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Crew-Loc Hook

Applicable Part Numbers:
210-253-00
210-254-00

Owner's Manual

Document number 120-203-00
Revision 2
February 4, 2011

ONBOARD™ SYSTEMS INTERNATIONAL

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

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RECORD OF REVISIONS

Revision	*Date*	*Page(s)*	*Reason for Revision*
0	5/14/10	All	First Issue
1	07/28/10	4-7	Changed thrust washer P/N 517-101-00 to 517-111-00
2	02/04/11	4-7,4-8	Replaced P/N 215-244-00 with P/N 215-268-00, and updated for returning systems to factory.

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CONTENTS

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Section 1
General Information

Introduction

The Crew-Loc Hook is a swiveling load attachment device rated for 6,000 lbs. (2722 kg). The Crew-Loc Hook is particularly suited to non-repetitive long line lifts where security of the load is paramount and detachment of the load can be accomplished by ground crew.

Bill of Materials

The Crew-Loc Hook is available in both full cage and half cage configurations, depending on customer preference. If shortages are found, contact the company from whom the system was purchased.

Part Number	Description	200-363-00	200-364-00
210-253-00	Crew-Loc Hook, Half Cage	1	-
210-254-00	Crew-Loc Hook, Full Cage	-	1
120-203-00	Crew-Loc Hook Owners Manual	1	1

Explanation of Signal Words and Symbols

The following definitions apply to the symbols used throughout this manual to draw the reader's attention to safety instructions as well as other important messages.

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

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

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

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

Used to address practices not related to personal injury.

Specifications

Table 1-1 Crew-Loc Hook, Half Cage (P/N 210-253-00) Specifications

Design Load	6,000 lbs. (2722 kg)
Limit Load	15,000 lbs. (6,804 kg)
Design Ultimate Strength	22,500 lbs. (10,206 kg)
Unit weight	12.2 lbs. (5.5 kg)

Table 1-2 Crew-Loc Hook, Full Cage (P/N 210-254-00) Specifications

Design Load	6,000 lbs. (2722 kg)
Limit Load	15,000 lbs. (6,804 kg)
Design Ultimate Strength	22,500 lbs. (10,206 kg)
Unit weight	15.2 lbs. (6.9 kg)

Theory of Operation

The primary elements of the Crew-Loc Hook are the Load Beam, Release Lever, Cage, and Swivel (Shown in figures following).

To attach or detach a load, the release lever is depressed and the Load Beam is rotated up and outwards. With a load applied to the Load Beam, the device is self-locking.

