

**Document Description** 

Qualification Test Report for SeaKing GRE Insert Open Face Pressure Rating

Document #: GT-23-119

Revision: A

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## **GT-23-119**

## Qualification Test Report for SeaKing GRE Insert Open Face Pressure Rating

Tested Connector Series: 700-027

## **Test Report**

QTP-1246 Pressure Testing at Temperature 22222R2BMV1 Version 1 6/9/2023

Nicholas Rihn

Prepared By: Technical Writer

Brian Morales

Reviewed By: Test Engineer 6/9/2023

Date

Kane Liang

Approved By: Quality Manager 6/9/2023

Date



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## **Version History**

Version	Date	Comments	Prepared By	Reviewed By	Approved By
1	6/9/2023	Initial release	Nicholas Rihn	Brian Morales	Kane Liang

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Job Name	QTP-1246 Pressure Testing at Temperature
Job No.	22222
Client	Glenair
Address	1211 Air Way, Glendale, CA 91201
Contact Name	Jana Haney
Telephone No.	(818) 247-6000
Email	jhaney@glenair.com
<b>Controlling Document</b>	QTP-1246 Rev. B

Test Name	Serial No.	Start Date	End Date	Pass	Fail	Record
Hydrostatic Pressure Cycles at Ambient Temperature, Pressure Cycles at Maximum Operating Temperature, and Pressure Cycles at Minimum Operating Temperature	All Test Samples	4/6/2023	5/20/2023	X	-	-

#### **Summary of Testing**

Thirty SeaKing Bulkhead Connector receptacles (BCR) with a GRE Insert were exposed to hydrostatic pressure cycles at ambient temperature (7,500 psi), pressure cycles at maximum operating temperature (5,500 psi), and pressure cycles at minimum operating temperature (5,500 psi) in accordance with QTP-1246 Rev. B. Four identical runs were completed with unique samples. All test samples met the acceptance criteria of 1.) No failure during the pressure hold, and 2.) No significant drop in pressure. After testing, the inserts were removed from the shell, submerged in isopropyl alcohol, cleaned with a plastic brush, and dried with nitrogen. The samples were visually inspected to assess the impact of testing. Refer to Test Sample Conditions or Test Results for notes on individual samples.

A deviation occurred during pressure cycles at maximum operating temperature for Group 1. At step 14, the vessel failed to ramp down to 0 psi, and remained pressurized at 5,500 psi. The deviation was resolved by performing the remining six cycles with a 5 min dwell at 5,500 psi before moving to the pressure cycles at minimum operating temperature.

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#### **Test Deviations**

Deviation No.	Test Name	Description
22222DV2BMV1	Pressure Cycles at Maximum Operating Temperature	On step 14 the pressure vessel failed to ramp to down to 0 psi and remained at 5,500 psi for the remainder of the test profile ( $\approx 1.5$ hr). The deviation was resolved by performing an additional test consisting of pressure cycles to 5,500 psi with a 5 min dwell. Refer to Deviation Form located in the Appendix for further information.

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Date Received 3/27/2023

Part Name	Part No.	Test Group	Serial No.
			E4-1
	700-027-E4-Z1PN	3	E4-2
			E4-3
			G10-1
	700-027-G10-Z1PN	1	G10-2
			G10-3
		1	G8-1
	700-027-G8-Z1PN	1	G8-2
		3	G8-3
			K14-1
	700-027-K14-Z1PN	3	K14-2
			K14-3
	700-027-K19-Z1PN	1	K19-1
		1	K19-2
SeaKing Bulkhead Connector Receptacle		3	K19-3
(BCR), with GRE Insert		3	L9-1
	700-027-L9-Z1PN	3	L9-2
		4	L9-3
			M37-1
	700-027-M37-Z1PN	1	M37-2
			M37-3
			O61-1
	700-027-O61-Z1PN	2	O61-2
			O61-3
			P4-1
	700-027-P4-Z1PN	2	P4-2
			P4-3
		2	Q109-1
	700-027-Q109-Z1PN	2	Q109-2
		4	Q109-3

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## **Test Sequence**

Test Name	Group 1	Group 2	Group 3	Group 4
Hydrostatic Pressure Cycles at Ambient Temperature, Pressure Cycles at Maximum Operating Temperature, and Pressure Cycles at Minimum Operating Temperature	G8-1, G8-2, G10-1, G10-2, G10-3, K19-1, K19-2, M37-1, M37-2, M37-3	O61-1, O61-2, O61-3, P4-1, P4-2, P4-3, Q109-1, Q109-2	E4-1, E4-2, E4-3, G8-3, K14-1, K14-2, K14-3, K19-3, L9-1, L9-2	Q109-3, L9-3

