FAA APPROVED ROTORCRAFT FLIGHT MANUAL SUPPLEMENT

Cargo Swing Retrofit Kit

STC SR01393SE

Airbus Helicopter Models AS350B, AS350B1, AS350B2, AS350B3, AS350BA, and AS350D

R/N _____ S/N _____

FAA Approved: Al Wilson, FTP, for
Manager, Flight Test & Human Factors Branch, AIR-710
Federal Aviation Administration

Date: October 30, 2023

Record of Revisions

Rev.	Page(s)	Reason for Revision	FAA Approval
0	All	Initial Release	March 4, 2010
1	All	Clarified requirements for daily check to meet EASA requirements. Re-worded limitation from "this cargo hook is approved for non-human cargo only" to "this cargo hook kit is approved for non-human external cargo only" for clarity.	December 3, 2010
2	All	Re-formatted to match content of recently approved RFMSs. Updated Cargo Hook Rigging section. Incorporated the C-40 model indicator and associated instructions. Added Sections 6 and 7 as “NOT FAA APPROVED” pages.	Al Wilson FTP, AIR-713 October 30, 2023

1. General

Attach this supplement to the appropriate FAA approved Airbus Helicopters Rotorcraft Flight Manual when an Onboard Systems International, LLC P/N 200-286-02 or P/N 200-286-03 Cargo Swing Retrofit Kit is installed in accordance with Supplemental Type Certificate (STC) No. SR01393SE.

The information contained herein supplements or supersedes the basic manual only in those areas listed herein. For limitations, procedures and performance information not contained in this supplement, consult the basic Rotorcraft Flight Manual and "Cargo Swing" Flight Manual Supplement issued by Airbus Helicopters. Kit P/Ns 200-286-02 and 200-286-03 are retrofit kits that require a previous installation of an Airbus Helicopters Cargo Swing System. See Section 7.0 for kit description.

2 LIMITATIONS

The limitations specified in the basic flight manual and the Airbus Helicopters' "Cargo Swing" flight manual supplement remain applicable and are completed or modified by the following.

Operating Limitations

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

The cargo hook kit configurations (as installed per this STC SR01393SE) do not meet the 14 CFR part 27 certification requirements for Human External Cargo (HEC).

NOTICE

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

Airspeed Limitation

Consult the Airbus Helicopters' Cargo Swing flight manual supplement for maximum airspeed with external load. The operator must establish the maximum airspeed for each specific external load configuration.

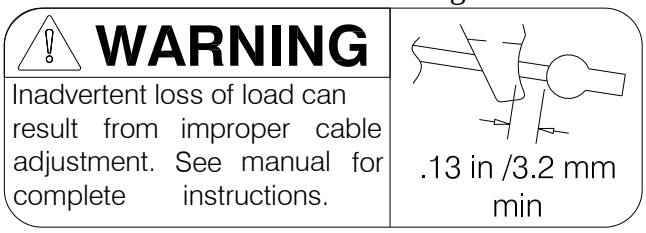
Cargo Hook Maximum Load

The maximum load to be carried on the cargo swing is the lesser of that specified by the Airbus Helicopters' Cargo Swing flight manual supplement or 3086 lbs (1400 kg).

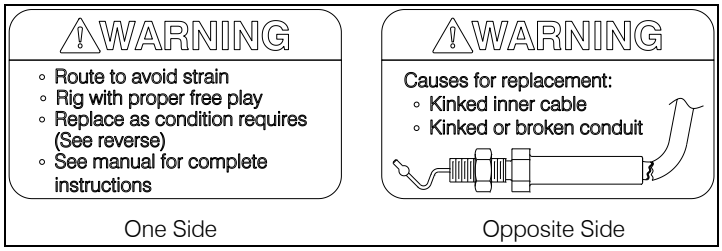
Placards

The following placards are included with the Cargo Swing Retrofit Kits.

