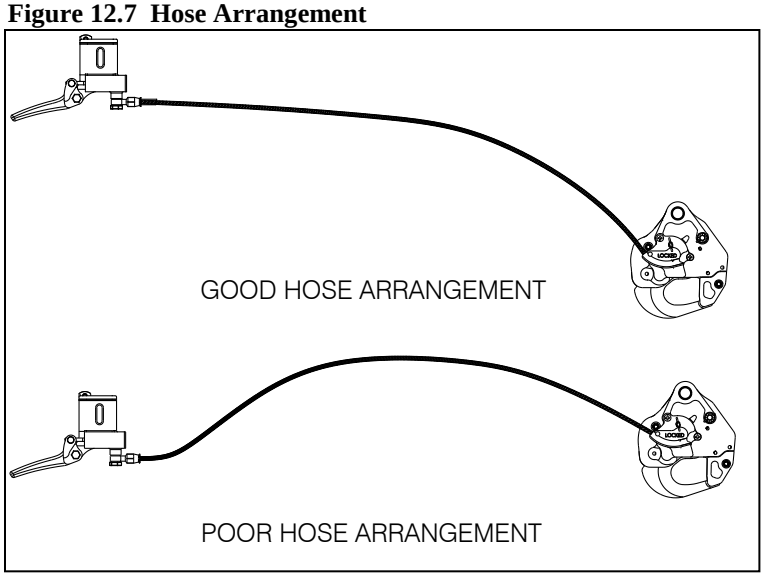
NOTICE

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.

12.2 Bleeding Hydraulic System, continued

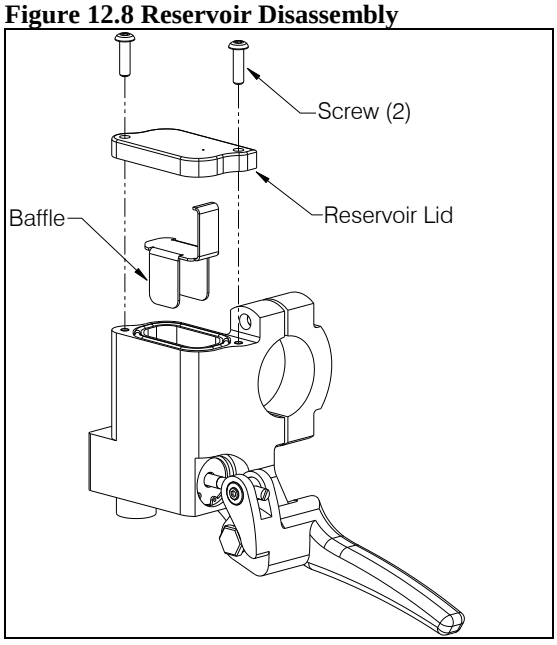
3. Connect the master cylinder assembly to the slave cylinder assembly if not already done. If filling or bleeding on the bench, as much as possible, arrange the hoses uncoiled, straight and running uphill. See Figure 12.7.

Figure 12.7 Hose Arrangement



4. Remove screws, reservoir lid, and baffle from the master cylinder reservoir as shown in Figure 12.8.

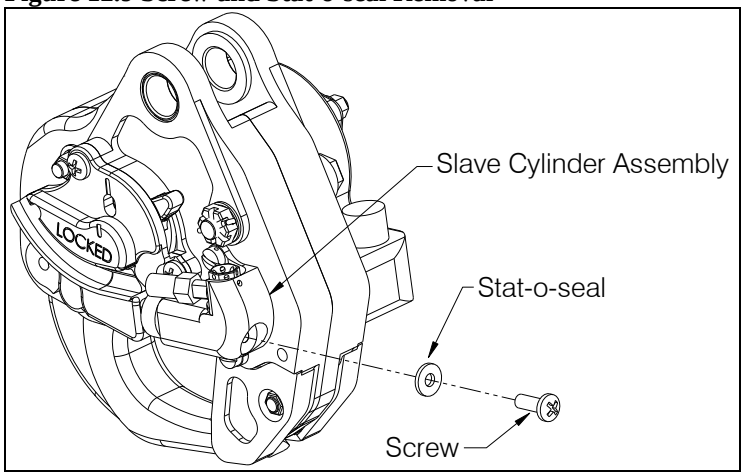
Figure 12.8 Reservoir Disassembly



12.2 Bleeding Hydraulic System, continued

5. Remove the screw and stat-o-seal on the slave cylinder, see Figure 12.9.

Figure 12.9 Screw and Stat-o-seal Removal



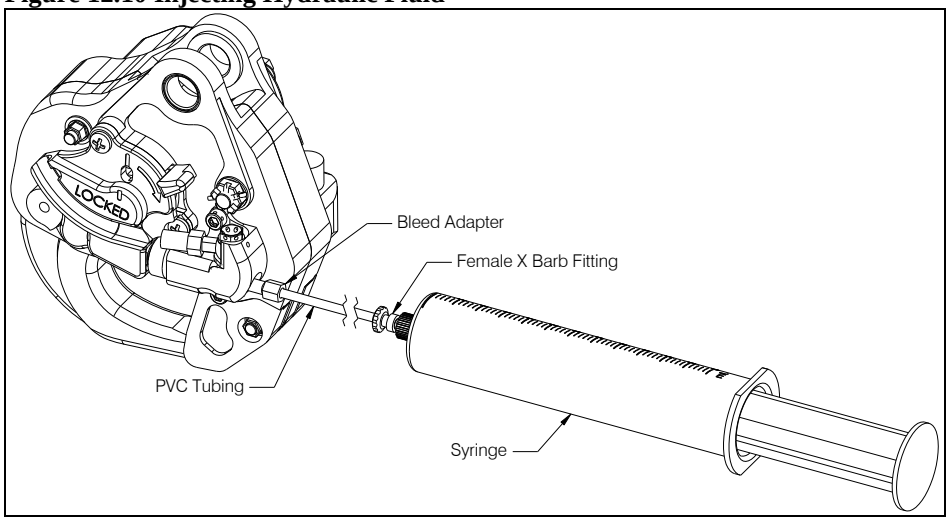
6. Fill the syringe with approximately 35 cc of hydraulic fluid and purge any remaining air in the syringe and tubing. Screw the end of the bleed adapter into the screw hole on the slave cylinder to create a tight seal. See Figure 12.10.

