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FAA APPROVED

ROTORCRAFT FLIGHT MANUAL SUPPLEMENT

Onboard Systems
External Load Suspension System
with Keeperless Cargo Hook

Robinson R22 Series

R/N _____ S/N _____

FAA Approved: _____
FOR Manager, Seattle Aircraft Certification Office

Date: 13 JAN 2012

Revised:

INTRODUCTION

This supplement must be attached to the appropriate FAA approved Rotorcraft Flight Manual when an Onboard Systems 200-262-01 Cargo Hook Kit is installed in accordance with Supplemental Type Certificate (STC) NO. SR00920SE. 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. 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 kit is approved for non-human cargo, class B rotorcraft load combinations.

The helicopter may also be operated with the provisions portion of the kit installed only. This includes the hardpoint, 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.

Table I.2-1 Weight and CG data

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	5.0 (2.3)	92.2 (2342)	-3.0 (76)
Provisions Kit (no hook)	2.0 (0.9)	92.2 (2342)	-3.0 (76)

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 kgs).

I.4 Airspeed

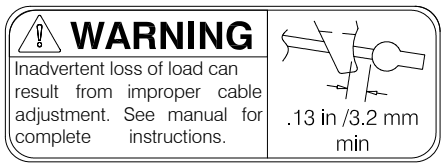
Vne = 102 KIAS, with Cargo Hook installed, but no load.
Vne = 75 KIAS, or less with external load.

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 operator's responsibility to establish the maximum operational speed for each specific configuration.

I.4 **Placards,** continued

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.
	Located on the bottom side of the cargo hook.

I.4 Placards, continued

WARNING

EXTERNAL LOAD LIMIT
400 LB (181 KG)

215-113-00

Mounted on the belly of the aircraft adjacent to the cargo hook attachment point in clear view of the ground support personnel.

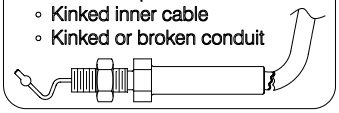
WARNING

- Route to avoid strain
- Rig with proper free play
- Replace as condition requires (See reverse)
- See manual for complete instructions

One Side

WARNING

Causes for replacement:
- Kinked inner cable
- Kinked or broken conduit



Opposite Side

Located on the manual release cable, near the cargo hook.

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 OPERATION.

Mounted on the instrument panel in clear view of the pilot.

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 PRE-FLIGHT CHECK

Before a flight involving external load operations perform the following procedures. If the procedures are not successful do not use the equipment until the problem has been corrected.

1. Visually check all mounting fasteners to ensure that they are tight.
2. Visually check the electrical connector for loose or damaged pins and sockets.
3. Swing the hook and the suspension assembly to their full extremes to verify that they do not reach the limit of the mechanical release cable range of motion and actuate the mechanical release mechanism.
4. Visually check the cargo hook case and covers for cracks and damage.
5. Visually check the load beam for gouges and cracks.

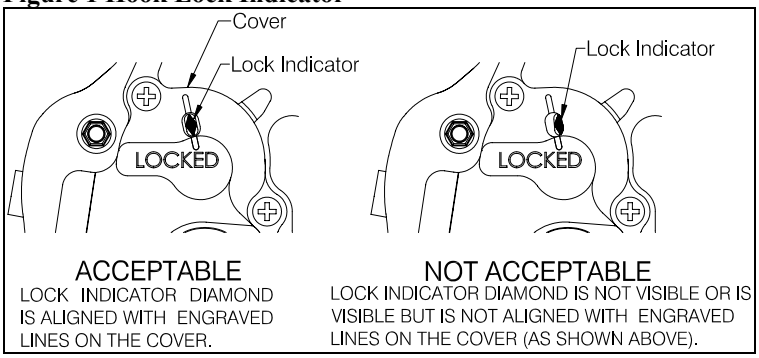
II.2 PRE-FLIGHT CHECK continued

6. Pull the manual release handle in the cockpit to ensure proper operation. The cargo hook load beam must 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. The cargo hook may be flown in the open position to facilitate loading by a ground crew.

⚠ CAUTION

In the closed and fully locked position the hook lock indicator must align with the lines on the manual release cover (see Figure 1).

