ROTORCRAFT FLIGHT MANUAL SUPPLEMENT

Cargo Hook Kit

on the

UH-60A, EH-60A, HH-60L, S-70A, S70C, S-70M Models

as specified on

AML SR02698SE

STC SR02698SE

R/N _____ S/N _____

ALAN W WILSON Digitally signed by ALAN W WILSON Date: 2023.05.23 14:59:57 -08'00', AIR-713, for

Manager, Flight Test & Human Factors Branch, AIR-710
Federal Aviation Administration

May 23, 2023
Approved Date

Record of Revisions

Revision	Page(s)	Reason for Revision	FAA Approval
0	All	Initial Release	29 July 2020 For Digitally signed by ROBERT Y SCHLEIN Date: 2020.07.29 13:35:57 -07'00'
1	All	Added EH-60A and HH-60L models. Added table in Section 2.1 to list the maximum cargo weight for each aircraft model. Update Cargo Hook Rigging section. Added "NOTICE" flag in section 5.0.	Digitally signed by ROBERT Y SCHLEIN Date: 2022.05.11 15:51:29 -07'00'
2	All	Added S-70A, S-70C, and S-70M models. Added NOTICE flag in Section 3.1 to accommodate an optional location of Emergency Release Switch.	Alan Wilson, FTP, AIR-713 May 23, 2023

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Part I, FAA Approved Pages

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1.0 General Information

Attach this supplement to the appropriate FAA approved Rotorcraft Flight Manual when an Onboard Systems International, LLC cargo hook kit P/N 200-437-00, P/N 200-438-00 or P/N 200-438-01 is installed in accordance with Supplemental Type Certificate (STC) SR02698SE (ref. Section 7.0 for descriptions of the kits). The information contained herein supplements or supersedes the Rotorcraft Flight Manual only in those areas listed herein. For limitations, procedures, and performance information not contained in this supplement, consult the base Rotorcraft Flight Manual provided by the type certificate holder.

2.0 Limitations

The limitations specified in the basic Rotorcraft Flight Manual remain applicable and are complemented by the information contained in the section.

With a load attached to the cargo hook, operation shall be conducted in accordance with the respective national operational requirements.

The cargo hook kits do not comply with the 14 CFR part 29 certification requirements for Human External Cargo (HEC).

Cargo hook equipment certification approval does not constitute operational approval; operational approval for external load operations must be granted by the local Aviation Authority.

2.1 Cargo Hook Load

The maximum weight to be carried on the cargo hook is model dependent and is to be the **lesser** of that specified in the table below or 9000 lbs. (9000 lbs. is the load rating of the cargo hook).

Model	Maximum Cargo Weight
UH-60A	8000 lbs. (3629 kg)
EH-60A	8000 lbs. (3629 kg)
HH-60L	9000 lbs. (4082 kg)
S-70A	8000 lbs. (3629 kg)
S-70C	8000 lbs. (3629 kg)
S-70M	9000 lbs. (4082 kg)

2.2 Placards

The following placards are included with the Cargo Hook Kits. Consult the Rotorcraft Flight Manual issued by the type certificate holder for any additional placards.

Located near the Normal Release Switch on the cyclic:

Located adjacent to the EMERG REL TEST light in the upper console:

3.0 Normal Procedures

The normal procedures in the Rotorcraft Flight Manual issued by the type certificate holder are applicable (with exceptions noted below) and are complemented by the following procedures.

The Cargo Hook kits use the original cargo hook control panel switches in the upper console except for the following items which are associated with the original cargo hook's explosive device system.

