

Acceptance Test Procedures (ATP)

6,000 Pound Keeperless Cargo Hook

Applicable P/N's

528-020-00

528-020-01

528-020-02

528-020-03

528-020-04

528-020-05

528-020-06

528-020-07

528-020-08

528-020-10

528-020-11

528-020-12

528-020-14



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Revisions

Rev. No.	Pages	Description	Date
3	All	Clarify test instructions, added equipment table to data sheet.	11/05/03
4	4	In Test Records section, deleted the statement regarding the "test supervisor".	04/29/04
	4	Changed 15K test stand to 18K test stand.	
	5	In section 2, under Function Test, step 2 corrected the ohm reading requirement from "between 3.0 and 4.0 ohms" to "between 1.6 and 2.2 ohms".	
	5	In section 2, under Function Test, deleted the reference to removing the manual release cover. The cover does not get removed. Deleted step 7 (redundant) and re-numbered steps.	
5	5, 6	Changed current draw requirement from "between 10 and 12 amps" to "between 9 and 12 amps" to better correlate with resistance requirement of 1.6 to 2.2 ohms.	01/09/08
6	4 - 6	Added cargo hook P/N 528-020-10, updated certification section to reflect current procedures. Changed proof load to 15,000 lbs (2.5g) to standardize with other hook ATPs. Clarified "resistance between pins" check.	03/22/12
7	4 - 6	Added 528-020-08 & 528-020-11	01/08/13
8	4, 6	Removed reference to QA in certification section, removed QA signature from data sheet.	10/28/13
9	All	Added cargo hooks with Surefire electrical release (P/N 528-020-12, -14).	03/10/15
10	6, 7	Updated electrical current requirements for -12 & -14 cargo hooks.	12/11/15



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Section 1

General Information

Scope

This procedure details the acceptance tests for the Cargo Hook, P/N 528-020-XX. Conformance with these procedures shall assure by demonstration, that the Cargo Hook is fully functional and that a high quality product has been manufactured.

Applicable Documents

6,000 pound Cargo Hook drawing numbers 528-020-XX, 528-020-10, 528-020-11, 528-020-12, and 528-020-14.

Required Test Equipment

- 18K tensile test stand or equivalent
- Test Box 138-841-00
- Power supply, HP6268B 30 amp @ 40 VDC or equivalent
- Digital Force Gauge
- Handheld Multi-meter (tool number 135-570-00 or equivalent)

Test Requirements

Each Cargo Hook shall be subjected to all test requirements listed herein. No unit shall be considered satisfactory until the test requirements listed below have been demonstrated.

Test Records

All test data on the Cargo Hook must be recorded per this specification on the attached ATP Data Sheet, in the corresponding paragraph. Record the requested data and initial the blanks to substantiate the tests. A copy of this record is to be filed in the Quality Assurance Department.

Certification


A copy of the completed ATP Data Sheet with the appropriate Onboard Systems personnel signature shall be shipped to the customer if requested. The cargo hook serial number shall be identified at the top of the ATP Data Sheet.

Environmental

All tests and inspections shall be conducted under the environmental and atmospheric conditions that prevail at the test facility at the time of the test.

Examination of the Product

Standard inspection tools and methods will be used for this examination.

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Section 2

Inspection and Tests

Inspection

Inspect the Cargo Hook Assembly for the following:

1. The Serial Number Tag has been completed and attached.
2. All safety wire and cotter pins are properly in place.
3. Workmanship and finish are in good order.
4. With the hook correctly locked, by observing that the nose of the load beam is secure in the latch, ensure that the datum lines on the manual release mechanism and the release cover coincide.

Functional Test

1. Use the multi-meter to test the resistance between each pin and the base of the connector. The readings should not be less than 2 mega-ohms. **DO NOT TOUCH THE METER PROBES WITH YOUR FINGERS OR ERRONEOUS READINGS WILL RESULT.**
2. For all configurations except -12 and -14: use the multi-meter to test the resistance between pins B and C of the connector. The reading should be between 1.6 and 2.2 ohms.
3. Install fixture P/N 138-303-00 onto end of manual release cable.
4. Install the cargo hook onto the load stand. Connect the test stand electrical connector to the cargo hook and set the voltage to 20 VDC \pm 0.1, as measured at the test stand electrical bus.
5. Operate the manual release lever (not present in -04, -05, -06 configurations). The load beam should open and stay in the open position. Push the load beam up to close. The load beam should automatically latch. Check for alignment of lock indicator marks.
6. Check the electrical release function of the cargo hook.

For all configurations (except -12 and -14) perform the following:

- o Actuate the electrical release switch. The load beam should open and stay in the open position.

For only the -12 and -14 configurations perform the following:

- o Actuate the release switch very briefly without holding it down (less than 1/2 second). The load beam should remain closed and the mechanism should not audibly cycle.
- o Actuate and hold the release switch for a few seconds. The load beam should fall to the open position and then should continue to audibly cycle repeatedly.

Load a suitable load ring onto the load beam and push the load beam up. The load beam should automatically latch. Check for alignment of lock indicator marks.



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Functional Test continued

7. Gradually load the cargo hook to 15,000 pounds. Hold the load for 20 seconds. The load beam shall hold the load without unlatching. Reduce the load to zero. **DO NOT RELEASE THE LOAD BY THE HOOK ELECTRICAL OR MECHANICAL RELEASE MECHANISM.**
8. Using the spring scale or equivalent, record the mechanical release cable force required to release the cargo hook at 0, 600, 2,000, 4,000, and 6,000 pound loads. The mechanical release cable force shall be between 4 and 18 pounds.
9. Release the cargo hook electrically at a load of 0, 600, 2,000, 4,000, and 6,000 pounds. For all configurations except -12 and -14, verify that the current draw during electrical release operation is 9 - 12 amps. For the -12 and -14 configurations, hold the release switch for several seconds.
10. Remove the hook from the test stand. Remove the pull fixture 138-303-00.

