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FAA APPROVED

ROTORCRAFT FLIGHT MANUAL SUPPLEMENT

Onboard Systems
External Load Suspension System
with Talon LC Cargo Hook

Robinson R22 Series

R/N _____S/N _____

FAA Approved: _____
for Manager, Systems and Equipment Branch
Seattle Aircraft Certification Office

Date: 9/29/05
Revised:

INTRODUCTION

This supplement must be attached to the appropriate FAA approved Rotorcraft Flight Manual when an Onboard Systems 200-225-00 or 200-226-00 Cargo Hook Kit is installed in accordance with Supplemental Type Certificate (STC) NO. SR00557SE. 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.

I. LIMITATIONS

I.1 Type of Operation

The basic Flight Manual remains applicable when no load is attached. With a load attached to the cargo hook, operation shall be conducted in accordance with the respective national operational requirements. For U.S. operators FAR Part 133 is applicable. This cargo hook is approved for non-human cargo, class B rotorcraft load combinations only.

The helicopter may also be operated with the provisions portion of the kit installed only. This includes the hard point, stowed manual and electric release cables and all Cargo Hook related equipment in the cockpit.

I.2 Weight and CG

The maximum weight and CG of the combined helicopter and external load remains the same as the basic manual.

DESCRIPTION	WEIGHT lbs (kgs)	FUSELAGE STATION in. (mm)	LATERAL STATION in. (mm)
Cargo Attach Point	-	92.2 (2342)	-3.0 (76)
Complete Cargo Hook Kit with Load Weigh	6.2 (2.8)	92.2 (2342)	-3.0 (76)
Complete Cargo Hook Kit without Load Weigh	5.0 (2.3)	92.2 (2342)	-3.0 (76)
Provisions Kit (no hook) with Load Weigh	3.2 (1.5)	92.2 (2342)	-3.0 (76)
Provisions Kit (no hook) without Load Weigh	2.0 (0.9)	92.2 (2342)	-3.0 (76)

Load Weigh Indicator location is variable.
Indicator weight = .43 lbs (0.20 kgs).

Center of gravity limits must be checked with and without the external load to verify that the rotorcraft is within the approved weight and center of gravity limits.

I.3 Cargo Hook Load

Maximum Cargo Hook loading is 400 Lbs. (181 kg).

I.4 Airspeed

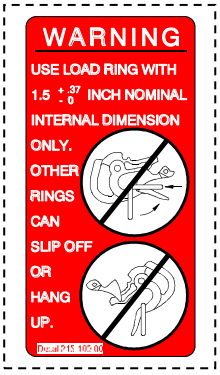
Vne = 102 KIAS, with Cargo Hook installed, but no load.

Vne = 75 KIAS, or less with external load. Do not exceed Vne of basic helicopter.

CAUTION

Airspeed with external cargo is limited by controllability.
Caution should be exercised when carrying external cargo, as the handling characteristics may be affected by the size, weight, and shape of the cargo load.
It is the responsibility of the operator to establish the maximum operational speed for each specific configuration.

I.5 Placards

PLACARD	LOCATION
CARGO RELEASE	Mounted adjacent to the cyclic release switch in clear view of the pilot.
CARGO RELEASE	Mounted adjacent to the copilot's release switch in clear view of the pilot.
CARGO RELEASE	Mounted adjacent to the mechanical release in clear view of the pilot.
PULL	Mounted adjacent to the mechanical release in clear view of the pilot.
CARGO	Mounted adjacent to the Cargo Hook circuit breaker in clear view of the pilot
	Mounted on bottom of Cargo Hook