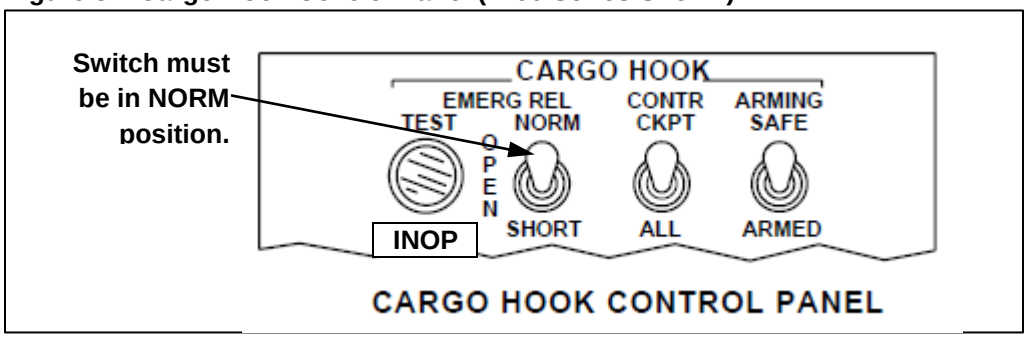
- The EMERG REL TEST light is not used.
- The EMERG REL TEST switch OPEN and SHORT positions are not used. Switch should always be maintained in the NORM position.

3.1 Pre-flight Check

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

1. Verify that the toggle switch on the Cargo Hook Control Panel in the upper console is in the NORM position.

Figure 3.1 Cargo Hook Control Panel (H-60 Series Shown)



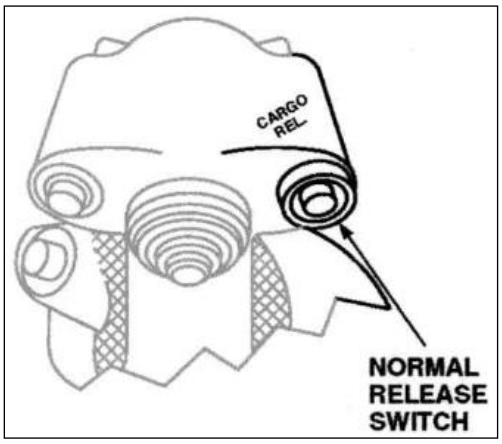
2. Activate the electrical system and adjust the ARMING switch in the upper console to ARMED. With no load on the cargo hook perform the following.

NOTICE

*By design (to help protect against inadvertent load release) the cargo hook **PRIMARY (NORMAL)** release requires that the Cargo Release switch on the cyclic be held for at least ½ second to release the load.*

- Very briefly press the Normal Release Switch on the cyclic (ref. Figure 3.2), the cargo hook should not actuate and the load beam should remain closed.

Figure 3.2 Normal Release Switch (H-60 series cyclic shown)



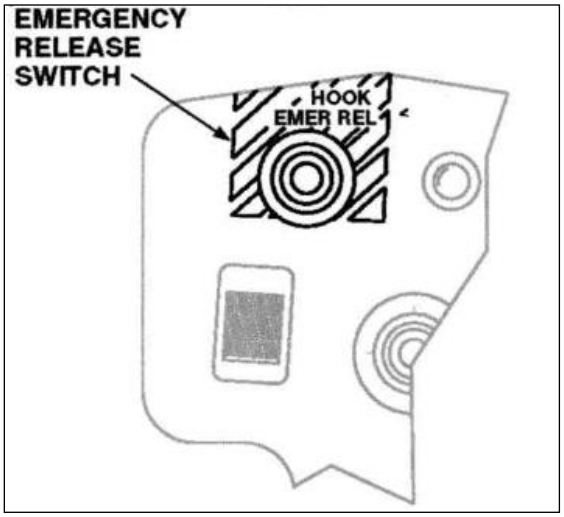
- Press and hold the Normal Release Switch for a few seconds, the load beam should fall to the open position and the cargo hook's solenoid should continue to cycle repeatedly. The CARGO HOOK OPEN advisory in the cockpit should appear.
- Push up on the load beam and verify that it latches and the hook lock indicator is aligned with the engraved line on the exterior of the cargo hook. The CARGO HOOK OPEN advisory should disappear.