Figure 1 Hook Lock Indicator

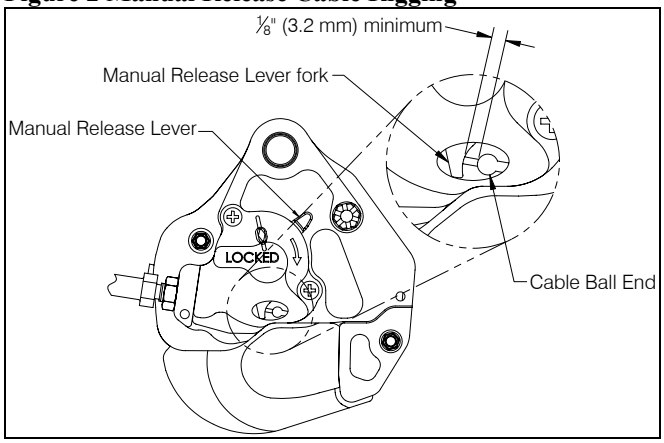


II.2 PRE-FLIGHT CHECK continued

7. Cycle the cargo hook's electrical release mechanism to ensure proper operation. Pressing the CARGO RELEASE switch on cyclic should cause the cargo hook load beam to open. The cargo hook may be returned to the locked position by manually pushing up on the load beam. 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 1).

8. 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 2.

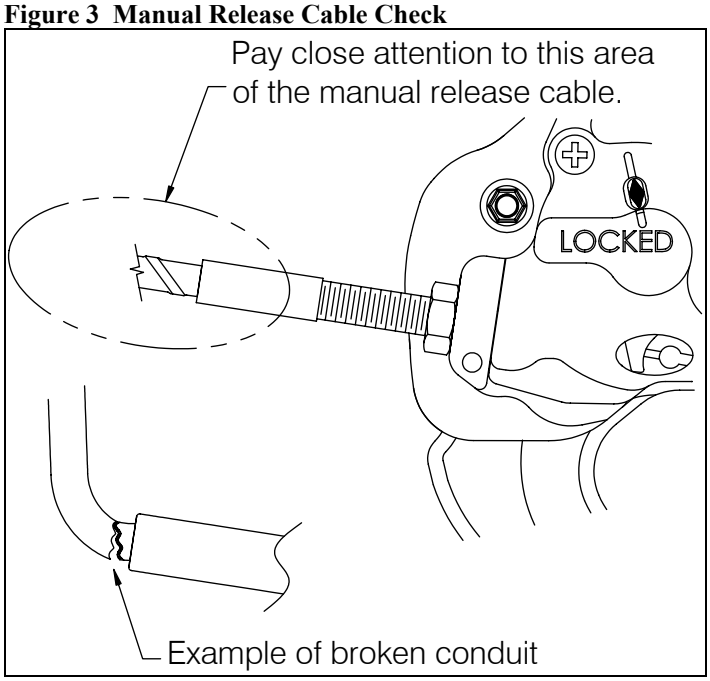
Figure 2 Manual Release Cable Rigging



II.2 PRE-FLIGHT CHECK continued

8. Visually check the 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 3). Check for kinked, broken, or splitting of the outer black conduit in this area and separation of the conduit from the steel end fitting. This type of damage is cause for immediate replacement.

Figure 3 Manual Release Cable Check



II.3 CARGO HOOK RIGGING

Extreme care must be exercised in rigging a load to the Cargo Hook. The following illustration shows the recommended rigging configuration.

The example shown is not intended to represent all possibilities. It is the responsibility of the operator to assure the hook will function properly with the rigging.

Some combinations of small primary rings and large secondary rings could cause fouling during release.

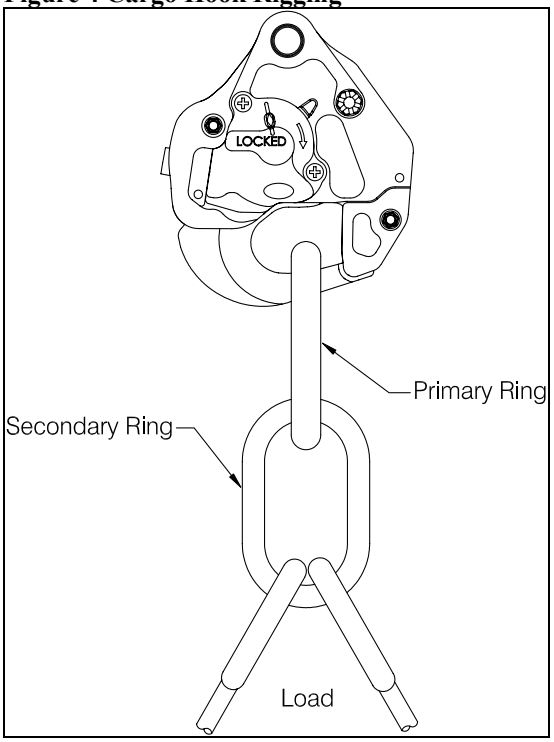
II.3 CARGO HOOK RIGGING, continued

Nylon Type Straps or Rope

CAUTION

Nylon type straps (or similar material) or rope must not be used directly on the cargo hook load beam. If nylon straps or rope must be used they should be first attached to a steel primary ring. Verify that the ring will freely slide off the load beam when it is opened. Only the primary ring should be in contact with the cargo hook load beam. See Figure 4.