I.5 **Placards,** continued

EXTERNAL LOAD LIMIT = 400 LBS (181 KGS)	Mounted on the belly of the aircraft adjacent to the cargo hook attachment point in clear view of the ground support personnel.
WITH EXTERNAL LOADS, APPROVED FOR CLASS B ROTORCRAFT – LOAD OPERATIONS DAY – VFR ONLY	Mounted on the instrument panel in clear view of the pilot.
FOR FAR PART 133.35(A) OPERATIONS: NO PERSON MAY BE CARRIED UNLESS HE IS: (1) A FLIGHT CREW MEMBER OR TRAINEE; (2) PERFORMS AN ESSENTIAL FUNCTION IN CONNECTION WITH THE EXTERNAL LOAD OPERATION; OR (3) IS NECESSARY TO ACCOMPLISH THE WORK ACTIVITY DIRECTLY ASSOCIATED WITH THAT	Mounted on the instrument panel in clear view of the pilot.
TURN THE WEIGHING SYSTEM OFF WHEN NAVIGATION EQUIPMENT IN USE. NO AIRCRAFT OPERATION SHOULD BE PREDICATED ON THE READING OF THE ONBOARD WEIGHING SYSTEM.	When Onboard Systems 200-226-00 System is installed, mount adjacent to the Onboard Systems digital/ analog indicator in full view of the pilot and copilot.
ELECTRONIC WEIGHING SYSTEM	When Onboard Systems 200-226-00 System is installed, mount adjacent to both the power switch and the circuit breaker in full view of the pilot and copilot.

II. NORMAL PROCEDURES

II.1 STATIC DISCHARGE

Instruct the ground crew to ensure that the helicopter has been electrically grounded prior to attaching cargo to discharge static electricity. If possible, maintain ground contact until hook up is completed.

II.2 DAILY OR PRE-FLIGHT CHECK

Before each Cargo Hook use perform the following procedures. If the procedures are not successful do not use the equipment until the problem has been corrected.

II.2.1 EXTERIOR CHECK

1. Inspect all mounting fasteners to ensure that they are tight.
2. Visually inspect the electrical connector for loose or damaged pins and sockets.
3. Operate the keeper manually and check that it snaps back to its normal position on the load beam.
4. Inspect the case and covers for cracks and damage.
5. Inspect the load beam for gouges and cracks.

II.2.2 INTERIOR CHECK

1. Cycle the manual release handle to ensure proper operation.
2. Cycle the electrical release system to ensure proper operation.

When an Onboard Systems 200-226-00 Cargo Hook Suspension System with Load Weigh is installed, perform the following additional procedures:

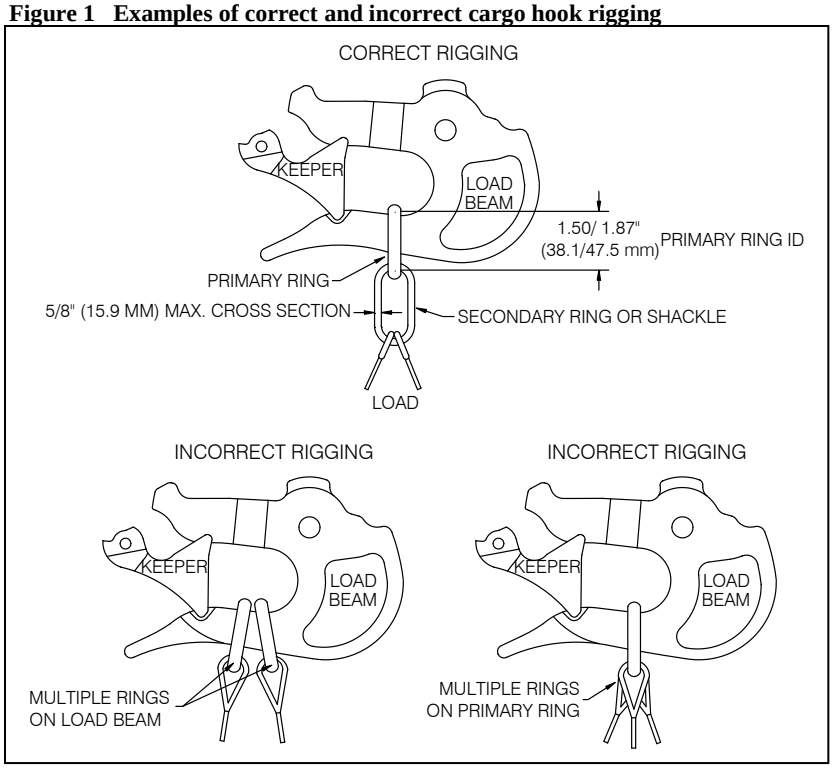
1. After installation of the Load Weigh System, swing the suspension assembly to the full extremes to verify that it does not reach the limit of the mechanical release cable range of motion and actuate the mechanical release mechanism.
2. Power on the Indicator and allow it to warm up for 5 minutes (with 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.