Figure 1-1 210-253-00 Major Components

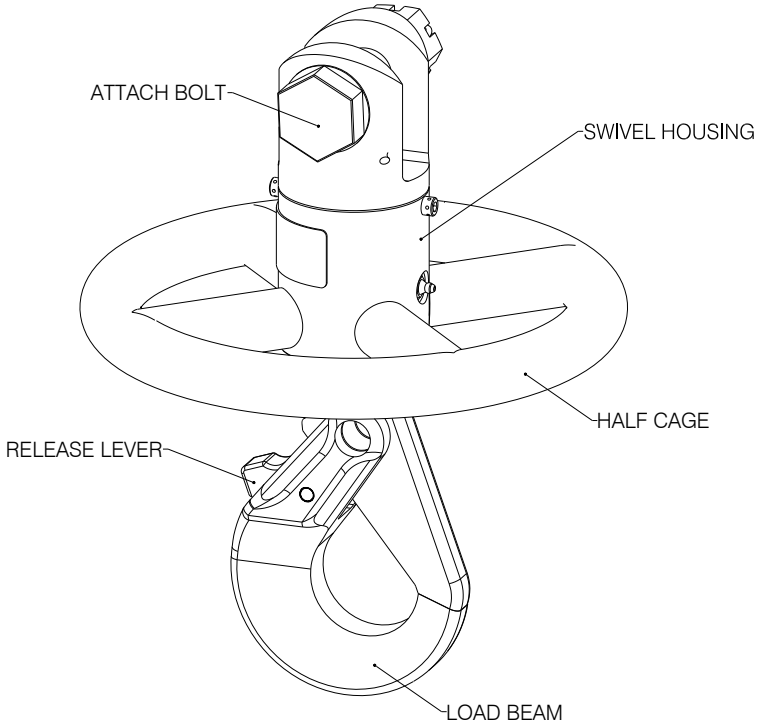
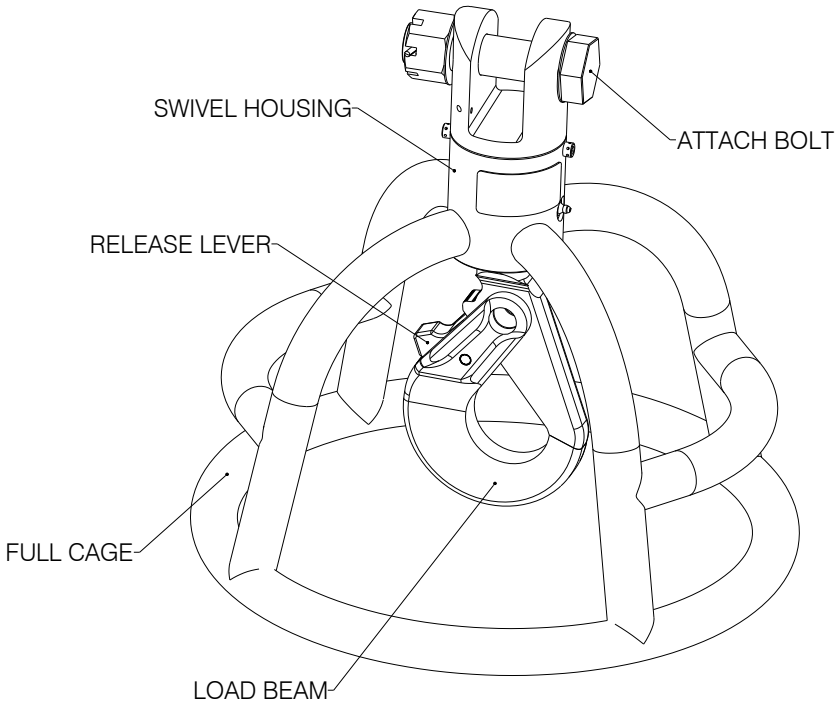


