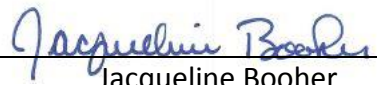
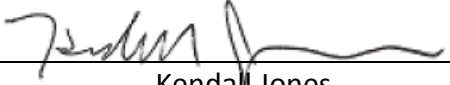


Airtightness and Tensile Tests Report

Date: June 25, 2018
Report Number: R6834-1

Marine Lumber International
TA Astor Defence
11800 SW Myslony Street
Tualatin, Oregon 97062
United States

Prepared By:	 Frederick Tognoli Element Portland Technical Writer	<u>6/25/2018</u> Date
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Concurred By:	 Kendall Jones Element Seattle Lab Manager	<u>6/25/2018</u> Date

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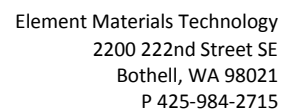
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ADMINISTRATIVE DATA

Prepared For:	Henry Turnbull Marine Lumber International TA Astor Defence 11800 SW Myslony Street Tualatin, Oregon 97062 United States
Tests Performed:	Airtightness and Tensile Testing
Test Facility:	Element Materials Technology 2200 222nd Street SE Bothell, WA 98021 425-984-2715
Test Unit Description:	One (1) Ammunition Box
Part Number:	CNU 405
Serial Number:	1
Primary Test Specification:	PQAR-986AS106
Purchase Order Number:	MLI-H-ED-062518
Element Job Number:	6834P
Element Quote Number:	EPO006834Q
Project Begin Date:	6/20/2018
Project Completion Date:	6/20/2018
Test Report Completion Date:	June 25, 2018



Revision	Description	Date	Approval
N/A	Original Release	June 25, 2018	KJ

1.0 INTRODUCTION

1.1 Scope

This document describes procedures and performance of the Airtightness and Tensile Tests performed in accordance with specification: PQAR-986AS106. The results described in this report relate only to the specific items tested.

1.2 Purpose

The purpose of this test was to demonstrate that the test specimens met or exceeded the design specification requirements during or upon completion of exposure to the stresses detailed herein.

2.0 APPLICABLE DOCUMENTS

2.1 Specification

PQAR-986AS106

3.0 GENERAL INFORMATION

3.1 Test Equipment

All test instrumentation was calibrated in accordance with ANSI/NCSL Z540.3 or ISO 10012, as applicable, and is traceable to a recognized National Metrology Institute (NMI). The following tables list the equipment used during the testing:

Table 1 – Airtightness Test Equipment

Test Dates: 6/20/2018 to 6/20/2018

ID#	Description	Mfg.	Model#	Last Cal	Next Cal
S16757	Stop Watch	Control Company	1043	9/25/2017	9/25/2019
11036	Digital Pressure Gauge	Heise	N40/40KPA	5/31/2018	5/31/2019

3.0 GENERAL INFORMATION (continued)

3.1 Test Equipment (continued)

Table 2 – Tensile Test Equipment
Test Dates: 6/20/2018 to 6/20/2018

ID#	Description	Mfg.	Model#	Last Cal	Next Cal
S16757	Stop Watch	Control Company	1043	9/25/2017	9/25/2019
16721	Load Cell	MTS	661.19 C-01	6/28/2017	6/28/2018
16509	Load Cell Display	Futek	IPM 500	6/28/2017	6/28/2018

3.2 Test Conditions

Unless specified herein, all tests and measurements were performed at the room ambient conditions existing at the laboratory during testing:

Temperature: 10°C to 40°C

Relative Humidity: Ambient to 90%

3.3 Test Witnessing/Monitoring

All testing was conducted by a qualified Element Portland Environmental Test Technician under the direction and cognizance of the Lab Manager and Quality Assurance.

3.4 Test Recording

Chronological logs of all significant events are maintained by test lab personnel and indicate date, times and descriptions of conditions. These logs are used as reference, retained at Element and available upon request. Test setup photographs are provided in Appendix A, with any additional charts, plots, or graphs provided in Appendix B.

4.0 Airtightness Test Procedures

4.1 Setup

- 4.1.1 One (1) CNU 405 ammunition box, identified as sample 1 for testing, was visually inspected with no signs of damage, deformation, discoloration, corrosion, or any other anomalies noted.
- 4.1.2 A pressure port was installed on the bottoms of the can.

4.2 Steps

- 4.2.1 The sample was inverted and placed in a dunk tank full of room temperature water.
 - 4.2.1.1 The lid and gaskets were completely submerged.
- 4.2.2 Applied an internal pressure of 3psi for a minimum of thirty (30) seconds.
 - 4.2.2.1 Observed the sample for air bubbles escaping during exposure.
- 4.2.3 Completed exposure and removed the sample from the dunk tank.
- 4.2.4 Upon test completion, at ambient conditions, the sample was visually inspected, then remained on site for additional testing.

4.3 Results

- 4.3.1 No signs of damage, deformation, discoloration, corrosion, or any other anomalies noted.
 - 4.3.1.1 No signs of bubbles observed from the sample during testing.
- 4.3.2 Test photographs provided in Appendix A.

5.0 Tensile Test Procedures

5.1 Setup

- 5.1.1 One (1) CNU 405 ammunition box, identified as sample 1 for testing, was visually inspected with no signs of damage, deformation, discoloration, corrosion, or any other anomalies noted.
- 5.1.2 Set up the sample to begin testing.

