Kelly Space & Technology, Inc.

TEST REPORT

Pelican Products
23215 Early Ave.
Torrance, CA 90505

Job No.	10346
Contract	n/a
Purchase Order No.	4500088985
Date	July 14, 2014

This report contains true and correct data obtained in the performance of the test program set forth in your purchase order. Test methods, results, and equipment used are recorded on these data sheets. Where applicable, instrumentation used in obtaining this data has been calibrated using standards which are traceable to the National Institute of Standards and Technology.

SUMMARY:

Case Model No. 1670, were subjected to Environmental Testing in accordance with customers specifications. Upon completion of the test, no visible evidence of damage to the test specimens was observed. Complete test details, including photos and equipment lists, are contained in this report.

Test Dates: 6/20/14 – 7/11/14

Prepared by: Tom Valfre, Test Engineer

Approved by: Jason Lee, Quality Assurance Manager

Revision	Description of Change	Date
0	Original	July 8, 2014
1	Corrected Typo on Pg. 11	July 14, 2014
2	Additional Test Requested	July 11, 2014

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Kelly Space & Technology, Inc.

DATA SHEET

Customer Pelican Products Inc. **Job No.** 10346

Date 6/19/2014

Specimen Case

RECEIVING INSPECTION

No. of Specimens Received: One (1)

Record identification information exactly as it appears on the tag or specimen:

Manufacturer: Pelican Products Inc.

P/N's	**S/N's**
1670	7

How does identification information appear: (name plate, tag, painted, imprinted, etc.)

Customer Provided and Label on Case.

Examination: Visual, for evidence of damage, poor workmanship, or other defects, and completeness of identification.

Inspection Results: There was no visible evidence of damage to the specimen(s) unless otherwise noted below.

recinsp

Inspected By 7/8/14

Sheet No. 1 of 1

Approved Date 7-8-14

Kelly Space & Technology, Inc.

Photograph 1
Receiving Inspection

Photograph 2
Receiving Inspection

Kelly Space & Technology, Inc.

DATA SHEET

Test Title Leak Test - Submersion (Pre-Impact)

Customer	Pelican Products, Inc.	**Job No.**	10346
Specimen	Case Model 1760	**Date Started**	6/20/2014
Part No.	See Recv. Insp.	**Serial No.**	7
Date Comp.	6/20/2014		
Spec.	MIL-C-4150J	**Par.**	4.6.3.2
Photo	Yes	**Amb. Temp.**	70° ± 20°F

Requirements:

No. of Specimens: One (1)
Temperature: Ambient

Test Method:

Perform the test by submerging the test item in water so that the uppermost surface is not less than 1 inch or more than 2 inches below the surface of the water. Keep the test item submerged for 1 hour minimum. Ensure the water temperature is not less than 40°F below the temperature at which the specimen is sealed.

After submersion carefully dry the outside of the specimen where the opening will be made. Open the container and carefully inspect for leakage. Record the results.

Test Results:

All testing was performed per the Test Method and Requirements stated above. The water temperature at the beginning of the test was 69.5°F and the test specimen temperature was 72.0°F. Upon completion of the Leak Test the test specimen was opened for inspection. No visible evidence of damage or water leakage was observed.

Tested By 7/1/14

Engineer MM 7-2-14

Photograph 3
Leak Test – Pre Impact

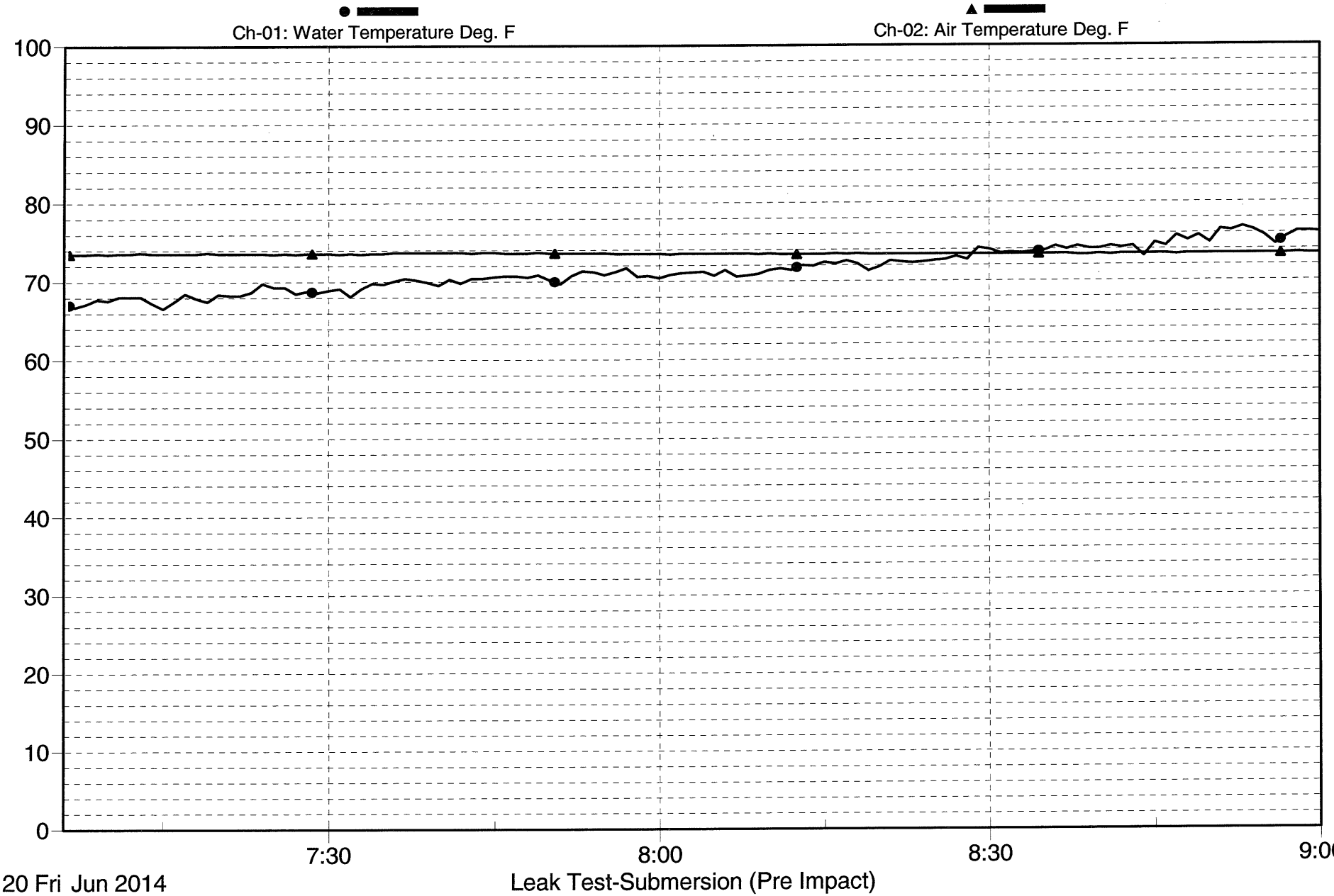
Photograph 4
Leak Test – Pre Impact – Post Inspection

Pelican Products, Inc. JN: 10346

Case Model 1760

File: D:\KST_DL\10346A100.prn

06-23-2014 10:33:28 DL2k10



Test Report 10346-1 Rev. 1

Kelly Space & Technology, Inc.

TEST TITLE: Leak Test - Submersion (Pre & Post Impact)

CUSTOMER: Pelican Products, Inc. Job No.: 10346 Date: 6/20/2014

Specimen: Case - Model 1670 Technician: I. Garcia 7/3/14

Part No.: See Recv. Insp. Serial No.: See Recv. Insp. Engineer: M. Murphy 7-2-14

EQUIPMENT	MANUFACTURER	MODEL #	RANGE	KELLY #	CALIBRATION		ACCY.
					LAST	DUE	
Digital Indicator - Temperature	Tegam	819	-300° to +700°F	K10250	5/15/2014	11/15/2014	0.1%
Module - Multiplexer	Keithley	7700	20 Chans. 10 VDC or TC's	K10692	8/23/2013	8/23/2014	±2% / ±2°F
Multimeter/DAS	Keithley	2700	10VDC & Type T TC's	K10170	8/23/2013	8/23/2014	±2% / ±2°F
Stopwatch	Radio Shack	63-5013	99.99 Min.	K10204	5/14/2014	11/14/2014	0.1 Sec.
Tape Measure	Lufkin	AL725MAG	0 to 25 ft.	K10237	4/16/2014	4/16/2015	Mfg. Spec.

Where applicable, the listed test equipment has been calibrated using standards which are traceable to the National Institute of Science & Technology. Certificates and reports of all calibrations are retained in the Kelly Space & technology, Inc. QA files and are available for inspection upon request. *Equipment identified as System Calibration are verified prior to use.

Kelly Space & Technology, Inc.

DATA SHEET

Test Title Impact

Customer	Pelican Products, Inc.	**Job No.**	10346
Specimen	Case Model 1760	**Date Started**	6/20/2014
Part No.	See Recv. Insp. **Serial No.** 7	**Date Comp.**	6/20/2014
Spec.	MIL-C-4150J **Par.** 4.6.3.5.2.3 **Photo** Yes	**Amb. Temp.**	70° ± 20°F

Requirements:

No. of Specimens:	1
Temperature:	-25 (+0/-6) °C and 60 (+6/-0) °C
Relative Humidity:	Ambient
Sides:	4 (2 sides, 2 ends)
Impacts:	8 total (4 at each temperature)

Test Method:

For this test, use a test apparatus consisting of a platform suspended from a height at least 16 feet above the floor, and a bumper made of flat, rigid concrete or an equally unyielding flat barrier. The platform must be suspended by four or more ropes so that the platform remains horizontal when pulled back. The platform shall be large enough to support the entire container and when hanging free shall have its top surface approximately 9 inches above the floor and its leading edge at least 3 inches from the surface of the bumper. The bumper shall be 18 inches high, wide enough to make full contact with the container, and shall have sufficient mass to resist the impacts without displacement. The impact surface shall be oriented perpendicular to the line of the swing of the platform.

Before testing, record the weight and dimensions of the test item. Condition the test item at the desired temperature (-25°C or 60°C) until it has reached a stable temperature before starting the impacts.

Install the test item on the test apparatus. The test item shall be loaded with the actual contents for which it is designed, or with a dummy load. The specimen shall be placed on the platform with the surface which is to be impacted projecting beyond the front end of the platform so that the specimen just touches the vertical surface of the bumper when the platform is hanging freely. Photograph the test setup.

Perform the test by pulling the platform back so that the center of gravity of the pack is raised by 9 inches, resulting in an impact velocity of 7 feet per second. Release the test item and allow it to swing freely so the container impacts against the bumper. Perform the impact test on each side and each end that has a horizontal dimension of less than 9.5 ft.

Upon completion of the testing, perform a visual inspection and make note of any changes or breaks in the container. Inspect the packing and the contents and make note of their conditions.

(continued)

Tested By [signature] 7/1/14

Engineer MM 7-2-14

Kelly Space & Technology, Inc.