3. With no load on the cargo hook load beam, depress the Emergency Release Switch (labeled HOOK EMER REL) on the collective; the cargo hook load beam should open. Reset the cargo hook load beam.

NOTICE

The Emergency Release Switch configuration shown in Figure 3.3 below represents the standard configuration/location on the H-60/S-70 series. Optional approved locations for this switch are acceptable.

Figure 3.3 Emergency Release Switch



CAUTION

The backup release solenoid is not intended to be energized continuously. Depressing the release switch continuously in excess of 20 seconds will cause the solenoid to overheat, possibly causing permanent damage.

4. Squeeze the safety on the manual release lever (ref. Figure 3.4) on the side of the cargo hook and rotate the manual release lever. The lever should operate smoothly and the cargo hook should open. Reset the load beam by hand after release. Verify that the hook lock indicator on the side of the hook returns to the fully locked position (ref. Figure 3.5). In the fully locked position the groove in the lock indicator should align with the lines on the exterior of the cargo hook.

⚠ WARNING

In the fully locked position the hook lock indicator should align with the lines on the manual release cover.

Figure 3.4 Manual Release Function

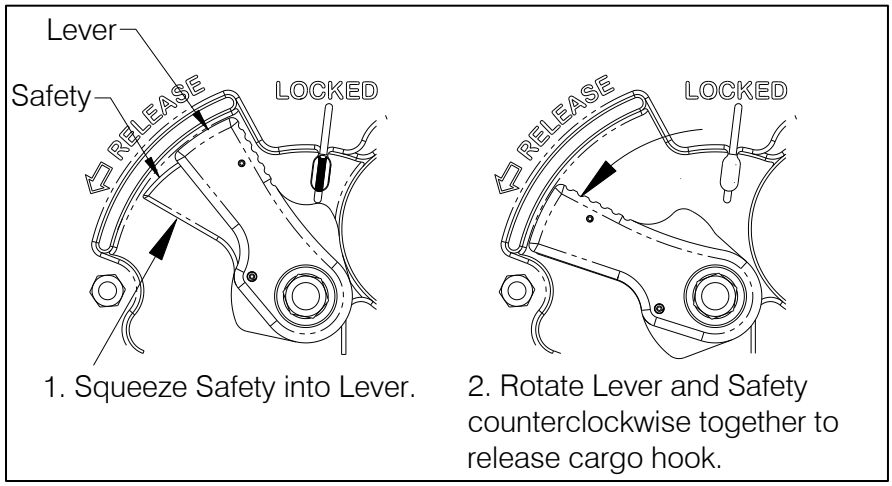
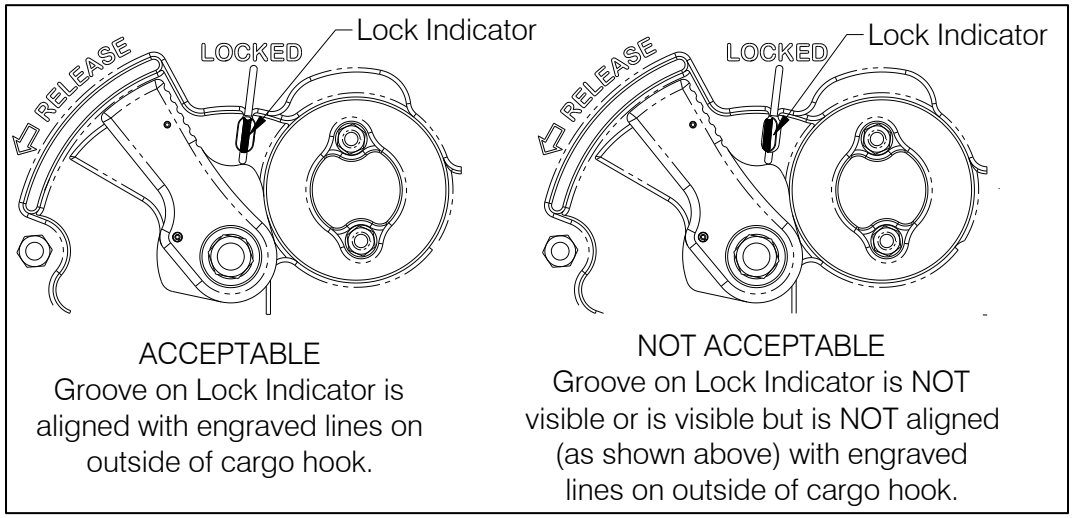