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 12.10 Injecting Hydraulic Fluid



12.2 Bleeding Hydraulic System, continued

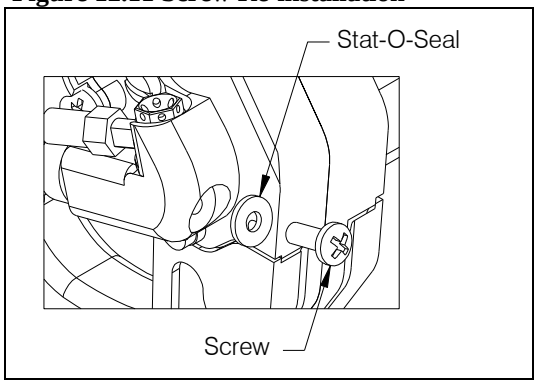
8. Continue to force fluid into the master cylinder reservoir until the reservoir is approximately half full.

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 syringe from the screw hole. Re-install the Stat-O-Seal (P/N 510-496-00) and screw (P/N 510-493-00), see Figure 12.11.

Figure 12.11 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.

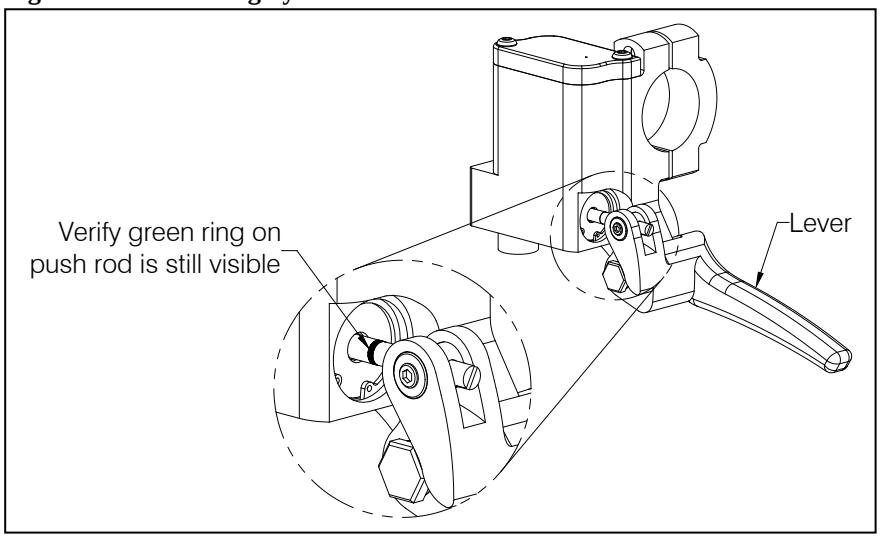
CAUTION

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.

12.2 Bleeding Hydraulic System, continued

12. Check the system for air by actuating the lever firmly until it bottoms out. Check the push rod position (see Figure 12.12). 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 12.12 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 bleed kit with isopropyl alcohol. Allow it to dry. Not cleaning the syringe will render it unusable. Reassemble and store for next use.

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Section 25
Equipment and Furnishings

25.1 Cargo Hook Connector

Listed below is the pin out for the cargo hook connector.

Table 25.1 Cargo Hook Connector

Pin	*Function*
A	Ground
B	Positive

25.2 Description

The primary components of the 200-281-01 and 200-281-02 Cargo Hook Kit are:

1. The Cargo Hook, which attaches to the AS350B3 swing suspension through a supplied adapter link.
2. The Hydraulic Release System, which replaces the helicopter's manual release cable system, and provides an additional means to release a cargo hook load. It consists of a release lever mounted to the collective, a hose routed from the release lever to the hook, and a piston at the hook that actuates the internal release mechanism when the lever is pulled.
3. A bumper, which provides protection for the hydraulic hose and electrical release harness at the cargo hook.
4. A short electrical harness is supplied to splice into and interface with the helicopter's electrical release system.

The 200-281-02 includes a friction adjustment knob for the collective. This replaces the OEM friction adjustment knob and provides clearance for the release lever assembly on the B3 collective.

25.5 Component Weights

The weight of the system is listed in Table 25.2. Refer to Airbus Helicopters manual for location of cargo hook.

Table 25.2 Component Weights

Item	Weight
P/N 200-281-01	6.1 lbs (2.8 kgs)
P/N 200-281-02	6.3 lbs (2.9 kgs)

25.12 Storage Instructions

For temporary storage the master cylinder must be stored with the reservoir lid up. The lid contains an air vent that will allow hydraulic fluid to drain out if left inverted. If long term storage or shipping must be done where the orientation of the master cylinder cannot be controlled, either drain the reservoir or apply a piece of tape over the breather hole on the reservoir lid. If draining the reservoir, remove the hose attached to the master cylinder and drain it as well. Seal the hydraulic parts in a plastic bag for shipping or storage to prevent dirt contamination. The slave cylinder end needs no special handling.