DATA SHEET

Test Title Impact **Date** 6/20/2014

Customer Pelcian Products, Inc. **Job No.** 10346

Specimen Case Model 1760 **Technician** I. Garcia IG 7-15-14

Part No. See Recv. Insp. **Serial No.** See Recv. Insp. **Engineer** M. Murphy MW 7/14/14

(continued)

Test Results:

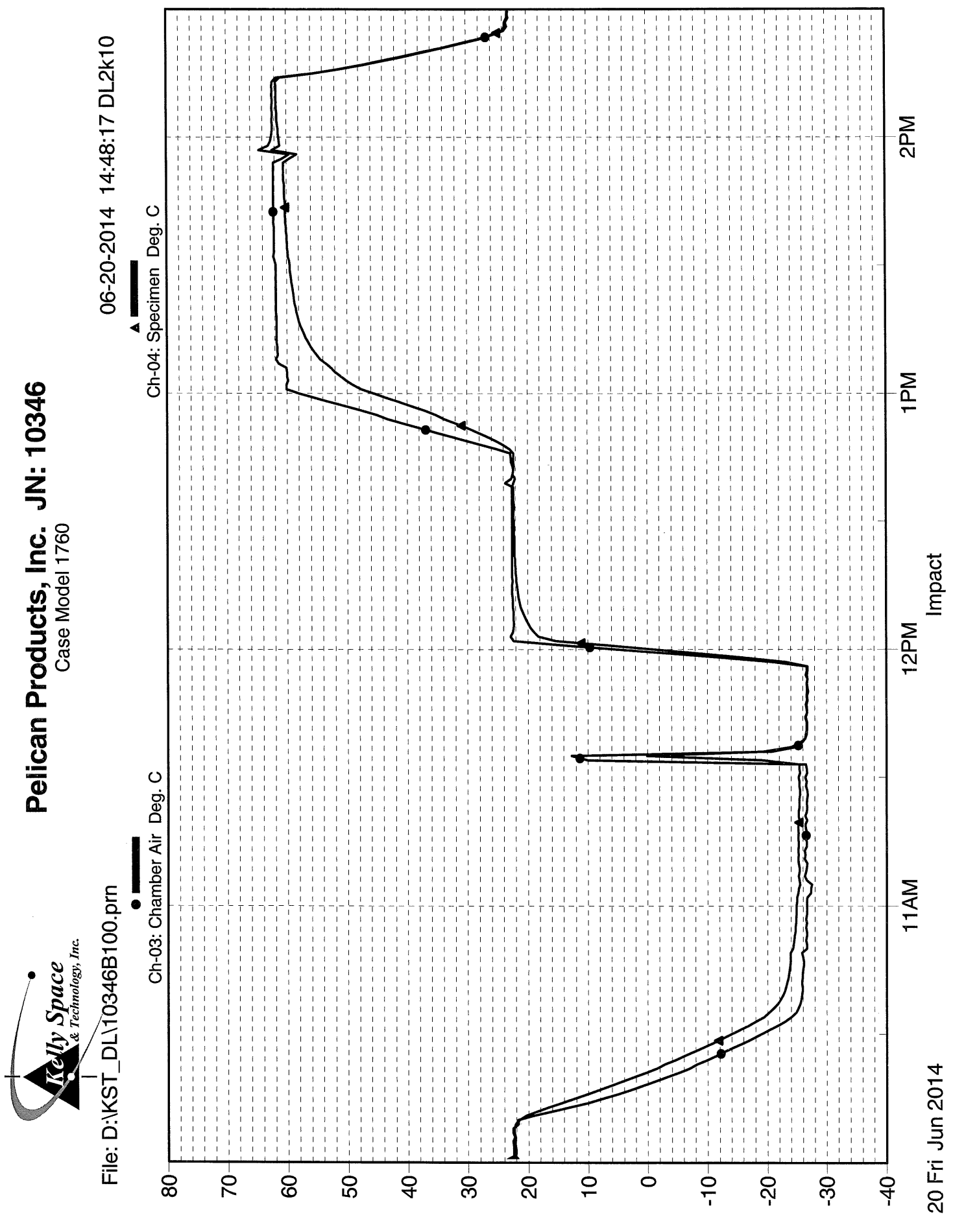
All testing was performed per the Test Method and Requirements stated above. The test specimen weight was 22.8 pounds and was loaded with 70 pound of dummy weight (sand bags) prior to testing. Other than some minor scratches caused by the impact on the concrete mass there was no evidence of damage or malfunction of the test specimen.

Photograph 5
Impact Test – Pre Condition

Photograph 6
Impact Test – Setup

Photograph 7
Impact Test – Setup

Photograph 8
Impact Test –Post Inspection


Kelly Space & Technology, Inc.
Pelican Products, Inc. JN: 10346
Case Model 1760
06-20-2014 14:48:17 DL2k10
File: D:\KST_DL\10346B100.prn
Ch-03: Chamber Air Deg. C
Ch-04: Specimen Deg. C
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
11AM
12PM
1PM
2PM
Impact
20 Fri Jun 2014

Kelly Space & Technology, Inc.

TEST TITLE: Impact

CUSTOMER: Pelican Products, Inc. Job No.: 10346 Date: 6/23/2014

Specimen: Case - Model 1670 Technician: I. Garcia 7/2/14

Part No.: See Recv. Insp. Serial No.: See Recv. Insp. Engineer: M. Murphy MM 7-2-14

EQUIPMENT	MANUFACTURER	MODEL #	RANGE	KELLY #	CALIBRATION		ACCY.
					LAST	DUE	
Chamber - Environmental	Russels	Chamber C GD-32-3-3	-65ºF to +300ºF & Rh / 3'x3'x3' / Refrig.	K10157	* System	Calibration *	Mfg. Spec.
Humidity Module	Vaisala	HMM100	0 to 100% RH	K10695	1/24/2014	7/24/2014	±3%RH
Module - Multiplexer	Keithley	7700	20 Chans. 10 VDC or TC's	K10692	8/23/2013	8/23/2014	±2% / ±2ºF
Multimeter/DAS	Keithley	2700	10VDC & Type T TC's	K10170	8/23/2013	8/23/2014	±2% / ±2ºF
Scale - Electronic	A&D	FG-60K	0 - 150 lbs	K10183	10/23/2013	10/23/2014	±0.05 lbs
Tape Measure	Lufkin	AL725MAG	0 to 25 ft.	K10237	4/16/2014	4/16/2015	Mfg. Spec.

Where applicable, the listed test equipment has been calibrated using standards which are traceable to the National Institute of Science & Technology. Certificates and reports of all calibrations are retained in the Kelly Space & technology, Inc. QA files and are available for inspection upon request. *Equipment identified as System Calibration are verified prior to use.

Kelly Space & Technology, Inc.

DATA SHEET

Test Title Leak Test - Submersion (Post-Impact)

Customer	Pelican Products, Inc.	**Job No.**	10346
Specimen	Case Model 1760	**Date Started**	6/23/2014
Part No.	See Recv. Insp.	**Serial No.**	See Recv. Insp.
Date Comp.	6/23/2014		
Spec.	MIL-C-4150J	**Par.**	4.6.3.2
Photo	Yes	**Amb. Temp.**	70° ± 20°F

Requirements:

No. of Specimens: One (1)
Temperature: Ambient

Test Method:

Perform the test by submerging the test item in water so that the uppermost surface is not less than 1 inch or more than 2 inches below the surface of the water. Keep the test item submerged for 1 hour minimum. Ensure the water temperature is not less than 40°F below the temperature at which the specimen is sealed.

After submersion carefully dry the outside of the specimen where the opening will be made. Open the container and carefully inspect for leakage. Record the results.

Test Results:

All testing was performed per the Test Method and Requirements stated above. The water temperature at the beginning of the test was 75.2°F and the test specimen temperature was 67.7°F. Upon completion of the Leak Test the test specimen was opened for inspection. No visible evidence of damage or water leakage was observed.

KST - 614A – Rev. 10/09

Tested By 7/1/14

Engineer 7-2-14

Photograph 9
Leak Test –Post Impact

Photograph 10
Leak Test –Post Impact – Post Inspection

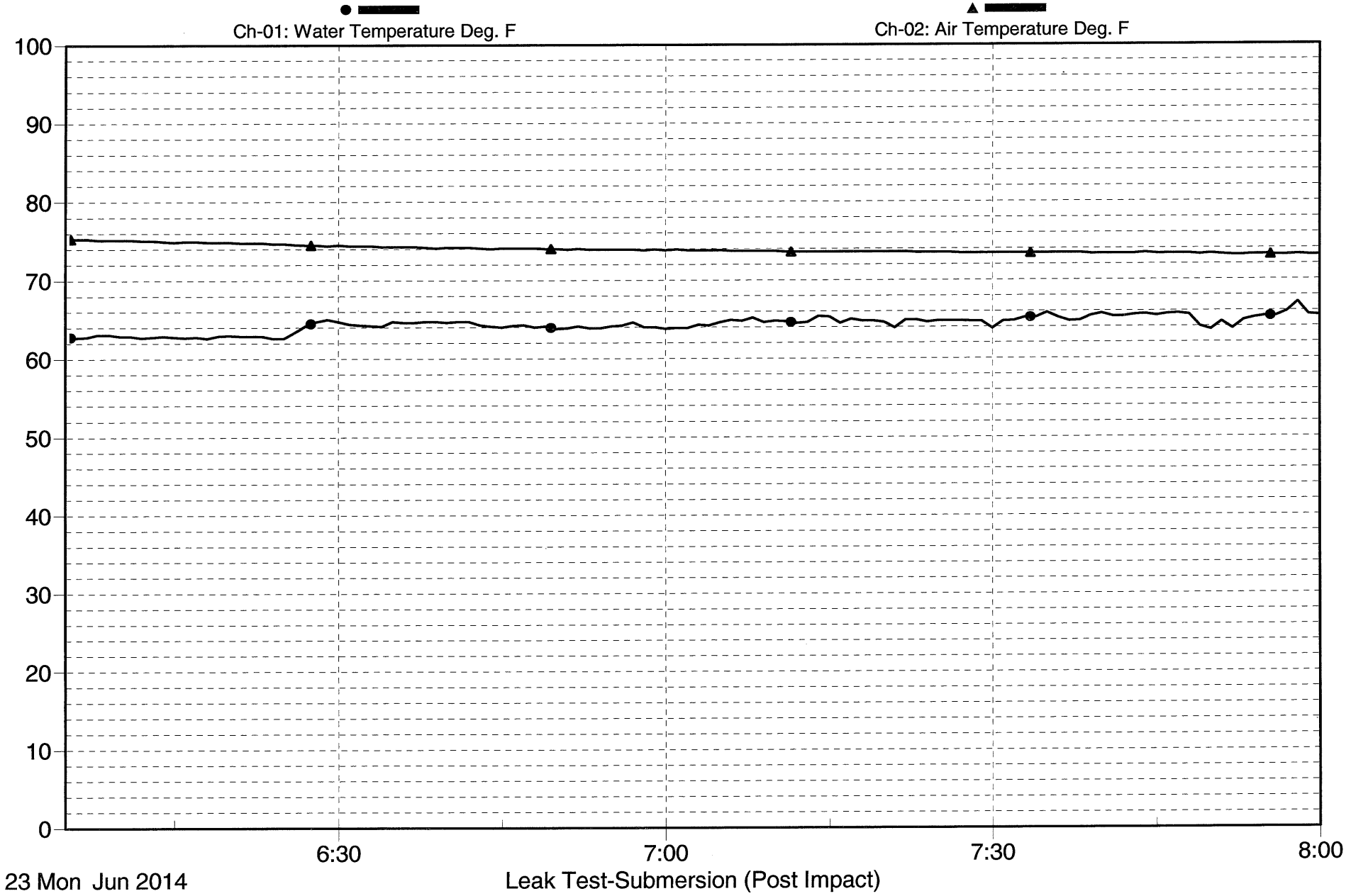
Pelican Products, Inc. JN: 10346

Case Model 1760

Kelly Space & Technology, Inc.

