LIFESAVING SYSTEMS CORPORATION

LSC Test Report Number: F-730-740-B
Revision: B

Inflation Hardware Attachment Test Report

Osprey System P/N: 740-MBT



PROPRIETARY & CONFINDENTIAL

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Document History				
Revision	**Issue Date**	**Description of Revision/Modification**	**Revised by**	**Approved by**
A	7-14-2020	Initial Release	-	RDJ
B	12/17/2020	Added oral inflation tube (HI007) and valve core (HI003) dimensions to the pictures of the adapter and the manual inflator in Section 4 Photographs	TJB	

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PURPOSE:

This report documents the results of the attachment strengths of the oral inflation tube, manual inflation system, and associated hardware used on the Osprey Inflatable collar. The tests described herein were performed in accordance with the applicable requirements listed in SAE International Aerospace Standard (AS) 1354, Individual Inflatable Life Preserver, dated February 2016, as modified by Appendix 1 of the FAA TSO-C13g.

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.

REFERENCES:

Technical Standard Order TSO-C13g	*Life Preservers*, dated February 3rd, 2017
SAE International Aerospace Standard (AS) 1354	*Individual Inflatable Life Preserver*, dated February 2016

SUMMARY OF TESTS PERFORMED & RESULTS:

Section	Test Description	Results
2.1	Oral Inflation Means Attachment	The oral inflation tube meets the tension load requirement of 100lbs.
2.2	Manual Inflation Activation Means	The manual inflation system meets the tension load requirement of 60lbs and gas activation requirement of less than 15lbs.
2.3	Manual Activation Means Attachment	The manual inflation system meets the tension load requirement of 250lbs.
2.4	Other than Flotation Chamber Material	The webbing and hardware that attaches the life preserver to the wearer can withstand a tension load of 230lbs.

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 readings shall be maintained within all applicable specified tolerances.

- Measured in 5-pound increments with accuracy of ±0.10 pounds.

1.3 Instruments and Equipment

LSC Tool No.	Test Equipment	Description	Cal. Date	Cal. Due
91	Load Cell	Force Measurement: 440lbs	7/15/2020	7/15/2021
88	Load Cell	Force Measurement: 10,000lbs	7/03/2020	7/03/2021

1.4 Calibration

The instruments and equipment are calibrated according to original equipment manufacturer specifications and are traceable to the National Institute of Standards and Technology (NIST). Calibration records are maintained on file at Lifesaving Systems Corporation.

SECTION 2- TENSION LOAD:

2.1 Oral Inflation Means Attachment:

3.5.1.2.1 The attachment of the oral inflation means to the flotation chamber shall be shown not to fail when a 100 pound (45.36 kg) tension load is applied to the inflation means outwardly from and perpendicular to the surface of the flotation chamber for at least 3 seconds.

3.5.1.2.2 An adapter having an inside diameter at least 0.75 inches (19.05 mm) larger than the outside diameter of the oral inflation means attachment shall be used to support the flotation chamber fabric during load application.

2.2 Manual Inflation Activation Means:

3.5.2.2.1 Activation of gas release shall be achievable by either hand, using a single downward pull of a red-colored pull-tab/knob/ball, having rounded edges, attached to the gas release mechanism. The top edge of each tab/knob/ball shall extend 1.5 to 3 inches (38.1 to 76.2 mm) below the bottom edge of the donned life preserver. The downward force necessary to operate the gas release mechanism shall not exceed 15 pounds (6.8 kg).

3.5.2.2.2 The activation means shall be shown not to fail or separate when it is subjected to a 60 pound (27.2 kg) pull for at least 3 seconds. For activation means that are designed to separate from the gas release mechanism, the pull tab/knob/ball assembly shall withstand a 30 pound (13.6kg) pull for at least 3 seconds without failure.