Figure 1-2 210-254-00 Major Components

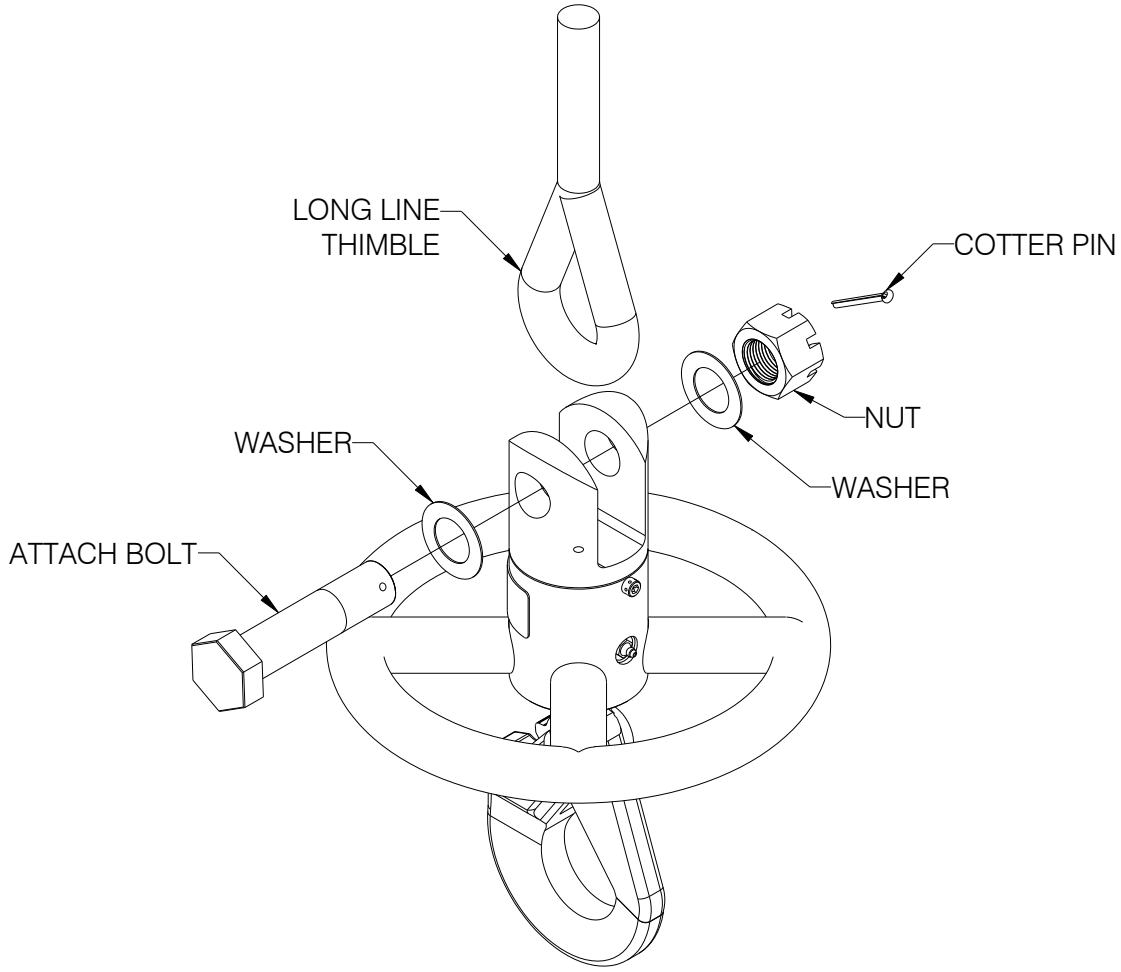


Section 2
Installation Instructions

Inspect the Crew-Loc Hook for evidence of damage, corrosion and security of fasteners before installation. If damage is evident, do not use the unit until it has been repaired.

Attach the Crew-Loc Hook by placing the long line's thimble directly into the clevis of the Crew-Loc Hook—an anchor shackle or other attachment hardware is not recommended. Insert the attach bolt and secure with the provided washers, and castellated nut as shown in figure 2-1. Tighten the nut finger tight, then rotate to next castellation and install cotter pin.

Figure 2-1 Installation



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Section 3
Operation Instructions