Refer to the Component Maintenance Manual 122-015-00 for storage instructions for the cargo hook.

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25.15 Troubleshooting

Table 25.3 is provided with the intention of isolating the cause of malfunctions within the system. Sections 25.16 and 25.17 include instructions for removing and replacing defective components. Refer to the appropriate Airbus Helicopters maintenance documentation for guidance on procedures relating to Airbus Helicopters parts that interface with this suspension system.

Table 25.3 Troubleshooting

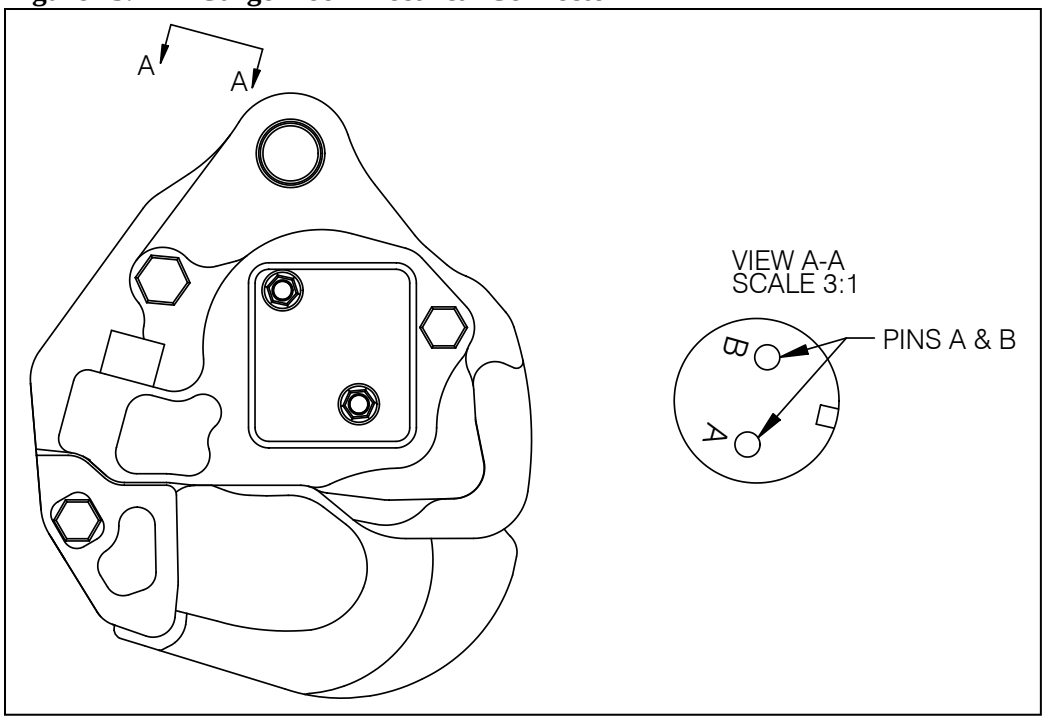
MALFUNCTION	PROBABLE CAUSE	CORRECTIVE ACTION
Cargo hook does not operate electrically or manually.	Defective internal mechanism.	Remove and replace cargo hook (see sections 25.16 and 25.17) or repair per Component Maintenance Manual (CMM) 122-015-00.
Cargo hook does not operate electrically, manual hydraulic release operates normally.	Open electrical circuit, faulty wiring, fuse, switch or solenoid.	Disconnect cable from electrical connector on cargo hook. Using multi-meter, check for 3.0 to 4.0 ohms between pins A and B of electrical connector (see note 1 below). If open indication is obtained, remove and replace cargo hook (see sections 25.16 and 25.17) or repair per Component Maintenance Manual (CMM) 122-015-00.
Cargo hook operates electrically, but not manually.	Leaks in hydraulic hose system. Air in hydraulic hose system. Jammed slave cylinder.	Check for leaks in hydraulic hose system and correct defects if found. Bleed hydraulic system per this manual. Remove slave cylinder from hook and check for proper operation while actuating manual release lever. Repair as required.
Load beam fails to re-latch after being reset.	Defective latch mechanism.	Remove and replace cargo hook (see sections 25.16 and 25.17).
Force required to release hook with lever on collective exceeds 14 lbs.	Friction in internal mechanism or defective hydraulic system.	Remove slave cylinder from hook and manually operate master cylinder. If operation feels free and force is less than 5 lbs. Remove and replace cargo hook (see Section 25.16 and 25.17) or repair per Component Maintenance Manual (CMM) 122-015-00.
Hydraulic fluid leaks at hose fittings.	Loose fittings	Tighten fittings. Check oil level in reservoir. Bleed hydraulic system per Section 12.2.
Hydraulic fluid leaks around master or slave cylinder pistons.	Leaking seals	Replace master or slave cylinder assembly.
Cargo hook fails to open or re-lock properly.	Failure to open or re-lock properly.	Remove and replace cargo hook (see Sections 25.16 and 25.17) or repair per Component Maintenance Manual (CMM) 122-015-00.
Fuse opens when cargo hook is energized.	Short in the system, faulty wiring, fuse or solenoid.	Check for shorts to ground along length of wire harness (see note 2). Check solenoid resistance (see note 1), repair or replace defective parts.