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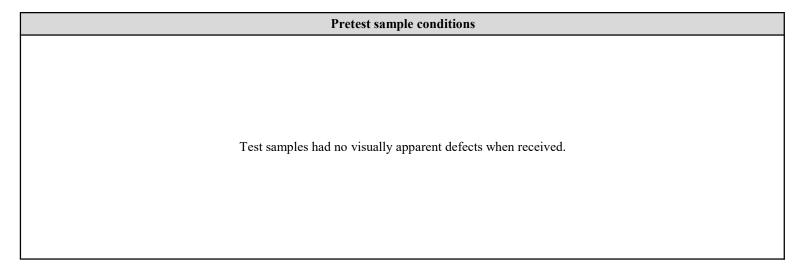


## **Test Equipment List**

ID No.	Equipment Name	Manufacturer	Model No.	Cal. Date	Cal. Due
WT012	F4T DIN CONTROLLER BOX	WATLOW	F4T	9/26/2022	9/30/2023
CE001	ENVIRONMENTAL CHAMBER	SUN ELECTRONIC SYSTEMS	ЕС13НА	4/14/2023	4/30/2024
PV061	PRESSURE TRANSDUCER (0 - 20K PSI)	OMEGA	PX01S1-20KG10T	9/26/2022	9/30/2023
TC063	RH/TEMP DATA LOGGER	LASCAR	EL-21CFR-2-LCD	7/26/2022	7/26/2023

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#### **Posttest sample conditions**

At the completion of testing, the samples were removed from the pressure vessels and inspected. No visible damage was observed on the connector faces or shell. No fluid from the pressure vessel was observed on the back of the connector, no units leaked.

Next, 3D printed dowels were used to push the inserts out of the shells while taking care not to cause damage to the inserts during removal. The inserts were submerged in isopropyl alcohol, cleaned with a plastic brush, and then dried with nitrogen.

The cleaned inserts were inspected again and photographed.

- Q109-1 There is a hairline fracture going across in a triangle fashion on the solder cup area. Between Pin 4, 101, and 49.
- Q109-2 There is a hairline fracture going across in a triangle fashion on the solder cup area. Between Pin 10, 101, and 18.
- Q109-3 There is a hairline fracture going across in a triangle fashion on the solder cup area.
- G10-1 There is a hairline crack on the edge of the chamfered end.
- M37-1 Visual Body damage.
- M37-2 Visual Body damage.
- M37-3 Hairline fracture on the body.

#### Conclusion:

The GRE connectors are intended to act as a seal only in open-face situations. This should be seen as a very rare event and the connector should be replaced after an open-face situation occurs. There is no guarantee that the connector can perform well electrically after an open-face event.

All connectors met the acceptance criteria stated in the qualification test procedure. Connectors with GRE inserts are qualified for open-face applications up to 5,000 psi.

After open-face situations, connectors should be replaced.

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#### **Data Sheet**



Test Name	Hydrostatic Pressure Test	Test Start Date	4/6/2023
Job Number	22222	<b>Test End Date</b>	5/20/2023
<b>Test Performed by</b>	Kevin Liberato		
Serial Number	All Test Samples		
<b>Equipment Used</b>	WT002, CE001		
<b>Test Specification</b>	QTP-1246 Rev. B		

#### **Test Parameters**

Hydrostatic Pressure testing was performed on a variety of SeaKing GRE Inserts. Testing performed was in accordance with QTP-1246 Rev.B paragraph 7.1.

- 1. Perform a visual inspection of the connector(s). Verify that the connector(s) is free of visible defects and appears to be in good working order and of high quality. The connector(s) should be free of any damage, corrosion, wear, cracks, and burrs.
- 2. Take at least two photographs of the connector(s) before the test; one photo shall be a front view and the other a top view. The photographs shall be included in the test report. Additional photographs may be taken of anything observed by the technician.
- 3. Place the connector in the test fixture and attach to the pressure vessel lid. Close the vessel.
- 4. Fill the vessel with PMX-200 silicone oil.
- 5. Set up the pressure vessels inside the thermal chamber.
- 6. Plumb the vessels together (Figure 1). Ensure there is a pressure transducer for each pressure vessel. Photograph the test setup.
- 7. Install a thermocouple within the thermal chamber. The temperature reading shall be continuous throughout the test.
- 8. Start recording pressure data. Pressurize to 7,500 psi at ambient temperature (ramp rate 507 psi/min). Hold for 10 minutes.
- 9. Depressurize.
- 10. Pressurize to 7,500 psi at ambient temperature (ramp rate 507 psi/min). Hold for 24 hours.
- 11. Depressurize. Proceed to next test section.