File: D:\KST_DL\10346A101.prn

06-23-2014 10:32:34 DL2k10



23 Mon Jun 2014

Leak Test-Submersion (Post Impact)

Test Report 10346-1 Rev. 1

Kelly Space & Technology, Inc.

DATA SHEET

Test Title Immersion

Customer	Pelican Products, Inc.	**Job No.**	10346
Specimen	Case Model 1760	**Date Started**	6/23/2014
Part No.	See Recv. Insp.	**Serial No.**	See Recv. Insp.
Date Comp.	6/23/2014
Spec.	IEC 60529 (IPX7)	**Par.**	14.2.7
Photo	Yes	**Amb. Temp.**	70° ± 20°F

Requirements:

Water Level:	Test specimens with a height less than 850 mm (33.46 inches) has the lowest point of the test specimen 1000 mm (39.37 inches) below the surface of the water surface. Test specimens with a height equal to or greater than 850 mm (33.46 inches) has the highest point of the test specimen 150 mm (3.9 inches) below the surface of the water
Water Temperature:	Water temperature does not differ from that of the equipment by more than 5 K (9°F)
Soak Duration:	30 minutes

Test Method:

Visually inspect the test specimen. Place the test specimen in a submersion tank. Test specimens with a height less than 850 mm (33.46 inches) has the lowest point of the test specimen 1000 mm (39.37 inches) below the surface of the water surface. Test specimens with a height equal to or greater than 850 mm (33.46 inches) has the highest point of the test specimen150 mm (3.9 inches) below the surface of the water.

Verify the water temperature does not differ from that of the test item by more than 5 K (9°F). Allow the test specimen to soak for 30 minutes.

Remove the test specimen from the tank. Perform a visual inspection and check for the presence of water inside the test item. Document all results.

Test Results:

All testing was performed per the Test Method and Requirements stated above. The water temperature at the beginning of the test was 73.3°F and the test specimen temperature was 65.8°F. Upon completion of the Immersion Test the test specimen was opened for inspection. No visible evidence of damage or water penetration was observed.

Tested By 7/1/14

Engineer M. Murphy 7-2-14

Kelly Space & Technology, Inc.

Photograph 11
Leak Test –Immersion

Kelly Space & Technology, Inc.

Photograph 12
Leak Test –Immersion – Post Inspection

Kelly Space & Technology, Inc.

TEST TITLE: Immersion

CUSTOMER: Pelican Products, Inc. Job No.: 10346 Date: 6/23/2014

Specimen: Case - Model 1670 Technician: I. Garcia 7/24/14

Part No.: See Recv. Insp. Serial No.: See Recv. Insp. Engineer: M. Murphy 7/24/14

EQUIPMENT	MANUFACTURER	MODEL #	RANGE	KELLY #	CALIBRATION		ACCY.
					LAST	DUE	
Digital Indicator - Temperature	Tegam	819	-300° to +700°F	K10250	5/15/2014	11/15/2014	0.1%
Stopwatch	Radio Shack	63-5013	99.99 Min.	K10204	5/14/2014	11/14/2014	0.1 Sec.
Tape Measure	Lufkin	AL725MAG	0 to 25 ft.	K10237	4/16/2014	4/16/2015	Mfg. Spec.

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Kelly Space & Technology, Inc.

DATA SHEET

Test Title Dust (IP6X)

Customer	Pelican Products, Inc.			**Job No.**	10346
Specimen	Case Model 1760			**Date Started**	6/24/2014
Part No.	See Recv. Insp.	**Serial No.**	See Recv. Insp.	**Date Comp.**	6/24/2014
Spec.	IEC 60529 (IP6X)	**Par.**	13.4 & 13.6	**Photo**	Yes	**Amb. Temp.**	70° ± 20°F

Requirements:

Temperature:	15°C to 35°C
Relative Humidity:	25% to 75%
Dust:	Talcum powder
Dust Concentration:	2 Kg per cubic meter test chamber volume
Duration:	8 hours

Test Method:

Place the test specimen in a test chamber. Establish a dust concentration of 2 Kg per cubic meter of test chamber volume. Expose the test specimen to this dust environment for 8 hours.

Remove accumulated dust from the test specimen by brushing, wiping, or shaking, taking care to avoid introducing additional dust into the test item. Do not remove dust by either air blast or vacuum cleaning. Perform a visual examination for evidence of damage or deterioration.

Test Results:

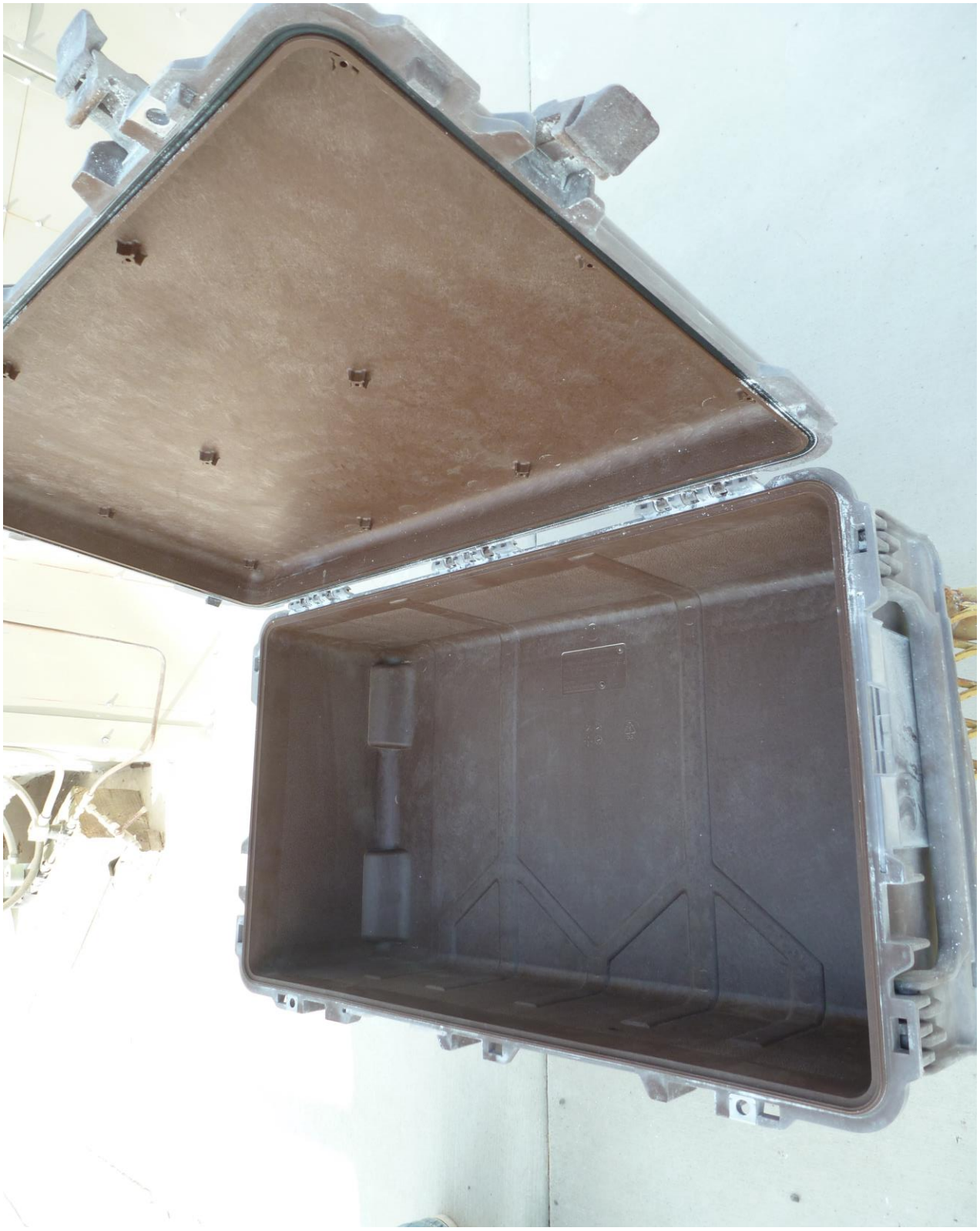
All testing was performed per the Test Method and Requirements stated above. There was no visible evidence of damage or dust penetration to the test specimen upon completion of testing.

Tested By _____ 7/2/14

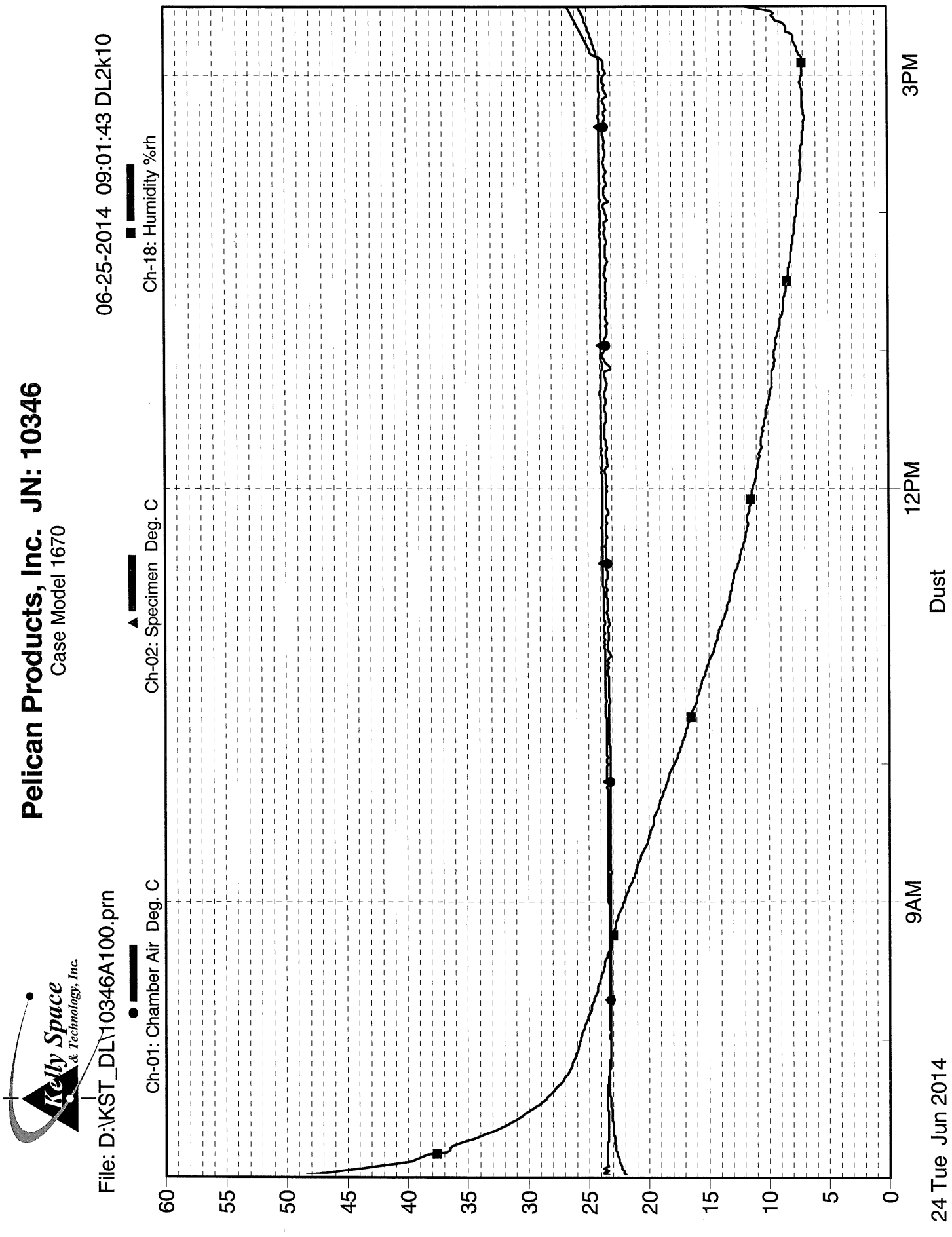
Engineer M Murphy 7-2-14

Photograph 13
Dust IP6X - Setup

Photograph 14
Dust IP6X – Post Test



Photograph 15
Dust IP6X – Post Inspection


Pelican Products, Inc. JN: 10346
Case Model 1670
Kelly Space & Technology, Inc.
06-25-2014 09:01:43 DL2k10
File: D:\KST_DL\10346A100.prn
Ch-01: Chamber Air Deg. C
Ch-02: Specimen Deg. C
Ch-18: Humidity %rh
60
55
50
45
40
35
30
25
20
15
10
5
0
9AM
12PM
3PM
24 Tue Jun 2014
Dust

Kelly Space & Technology, Inc.