II.3 CARGO HOOK RIGGING

Extreme care must be exercised in rigging a load to the Cargo Hook. If the load ring is too big it may work its way around the end of the load beam and be supported for a time on the keeper and then fall free. If the load ring is too small it may jam itself against the load beam during an attempted release. The following illustrations show recommended configurations and potential difficulties that must be avoided.

WARNING: The examples shown are not intended to represent all problem possibilities. It is the responsibility of the operator to assure the hook will function properly with the rigging.

Figure 1 Examples of correct and incorrect cargo hook rigging

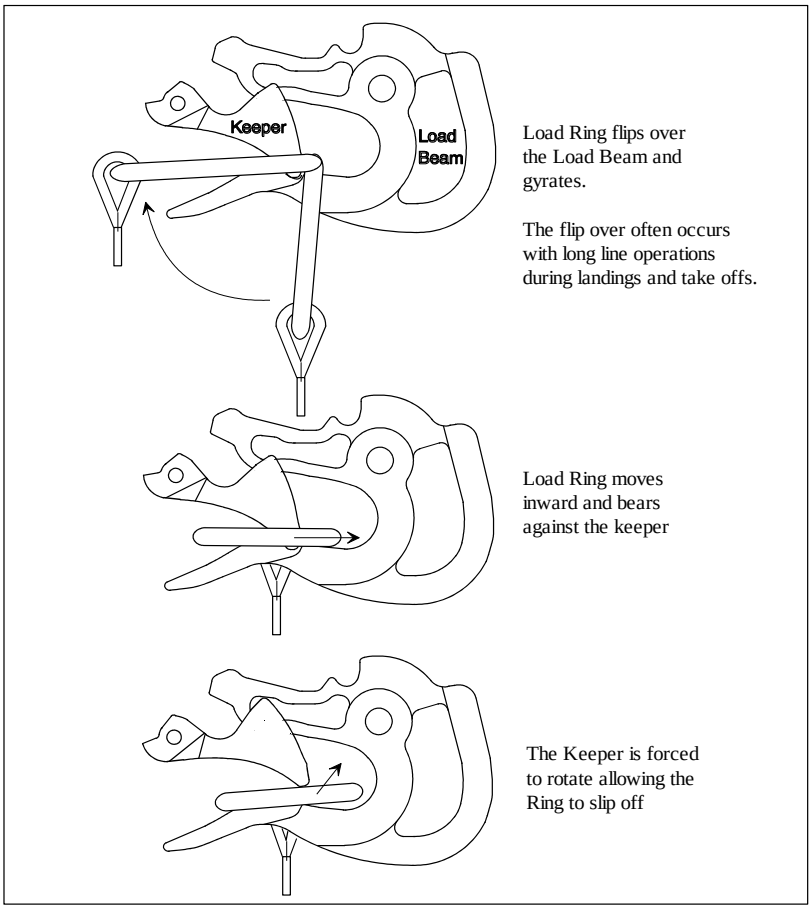


II.3 Cargo Hook Rigging, continued

Un-Commanded Release Due to Too Large of a Load Ring

WARNING: Load rings that are too large will cause an un-commanded release. The ring will flip over the end of the load beam and flip the keeper up and then fall free. Only correctly sized load rings must be used. See examples below.