#### **Acceptance Criteria**

- 1. No failure during the pressure hold.
- 2. No significant drop in pressure.

Pass	Fail	Record
	-	X

Test Setup Verified by:	Brian Morales	Test Data Reviewed by:	Brian Morales
Date:	4/5/2023	Date:	6/1/2023
If applicable, list any Tes	t Deviations: N/A		
	Date:		

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Test Name	Pressure Cycles at Maximum Operating Temperature	<b>Test Start Date</b>	4/6/2023
Job Number	22222 Tes		5/20/2023
<b>Test Performed by</b>	Kevin Liberato		
Serial Number	All Test Samples		
<b>Equipment Used</b>	WT002, CE001		
<b>Test Specification</b>	QTP-1246 Rev. B		

#### **Test Parameters**

Pressure Cycles at Maximum Operating Temperature testing was performed on a variety of SeaKing GRE Inserts. Testing performed was in accordance with QTP-1246 Rev.B paragraph 7.2.

- 1. Start recording pressure and temperature data.
- 2. Heat the thermal chamber to 105°C. Hold for 8 hours to allow for thermal stabilization.
- 3. Perform 25 pressure cycles to 5,500 psi per the following schedule:
  - a. Perform 5 cycles with a 5-minute dwell time at 5,500 psi. Ramp rate 507 psi/min.
  - b. Perform cycle 6 with a 1-hour dwell time at 5,500 psi.
  - c. Perform cycles 7-12 with a 5-minute dwell time at pressure.
  - d. Perform cycle 13 with a 1-hour dwell time at pressure.
  - e. Perform cycles 14-19 with a 5-minute dwell time at pressure.
  - f. Perform cycle 20 with a 1-hour dwell time at pressure.
  - g. Perform cycles 21-24 with a 5-minute dwell time at pressure.
  - h. Perform cycle 25 with a 1-hour dwell time at pressure.
- 4. Depressurize.
- 5. Return thermal chamber to ambient temperature. Proceed to next test section.
- 6. Include all the graphs and photos in the test report.

#### **Acceptance Criteria**

- 1. No failure during the pressure hold.
- 2. No significant drop in pressure.

Pass	Fail	Record
-	1	X

Test Setup Verified by: Brian Mora	les	Test Data Reviewed by:	Brian Morales
<b>Date:</b> 4/5/2023		Date:	6/1/2023
If applicable, list any Test Deviation	s: 22222DV2BMV1		
Dat	e: 5/2/2023		

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#### **Data Sheet**



Test Name	Pressure Cycles at Minimum Operating Temperature	<b>Test Start Date</b>	4/6/2023
Job Number	22222 <b>Test End Date</b> 5/20/2023		5/20/2023
<b>Test Performed by</b>	Kevin Liberato		
Serial Number	All Test Samples		
<b>Equipment Used</b>	WT002, CE001		
<b>Test Specification</b>	QTP-1246 Rev. B		

#### **Test Parameters**

Pressure Cycles at Minimum Operating Temperature testing was performed on a variety of SeaKing GRE Inserts. Testing performed was in accordance with QTP-1246 Rev.B paragraph 7.3.

- 1. Start recording pressure and temperature data.
- 2. Heat the thermal chamber to -20°C. Hold for 8 hours to allow for thermal stabilization.
- 3. Perform 25 pressure cycles to 5,500 psi per the following schedule:
  - a. Perform 5 cycles with a 5-minute dwell time at 5,500 psi. Ramp rate 507 psi/min.
  - b. Perform cycle 6 with a 1-hour dwell time at 5,500 psi.
  - c. Perform cycles 7-12 with a 5-minute dwell time at pressure.
  - d. Perform cycle 13 with a 1-hour dwell time at pressure.
  - e. Perform cycles 14-19 with a 5-minute dwell time at pressure.
  - f. Perform cycle 20 with a 1-hour dwell time at pressure.
  - g. Perform cycles 21-24 with a 5-minute dwell time at pressure.
  - h. Perform cycle 25 with a 1-hour dwell time at pressure.
- 4. Depressurize.
- 5. Return thermal chamber to ambient temperature. Proceed to next test section.
- 6. Include all the graphs and photos in the test report.