Figure 3.5 Hook Lock Indicator

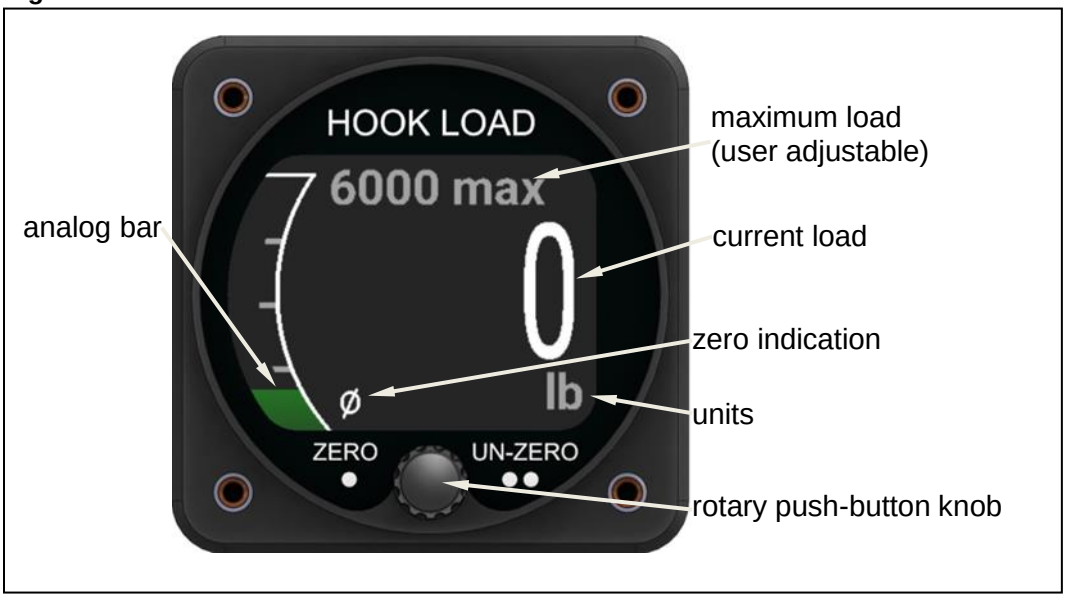


5. Swing the cargo hook side to side through its full range of motion and ensure the electrical harnesses are NOT pulled tight in any possible location.

If the load weigh system is installed perform the following as part of the pre-flight check.

6. Verify the Load Indicator displays the Load screen (shown below). This screen is shown after power up; during power up an Information screen will display the Hook Hours, software version, and the unit's serial number (S/N).

Figure 3.6 Load Screen



NOTICE

Refer to Owner's Manual 120-152-00 for detailed setup instructions including changing the units, changing the brightness of the display, etc. and additional operation instructions.

The C-40 model includes a Maximum Load setting, this setting provides the option to select a maximum load for each flight involving external load operations based on flight conditions (temperature, altitude, fuel, etc.) or it can be set to the maximum external load rating of the rotorcraft. To set the maximum load:

- From the Load screen press and hold the rotary push button knob until the Maximum Load screen appears. Release the knob.

Figure 3.7 Maximum Load Screen

- Rotate the knob to the left or right to decrease or increase the value to the desired setting.
- Press the knob to set this value.