Figure 2 Un-commanded release due to load rings that are too large

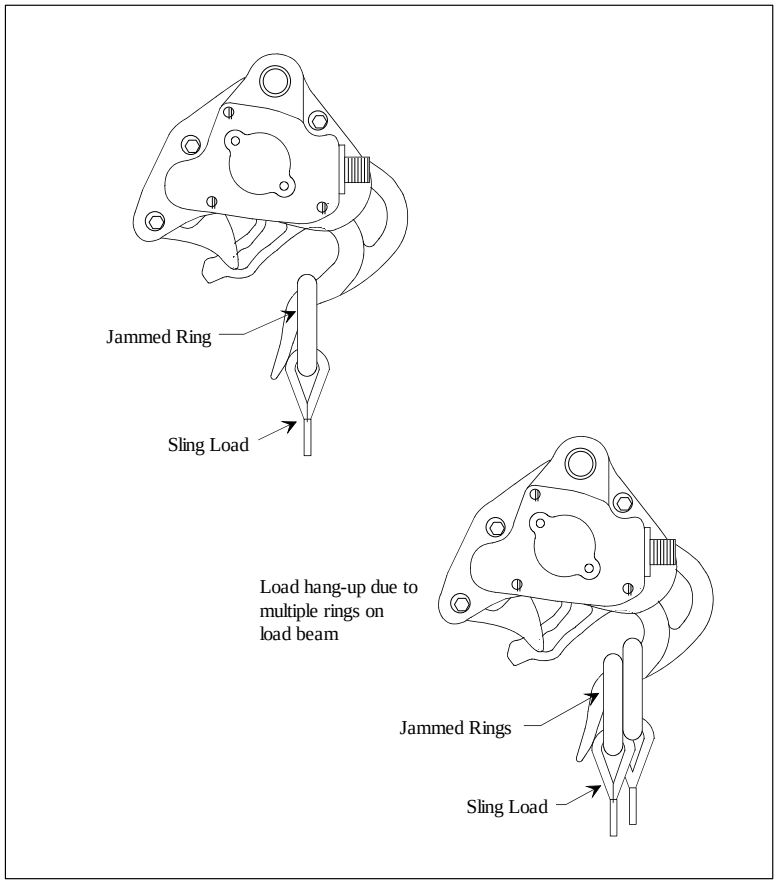


II.3 Cargo Hook Rigging, continued

Load Hang-Up Due to Too Small of a Load Ring or Multiple Load Rings

WARNING: Load rings that are too small or multiple load rings will hang on the load beam when the load is released. Only correctly sized load rings must be used. See examples below.

Figure 3 Load hang-up due to load rings that are too small or using multiple load rings