#### **Acceptance Criteria**

- 1. No failure during the pressure hold.
- 2. No significant drop in pressure.

Pass	Fail	Record
-	-	X

Test Setup Verified by: Kevin Lib	rato	Test Data Reviewed by:	Brian Morales
<b>Date:</b> 4/5/2023		Date:	6/1/2023
If applicable, list any Test Deviation	s: N/A		
Da	e:		

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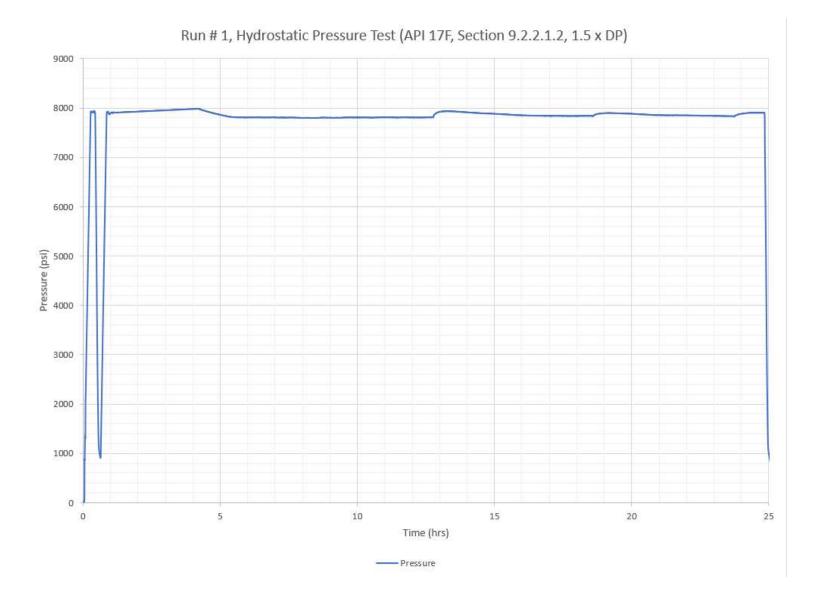


**Test Setup** 

Description	Units loaded in Vessels in Temperature Chamber	
Test Name	QTP-1246 Pressure Testing at Temperature	
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)	
Test Group	Test sequence 1	

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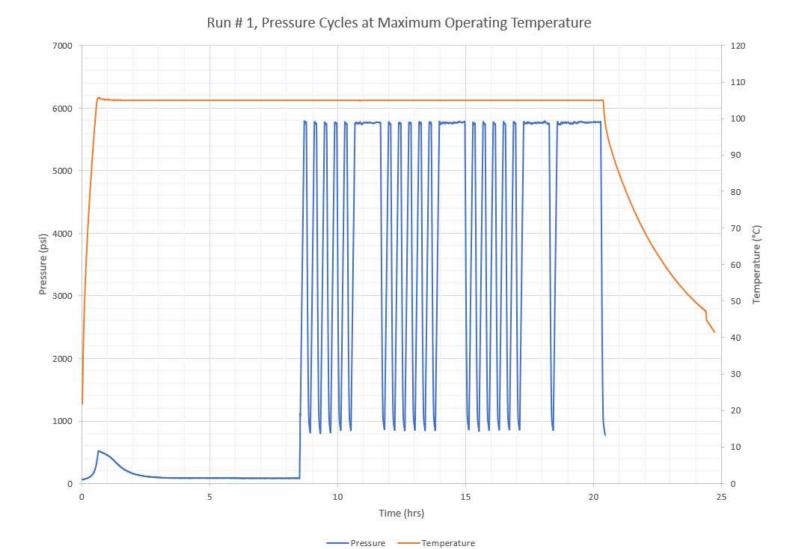


**Test Plots** 

Description	Run 1, Typical Ambient Pressure Test Plot
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)