To zero (or tare) the weight of the long line, net, remote hook, etc. from the displayed load, apply that weight to the cargo hook and press the knob once and the display should zero out. Press the knob twice to un-zero (un-tare) the display and add this weight back in.

If the Load Indicator is not going to be used during a flight, the screen can be turned off by pressing and holding the rotary knob until the screen turns off.

3.2 Cargo Hook Rigging

Exercise care when rigging a load to the Cargo Hook. Attaching the external load using a steel load ring (primary ring) on the Cargo Hook's load beam is the recommended rigging configuration to provide consistent release performance and resistance to fouling. Figure 3.8 shows the recommended rigging and rigging to avoid, but is not intended to represent all rigging possibilities. For each rigging configuration used, verify that the rigging will freely slide off the load beam when it is opened.

WARNING

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

For a cargo hook with the pin load cell installed, it is recommended to use Shackle P/N 232-814-00 (ref. Figure 3.9) to enhance the accuracy of the load weigh system. It uses a roller bearing to facilitate movement to the optimal location on the load beam.

Figure 3.8 Cargo Hook Rigging for Cargo Hook w/o Load Cell

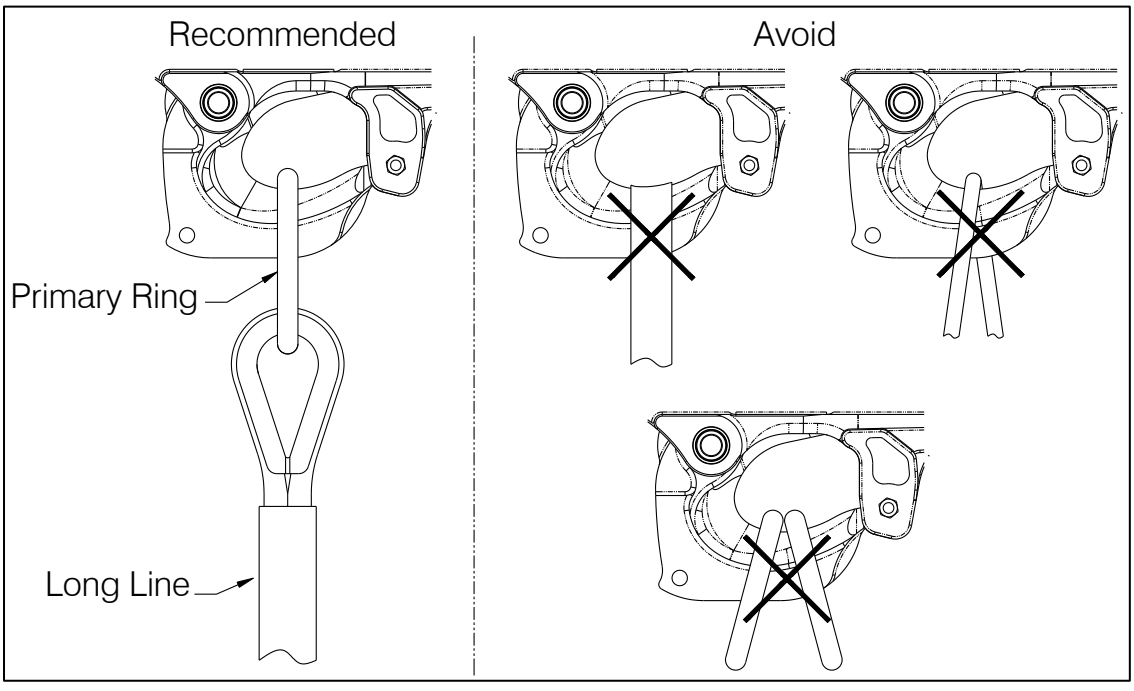
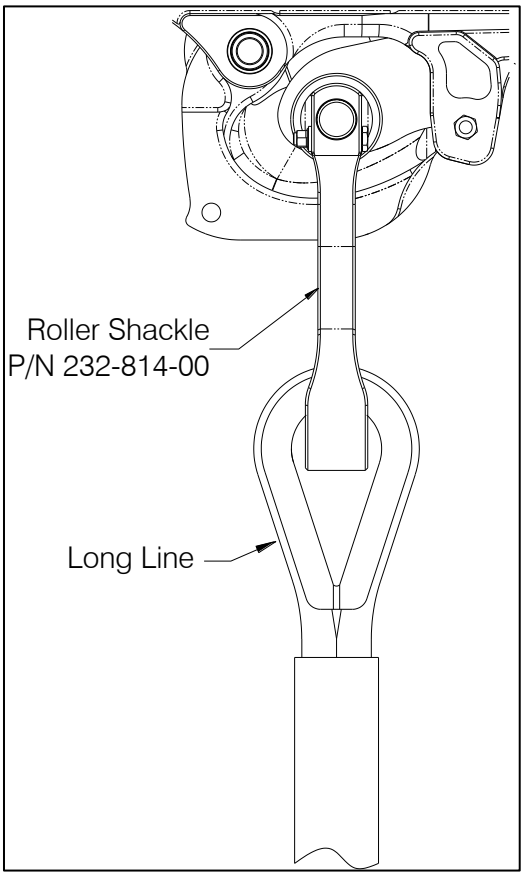