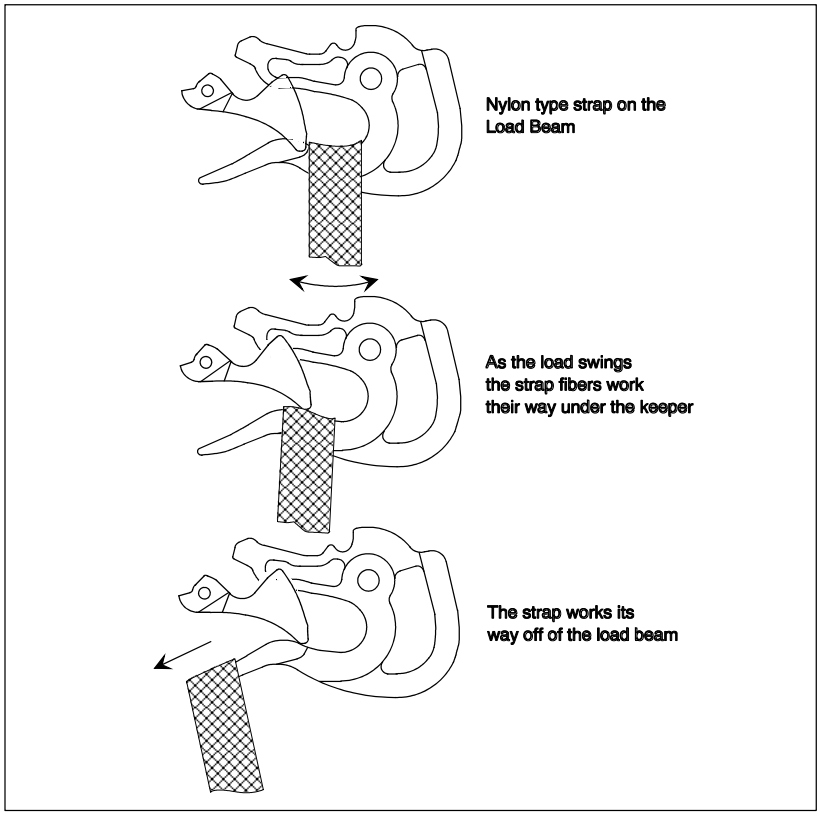


II.3 Cargo Hook Rigging, continued

Un-Commanded Release Due to Nylon Type Straps

WARNING: Nylon type straps (or similar material) must not be used directly on the cargo hook load beam as they have a tendency to creep under the keeper and fall free. If nylon straps must be used they should first be attached to a correctly sized primary ring. Only the primary ring should be in contact with the cargo hook load beam. See examples below.

Figure 4 Un-commanded release due to nylon type straps

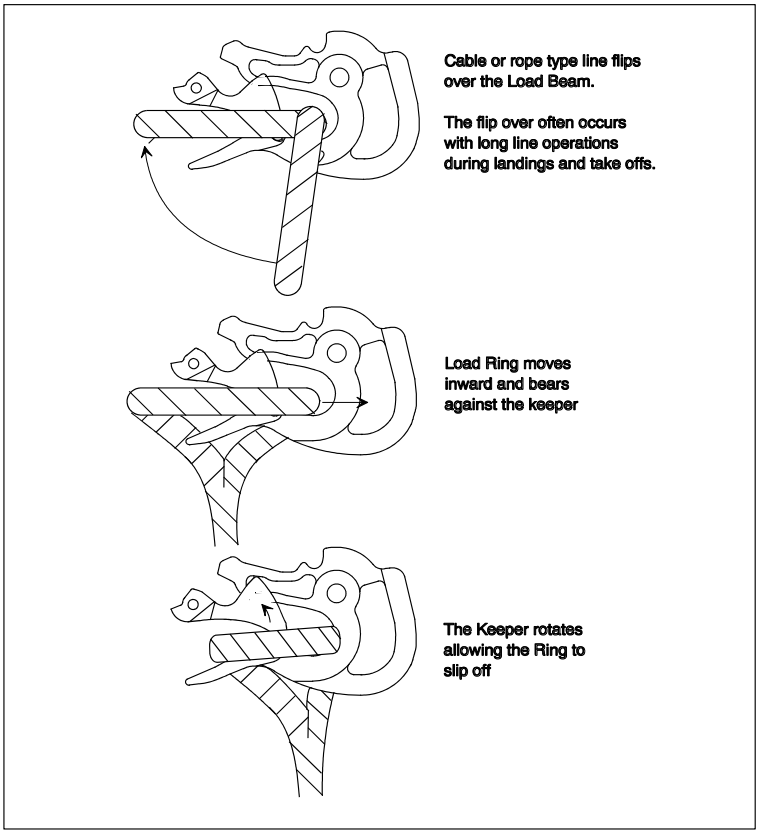


II.3 Cargo Hook Rigging, continued

Un-Commanded Release Due to Cable or Rope Type Straps

WARNING: Cable or rope type straps must not be used directly on the cargo hook load beam. Their braided eyes will work around the end of the load beam and fall free. If cable or rope is used they should first be attached to a correctly sized primary ring. Only the primary ring should be in contact with the cargo hook load beam. See examples below.