Crew-Loc Hook Operating Procedures

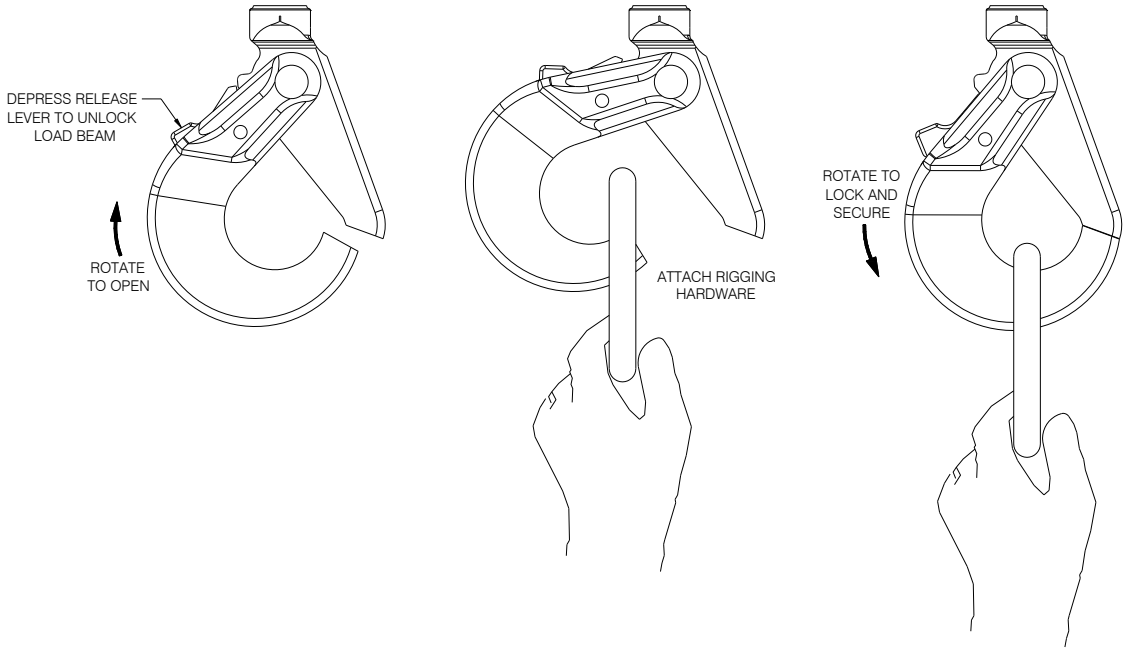
Before operating the Crew-Loc hook, be completely familiar with the Rotorcraft Flight Manual Supplement for External Cargo Operation for your helicopter.

⚠ CAUTION

The Crew-Loc Hook is not pilot-operable. Ground crew must be available to load and unload.

Loads are released by manually depressing the release lever on the Crew-Loc Hook and either lifting off the rigging or manually rotating the load beam upwards. (Loads will not drop by simply depressing the release lever). The Crew-Loc Hook is latched by rotating the load beam downwards. The release lever will engage with a snapping action.

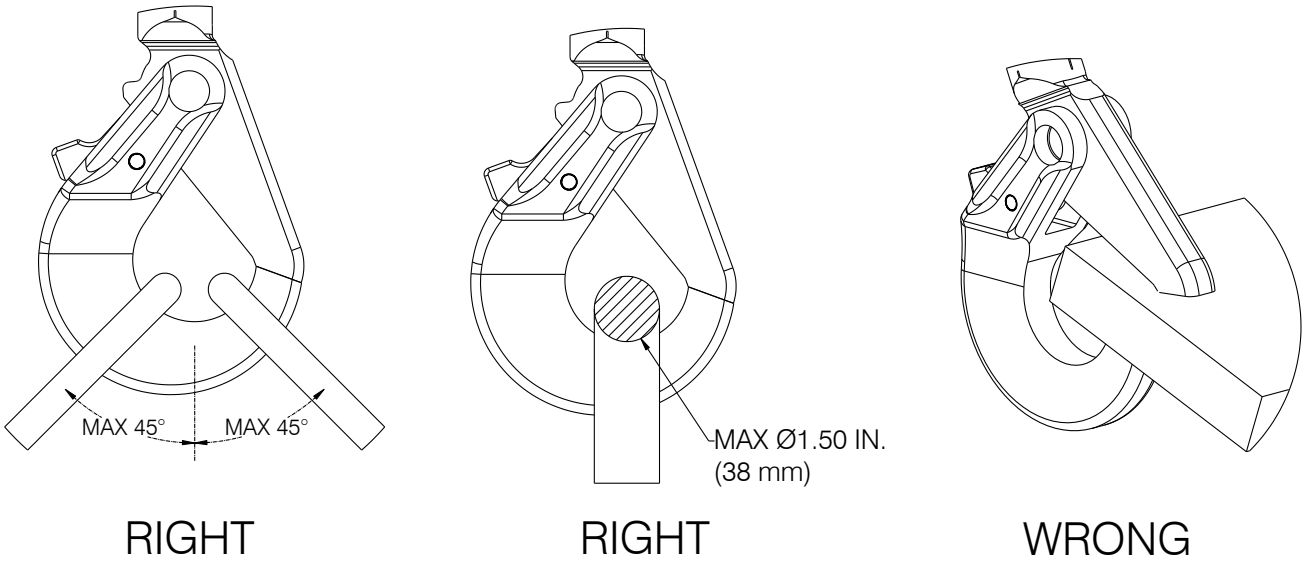
Figure 3-1 Rigging Installation



Crew-Loc Hook Rigging

Care must be exercised in rigging a load to the Crew-Loc Hook. Steel load rings are recommended to provide consistent performance and resistance to fouling.