TEST TITLE: Dust (IP6X)

CUSTOMER: Pelican Products, Inc. Job No.: 10346 Date: 6/24/2014

Specimen: Case - Model 1670 Technician: I. Garcia 1/2/14

Part No.: See Recv. Insp. Serial No.: See Recv. Insp. Engineer: M. Murphy 7-2-14

EQUIPMENT	MANUFACTURER	MODEL #	RANGE	KELLY #	CALIBRATION		ACCY.
					LAST	DUE	
Chamber - Dust	Wyle	Dust	-60°F to +180°F / 11'x7'x7' / LN2	K10153	* System	Calibration *	Mfg. Spec.
Controller - Chamber	Watlow / Omega	System #8 922 / CN9000	-100°F to 500°F	K10166	* System	Calibration *	Mfg. Spec.
Module - Multiplexer	Keithley	7700	20 Chans. 10 VDC or TC's	K10173	8/23/2013	8/23/2014	±2% / ±2°F
Multimeter/DAS	Keithley	2700	10VDC & Type T TC's	K10172	8/23/2013	8/23/2014	±2% / ±2°F
Scale - Electronic	A&D	FG-60K	0 - 150 lbs	K10183	10/23/2013	10/23/2014	±0.05 lbs
Stopwatch	Radio Shack	63-5013	99.99 Min.	K10204	5/14/2014	11/14/2014	0.1 Sec.
Tape Measure	Lufkin	AL725MAG	0 to 25 ft.	K10237	4/16/2014	4/16/2015	Mfg. Spec.
Transmitter - Humidity	Vaisala	HMT120	0 to 100% RH	K10693	1/21/2014	7/21/2014	±3%RH

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Kelly Space & Technology, Inc.

DATA SHEET

Test Title Water Spray

Customer	Pelican Products, Inc.	**Job No.**	10346
Specimen	Case Model 1760	**Date Started**	6/25/2014
Part No.	See Recv. Insp. **Serial No.** See Recv. Insp.	**Date Comp.**	6/26/2014
Spec.	DEF STAN 81-41 Part3/4 **Par.** 14 & 25 **Photo** Yes	**Amb. Temp.**	70° ± 20°F

Requirements:

Pre-Conditioning:

Temperature:	25 ± 10°C
Humidity:	60 ± 15%
Duration:	16 hours or until specimen has reached temperature stabilization (whichever is the shortest period)

Water Spray Test:

Water Temp:	20 ± 5°C
Water Rate:	380 ± 20 liters/m^2 per hr (15.0 ±0.8 in/hr) per nozzle
Water Pressure:	250 kN/m^2 (36.3 psi)
Duration:	1.5 hr ± 5 min

Test Method:

Before testing condition the test item at 25 ±10°C and 60 ±15% relative humidity for 16 hours or until the specimen has reached temperature stabilization (test specimen temperature within tolerance of chamber temperature).

Place the test specimen on the test surface in its normal transport/storage orientation. The test surface shall be a flat, horizontal, porous surface elevated above the draining surface to prevent contact of the bottom of the test package with ground water. Direct a spray nozzle at an angle of 45 ± 5 degrees to each of the four top corners of the test package such that the nozzles are facing the corners (see Figure 1 on the following page). Angle the center line of the nozzles downward at 45 ± 5 degrees to the horizontal. The distance between the plane of the package top surface and the nozzle shall be 2.5 ± 0.05 meters. The temperature of the water spray shall be 20 ± 5 °C.

The package shall be sprayed uniformly with water at a rate of 380 ±20 liters per m^2 per hour per nozzle (15.0 ±0.8 inches per hour per nozzle) at a water pressure of not less than 250 kN/m^2 (36.3 psi). The duration of the test shall be 1.5 hours ±5 minutes.

Upon completion of the exposure, the package shall stand at standard laboratory conditions for at least 16 hours. Perform a visual examination. Any penetration of water into the test packaging causing deterioration of its contents, malfunctioning of the fittings or hardware shall constitute failure of the package.

(continued)

Tested By _____ 7/1/14

Engineer M Murphy 7-2-14

Kelly Space & Technology, Inc.

DATA SHEET

Test Title	Water Spray	**Date**	6/25/2014
Customer	Pelcian Products, Inc.	**Job No.**	10346
Specimen	Case Model 1760	**Technician**	I. Garcia
Part No.	See Recv. Insp.	**Serial No.**	See Recv. Insp.
		Engineer	M. Murphy

(continued)

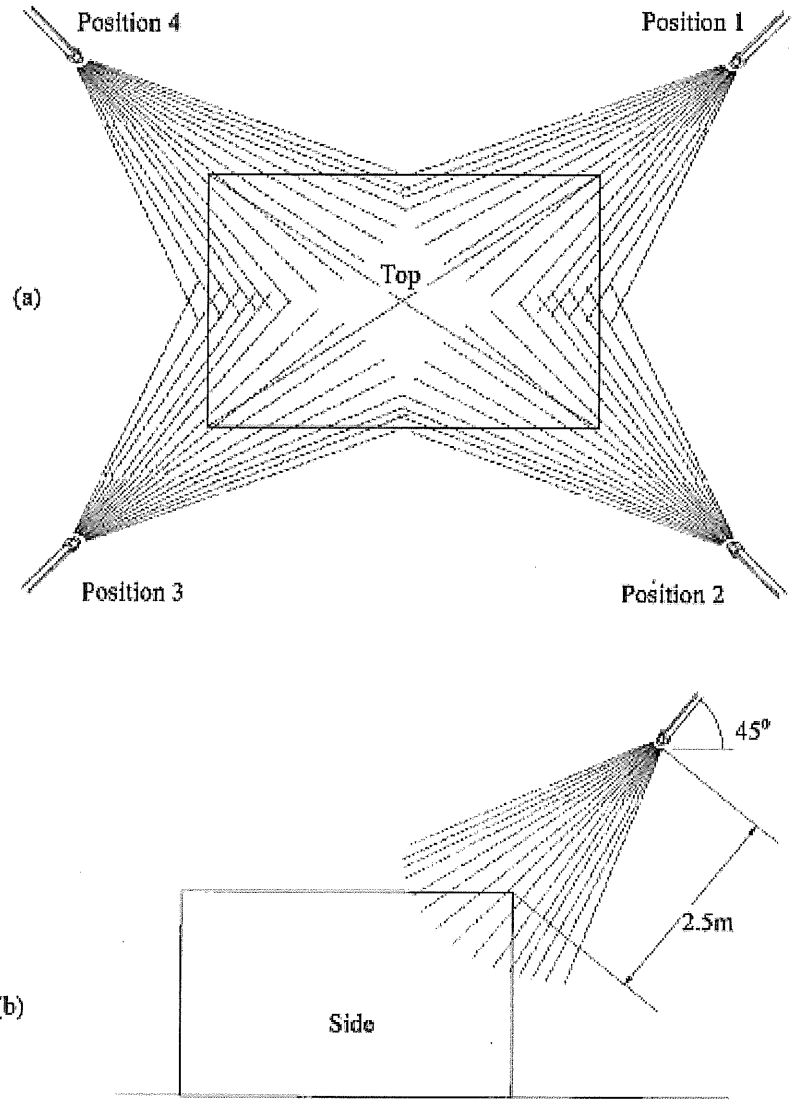


Figure 1 – Rain Test Setup

(continued)

Kelly Space & Technology, Inc.

DATA SHEET

Test Title Water Spray **Date** 6/26/2014

Customer Pelcian Products, Inc. **Job No.** 10346

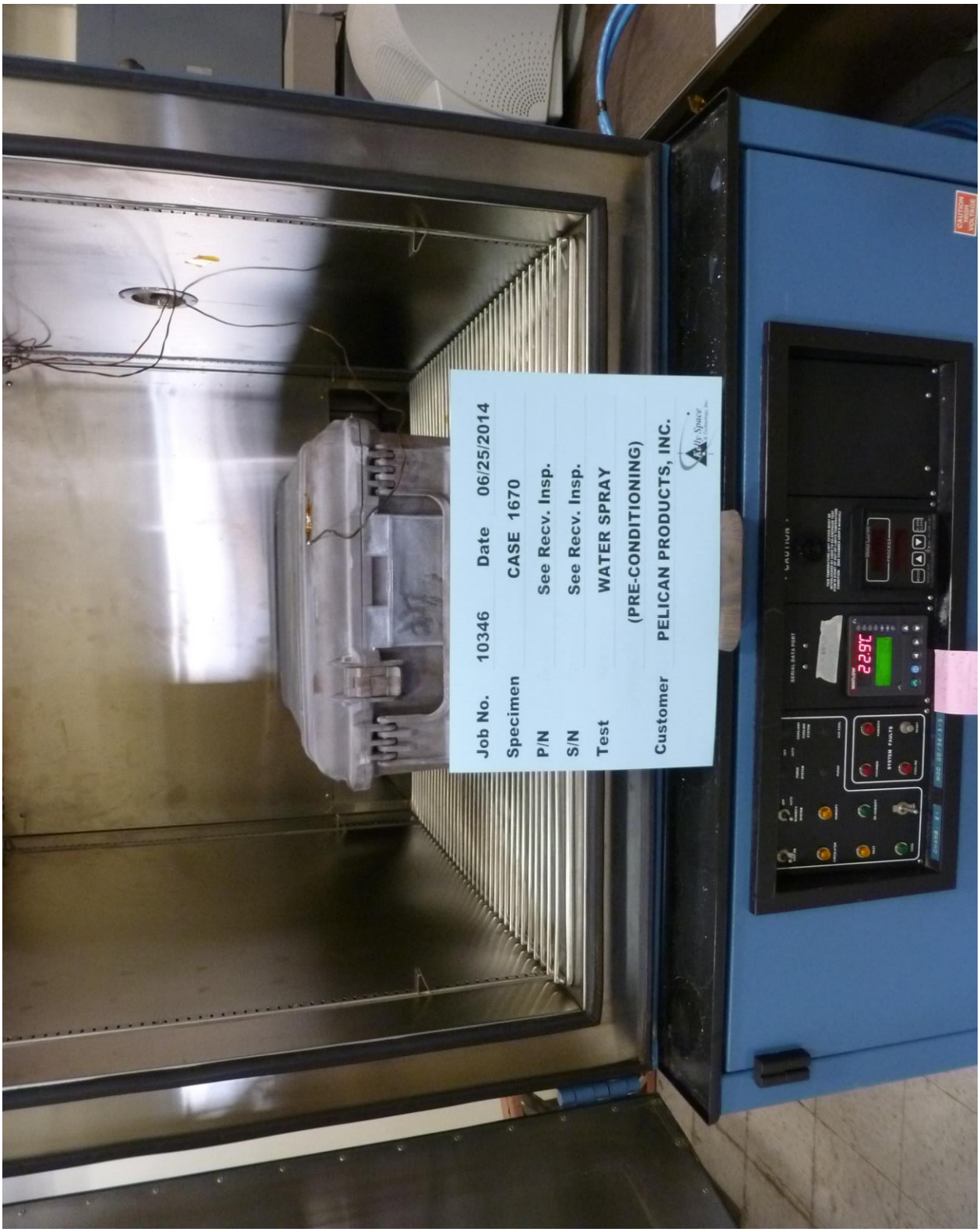
Specimen Case Model 1760 **Technician** I. Garcia

Part No. See Recv. Insp. **Serial No.** See Recv. Insp. **Engineer** M. Murphy

(continued)

Test Results:

All testing was performed per the Test Method and Requirements stated above. Upon completion of the Water Spray Test the test specimen was opened for inspection. No visible evidence of damage or water penetration was observed.