Figure 5 Un-commanded release due to cable or rope type straps

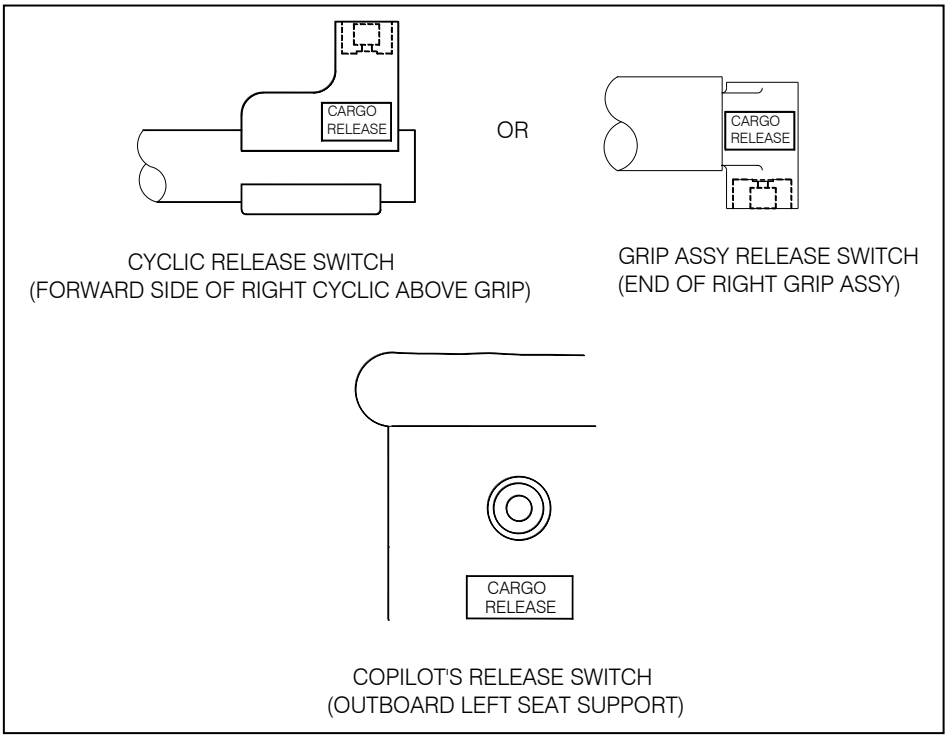


II.4 IN-FLIGHT OPERATION

NOTE
Control movements should be made smoothly and kept to a minimum to prevent oscillation of the load

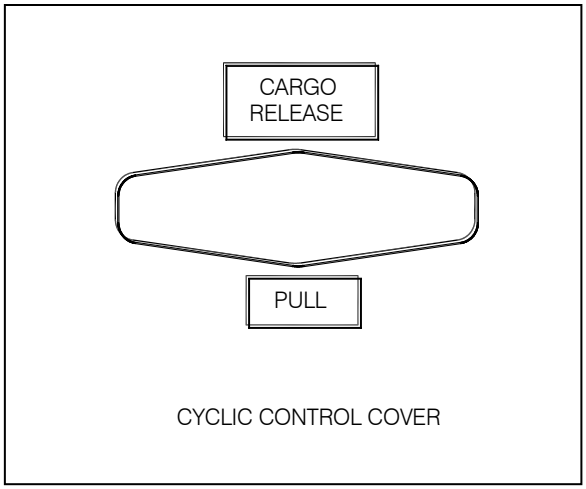
Actuate either electrical release switch to release the external load.

Figure 6 Electrical release switches



The mechanical release handle may be used to release the external load in normal circumstances.

Figure 7 Mechanical release handle



It is the responsibility of the operator to establish safe operational limits for each specific configuration.

III. EMERGENCY PROCEDURES

III.1 CARGO FAILS TO RELEASE ELECTRICALLY

In the event that the Cargo Hook will not release the external load electrically, proceed as follows:

1. Maintain tension on the sling.
2. Pull the mechanical release handle to release the external load.

IV. PERFORMANCE

The basic Flight Manual issued by Robinson Helicopter Company remains applicable. There is no change from basic flight performance with no load attached to the Cargo Hook. Performance will be reduced depending on the size, weight and shape of the external load.

When an Onboard Systems 200-226-00 Cargo Hook Suspension System with Load Weigh is installed the following applies:

The Load Weigh System is designed and installed as a means of MONITORING the load (weight) suspended from the Cargo Hook. Functional and performance characteristics have not been determined on the basis of Load Cell indication or display. Therefore, this instrument shall NOT be used as a primary indication of performance and flight operation must NOT be predicated on its use.