LIFESAVING SYSTEMS CORPORATION

LSC Test Report Number: F-730-395
Revision: B

Load Testing of #395 & #452-K



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Document History				
Revision	**Issue Date**	**Description of Revision/Modification**	**Revised by**	**Approved by**
A	10-SEP-2019	Initial Release	-	RJ
B	6-NOV-2019	Ultimate Failure Test Added	TB	RJ

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PURPOSE:

The purpose of this report is to show the load strength of the buckle and slide bar adjuster key, part numbers 395 and 452-K. Successful completion shall confirm the adjustment hardware and buckle satisfies the requirement of withstanding a load of 5kN without permanent distortion listed in the standard AS/NZS 1891.1:1995, clause 3.3.3.

ACRONYMS AND ABBREVIATIONS:

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

TEST FACILITY:

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

REFERENCE:

AS/NZS 1891.1:1995

Australian/New Zealand Standard

Industrial fall-arrest systems and Devices

Part 1: Safety belts and harnesses

SUMMARY OF TESTS PERFORMED & RESULTS:

Section	Test Description	Results
2.4	Load Test	The buckle and adjusting hardware can withstand a minimum load of 1,124lbf (5kN) without permanent distortion.
	Ultimate Failure	Separation of the adjuster key from buckle occurred at 3,430lbf.

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:	1/2/2019	1/2/2020

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 slide bar adjuster key and buckle assembly.

2.2 APPRATUS

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

2.3 PROCEDURE

Step 1. Measure the overall distance from the end of the buckle to the end of the slide bar adjuster key. This measurement shall be used to determine if distortion occurs. If the buckle and key separate at any time during the test it shall be marked as a failed test.

Step 2. Mount the slide bar adjuster with webbing straps inside the hydraulic pull tester by looping one strap through the top grip.

Step 3. Mount the other end of the webbing strap attached to the buckle to the bottom grip. The assembly shall be in a vertical orientation before load testing.

Step 4. Increase the force at a rate of 500N (112lbf) every 3 seconds until the target load of 5kN (1,124lbf) is achieved or ultimate failure occurs.

Step 5. Release the force. Measure the overall distance from the end of the buckle to the end of the slide bar adjuster key. Record results.

Step 6. Mount the assembly back into the pull tester. Pull the assembly to ultimate failure and record results.

2.4 ANALYSIS OF RESULTS

Table1.

Target Load (lbf)	Adjuster & Buckle Measurement Pre-Test (in)	Load Cell Reading (lbf)	Adjuster & Buckle Measurement Post-Test (in)	Comment
0	0	0	0	-
1,124	4.48	1,260	4.48	Adjuster Did Not Release, No Material Distortion, No Webbing Slippage
Failure	N/A	3,430	N/A	Adjuster key separated from buckle. Adjuster key edges rounded off.

Temperature and Relative Humidity Reading: 76.8°F, 53%

2.5 PHOTOGRAPHS



Test Setup



Load Cell: Calibration Sticker



Load @ 1,260lbf



Post Measurement