Adhered on the underside of the cargo hook electrical housing:



Attached around the manual release cable:



3 EMERGENCY PROCEDURES

The emergency procedures specified in the basic flight manual and the Airbus Helicopters' Cargo Swing flight manual supplement for the AS350 remain applicable.

4. Normal Procedures

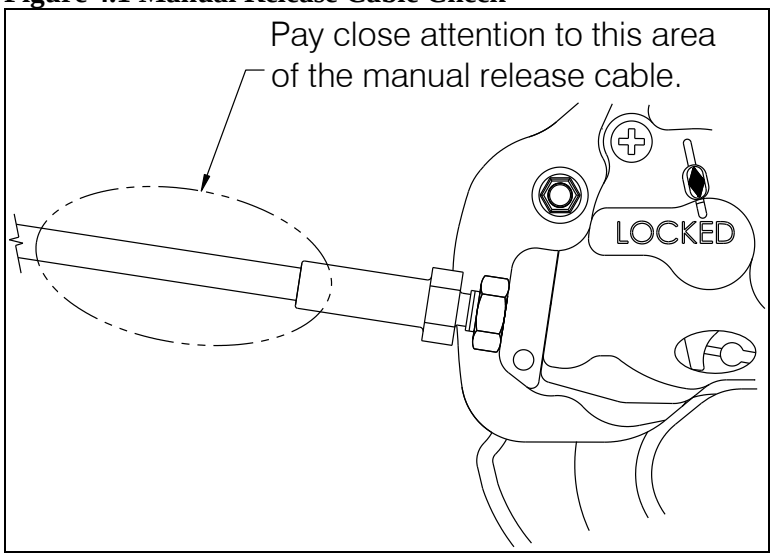
The normal procedures specified in the basic flight manual are applicable and are completed or modified by the following.

Pre-Flight Check

Before a flight involving external load operations perform the following procedures.

1. Swing the cargo hook and the suspension assembly to their full extremes to verify that the manual release cable and the electrical harnesses are not pulled tight in any position.
2. Visually check the external manual release cable for damage, paying close attention to the flexible conduit at the area of transition to the cargo hook end fitting (refer to Figure 4.1). Check for splitting of the outer black conduit in this area and separation of the conduit from the steel end fitting.

Figure 4.1 Manual Release Cable Check



Pre-Flight Check continued

3. Cycle the manual release system to ensure proper operation. Pull the manual release lever on the collective. The cargo hook load beam should open. Return the cargo hook load beam to the locked position by manually pushing up on it. The load beam should snap shut. Verify that the hook lock indicator on the side of the hook returns to the fully locked position (see Figure 4.2).

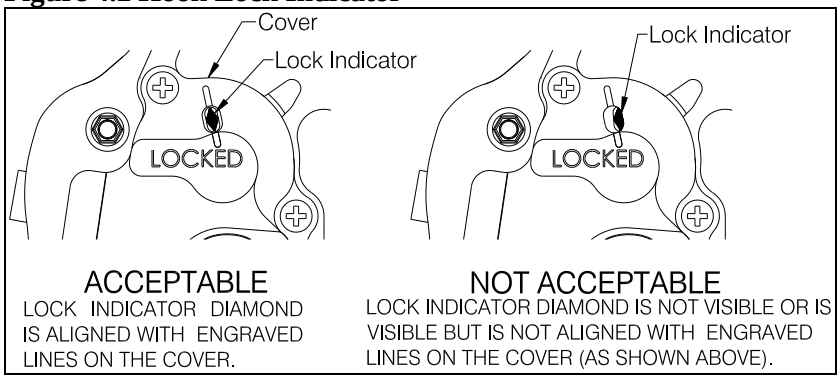
NOTICE

The cargo hook swing suspension interfaces with the manual release lever on the collective as supplied by Airbus Helicopters.

⚠ CAUTION

In the closed and fully locked position the hook lock indicator should align with the lines on the manual release cover (see Figure 4.2).