Figure 3-2 Rigging Precautions



WARNING

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

Section 4
Maintenance

Storage Instructions

Clean the Crew-Loc Hook components thoroughly before packaging. Pack the unit in a sealable package.

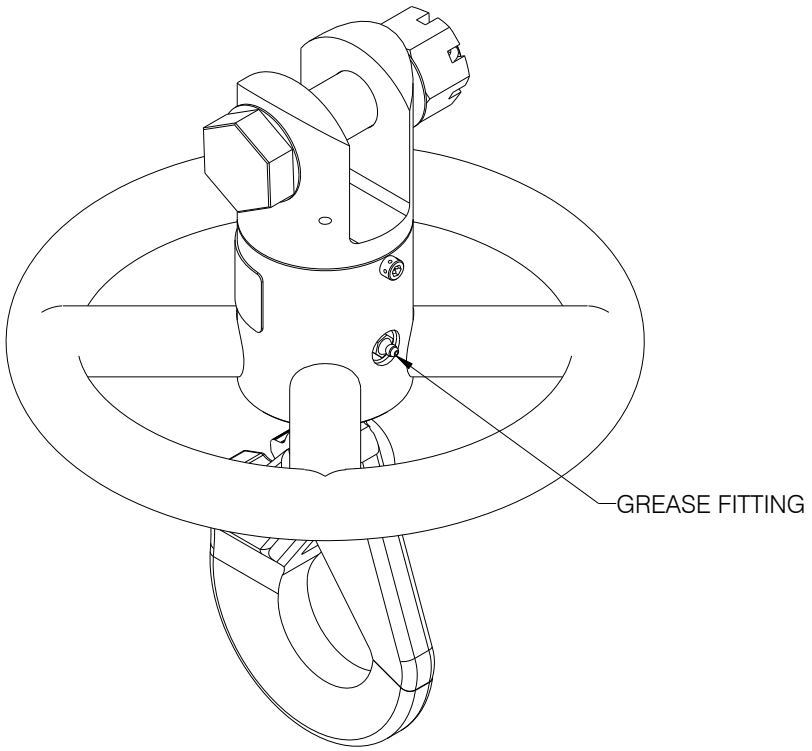
Place the sealed package in a suitable fiberboard box and cushion the unit to prevent shifting. Seal the fiberboard box with tape and mark the box with the contents and date of packaging.

If the unit is to be stored for long periods in a tropical climate it should be packed in a reliable manner to suit local conditions.

Preventive Maintenance

Remove caked-on dirt from the Crew-Loc Hook with a brush and clean exposed surfaces with a mild solvent. Thoroughly dry all surfaces. Periodic lubrication of the swivel assembly is recommended to prevent premature wear and to ensure proper swivel function. Using Aeroshell 7 grease or equivalent, lubricate assembly using the grease fitting.

Figure 4-1 Grease Fitting



Inspection

Inspection of the Crew-Loc Hook is in accordance with the table below.

Table 4-1 Inspection

Part Number(s)	Daily Check	Inspection – Annually or 100 hours of external load operations, whichever comes first.
210-253-00, 210-254-00	1. Inspect all fasteners to ensure that they are in place and secure. 2. Inspect the case and weldment for cracks and damage. 3. Inspect the load beam for gouges and cracks. 4. Swivel Crew-Loc hook 360° to ensure proper function. 5. Depress release lever to open Crew-Loc hook and check for proper function.	Same as daily check.

