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Date: FEBRUARY 5, 2021

Customer:
Lifesaving Systems Corp
220 Elsberry Rd.
Apollo Beach, FL 33572 US

Attn: Tom Beach

Purchase Order Number: 4115

A. TEST: V-Ring, Buttons and Assembly Fatigue Testing

B. TEST ITEMS: V-Rings and Latch Assembly
(See page 2 for items identification)

C. SPECIFICATIONS: Customer email dated 11/20/2020

D. RESULTS:
This is to certify that the V-Rings, Latch Assembly, and Buttons were subjected to the fatigue testing according to the above specifications.

See Page 2 for Procedure and Summary of Test Results. The provided samples were returned to Lifesaving Systems Corp for post-tests and final evaluation.

Test data, an equipment list, and photographs are attached.

Mary Beth Creech Preparer	Mary Beth Creech, Department Manager	Stacey Jacobson, Quality Management Rep.

This report and the information contained herein represent the results of testing test articles identified and selected by the client performed to specifications and/or procedures selected by the client. National Technical Systems (NTS) makes no representations, expressed or implied, that such testing is adequate (or inadequate) to demonstrate efficiency, performance, reliability, or any other characteristic of the articles being tested, or similar products. This report should not be relied upon as an endorsement or certification by NTS of the equipment tested, nor does it represent any statement whatsoever as to its merchantability or fitness of the test article, or similar products, for a particular purpose. This report shall not be reproduced except in full.

TEST ITEM IDENTIFICATION

Quantity	Part Name	Part Number
1	Forged Stainless Steel 17-4PH	487-13F
1	Cast Titanium Grade 5	487-13C
1	Stamped Stainless Steel 304	487-13S
1	Stamped Stainless Steel 304	384-S
1	Machined Titanium Grade 5	930

SUMMARY OF TEST RESULTS

Fatigue Fretting Testing

Upon receipt, the parts and fixture were visually inspected prior to testing. There were no signs of visual damage and the test samples were ready for testing.

A hydraulic load frame with a linear actuator and a load cell were connected to a fixture that was designed to be able to hold the unit under test in a position that would apply the required force for testing at the location designated by Lifesavings System Corp. Each test item was fatigued 10 lbs to 450 lbs of force at 1 hertz for a total of 50,000 cycles at ambient room temperature.

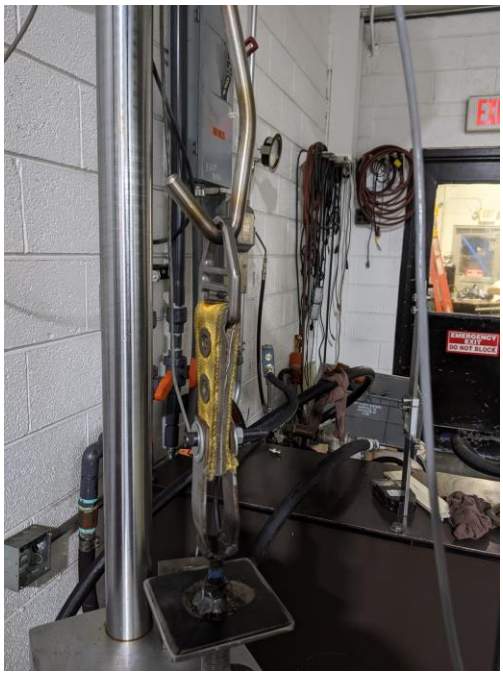
The latch fatigue testing and the button fatigue testing were performed using a hydraulic load frame with a linear actuator and a load cell. The assembly was put into the fixture and a cycling force of 10lbs to 450 lbs was applied at 1 Hz for 50,000 cycles to both buttons simultaneously. The latch testing was performed the same way with the applied force points being the latches.

A visual inspection following the completion of fatigue testing revealed that the samples sustained no apparent visible damage.