Figure 4.2 Hook Lock Indicator



Pre-Flight Check continued

4. Cycle the electrical release system to ensure proper operation Arm the system by pressing the rotorcraft's SLING pushbutton. Press the CARGO REL pushbutton switch on the cyclic and ensure the cargo hook opens.

   Return the cargo hook load beam to the locked position by manually pushing up on it. The load beam should snap shut. Verify that the hook lock indicator on the side of the hook returns to the fully locked position (see Figure 4.2).

   The cargo hook may be flown in the open position to facilitate loading by a ground crew.

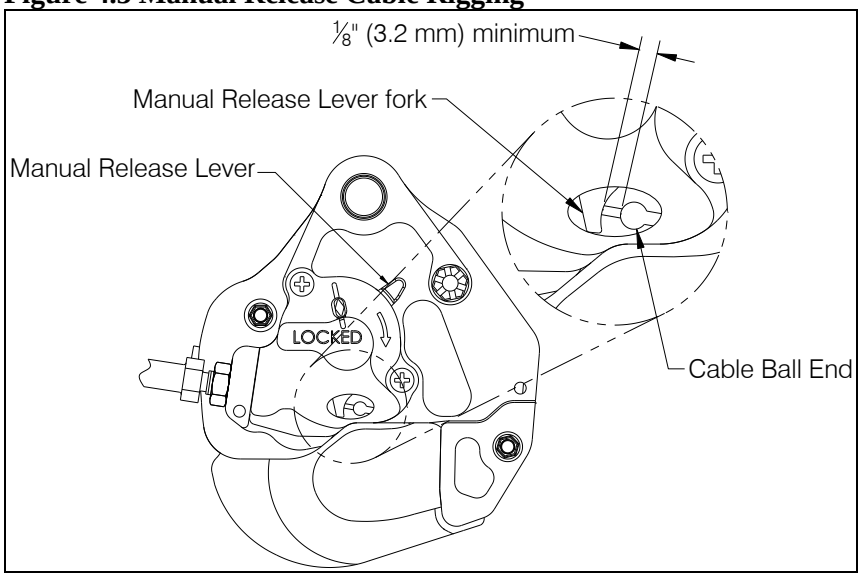
NOTICE

The cargo swing interfaces with the rotorcraft's arming switch and release pushbutton switch as supplied by Airbus Helicopters. Consult the Airbus Helicopters "Cargo Swing" Flight Manual Supplement for operation of these components.

Pre-Flight Check continued

5. Check the manual release cable rigging through the window in the cargo hook manual release cover. With the cargo hook load beam closed and locked, rotate the manual release lever clockwise to remove the free play (the free play is taken up when the hook lock indicator begins to move, this is also readily felt as the lever rotates relatively easily for several degrees as the free play is taken up) and hold it in this position while checking the gap between the release lever fork and the cable ball end as shown below. Visually check that there is approximately a minimum gap of 1/8" (3.2 mm) as shown in Figure 4.3.

Figure 4.3 Manual Release Cable Rigging

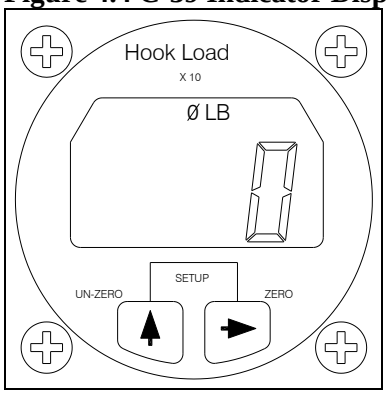


Pre-Flight Check continued

6. The Load Indicator powers on when the SLING push-button switch is pressed. Procedures vary depending on the Indicator model installed. Refer to the following.

   For the C-39 model. After a brief self-diagnostic routine is complete verify the indicator display indicates "0" as shown below (with no load on the cargo hook).