Photograph 16
Water Spray – Pre Condition

Photograph 17
Water Spray

Photograph 18
Water Spray

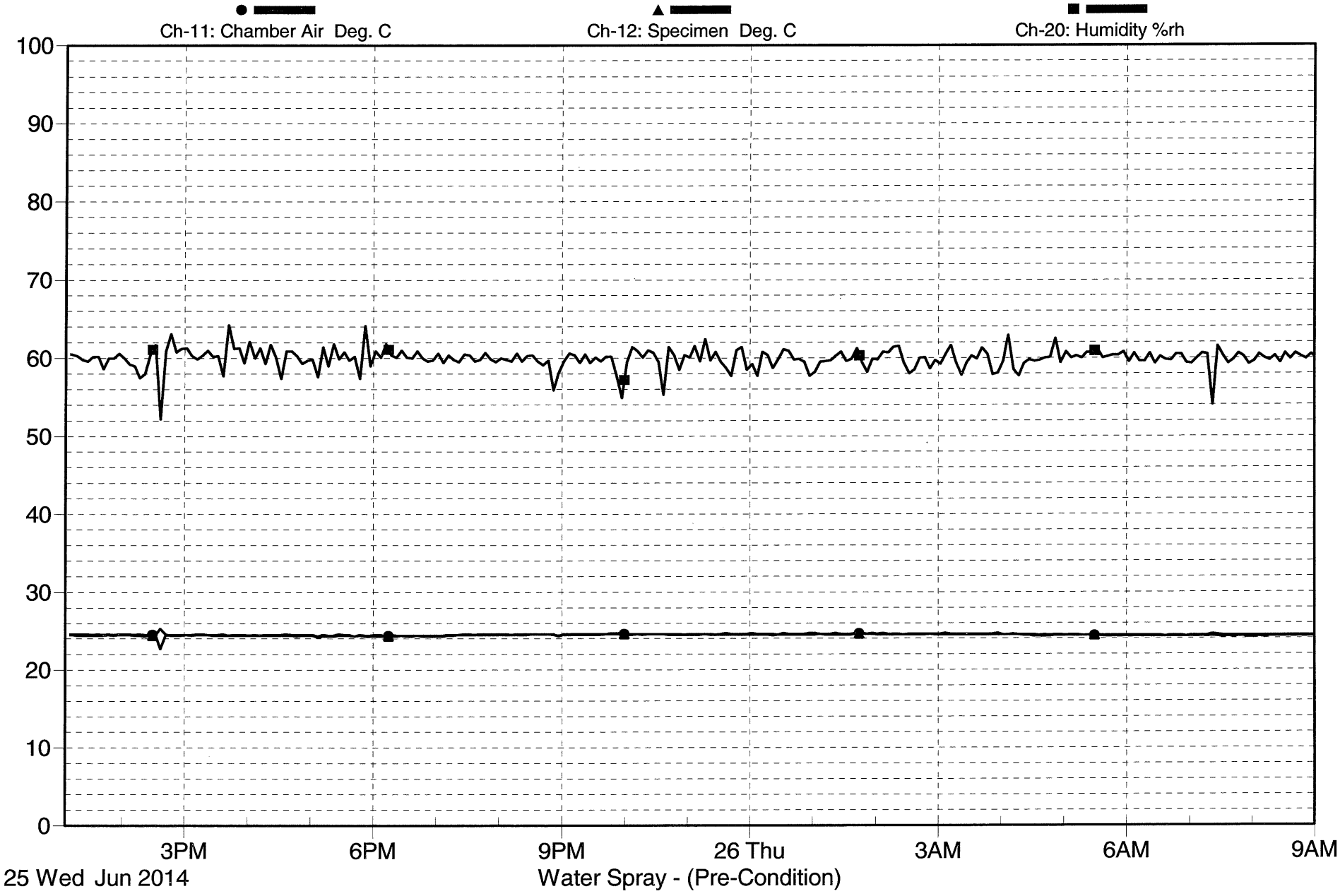
Photograph 19
Water Spray – Post Inspection

Pelican Products, Inc. JN: 10346

Case Model 1670

Files: D:\KST_DL\10346B100.prn - 10346B101.prn

06-26-2014 09:26:51 DL2k10



Test Report 10346-1 Rev. 1

Kelly Space & Technology, Inc.

TEST TITLE: Water Spray

CUSTOMER: Pelican Products, Inc. Job No.: 10346 Date: 6/25/2014

Specimen: Case - Model 1670 Technician: I. Garcia 6/25/14

Part No.: See Recv. Insp. Serial No.: See Recv. Insp. Engineer: M. Murphy 7-2-14

EQUIPMENT	MANUFACTURER	MODEL #	RANGE	KELLY #	CALIBRATION		ACCY.
					LAST	DUE	
Chamber - Environmental	Russels	Chamber C GD-32-3-3	-65ºF to +300ºF & Rh / 3'x3'x3' / Refrig.	K10157	* System	Calibration *	Mfg. Spec.
Gauge - Pressure	Ashcroft	1279	0 to 60 PSIG	K10451	1/14/2014 Date of First Use Item	7/14/2014	2.0%
Gauge - Rain	Cole Parmer	03319-00	0.01" to 11.0"	K10588	* System	Calibration *	±0.1"
Humidity Module	Vaisala	HMM100	0 to 100% RH	K10695	1/24/2014	7/24/2014	±3%RH
Module - Multiplexer	Keithley	7700	20 Chans. 10 VDC or TC's	K10173	8/23/2013	8/23/2014	±2% / ±2ºF
Multimeter/DAS	Keithley	2700	10VDC & Type T TC's	K10172	8/23/2013	8/23/2014	±2% / ±2ºF
Scale - Electronic	A&D	FG-60K	0 - 150 lbs	K10183	10/23/2013	10/23/2014	±0.05 lbs
Stopwatch	Radio Shack	63-5013	99.99 Min.	K10204	5/14/2014	11/14/2014	0.1 Sec.
Tape Measure	Lufkin	AL725MAG	0 to 25 ft.	K10237	4/16/2014	4/16/2015	Mfg. Spec.

Where applicable, the listed test equipment has been calibrated using standards which are traceable to the National Institute of Science & Technology. Certificates and reports of all calibrations are retained in the Kelly Space & technology, Inc. QA files and are available for inspection upon request. *Equipment identified as System Calibration are verified prior to use.

Kelly Space & Technology, Inc.

DATA SHEET

Test Title Damp Heat

Customer Pelican Products, Inc. **Job No.** 10346

Specimen Case Model 1760 **Date Started** 6/27/2014

Part No. See Recv. Insp. **Serial No.** See Recv. Insp. **Date Comp.** 7/1/2014

Spec. DEF STAN 81-41 Part3/4 **Par.** 14 & 16 **Photo** Yes **Amb. Temp.** 70° ± 20°F

Requirements:

Pre-Conditioning:

Temperature:	25 ± 10 °C
Humidity:	60 ± 15%
Duration:	16 hours or until specimen has reached temperature stabilization (whichever is the shortest period)

Damp Heat Test:

Temperature:	25 to 40 ± 2 °C
Humidity:	91 to 100%
Cycle:	24 hours (see below)
No. of Cycles:	4

Test Method:

Place the test specimen in a test chamber on the face on which it normally is expected to be transported or stored. Install a thermocouple on the test specimen. Maintain the chamber at 25 ± 10 °C and 60 ± 15% relative humidity for 16 hours or until the specimen has reached temperature stabilization (test specimen temperature within tolerance of chamber temperature).

After the test item has stabilized at ambient conditions, adjust the chamber to 25°C and not less than 95% relative humidity. Maintain these conditions for one hour. Then, start the temperature and humidity cycle shown in Table 1 below. Complete four 24-hour cycles.

Return the chamber temperature to ambient conditions at a rate not to exceed 3 °C per minute. Perform a visual examination. The package is considered to have failed if it is unserviceable or is affected in any way which would potentially cause the test specimen to become unserviceable.

Table 1 – Temperature and Humidity Cycle

Temperature (tolerance ± 2°C)	Humidity (RH) (tolerance as stated)	Duration (tolerance ± 5%)
Raised from 25°C to 40°C at a uniform rate	Not less than 90%	3 hours
40°C	91 ± 5%	9 hours
Reduced to 25°C	Not less than 90%	3 hours
25°C	Not less than 95%	9 hours

(continued)

Tested By 7/2/14

Engineer 7-2-14

Kelly Space & Technology, Inc.

DATA SHEET

Test Title Damp Heat **Date** 7/1/2014

Customer Pelcian Products, Inc. **Job No.** 10346

Specimen Case Model 1760 **Technician** T. Valfre 7-2-14

Part No. See Recv. Insp. **Serial No.** See Recv. Insp. **Engineer** M. Murphy 7-2-14