Representative Test Photo



487-13F



487-13C



487-13S



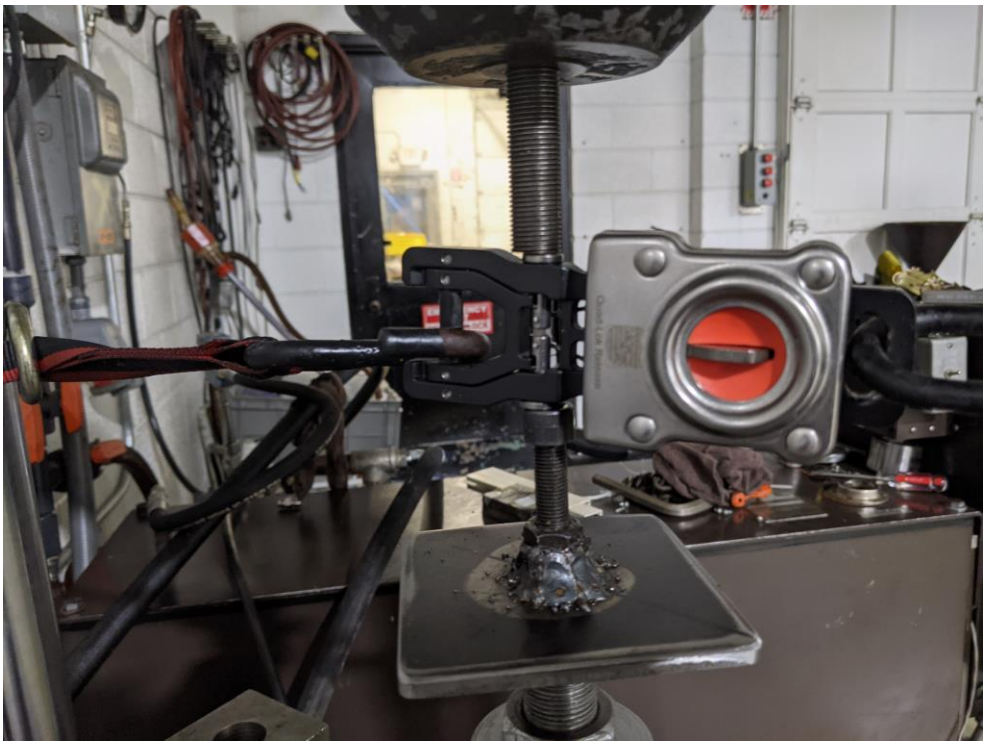
384-S

Representative Full Latch Assembly Fatigue Setup Photos