Figure 4.4 C-39 Indicator Display



NOTICE

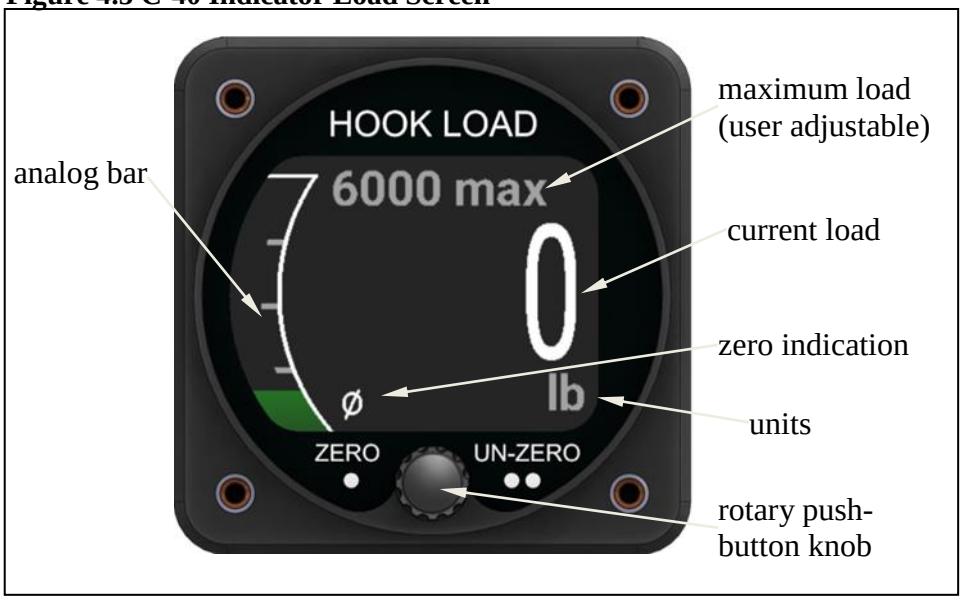
For the C-39 model refer to Owner's Manual 120-039-00 for setup instructions including changing the units, changing the calibration code, zeroing the display, changing the dampening level, etc.

4. NORMAL PROCEDURES continued

Pre-Flight Check continued

For the C-40 model, on power up an Information screen will display the Hook Hours, software version, and serial number (S/N) and then the indicator should display the Load screen. The Load screen of the C-40 model is shown below.

Figure 4.5 C-40 Indicator Load Screen



NOTICE

For the C-40 model 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.

4. NORMAL PROCEDURES continued

Pre-Flight Check continued

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 for the helicopter.

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 4.6 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.

4. NORMAL PROCEDURES continued

Pre-Flight Check continued

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.

NOTICE

The analog bar always displays the un-zeroed load. If there is a discrepancy between the analog bar and the displayed load, a large amount of load has likely been zeroed.