2.3 Manual Activation Means Attachment:

3.5.2.3.1 The attachment of the manual inflation means to the flotation chamber shall be shown not to fail when a 250-pound (113.4kg) tension load is applied outwardly from and perpendicular to the surface of the chamber for at least 3 seconds.

3.5.2.3.2 An adapter having an inside diameter at least 0.75 inches (19.05 mm) larger than the outside diameter of the oral inflation means attachment shall be used to support the flotation chamber fabric during load application.

2.4 Other than Flotation Chamber Material:

4.3.1 Webbing, and associated hardware, used to attach the life preserver to the wearer, shall be shown to withstand a 230 pound (104.33 kg) pull for at least 3 seconds without failure.

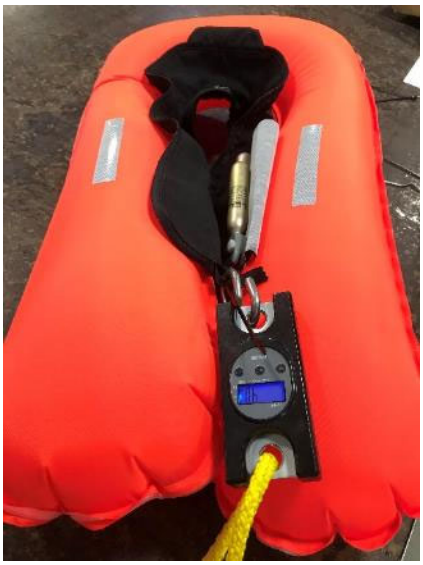
SECTION 3- ANALYSIS OF RESULTS

Test Criteria	Measurement (Reading lbs.)	Pass/Fail
(3.5.1.2.1) Inflation tube shall not fail when a 100-pound (45.36kg) load is applied. Hold for at least 3 seconds.	100.3lbs	PASS
(3.5.2.2.1) The downward force necessary to operate the gas release mechanism shall not exceed 15 pounds (6.8kg).	4.0lbs	PASS
(3.5.2.2.2) Shall not fail or separate when a 60-pound (27.2kg) load is applied to the activation means pull tab. Hold for 3 seconds.	64.7lbs	PASS
(3.5.2.3.1) Inflation means must not fail when a 250-pound (113.4kg) load is applied. Hold for 3 seconds.	256lbs	PASS
(4.3.1) Webbing and hardware shall withstand a 230-pound (45.36kg) load. Hold for at least 3 seconds	233lbs	PASS

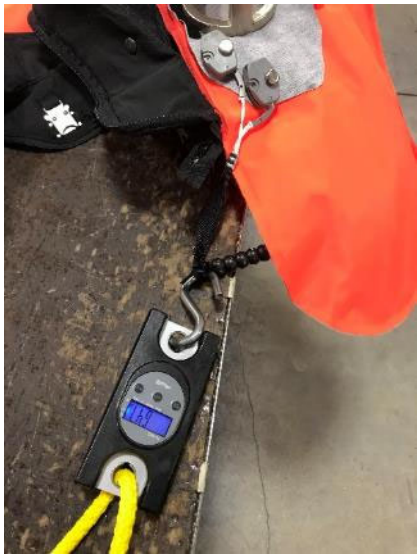
SECTION 4- PHOTOGRAPHS



Test Apparatus Adapter Diameter = 3.25”
LSC P/N: HI007 oral inflation tube opening is 1.09” x 1.56”. The adapter diameter is more than .75” larger than the tube opening.



Gas Activation: 4.0lb Force
Manual Inflation System



Inflation System Pull Strength
64.7lb Force



Oral Tube Attachment Strength
100.3lb Force



Manual Inflator Attachment Strength setup in Pull Tester.
LSC P/N: HI003 valve core diameter is 1.25". The adapter diameter is 3.25" which is more than 0.75" larger.



Manual Inflator Attachment Strength 256lb Force



Webbing (NFW028) and Buckle (720) Attachment Hardware Setup



Webbing and Buckle Strength: 233lb Force