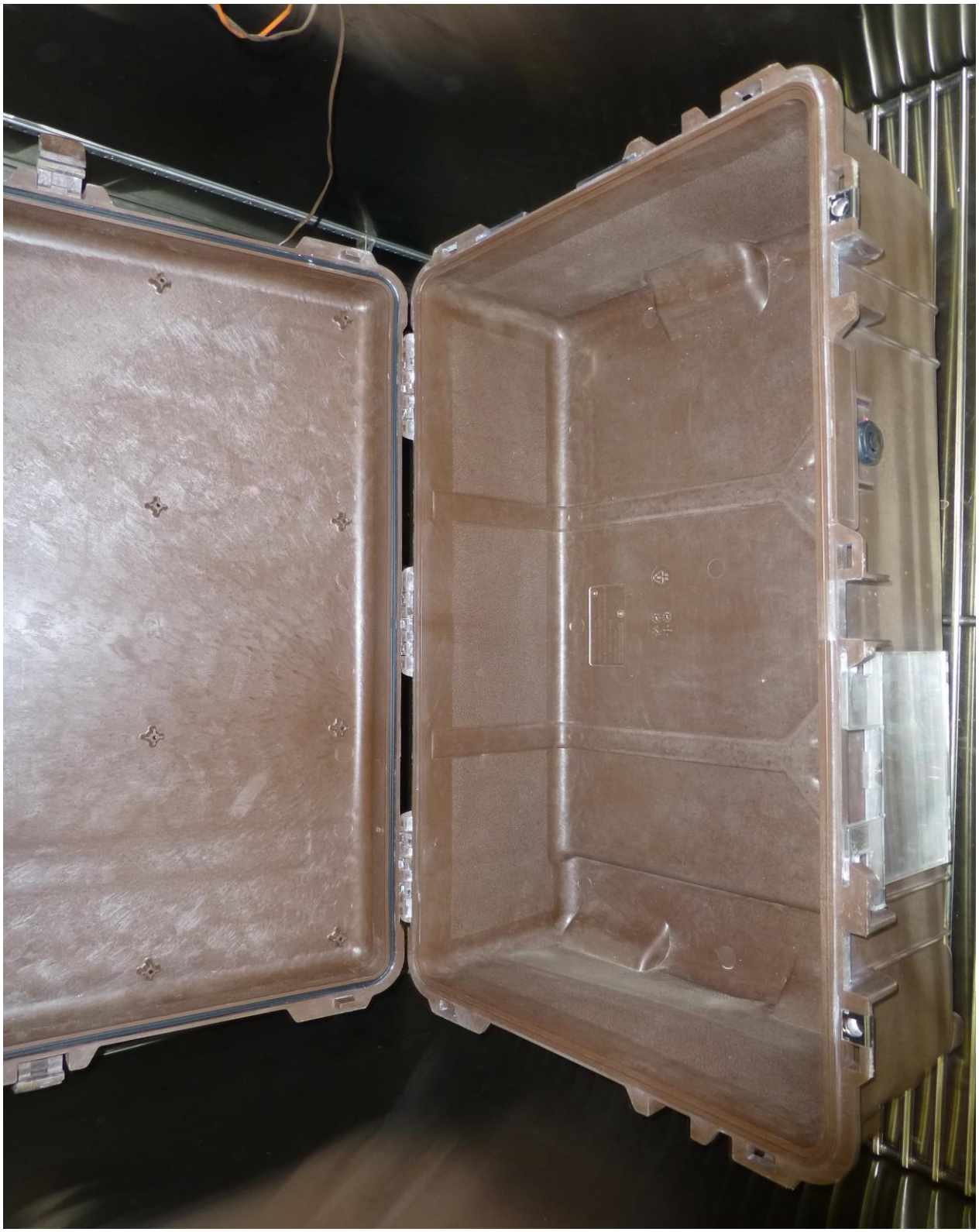
(continued)

Test Results:

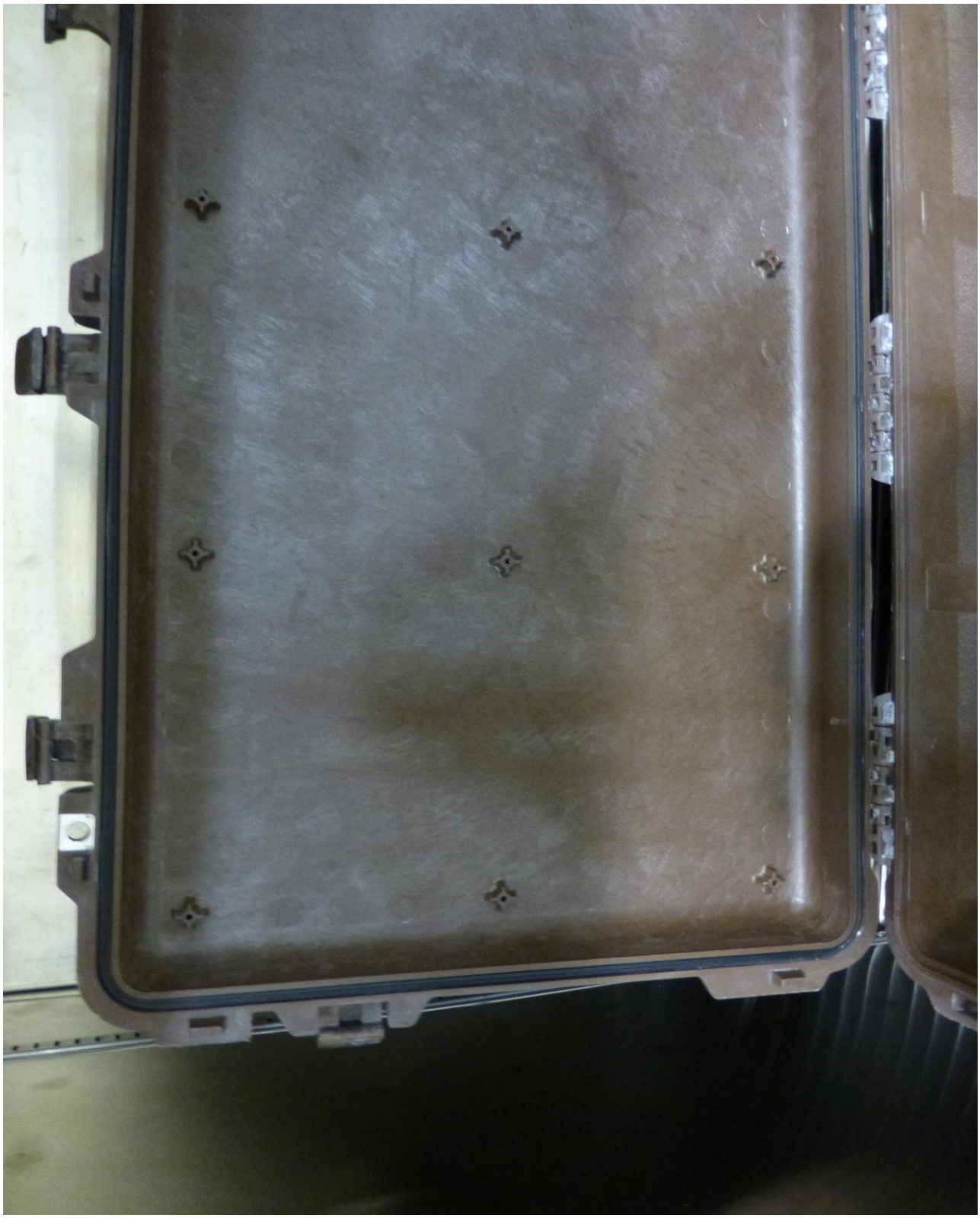
All testing was performed per the Test Method and Requirements stated on the previous page. No visual evidence of damage to the case was observed upon completion of testing. The case opened and closed normally.

Photograph 20
Damp Heat - Setup

Photograph 21
Damp Heat – Post Test



Photograph 22
Damp Heat – Post Test



Photograph 23
Damp Heat – Post Test

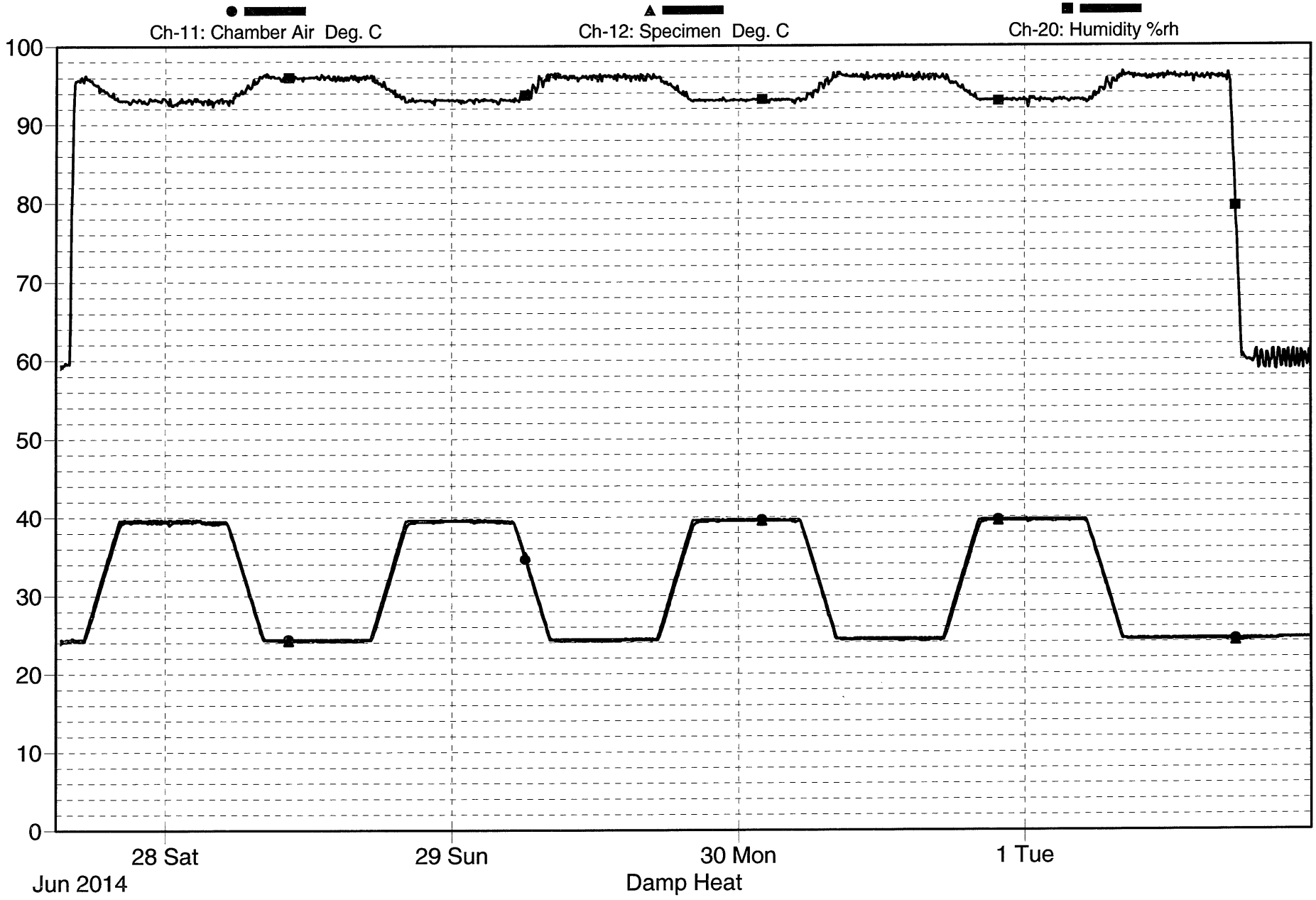
Photograph 24
Damp Heat – Post Test

Pelican Products Inc JN: 10346

Case Model 1670

Files: D:\KST_DL\10346B102.prn - 10346B107.prn

07-02-2014 05:15:13 DL2k10



Test Report 10346-1 Rev. 1

Kelly Space & Technology, Inc.

TEST TITLE: Damp Heat

CUSTOMER: Pelican Products, Inc. Job No.: 10346 Date: 6/27/2014

Specimen: Case - Model 1670 Technician: I. Garcia 7/3/14

Part No.: See Recv. Insp. Serial No.: See Recv. Insp. Engineer: M. Murphy 7-2-14

EQUIPMENT	MANUFACTURER	MODEL #	RANGE	KELLY #	CALIBRATION		ACCY.
					LAST	DUE	
Chamber - Environmental	Russels	Chamber C GD-32-3-3	-65°F to +300°F & Rh / 3'x3'x3' / Refrig.	K10157	* System	Calibration *	Mfg. Spec.
Humidity Module	Vaisala	HMM100	0 to 100% RH	K10695	1/24/2014	7/24/2014	±3%RH
Module - Multiplexer	Keithley	7700	20 Chans. 10 VDC or TC's	K10173	8/23/2013	8/23/2014	±2% / ±2°F
Multimeter/DAS	Keithley	2700	10VDC & Type T TC's	K10172	8/23/2013	8/23/2014	±2% / ±2°F

Where applicable, the listed test equipment has been calibrated using standards which are traceable to the National Institute of Science & Technology. Certificates and reports of all calibrations are retained in the Kelly Space & technology, Inc. QA files and are available for inspection upon request. *Equipment identified as System Calibration are verified prior to use.