Notes:

1. Checking resistance at pins A and B.

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

Figure 25.2 Cargo Hook Electrical Connector



25.16 Component Removal

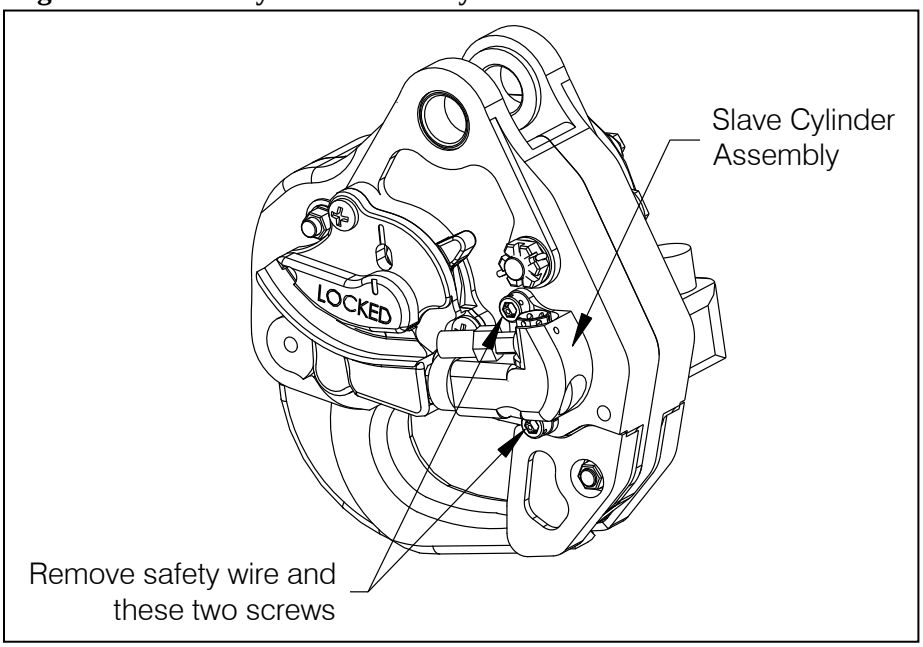
Cargo Hook Removal

1. Cut ty-wraps that secure hydraulic hose and electrical release harness to the cargo hook bumper.
2. Remove the cotter pin (P/N 510-178-00) from the attach bolt (P/N 290-775-00) (refer to Figure 25.7).
3. Remove the castellated nut (P/N 510-170-00) from the attach bolt.
4. Remove the attach bolt and washers and remove the Cargo Hook from the adapter link.
5. Remove the bumper from the cargo hook.
6. Remove the slave cylinder assembly from the cargo hook by removing safety wire, two screws and the associated ty-wrap.
7. Remove the electrical release harness from the Cargo Hook at the mating connector on the cargo hook.

Slave Cylinder Assembly Removal

1. Disconnect the hose at the quick disconnect coupling at the belly of the helicopter.
2. Remove the two screws that hold the slave cylinder assembly to the cargo hook. Remove all ty-wraps that hold the hydraulic hose to the cargo hook and the bumper.