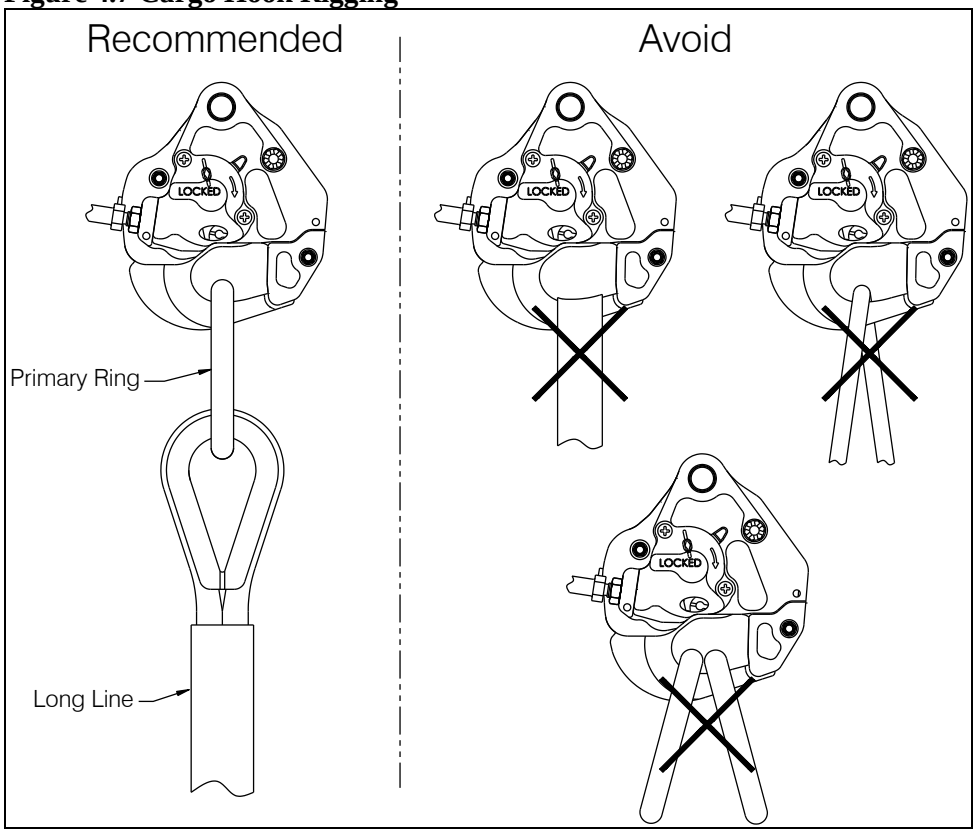
Cargo Hook Rigging

Exercise care when rigging a load to the Cargo Hook. Attaching the external load using a steel load ring on the Cargo Hook's load beam is the recommended rigging configuration to provide consistent release performance and resistance to fouling.

Figure 4.7 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.

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

Figure 4.7 Cargo Hook Rigging



Take-off

CAUTION

In wet weather, the ground operator should wear thick rubber gloves. Before attaching the load, discharge static electricity by placing a ground wire or tube between the cargo hook and ground.

1. Following attachment of the external load, slowly increase the collective pitch and ascend vertically, maintaining the rotorcraft directly above the load. When the slack in the long line is removed, dwell briefly before lifting the load from the surface.
2. Check torque required to hover with the external load.
3. Check for adequate directional control.
4. Take off into the wind, if possible, and ensure clearance of the external load over obstacles.

In-flight

Make all control movements gently with gradual acceleration and deceleration and only slightly banked turns.

WARNING

The suspension is designed to allow the cargo hook to pivot and align with the external load in all directions with limits to protect the electrical and mechanical release cables from damage. Take precautions to prevent external load angles which exceed the limits of rotation provided by the suspension as the load may not be releasable in this position.

Maximum airspeed is dependent upon the size, weight, and shape of the external load and sling length. Closely observe the behavior of the load during flight and as airspeed is increased.

CAUTION

Use caution when flying with an unloaded long line as this is an extreme snag hazard.

Approach with and Release of External Load

1. Perform the approach at minimum rate of descent.
2. Execute the approach to hover with sufficient height to prevent the load from hitting obstacles on or being dragged along the ground and then slowly descend vertically to set the load on the ground.
3. Press the CARGO RELEASE switch on the cyclic to release the external load from the cargo hook.
4. The manual release lever on the collective is intended as a backup release in the event of an inability to release the load with the CARGO RELEASE switch but may be used to release the external load in normal circumstances.
5. Visually check to ensure that the external load has been released.

Verify that the external load and long line has dropped free from the rotorcraft before departing the drop-site.

5. Performance

The performance data in basic flight manual and in the Cargo Swing flight manual supplement remain applicable when no external load is attached to the cargo hook.

Refer to Figure 6 of Section 5.1 § 7 in the basic Flight Manual for hover out of ground effect performance.

Hover and climb performance may be affected when carrying bulky loads.

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, the shape/size is considered and, 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

The point of application of the external load (i.e. – cargo hook location) in the longitudinal direction is X3437 mm (135.2 in.) and in the lateral direction is Y0.