Kelly Space & Technology, Inc.

DATA SHEET

Test Title Low Temperature

Customer	Pelican Products, Inc.			**Job No.**	10346
Specimen	Case Model 1760			**Date Started**	7/2/2014
Part No.	See Recv. Insp.	**Serial No.**	See Recv. Insp.	**Date Comp.**	7/2/2014
Spec.	DEF STAN 81-41 Part3/4	**Par.**	21	**Photo** Yes	**Amb. Temp.** 70° ± 20°F

Requirements:

Temperature:	-51± 2 °C
Duration:	16 ± 0.5 hours after specimen has reached test temperature or 7 days ± 1 hour if time required for the complete package to attain the temperature cannot be assessed

Test Method:

Place the test specimen in a test chamber on the face on which it normally is expected to be transported or stored. Install a thermocouple on the test specimen. Decrease the chamber temperature to -51± 2 °C at a rate not to exceed 3 °C per minute. Maintain the chamber at -51± 2 °C for either:

1) 16±0.5 hours after specimen has reached test temperature or
2) 7 days ± 1 hour if time required for the complete package to attain the temperature cannot be assessed.

Return the chamber temperature to ambient conditions at a rate not to exceed 3 °C per minute.

Perform a visual examination. The package is considered to have failed if it is unserviceable or is affected in any way which would potentially cause the test specimen to become unserviceable.

Test Results:

All testing was performed per the Test Method and Requirements stated on the previous page. No visual evidence of damage to the case was observed upon completion of testing. The case opened and closed normally.

Tested By 7/3/14

Engineer 7-4-14

Photograph 25
Low Temperature - Setup

Photograph 27
Low Temperature – Post Test

Photograph 27
Low Temperature – Post Test

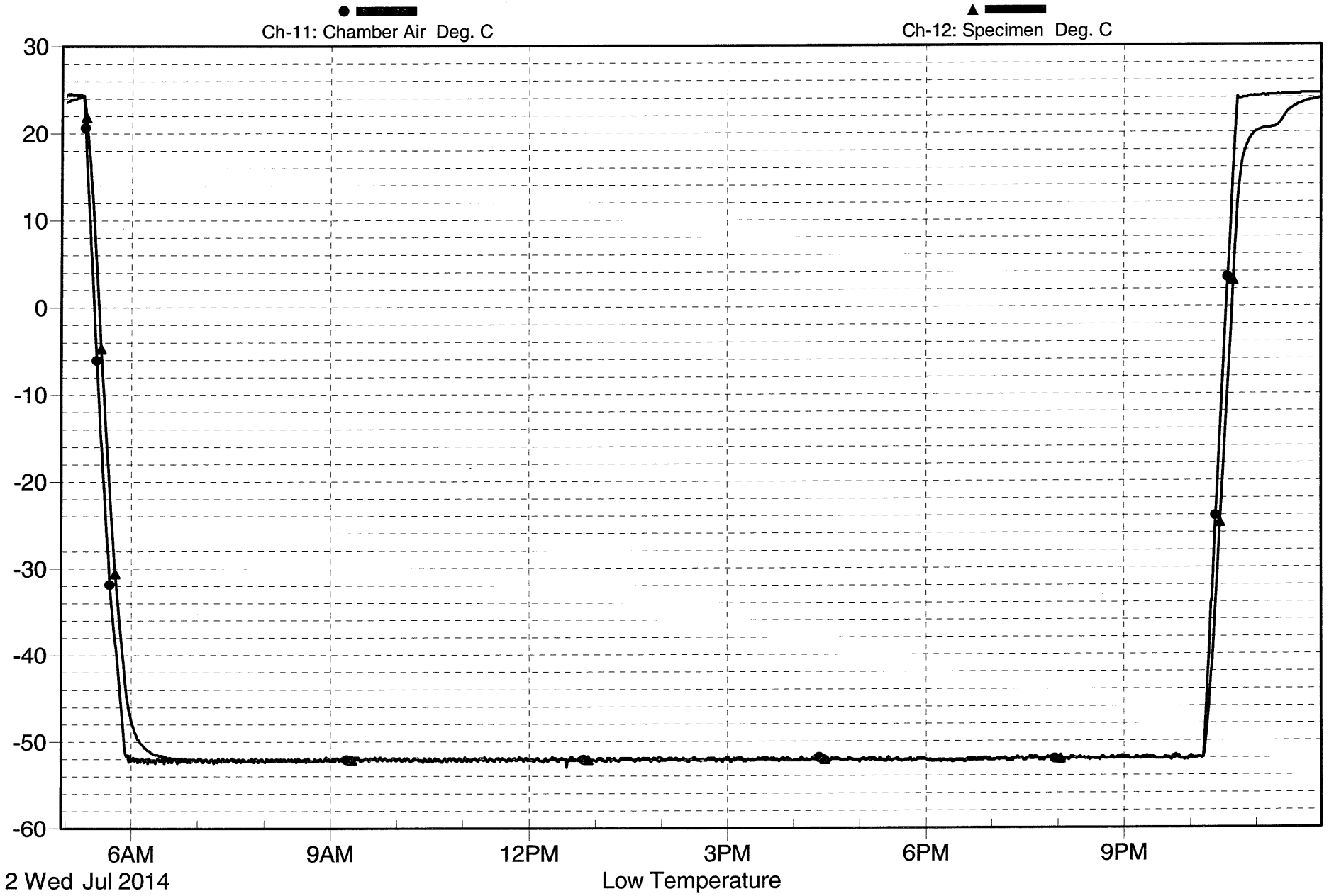
Photograph 28
Low Temperature – Post Test

Pelican Products Inc JN: 10346

Case Model 1670

Files: D:\KST_DL\10346B108.prn - 10346B107.prn

07-03-2014 05:25:03 DL2k10



Kelly Space & Technology, Inc.

TEST TITLE: Low Temperature

CUSTOMER: Pelican Products, Inc. Job No.: 10346 Date: 7/2/2014

Specimen: Case - Model 1670 Technician: T. Valfre TV 7/3/14

Part No.: See Recv. Insp. Serial No.: See Recv. Insp. Engineer: M. Murphy MM 7-3-14

EQUIPMENT	MANUFACTURER	MODEL #	RANGE	KELLY #	CALIBRATION		ACCY.
					LAST	DUE	
Chamber - Environmental	Russels	Chamber C GD-32-3-3	-65ºF to +300ºF & Rh / 3'x3'x3' / Refrig.	K10157	* System	Calibration *	Mfg. Spec.
Humidity Module	Vaisala	HMM100	0 to 100% RH	K10695	1/24/2014	7/24/2014	±3%RH
Module - Multiplexer	Keithley	7700	20 Chans. 10 VDC or TC's	K10173	8/23/2013	8/23/2014	±2% / ±2ºF
Multimeter/DAS	Keithley	2700	10VDC & Type T TC's	K10172	8/23/2013	8/23/2014	±2% / ±2ºF

Where applicable, the listed test equipment has been calibrated using standards which are traceable to the National Institute of Science & Technology. Certificates and reports of all calibrations are retained in the Kelly Space & technology, Inc. QA files and are available for inspection upon request. *Equipment identified as System Calibration are verified prior to use.

Kelly Space & Technology, Inc.

DATA SHEET

Test Title Dry Heat

Customer Pelican Products, Inc. **Job No.** 10346

Specimen Case Model 1760 **Date Started** 7/3/2014

Part No. See Recv. Insp. **Serial No.** See Recv. Insp. **Date Comp.** 7/5/2014

Spec. DEF STAN 81-41 Part3/4 **Par.** 14 & 17 **Photo** Yes **Amb. Temp.** 70° ± 20°F

Requirements:

Pre-Conditioning:

Temperature:	25 ± 10 °C
Humidity:	60 ± 15%
Duration:	16 hours or until specimen has reached temperature stabilization (whichever is the shortest period)

Dry Heat Test:

Temperature:	71 ± 2 °C
Humidity:	Not to exceed 75%
Duration:	48 ±1 hours

Test Method:

Place the test specimen in a test chamber on the face on which it normally is expected to be transported or stored. Install a thermocouple on the test specimen. Maintain the chamber at 25 ± 10 °C and 60 ± 15% relative humidity for 16 hours or until the specimen has reached temperature stabilization (test specimen temperature within tolerance of chamber temperature).

Increase the chamber temperature to 71 ± 2 °C at a rate not to exceed 3 °C per minute. Humidity is not to exceed 75%. Maintain the chamber at these conditions for 48 ± 1 hours.

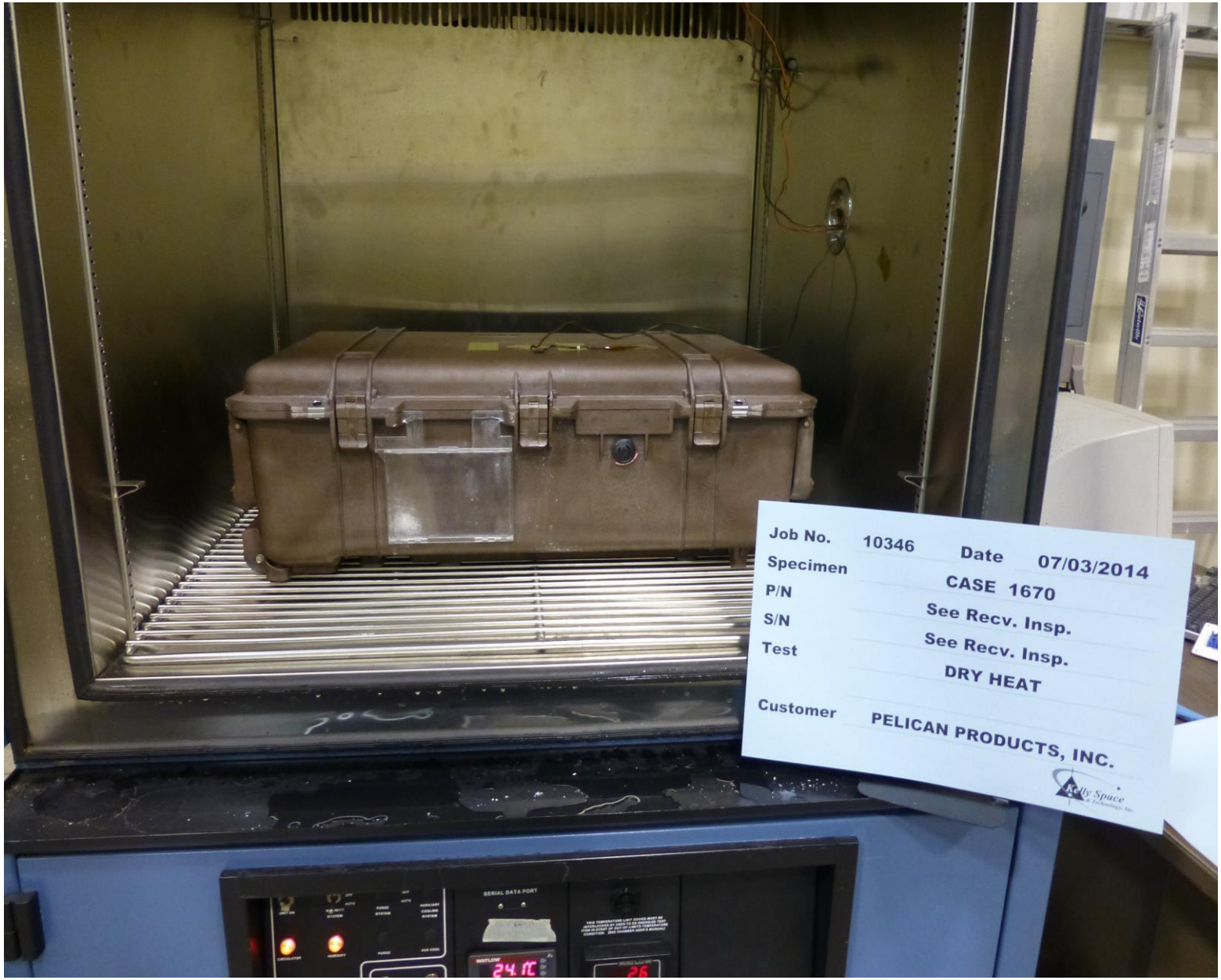
Return the chamber temperature to ambient conditions at a rate not to exceed 3 °C per minute. Perform a visual examination. The package is considered to have failed if it is unserviceable or is affected in any way which would potentially cause the test specimen to become unserviceable.