Figure 3.9 Recommended Rigging w/ Load Weigh System



4.0 Emergency Procedures

The primary means of release for the cargo hook is to press the Normal Release switch on the cyclic. If this fails to release the load, the backup means of release is to press the Emergency Release switch on the collective.

Use the Emergency Release switch in an emergency where the external load needs to be released immediately as the cargo hook's primary release system is equipped with Surefire time delay circuit.

⚠ CAUTION

If the external load must be released immediately without <u>any</u> delay, use the Emergency Release switch.

In the event of loss of power to both DC primary buses release the external load on the cargo hook with the Emergency Release Switch on the collective as soon as practical.

A crew-member (if present) can also access the cargo hook's manual release lever (ref. Figure 3.4) from the cabin through the trap-door in the floor to release the external load.

5.0 Performance

The basic Rotorcraft Flight Manual issued by the type certificate holder remains applicable.

When there is an external load, performance will be reduced depending on its size, weight, and shape.

NOTICE

The Load Weigh System is intended as a means of MONITORING the weight of the load suspended from the Cargo Hook.

Before lifting a load, it is recommended that the load weight be estimated and the shape/size considered. Upon lifting the load, monitor the load indicator and compare the actual engine torque value vs. the expected value for a given weight to verify sufficient performance.

6.0 Weight and Balance

No change to the rotorcraft's weight and balance from the original cargo hook installation.

7.0 System Description

The Cargo Hook Kits serve as replacement hook kits for the existing cargo hook on the rotorcraft. They include the cargo hook, an electrical harness to connect to the rotorcraft's existing fixed cargo hook electrical release system, electrical components to adapt the rotorcraft's existing fixed explosive device electrical system to the backup release system of the new cargo hook, and an optional load weigh system (included with kit P/Ns 200-438-00 and 200-438-01).

An external load is attached to the Cargo Hook (ref. Figure 7.1 and Figure 7.2 for overview) by sliding a load ring, for example, over the open load beam and pushing it up to latch the Cargo Hook. The external load can be released from the cargo hook by three different methods:

- Normal (or primary) release is achieved by pilot actuation of the existing factory installed cargo release button on the cyclic. When the button is pressed, it energizes a solenoid in the Cargo Hook, and the solenoid opens the Cargo Hook internal mechanism.
- Emergency (or backup) means of release the cargo hook uses the rotorcraft's existing emergency release switch on the collective. When this button is pressed a second solenoid (used instead of an explosive device as used in the original cargo hook) in the Cargo Hook is energized and this solenoid acts independently on the internal mechanism.

The load can also be released by ground crew using a lever (ref. Figure 7.1) located on the side of the Cargo Hook.