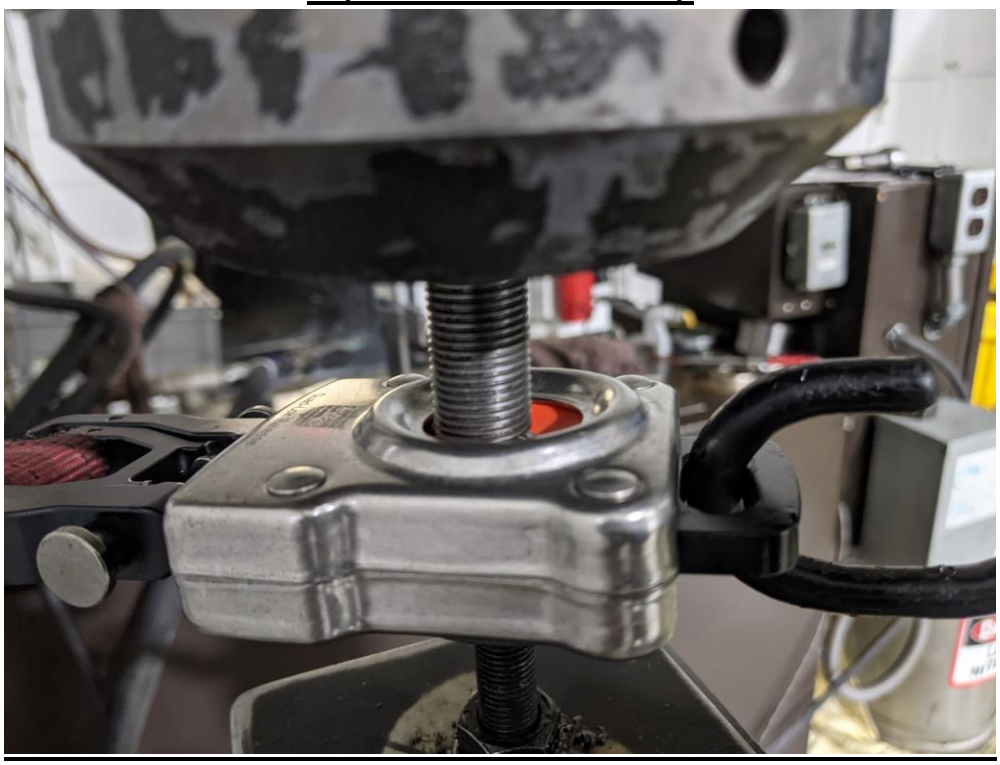


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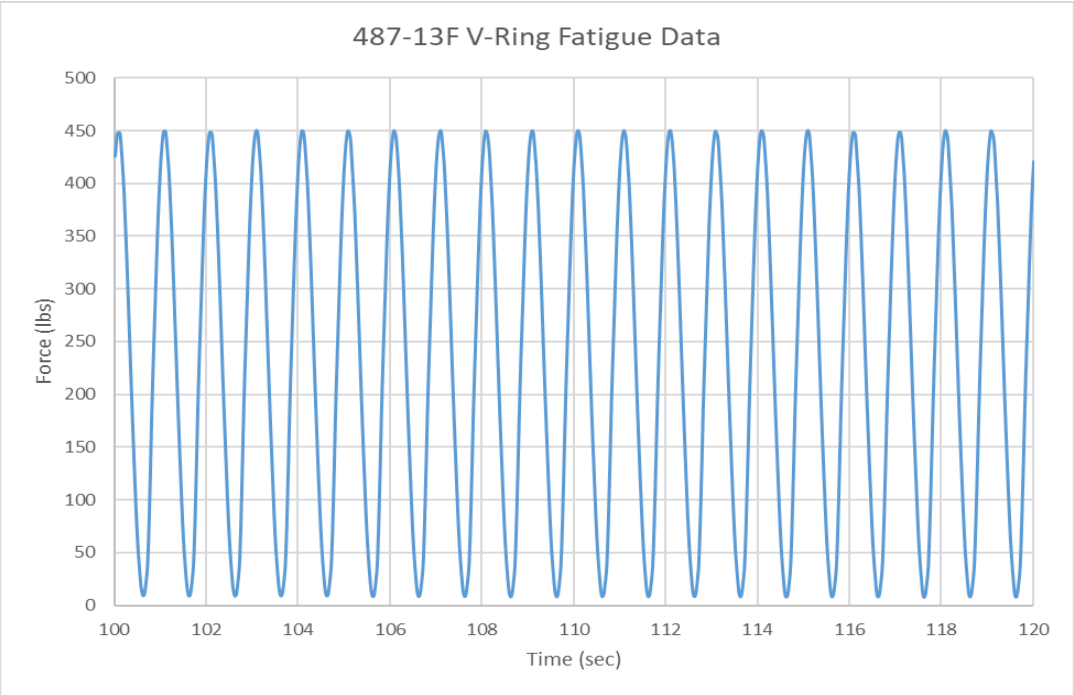
Representative Button Fatigue Setup Photos