Figure 4 Cargo Hook Rigging



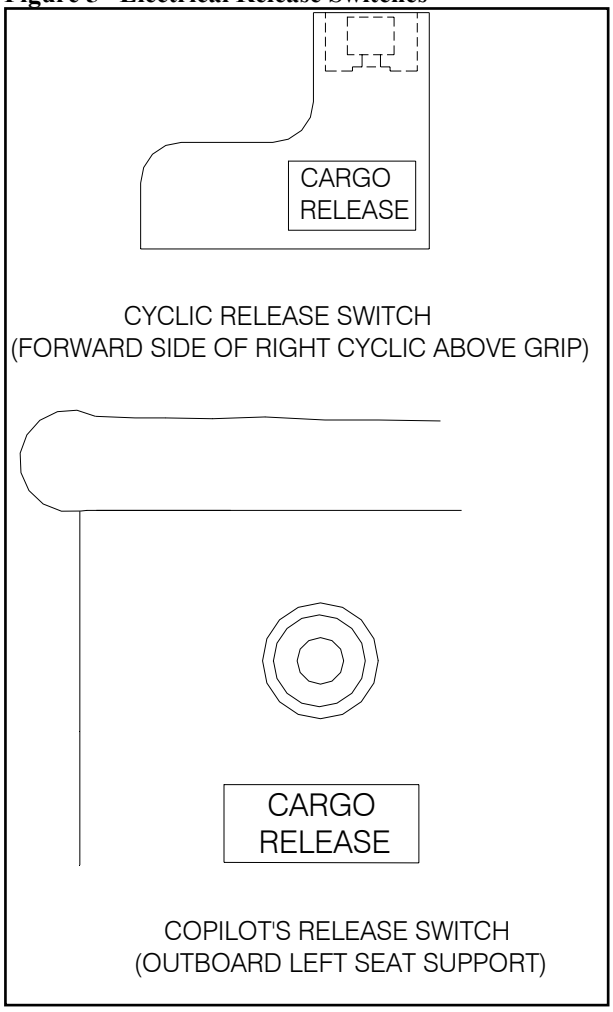
II.4 IN-FLIGHT OPERATION

Note

Control movement 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.

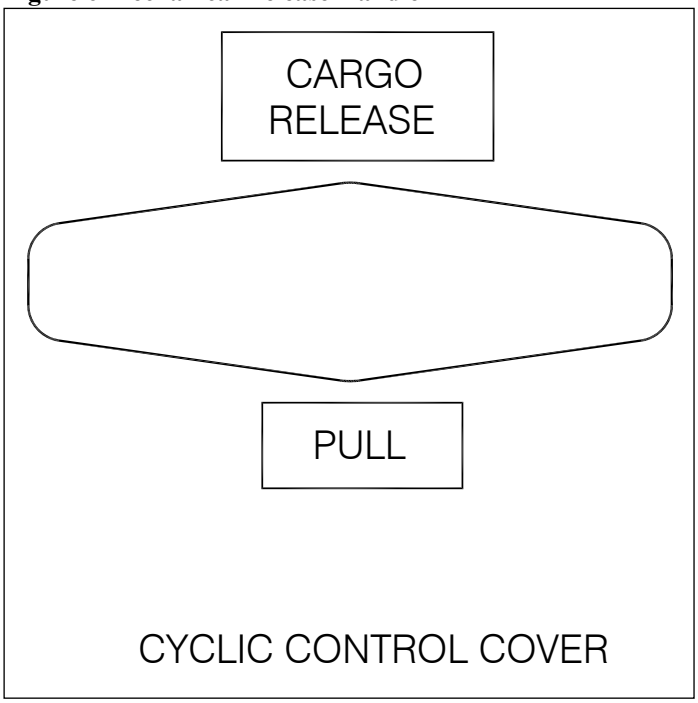
Figure 5 Electrical Release Switches



II.4 IN-FLIGHT OPERATION, continued

The mechanical release handle may be used to release the external load in normal circumstances. Pull up on it to release the load.

Figure 6 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.