The Cargo Hook includes a time delay circuit (referred to as Surefire Release) within its primary release system. This feature is a safety enhancement to protect against inadvertent load release due to accidental contact with the release switch or mistaken actuation of the cargo hook switch. The time delay feature requires that the release switch be depressed and **held** for more than a 1/2 second to open the cargo hook. Surefire makes the electrical release a more deliberate pilot command. If the cargo hook must be released immediately, use the emergency (backup) release.

Figure 7.1 Overview of Cargo Hook, Right Side

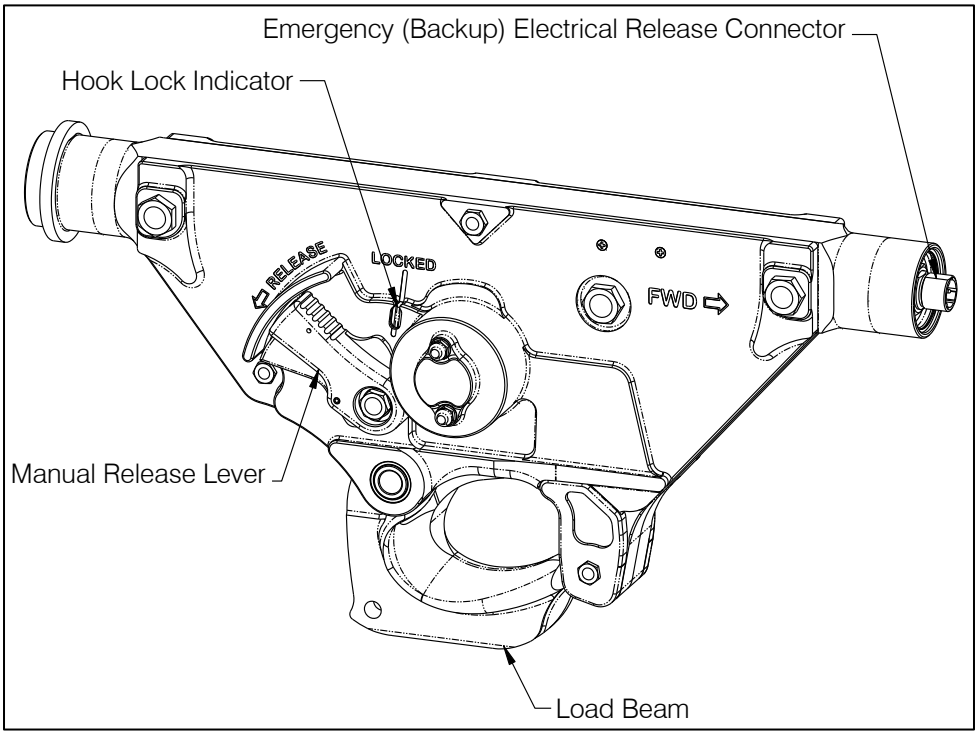
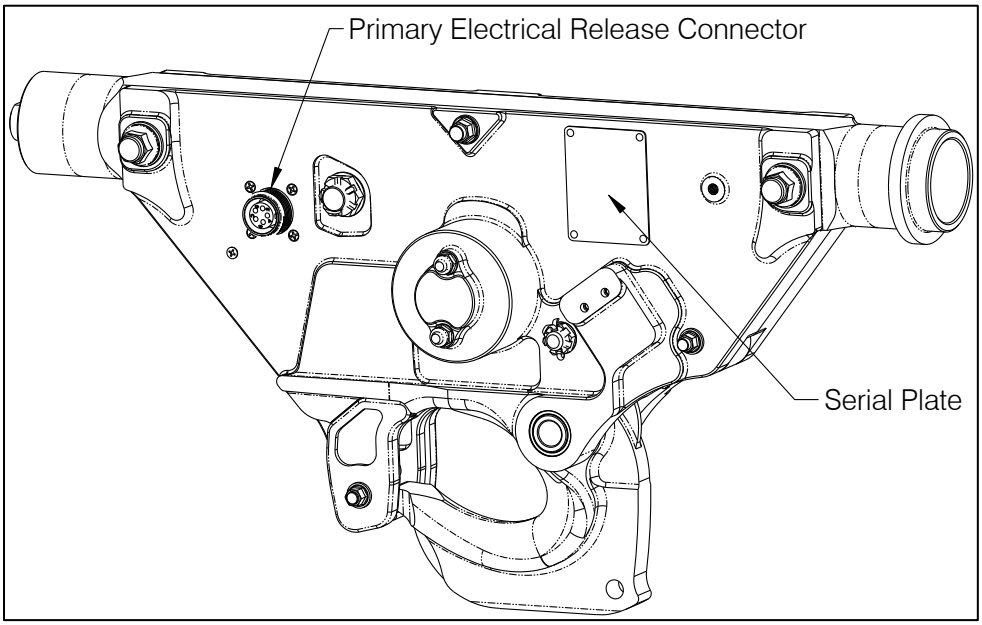
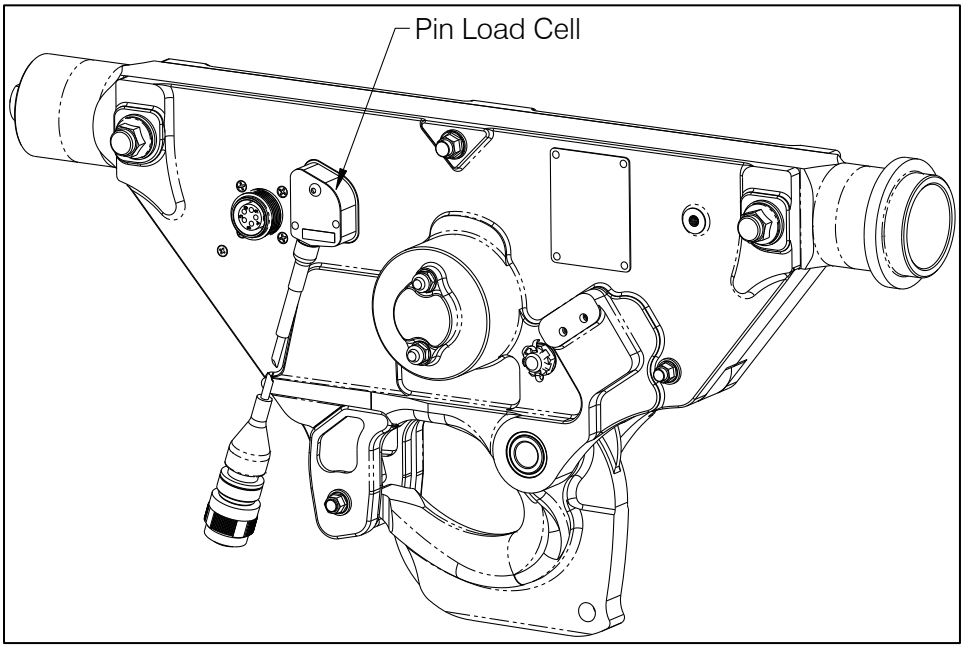


Figure 7.2 Overview of Cargo Hook, Left Side



The P/N 200-438-00 and P/N 200-438-01 kits include a load weigh system. The Load Weigh System is a compliment to the external load lifting system. Its purpose is to display the weight of the load carried on the cargo hook. It includes the pin load cell assembly at the cargo hook (see Figure 7.3), the load indicator in the cockpit, and an interconnecting wire harness.

Figure 7.3 Cargo Hook with Pin Load Cell



When the Cargo Hook is not used it can be placed in the stowed position. The Cargo Hook interfaces with the rotorcraft's original stowage bracket and can be stowed by opening the access door in the cabin floor and rotating the Cargo Hook up and to the right until it engages the spring-loaded bracket.