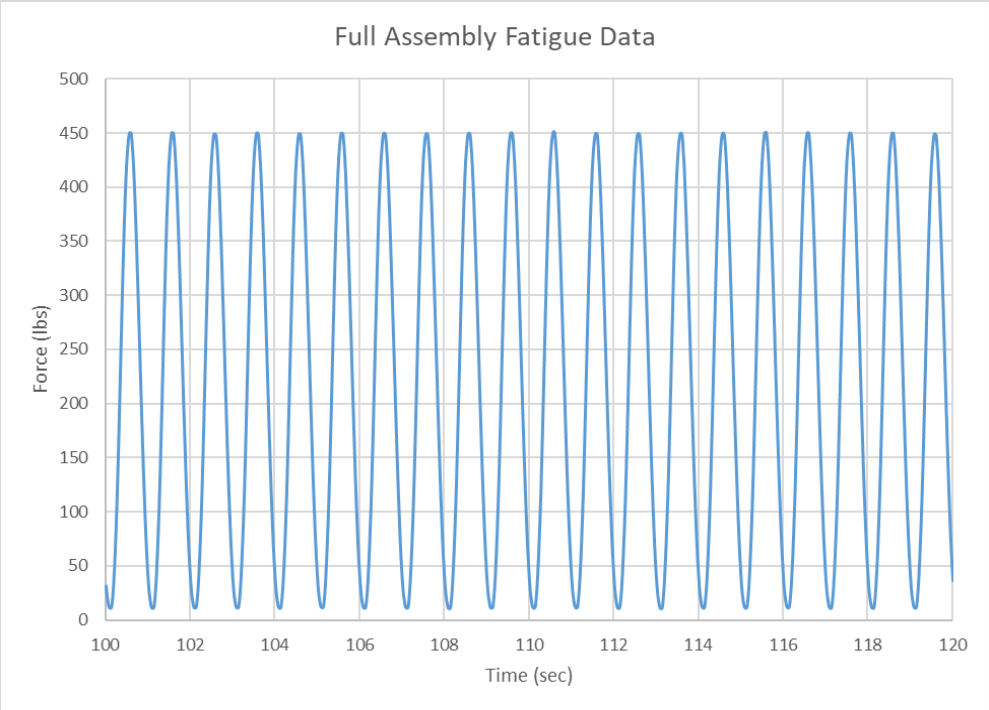
Representative Latch Setup



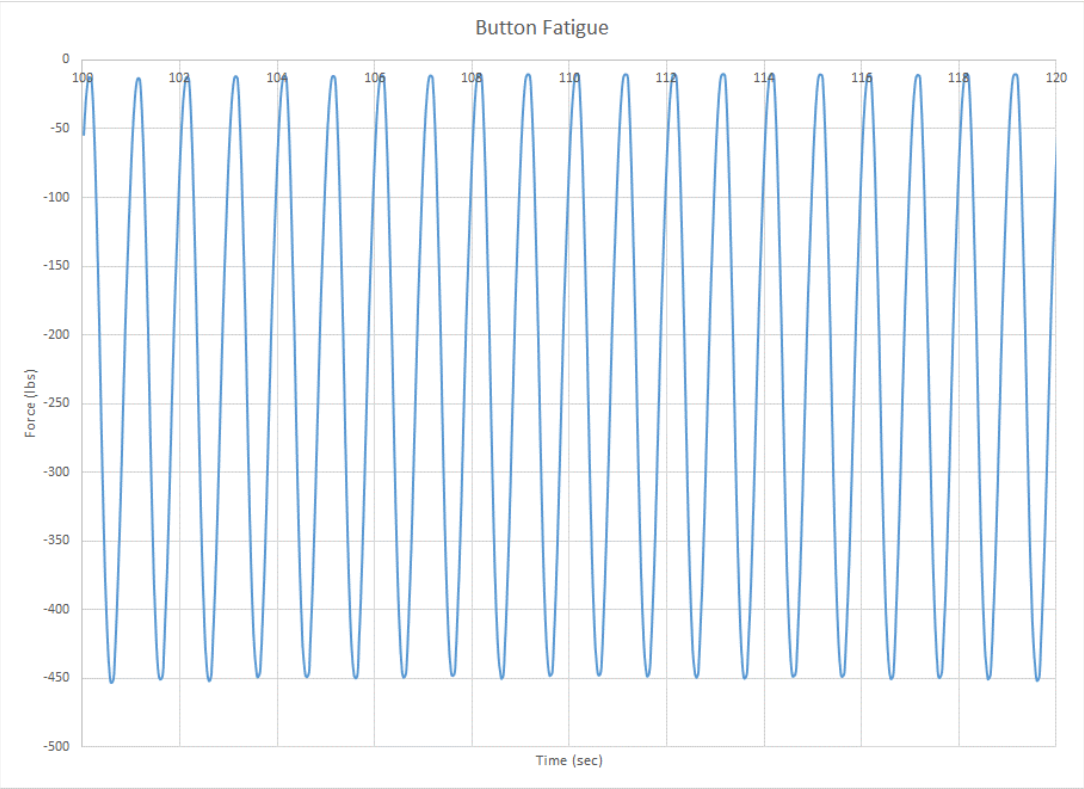
Representative V-Ring Fatigue Data



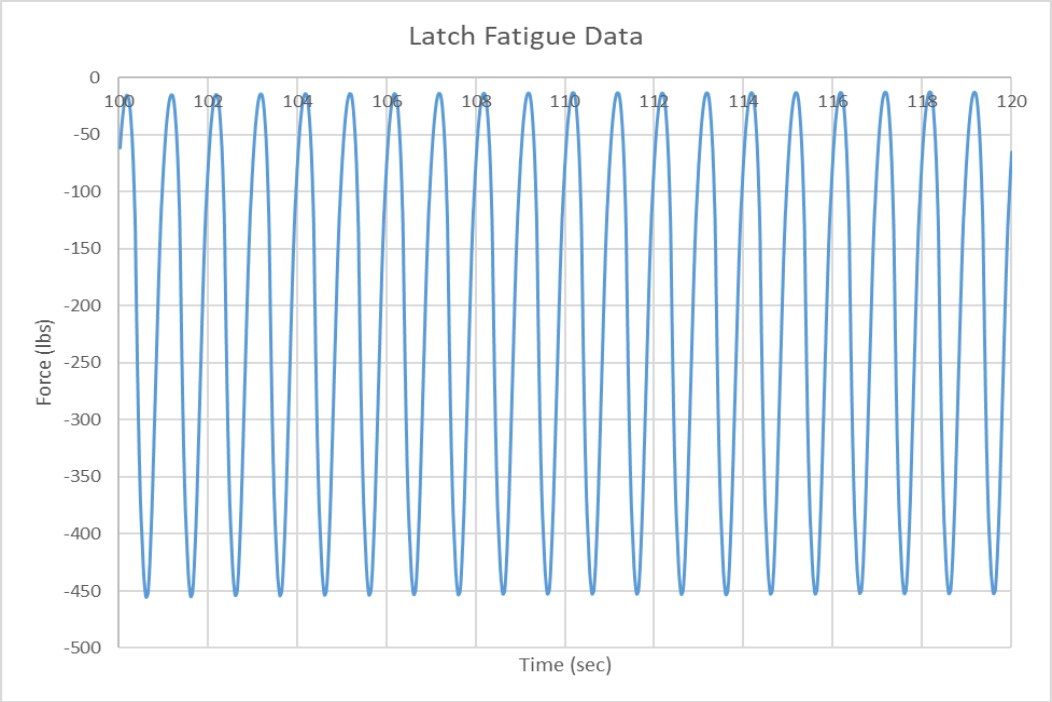
Representative Full Assembly Fatigue Data



Representative Button Fatigue Data



Representative Latch Fatigue Data



EQUIPMENT LIST

Asset Number	Manufacturer	Description	Cal Due
WC008451	MTS	Controller	3/22/21
WC039974	Dell	Computer	NCR
WC007738	MTS	Load Frame	2/15/21
WC007671	Lebow	Load Cell	9/7/21

NCR = No Calibration Required; IND = Indication Only; PTU = Calibrate Prior to Use

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