Figure 25.3 Slave Cylinder Assembly Removal

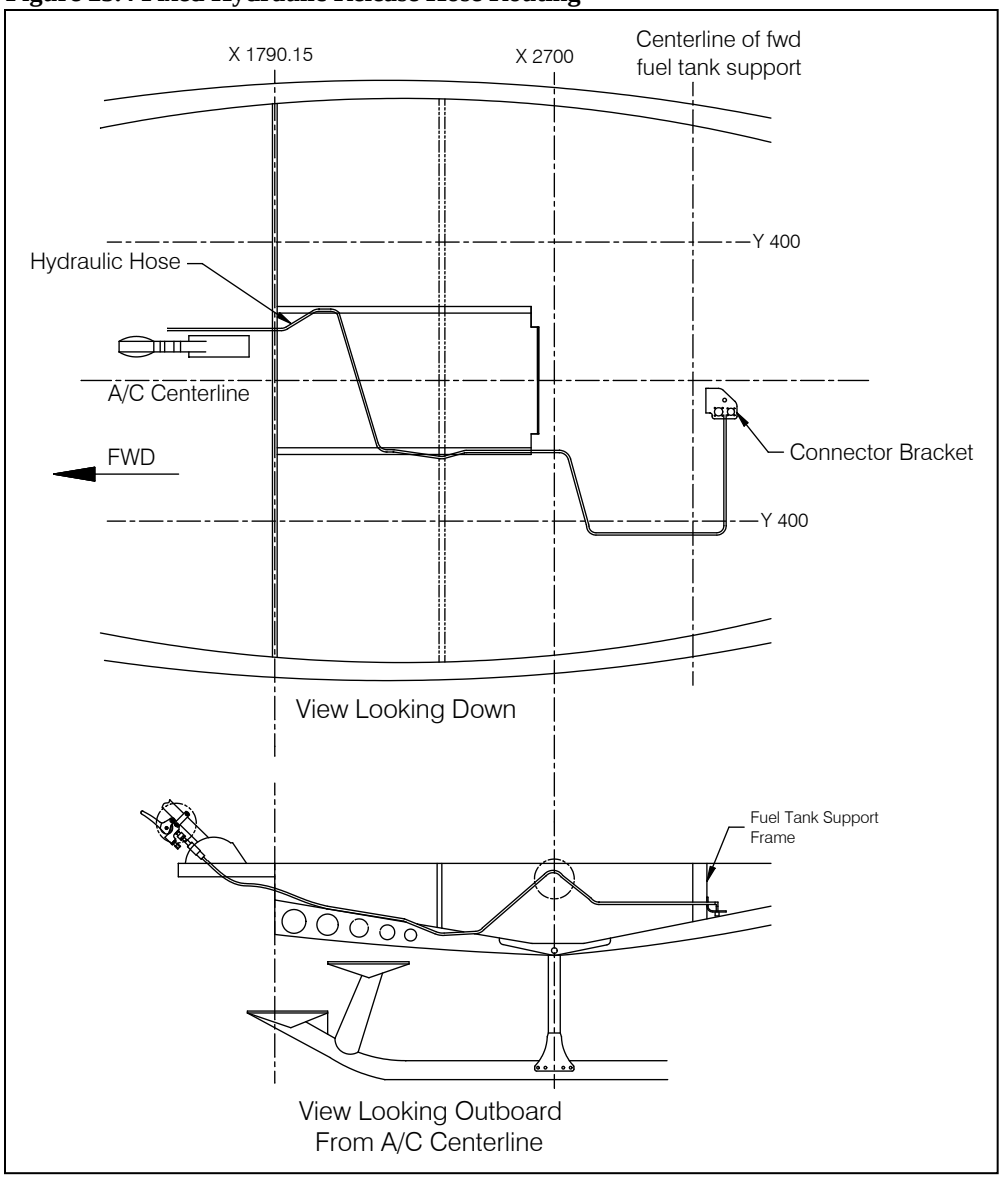


25.16 Component Removal continued

Fixed Hydraulic Release Hose Assembly Removal

The fixed hydraulic release hose is routed from the release lever mounted to the collective stick to the connector bracket on the forward fuel tank support of the helicopter where it is mated with the removable section of the hydraulic release system. Remove lower fairings as necessary to access areas where hose is routed.

Figure 25.4 Fixed Hydraulic Release Hose Routing

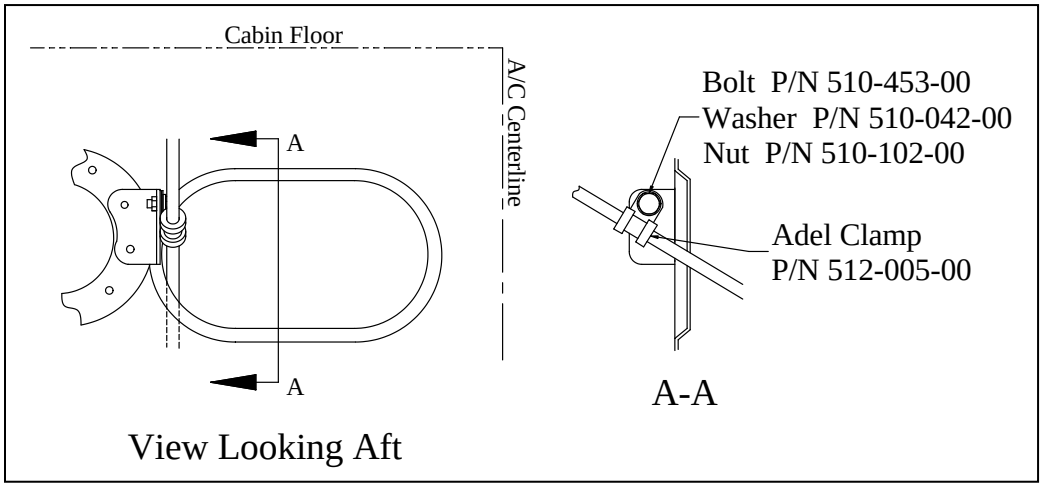


25.16 Component Removal continued

Fixed Hydraulic Release Hose Assembly Removal continued

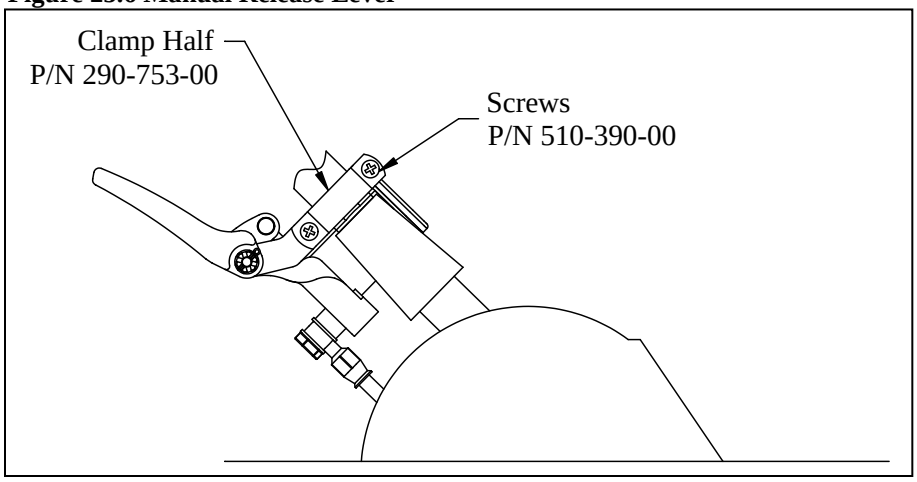
1. Remove the quick disconnect coupling from the connector bracket that is attached to the fuel tank support frame.
2. Follow the path of the hose forward through the helicopter removing ty-wraps and a grommet and pull the hose through. Remove the adel clamp at the bracket at the frame at STA 1790.15 and remove it from the hose.

Figure 25.5 Cable Attachment to Frame at X1790.15



3. Feed the cable forward and then up through the slot in the floor.
4. Above the floor and on the collective stick remove the release lever by removing two screws (see below).