Test Results:

All testing was performed per the Test Method and Requirements stated on the previous page. No visual evidence of damage to the case was observed upon completion of testing. The case opened and closed normally.

Tested By _____ 7/8/14

Engineer _____ 7-8-14



Photograph 29
Dry Heat - Setup

Photograph 30
Dry Heat – Post Test

Photograph 31
Dry Heat – Post Test

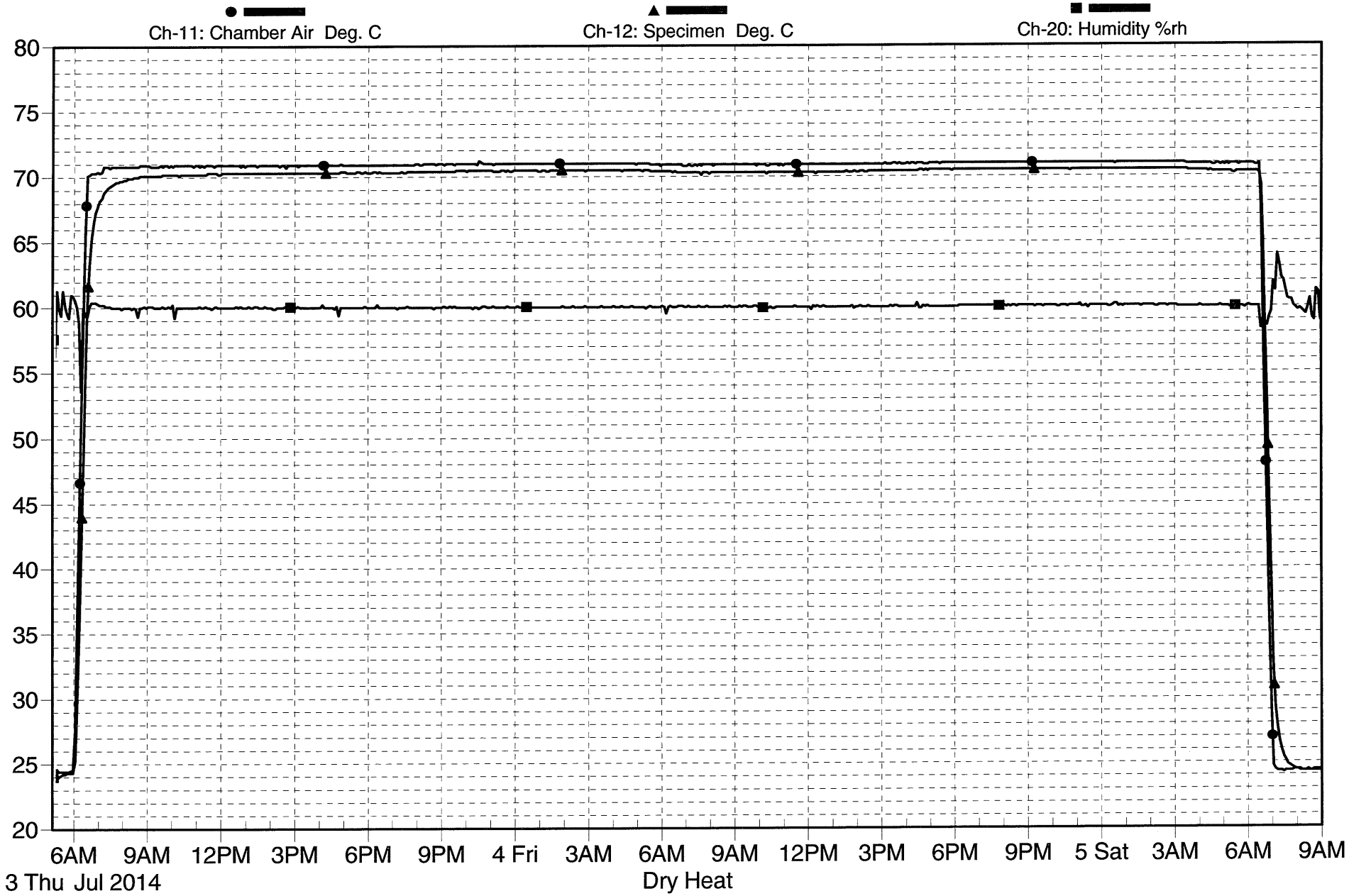
Photograph 32
Dry Heat – Post Test

Pelican Products Inc JN: 10346

Case Model 1670

Files: D:\KST_DL\10346B110.prn - 10346B112.prn

07-08-2014 09:51:09 DL2k10



Kelly Space & Technology, Inc.

TEST TITLE: Dry Heat

CUSTOMER: Pelican Products, Inc. Job No.: 10346 Date: 7/3/2014

Specimen: Case - Model 1670 Technician: T. Valfre TV 7/8/14

Part No.: See Recv. Insp. Serial No.: See Recv. Insp. Engineer: M. Murphy MM 7-8-14

EQUIPMENT	MANUFACTURER	MODEL #	RANGE	KELLY #	CALIBRATION		ACCY.
					LAST	DUE	
Chamber - Environmental	Russels	Chamber C GD-32-3-3	-65°F to +300°F & Rh / 3'x3'x3' / Refrig.	K10157	* System	Calibration *	Mfg. Spec.
Humidity Module	Vaisala	HMM100	0 to 100% RH	K10695	1/24/2014	7/24/2014	±3%RH
Module - Multiplexer	Keithley	7700	20 Chans. 10 VDC or TC's	K10173	8/23/2013	8/23/2014	±2% / ±2°F
Multimeter/DAS	Keithley	2700	10VDC & Type T TC's	K10172	8/23/2013	8/23/2014	±2% / ±2°F

Where applicable, the listed test equipment has been calibrated using standards which are traceable to the National Institute of Science & Technology. Certificates and reports of all calibrations are retained in the Kelly Space & technology, Inc. QA files and are available for inspection upon request. *Equipment identified as System Calibration are verified prior to use.

Kelly Space & Technology, Inc.

DATA SHEET

Test Title Impact

Customer	Pelican Products, Inc.			**Job No.**	10346
Specimen	Case Model 1760 with Dead Weight			**Date Started**	7/11/2014
Part No.	See Recv. Insp.	**Serial No.**	7	**Date Comp.**	7/11/2014
Spec.	MIL-C-4150J	**Par.**	4.6.3.5.2.3	**Photo**	Yes
Amb. Temp.	70° ± 20°F				

Requirements:

No. of Specimens:	1
Temperature:	Ambient
Relative Humidity:	Ambient
Sides:	4 (2 sides, 2 ends)
Impacts:	4

Test Method:

For this test, use a test apparatus consisting of a platform suspended from a height at least 16 feet above the floor, and a bumper made of flat, rigid concrete or an equally unyielding flat barrier. The platform must be suspended by four or more ropes so that the platform remains horizontal when pulled back. The platform shall be large enough to support the entire container and when hanging free shall have its top surface approximately 9 inches above the floor and its leading edge at least 3 inches from the surface of the bumper. The bumper shall be 18 inches high, wide enough to make full contact with the container, and shall have sufficient mass to resist the impacts without displacement. The impact surface shall be oriented perpendicular to the line of the swing of the platform.

Install a 22 pound dead weight supplied by the customer to the lid of the case using the twelve screws provided. Before testing, record the weight and dimensions of the test item. Condition the test item at ambient temperature until it has reached a stable temperature before starting the impacts.

Install the test item on the test apparatus. The test item shall be loaded with the actual contents for which it is designed, or with a dummy load. The specimen shall be placed on the platform with the surface which is to be impacted projecting beyond the front end of the platform so that the specimen just touches the vertical surface of the bumper when the platform is hanging freely. Photograph the test setup.

Perform the test by pulling the platform back so that the center of gravity of the pack is raised by 9 inches, resulting in an impact velocity of 7 feet per second. Release the test item and allow it to swing freely so the container impacts against the bumper. Perform the impact test on each side and each end that has a horizontal dimension of less than 9.5 ft. Photograph all results.

(continued)

Tested By

Engineer 7/11/14

Kelly Space & Technology, Inc.

DATA SHEET

Test Title	Impact	**Date**	7/11/2014
Customer	Pelcian Products, Inc.	**Job No.**	10346
Specimen	Case Model 1760 with Dead Weight	**Technician**	I. Garcia IG 7-14-14
Part No.	See Recv. Insp. **Serial No.** See Recv. Insp.	**Engineer**	M. Murphy MM 7/14/14

(continued)

Upon completion of the testing, perform a visual inspection including photographs and make note of any changes or breaks in the container. Inspect the packing and the contents and make note of their conditions.

Test Results:

All testing was performed per the Test Method and Requirements stated above. The test specimen weight was 44.9 pounds and was loaded with 70 pound of dummy weight (sand bags) prior to testing. Other than some minor scratches caused by the impact on the concrete mass there was no evidence of damage or deformation of the intrinsic attachment points. No dislodgment of the attachment screws holding the dead weight mass. The case opened and closed normally.

Photograph 33
Impact with Mass – Set up

Photograph 34
Impact with Mass – Set up

Photograph 35
Impact with Mass

Photograph 36
Impact with Mass – Post Impact

Photograph 37
Impact with Mass – Post Inspection

Photograph 38
Impact with Mass – Post Inspection -Typical

Kelly Space & Technology, Inc.

TEST TITLE: Impact

CUSTOMER: Pelican Products, Inc. Job No.: 10346 Date: 7/11/2014

Specimen: Case - Model 1760 with Dead Weight Technician: I. Garcia IG 7/11/14

Part No.: See Recv. Insp. Serial No.: See Recv. Insp. Engineer: M. Murphy TM 7/04/14

EQUIPMENT	MANUFACTURER	MODEL #	RANGE	KELLY #	CALIBRATION		ACCY.
					LAST	DUE	
Scale - Electronic	A&D	FG-60K	0 - 150 lbs	K10183	10/23/2013	10/23/2014	±0.05 lbs
Tape Measure	Lufkin	AL725MAG	0 to 25 ft.	K10237	4/16/2014	4/16/2015	Mfg. Spec.

Where applicable, the listed test equipment has been calibrated using standards which are traceable to the National Institute of Science & Technology. Certificates and reports of all calibrations are retained in the Kelly Space & technology, Inc. QA files and are available for inspection upon request. *Equipment identified as System Calibration are verified prior to use.