Crew-Loc Hook Disassembly Procedure

See Figure 4-1 for illustration and item numbers.

1. Remove the cotter pin (5) from the nut (10). Remove the bolt (9) and and washers (11).
2. Remove the safety wire connecting the swivel top (4) and weldment (3).
3. Remove the set screws (6) from the weldment (3).
4. Remove the swivel top (4) from the weldment (3).
5. Remove the cotter pin (5) from the slot nut (8).
6. Remove the nut (7), thrust bearing washers (13) and needle bearing (14) from the load beam assembly (2).
7. Carefully remove the load beam assembly (2) from the weldment (3).
8. Remove the bearing (12), o-ring (16), and grease fitting (15) from the weldment (3).

Crew-Loc Hook Assembly Procedures

1. Replace all parts found to be damaged with serviceable parts.
2. Install bearing (12), using zinc chromate primer, flush to the bottom of the inside bore of the weldment (3).
3. Install o-ring (16) using Aeroshell 7 grease into the o-ring groove on the weldment (3), and install grease fitting (15) with loctite.
4. Carefully insert the load beam assembly (2) into the weldment (3).
5. Grease the thrust bearing washers (13) and needle bearing (14) and slide them over the threaded shank of the load beam assembly (2).
6. Install the nut (7) finger tight to allow .030/.060" of vertical travel on the load beam assembly (2). Tighten slot nut (8) against nut (7) and secure with cotter pin (5).
7. Brush inside surfaces with a light layer of Aeroshell 7 grease or equivalent.
8. Install swivel top (4) on to weldment (3) until tight.
9. Using Loctite install set screws (6) into weldment.
10. Rotate the load beam assembly (2) 360° to check for proper function, adjust if necessary.
11. Safety wire set screws (6) to the swivel top (4).
12. Lubricate assembly using Aeroshell 7 grease or equivalent using grease fitting (15). Be careful to not overfill.
13. Perform Acceptance Test Procedures as listed in Section 4 of this manual.