Figure 25.6 Manual Release Lever

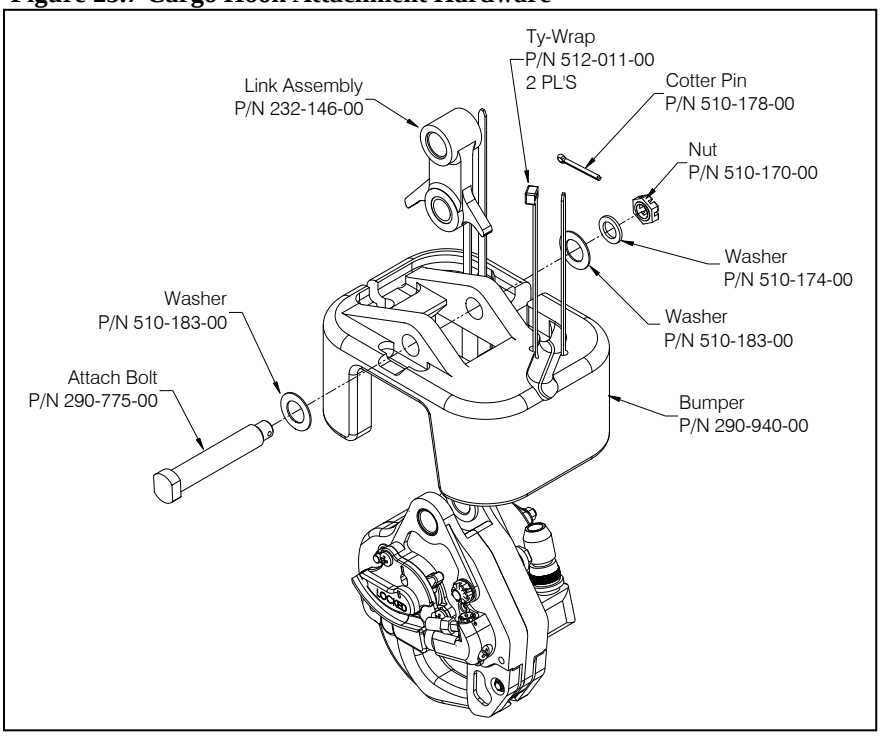


25.17 Component Re-installation

Cargo Hook Re-installation

1. Inspect the Cargo Hook 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.
2. Insert two ty-wraps through the Cargo Hook Bumper (P/N 290-940-00) as shown in Figure 25.7.
3. Attach the Cargo Hook (P/N 528-028-00) and Cargo Hook Bumper to the Link Assembly (P/N 232-146-00) with the Attach Bolt (P/N 290-775-00) and washer (P/N 510-183-00) as illustrated in Figure 25.7.
4. Install washer (P/N 510-183-00) and washer (P/N 510-174-00) over bolt end.
5. Tighten nut P/N 510-170-00 on the Attach Bolt to finger tight, then rotate nut to next castellation to install and secure cotter pin (P/N 510-178-00).

Figure 25.7 Cargo Hook Attachment Hardware



NOTICE

The Cargo Hook Load Beam must point to the left side of the helicopter when looking from the rear.

25.17 Component Re-installation, continued

Slave Cylinder Assembly Re-installation

Connect the slave cylinder assembly to the cargo hook first, per the following instructions:

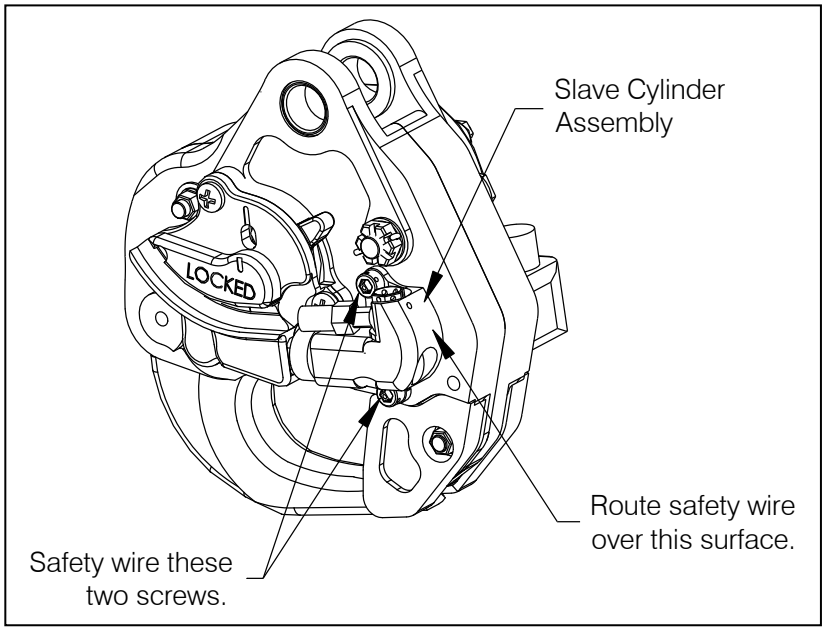
1. Ensure that the piston is in the retracted position. If the piston needs to be retracted connect the quick disconnect coupling and push the piston in.

NOTICE

The piston will not be able to be retracted if the hydraulic hose is not connected at the quick disconnect.

2. Insert the nose of the slave cylinder assembly into the side of the cargo hook as shown below and install the mounting screws (P/N 510-531-00). See Figure 25.8.
3. Install safety wire between these screws around the backside of the slave cylinder. See Figure 25.8.
4. Route the hydraulic hose along the manual release cover and up through the hook bumper, along with the electrical release harness, as shown in Figure 25.9. Secure components to bumper with ty-wraps as shown.
5. Connect the quick disconnect coupling at the belly of the helicopter.