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Section 3

Cargo Hook ATP Data Sheet

Applicable Part Numbers: 528-020-00, -01, -02, -03, -04, -05, -06, -07, -08, -10, -11, -12, and -14

Cargo Hook Part Number: 528-020-07

Work Order Number: _____

Serial Number: 400

Cargo Hook Inspection:

1. Serial Number Tag completed and in place.
2. All fasteners are in place and secure.
3. Workmanship and finish markings in good order.
4. The hook locked datum lines coincide.

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Cargo Hook Functional Test:

1. Resistance test successful?
2. Resistance between pins (ohms)? (N/A for -12 and -14)
5. 0 load manual release test and re-latch successful?
6. 0 load electrical release and re-latch successful?
7. Static load test to 15,000 pounds was successful?

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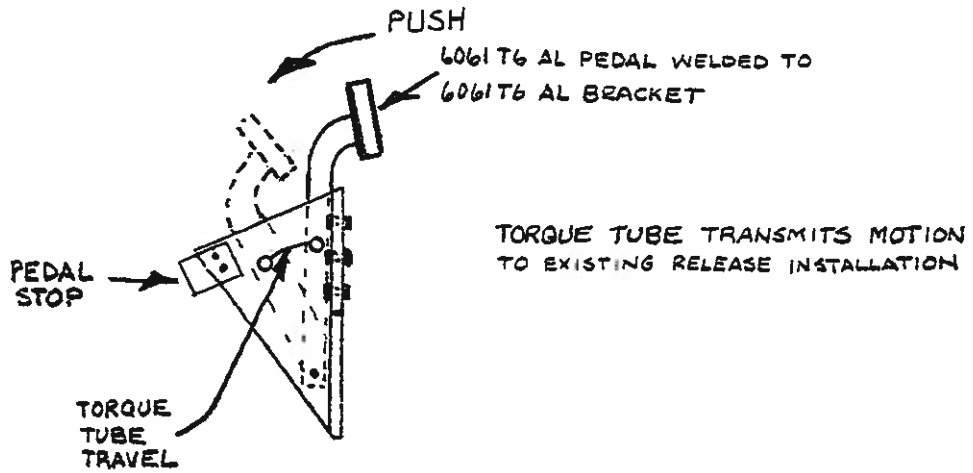
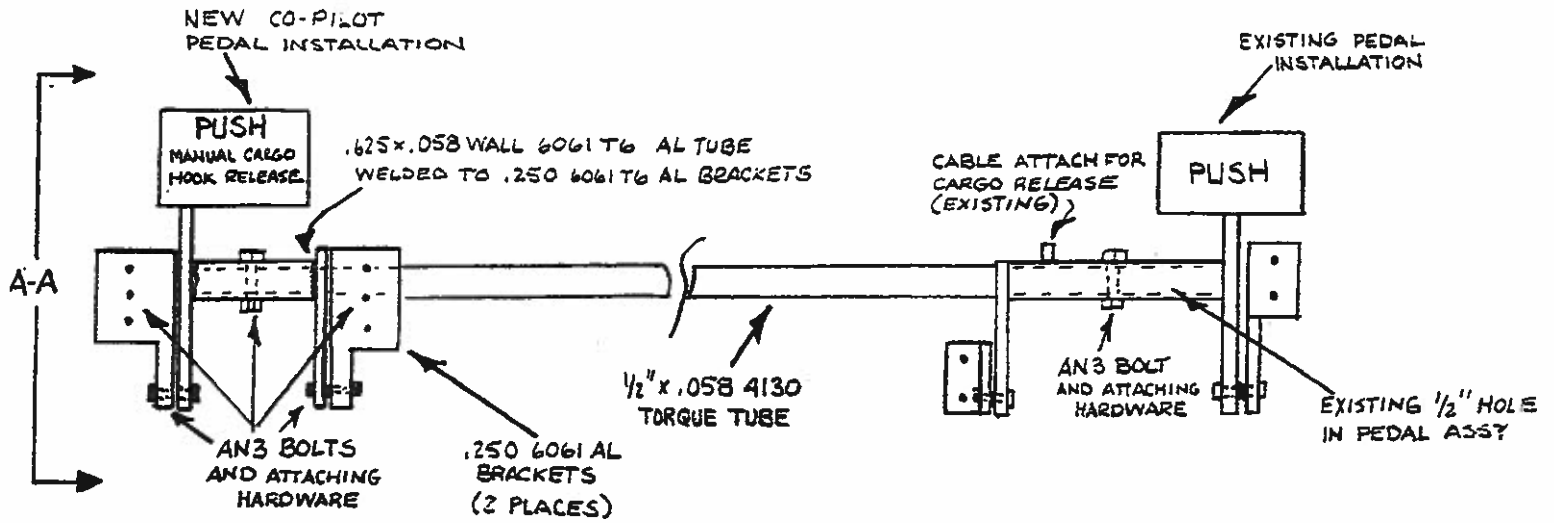
Load	8. Record mechanical release force on cable in lbs. (force shall be between 4 and 18 lbs)	9. Verify electrical release at 20 VDC (current shall be between 9 & 12 amps)
0 LB	4.9	10.4
600 LB	7.8	10.4
2,000 LB	9.9	10.4
4,000 LB	16.0	10.4
6,000 LB	17.5	10.4

Test conducted by: [REDACTED]

Date: 10/15/19

Certified equipment used for ATP	Tool number	Calibration due date
Gauge - 18K Tensile Test Stand		
Multi-meter		
Digital Force Gauge		

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PEDAL MOTION DETAIL