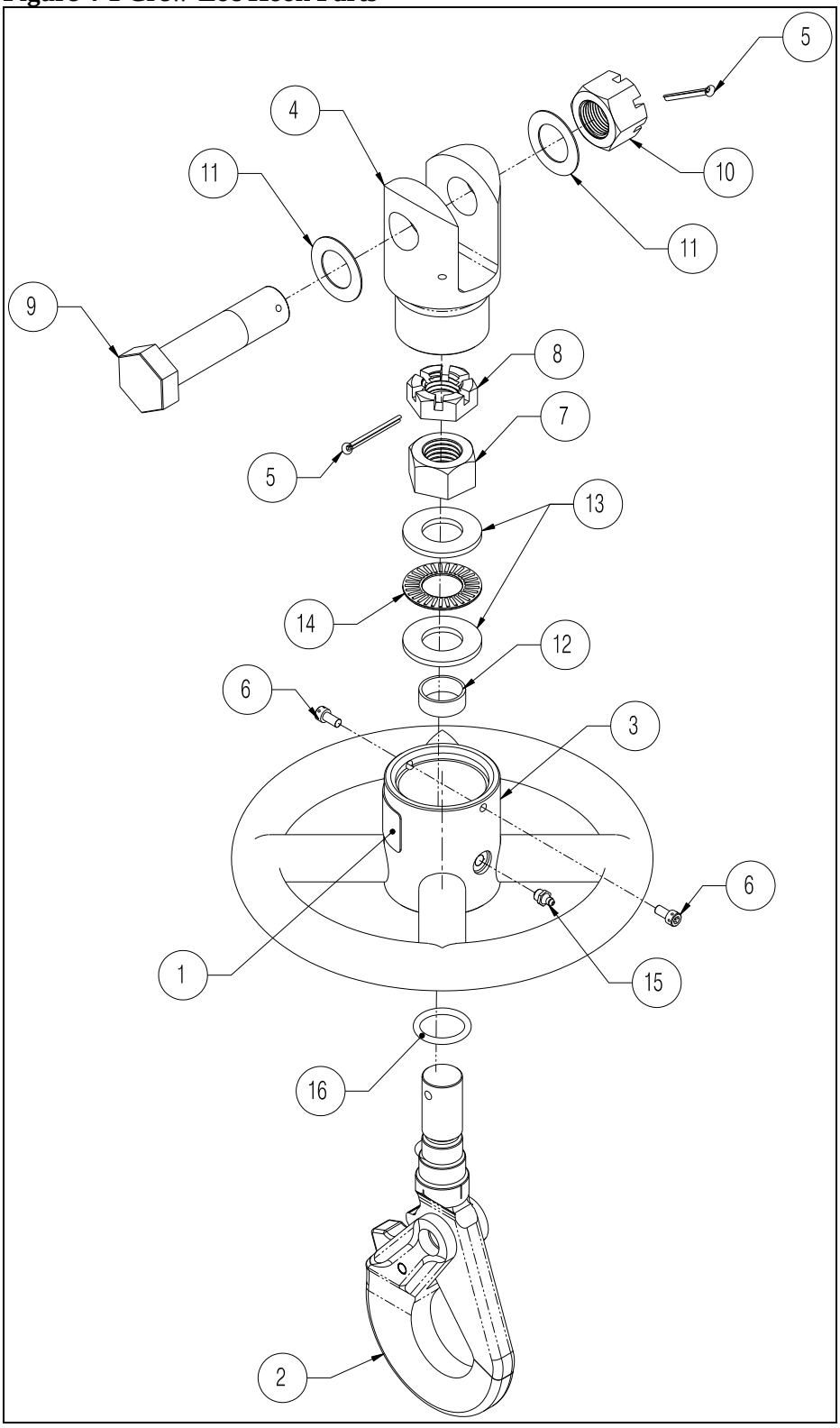
Acceptance Test Procedures

After the Crew-Loc Hook has been repaired or stored for five (5) years or more it must be subjected to the Acceptance Test Procedure as follows.

- Examine the Crew-Loc Hook externally for security of fasteners.
- Suspend the Crew-Loc Hook from a test rig capable of loading the Crew-Loc Hook to 12,000 pounds. Use a nylon sling or a steel ring to apply the load to the load beam. Gradually load the Crew-Loc Hook on the test rig to 12,000 pounds. Hold the load for at least 30 seconds. The Crew-Loc Hook should hold the load without failing statically. Reduce the load to zero.
- Submit the Crew-Loc Hook to a function test after removal of the proof load:
  - Verify the Load Beam swivels freely.
  - Verify the Load Beam opens and closes smoothly.
  - Verify the Release Lever locks when the Load Beam is closed.