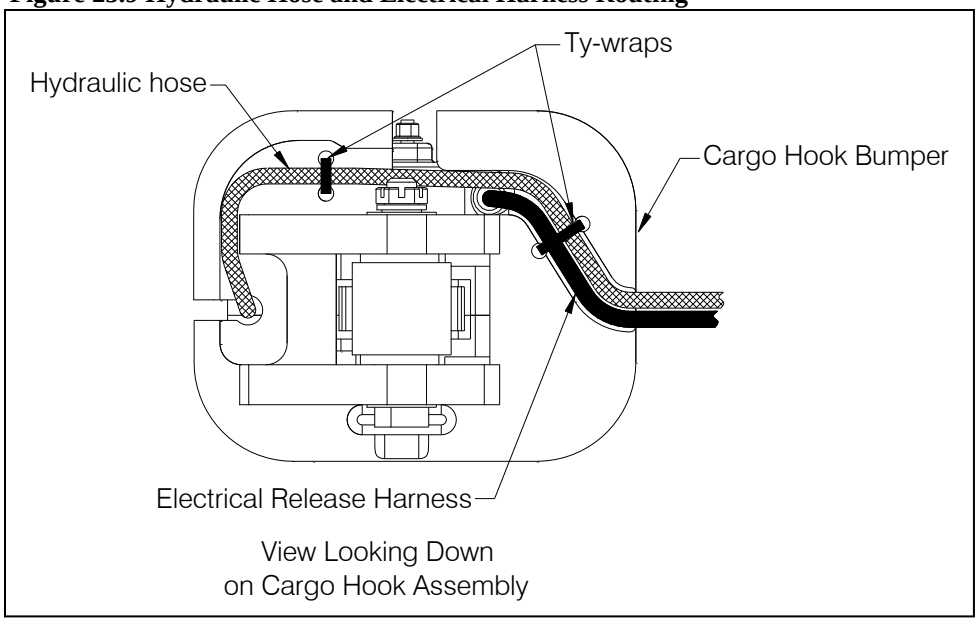
Figure 25.8 Slave Cylinder Assembly Installation



25.17 Component Re-installation continued

Slave Cylinder Assembly Re-installation continued

Figure 25.9 Hydraulic Hose and Electrical Harness Routing

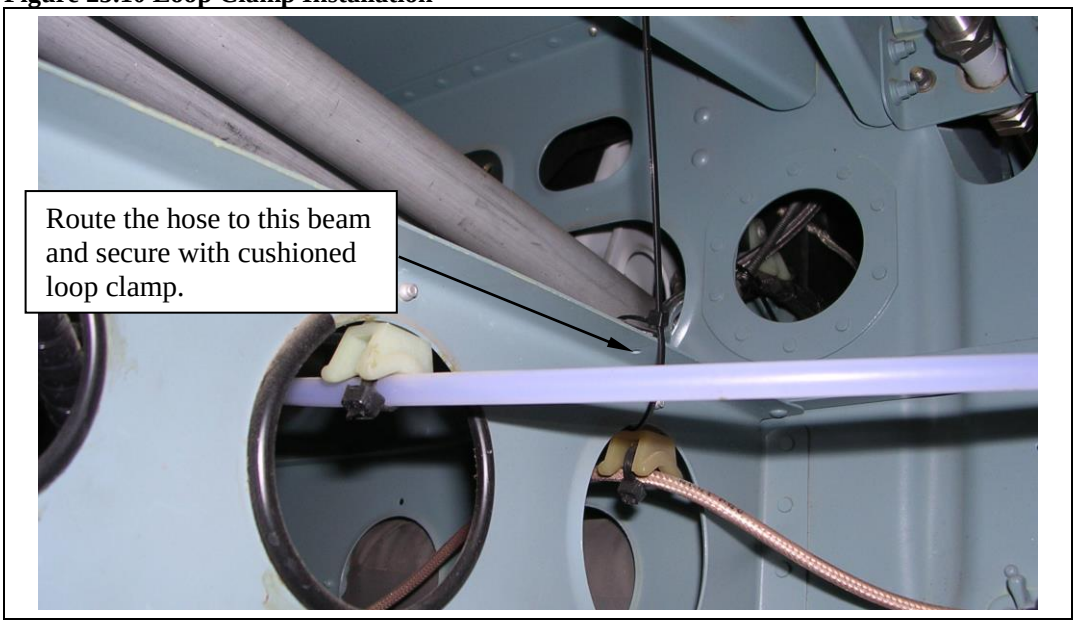


25.17 Component Re-installation, continued

Master Cylinder Assembly Re-installation

1. Install the master cylinder and release lever onto the collective stick with the two screws (P/N 510-390-00).
2. Feed the end of the hydraulic hose through the slot in the floor. The grommet may have to be temporarily removed to allow the fitting to pass through.
3. Install the cushioned loop clamp around the hydraulic hose at the bracket at the frame at 1790.15 with hardware as shown in Figure 25.5.
4. 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.