5.2 Steps

- 5.2.1 Applied a 600lb load for one (1) minute on the latch assembly.
 - 5.2.1.1 See Results section 4.3.1.1 for details.
- 5.2.2 Applied a 1200lb load for 1 minute on the hasp assembly.
 - 5.2.2.1 See Results section 4.3.1.2 for details.
- 5.2.3 Applied a 600lb load for 1 minute on the sample handle assembly.
 - 5.2.3.1 See Results section 4.3.1.3 for details.
- 5.2.4 Upon test completion, at ambient conditions, the sample was visually inspected, then remained on site for additional testing.

5.3 Results

- 5.3.1 Signs of damage, deformation, discoloration, corrosion, or any other anomalies were noted.
 - 5.3.1.1 No bending or distortion observed on the sample at any portion of the test sequence.
 - 5.3.1.2 No bending or distortion observed on the sample at any portion of the test sequence.
 - 5.3.1.3 Bending or distortion observed during testing with no broken welds or detached components observed.
- 5.3.2 Test photographs provided in Appendix A.

APPENDIX A – TEST PHOTOGRAPHS

Airtightness



Photo 1 – General sample condition at the start of testing



Photo 2 – General sample condition at the start of testing

APPENDIX A (continued)



Photo 3 – Example of testing in progress



Photo 4 – General sample condition at the end of the test

APPENDIX A (continued)



Photo 5 – General sample condition at the end of the test

APPENDIX A (continued)

Tensile



Photo 6 – Sample set up to begin testing

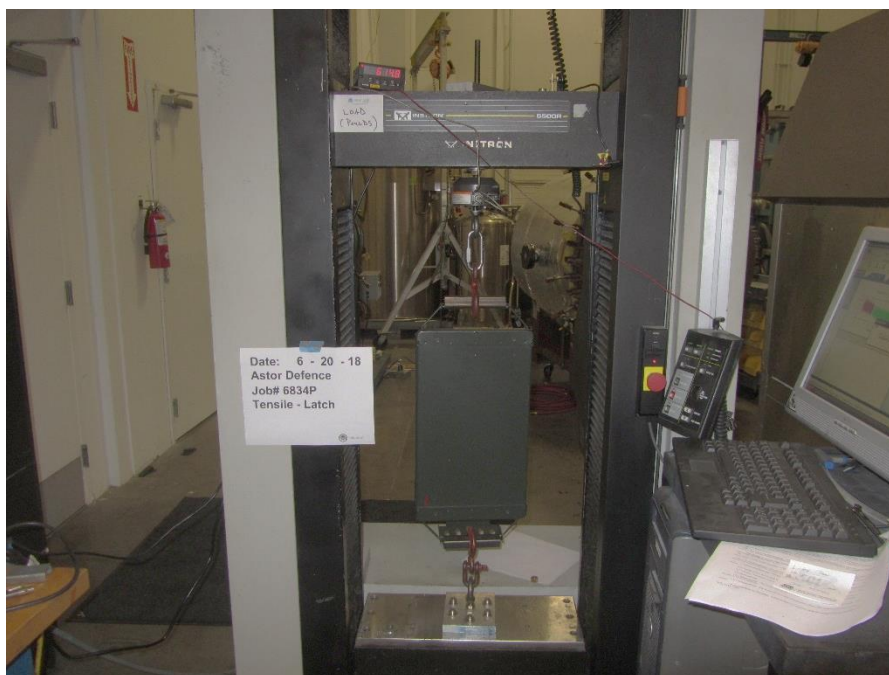


Photo 7 – Example of testing in progress

APPENDIX A (continued)



Photo 8 – Sample set up to begin testing



Photo 9 – Example of testing in progress

APPENDIX A (continued)



Photo 10 – Sample set up to begin testing

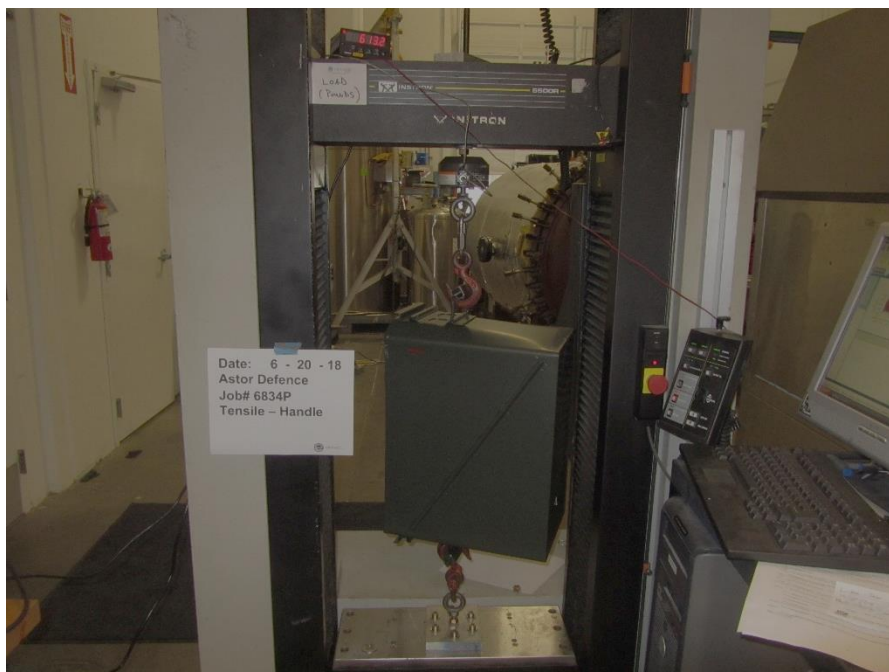


Photo 11 – Example of testing in progress

APPENDIX A (continued)



Photo 12 – General sample condition at the end of the test



Photo 13 – General sample condition at the end of the test

APPENDIX A (continued)



Photo 14 – General sample condition at the end of the test

APPENDIX B – TEST PLOTS, CHARTS, GRAPHS

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End of Report