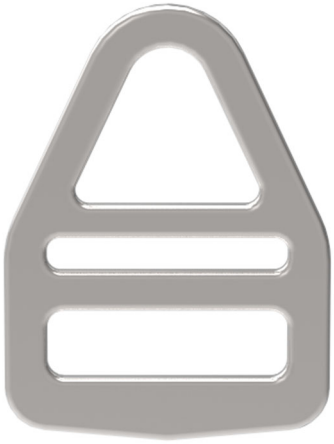
LIFESAVING SYSTEMS CORPORATION

LSC Test Report Number: F-730-487-13S
Revision: A

Load Testing #487-13S



PROPRIETARY & CONFINDENTIAL

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PURPOSE:

The purpose of this report is to show the load strength of the Tribar V-ring, part number 487-13S. Successful completion shall confirm the v-ring demonstrates the suitability and safety for use during helicopter hoist operations, including the deployment and recovery of persons (Human External Cargo).

ACRONYMS AND ABBREVIATIONS:

LSC – Lifesaving Systems Corp.
N/A – Not Applicable
P/N – Part Number
S/N – Serial Number
Lbf – Pound-Force

TEST FACILITY:

Testing and inspection were performed at Lifesaving Systems Corporation's (LSC) manufacturing facility located in Apollo Beach, Florida by LSC personnel.

SUMMARY OF TESTS PERFORMED & RESULTS:

Section	Test Description	Results
2.4	Load Test	The v-ring can withstand a load of 7,079lbf on the bottom rung with minimal material distortion. The v-ring can withstand a load of 5,032lbf on the middle rung with minimal material distortion. Results are acceptable.

SECTION 1- TEST CONDITIONS & EQUIPMENT:

1.1 ENVIRONMENTAL CONDITIONS

Load test shall be performed at a temperature of 75 ± 5°F, and a relative humidity of 50 ±15%. The temperature and humidity shall be recorded at time of test.

1.2 TOLERANCES

The load cell tolerances shall be maintained within all applicable specified tolerances.

- 2000lbf ± 2lbf
- 4000lbf ± 3lbf
- 6000lbf ± 4lbf

1.3 INSTRUMENTS AND EQUIPMENT

LSC Tool No.	Test Equipment	Description	Cal. Date	Cal. Due
88	Cell, Load	Force Measurement: 10,000lb	6/4/2019	6/4/2020
57	RH/Temp Monitor	Temp and Humidity Monitor	6/3/2019	6/4/2020
85	Calipers	Dimensional Measurement:	1/2/2020	1/2/2021

1.4 CALIBRATION

The instruments and equipment are calibrated according to manufacturer's specifications and calibration is traceable to the National Institute of Standards and Technology (NIST). Calibration records are maintained on file at Lifesaving Systems Corp. Photograph of the load cell calibration sticker can be found in Section 2.5 of this report.

SECTION 2- LOAD TEST:

2.1 SCOPE

The load test is performed to determine the strength of the 487-13S v-ring.

2.2 APPRATUS

- Hydraulic pull tester
- Load Cell
- Type-13 Mil-Spec Nylon Webbing

2.3 PROCEDURE

Step 1. Measure the overall height of the v-ring and record results.

Step 2. Mount the v-ring with webbing strap inside the hydraulic pull tester by looping the metal cable attached to the top grip through the v-ring.

Step 3. Mount the other end of the webbing strap to the bottom grip. The v-ring shall be in a vertical orientation before load testing.

Step 4. Increase the force at a rate of 250lbf every 3 seconds until the target load listed in Table 1 is achieved or ultimate failure occurs.

Step 5. Release the force and measure the height of the v-ring for material distortion. Record results.

Step 6. Repeat steps 1 - 5 with the v-ring webbing strap mounted on the middle rung. Refer to target loads listed in Table 2 for this setup.

2.4 ANALYSIS OF RESULTS

Table 1. (Bottom Rung)

Target Load (lbf)	V-Ring Measurement Pre-Test (in)	Load Cell Reading (lbf)	V-Ring Measurement Post-Test (in)	Comment
0	3.231	0	0	-
5,000	3.231	5,057	3.258	Very slight distortion, 0.027”
6,000	3.258	6,015	3.310	Slight distortion, total 0.079”
7,000	3.310	7,079	3.468	Total bottom rung distortion of 0.237”

Table 2. (Middle Rung)

Target Load (lbf)	V-Ring Measurement Pre-Test (in)	Load Cell Reading (lbf)	V-Ring Measurement Post-Test (in)	Comment
0	2.258	0	0	-
3,000	2.258	3,066	2.264	Very slight distortion, 0.006”
4,000	2.264	4,130	2.287	Very slight distortion, total 0.029”
5,000	2.287	5,032	2.408	Slight distortion, total middle rung distortion 0.15”

Temperature and Relative Humidity Reading: 72.1°F, 52%

2.5 PHOTOGRAPHS



Bottom Rung – Load Test Setup



Middle Rung – Load Test Setup



Load Cell: Calibration Sticker



Pre-Test Measurement



Max Load at 7,079lbf

(Bottom Rung)



Max Load at 5,032lbf

(Middle Rung)



Post Load Test

Bottom Rung Load – Left V-Ring

Middle Rung Load – Right V-Ring