Figure 25.10 Loop Clamp Installation

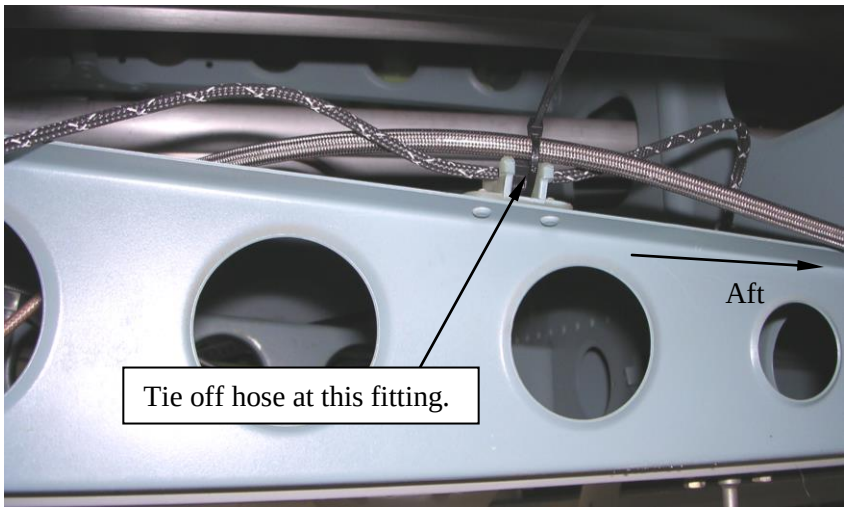


25.17 Component Re-installation, continued

Master Cylinder Assembly Re-installation continued

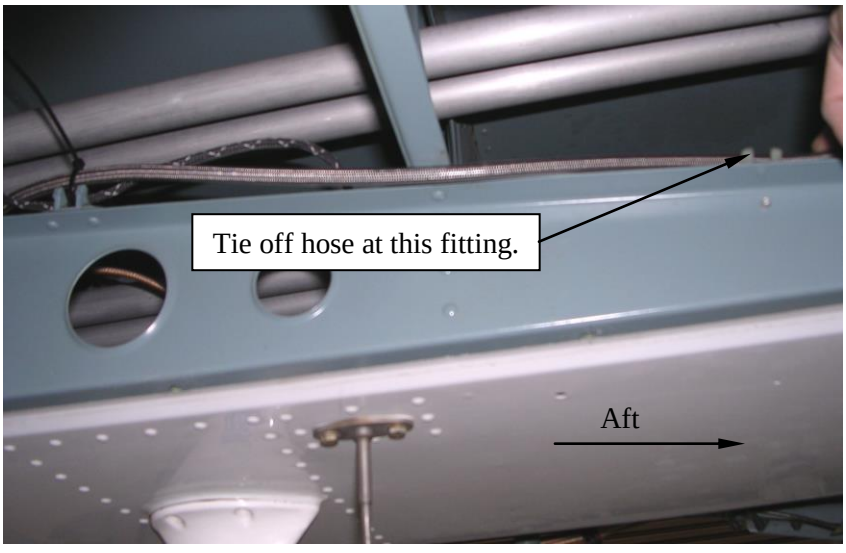
5. Aft of the clamp installed in Figure 25.10, route the hose inboard and aft across the airframe centerline to the identical structural member on the left side of the airframe. Secure hose to fitting on top of structural member with ty-wrap as shown below. Ensure the hose is secured so that it does not interfere with the control rods.

Figure 25.11 Hydraulic Hose Routing



6. Route the hose under the airframe support (as shown below) and secure the hose with ty-wrap to the fitting on top of the structural member aft of the airframe support.

Figure 25.12 Routing under Airframe

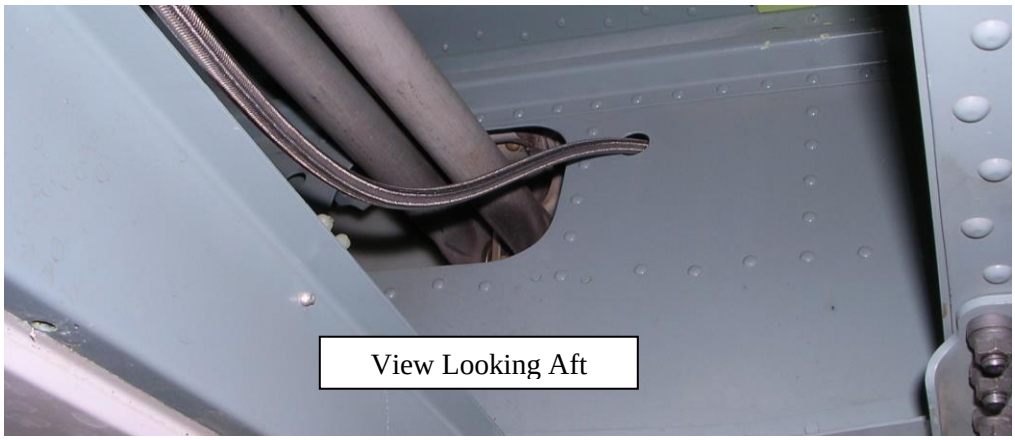


25.17 Component Re-installation, continued

Master Cylinder Assembly Re-installation continued

7. Route the hose up through the rear cabin bulkhead as shown in Figure 25.13. Re-install grommet (P/N 505-014-00) in hole after hose is routed through.

Figure 25.13 Hose Routing through Rear Cabin Bulkhead



8. Aft of the rear cabin bulkhead pick up the existing electrical harness runs and secure hydraulic hose using ty-wraps. The hose will route outboard of Y400 and follow the cargo hook electrical release harness to the connector bracket.

9. Pass the hydraulic quick disconnect coupling through the hole in the Connector Bracket. Slide the fitting to the end of the slot and tighten the jam nut securely against the Connector Bracket.

25.18 General Procedural Instructions-Testing

After re-installation of the cargo hook and/or hydraulic release system, 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 mechanism should operate smoothly and the Cargo Hook must release. Reset the hook by hand after the release. If the hook does not release or relatch, do not use the unit until the difficulty is resolved.

   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 release handle located on the collective to test the cargo hook manual release mechanism. The mechanism should operate smoothly and the Cargo Hook must release. Reset the hook by hand after release. 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 the electrical release harness have enough slack to allow full swing of the Cargo Hook suspension assembly without straining or damaging the hose or harness. The hose or harness must not be the stops that prevent the Cargo Hook from swinging freely in all directions.