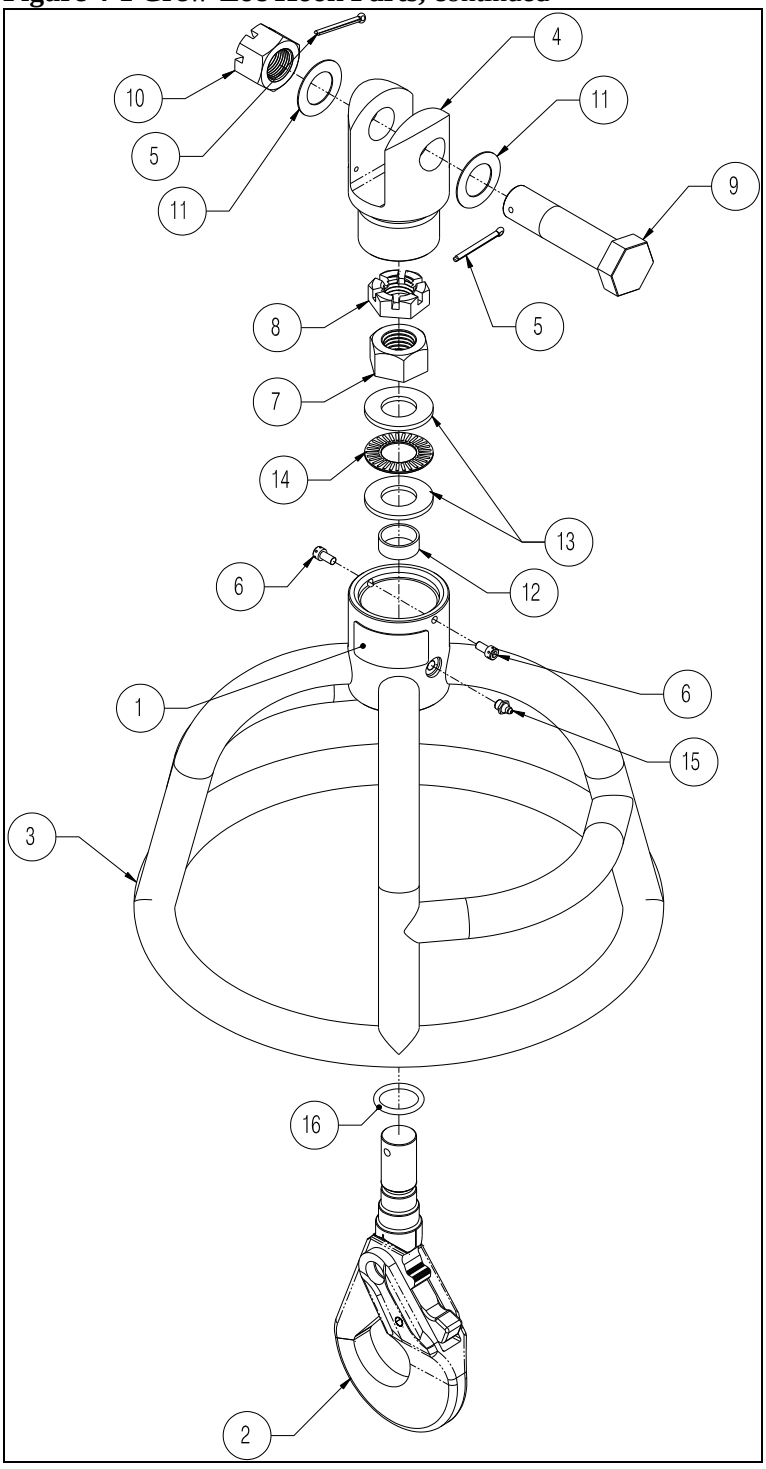
Crew-Loc Hook Exploded View

Figure 4-1 Crew-Loc Hook Parts



Crew-Loc Hook Exploded View

Figure 4-1 Crew-Loc Hook Parts, continued



Crew-Loc Hook Parts

This section describes and lists the assemblies and detail parts of the Crew-Loc Hook.

Table 4-2 Crew-Loc Hook Parts

Figure	*Part No.*	*Description*	*Qty*	*P/N 210-253-00*	*P/N 210-254-00*
1	215-268-00	Serial Number Decal	1	1	1
2	232-446-00	Load Beam Assembly	1	1	1
3	235-186-00	6K SH, 8in. Grip Weldment	1	1	-
3	235-187-00	6K SH, Full Cage Weldment	1	-	1
4	291-477-00	Swivel Top	1	1	1
5	510-098-00	Cotter Pin	2	1	1
6	510-156-00	Screw	2	1	1
7	510-854-00	Nut	1	1	1
8	510-883-00	Slot Nut	1	1	1
9	510-887-00	Bolt	1	1	1
10	510-888-00	Nut	1	1	1
11	510-889-00	Washer	2	1	1
12	517-095-00	Bearing	1	1	1
13	517-111-00	Thrust Bearing Washer	2	1	1
14	517-102-00	Needle Bearing	1	1	1
15	518-004-00	Grease Fitting	1	1	1
16	556-070-00	O-Ring	1	1	1

Instructions for Returning Equipment to the Factory

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

An RMA number is required for all equipment returns.

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

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