7.0 System Description

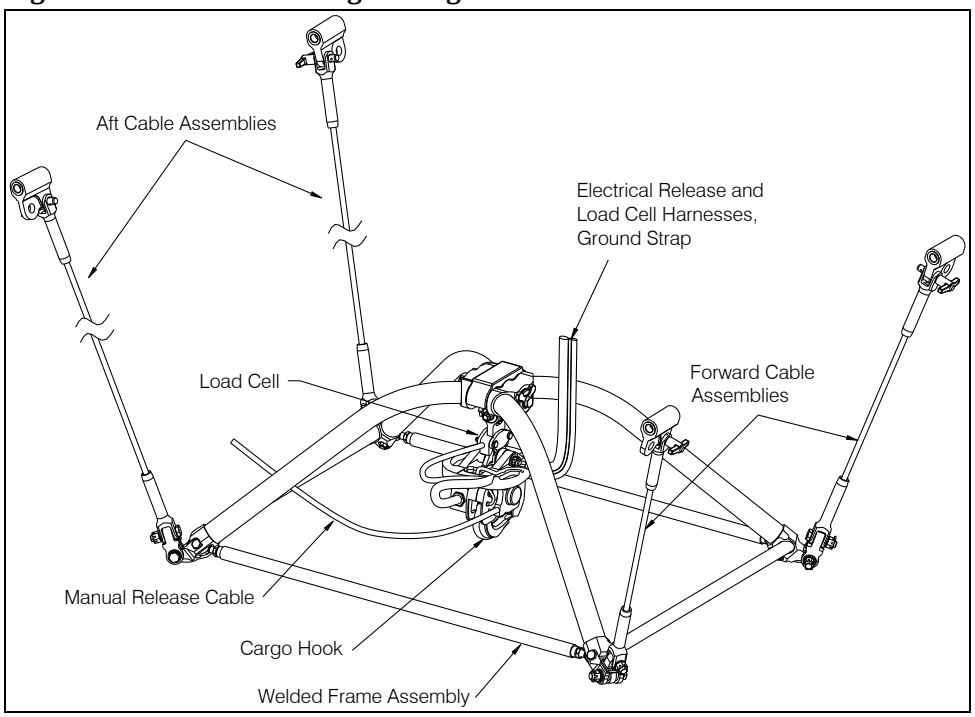
The Cargo Swing Retrofit Kits provide the means for an AS350 series rotorcraft to transport jettisonable external loads. These retrofit kits are for an AS350 series aircraft with a previous installation of an Airbus Helicopters TC cargo swing suspension system. They replace most of the components of the TC system with the primary exception being the internal manual release system components that serve as part of the backup quick release sub-system (BQRS).

The Cargo Swing Retrofit Kits include all of the components external to the aircraft (ref. Figure 7.1 for overview). These components include the swing frame assembly which supports the cargo hook and load cell, external electrical release and load cell harness, ground strap, and external manual release cable assembly. The swing frame assembly serves as part of the means to transfer the external load on the cargo hook to the hard points at the skid gear cross tubes. It is constructed of a welded tubular frame assembly and is attached to the hard points through four structural cable assemblies.

The cargo hook's primary quick release sub-system (PQRS) is an electrical release system which uses the existing type certificate installed push-button switch on the cyclic to actuate it.

The cargo hook's backup quick release sub-system (BQRS) is a mechanical cable system and is actuated using a Cargo Release lever on the collective.

Figure 7.1 Overview of Cargo Swing



The load weigh system includes the C-40 load indicator (the C-39 model is an optional indicator) on the RH door pillar and the internal wire harness to connect the load cell to the indicator and to pick up aircraft power and ground. The load cell is part of the structural linkage between the cargo hook and the swing frame assembly.

The P/N 200-286-03 kit includes the C-40 Indicator which in combination with the supplied internal wire harness provides the capability to interface and function with the AS350B3 VEMD to increase the main rotor RPM to 400 when a load over 331 lbs (150 kg) is measured on the cargo hook by the load cell. This function is compatible with AS350B3s with MOD 07-4716 incorporated.

NOT FAA APPROVED