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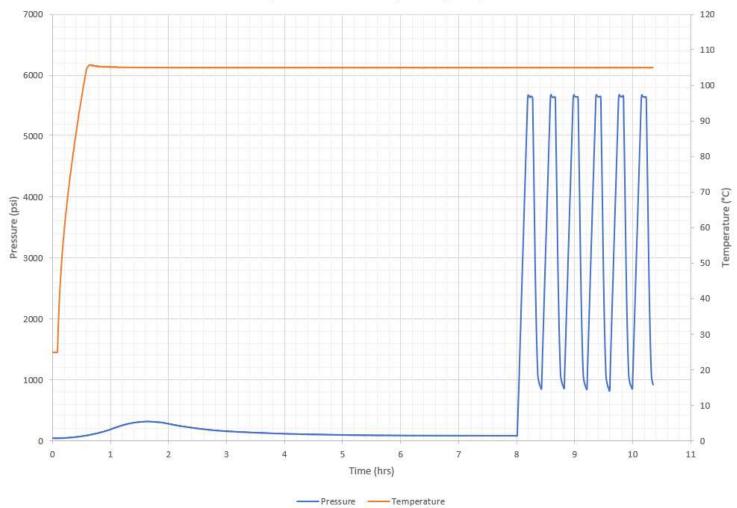


# Description Run 1, Typical Pressure Cycles at Maximum Operating Temperature Test Plot Test Name QTP-1246 Pressure Testing at Temperature Part Name SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)

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Run # 1, Deviation 22222DV2BMV1 Pressure Cycles at Maximum Operating Temperature

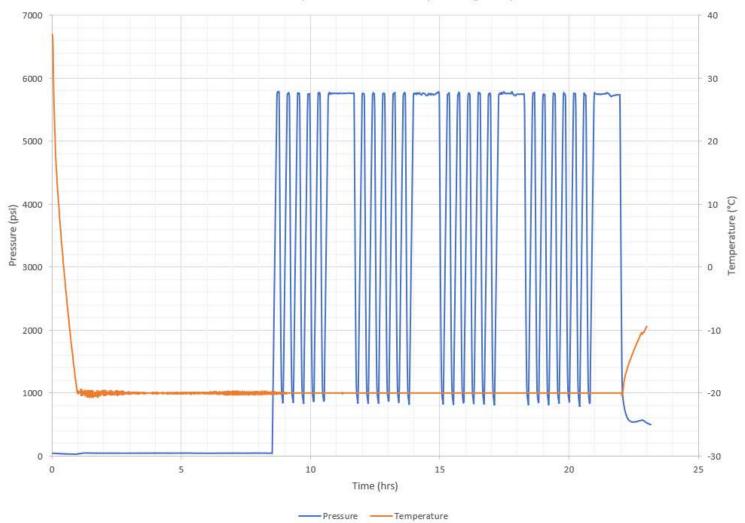


Description	Run 1, Typical Pressure Cycles at Maximum Operating Temperature Test Plot	
Test Name	QTP-1246 Pressure Testing at Temperature	
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)	

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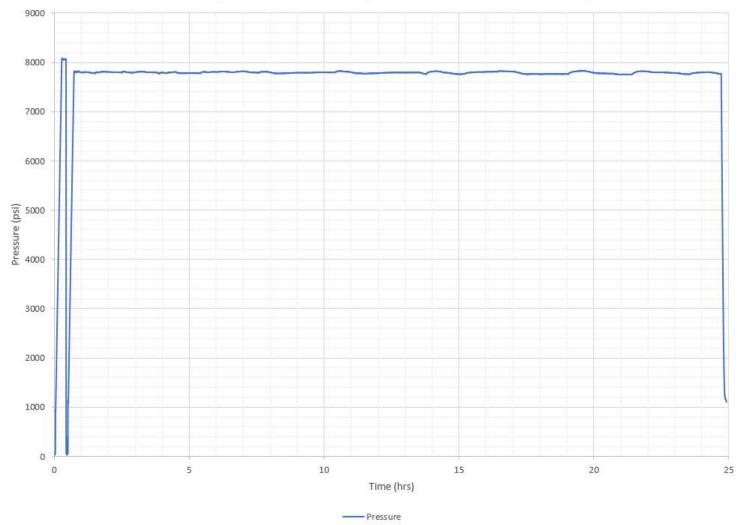


Description	Run 1, Typical Pressure Cycles at Minimum Operating Temperature Test Plot	
Test Name	QTP-1246 Pressure Testing at Temperature	
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)	

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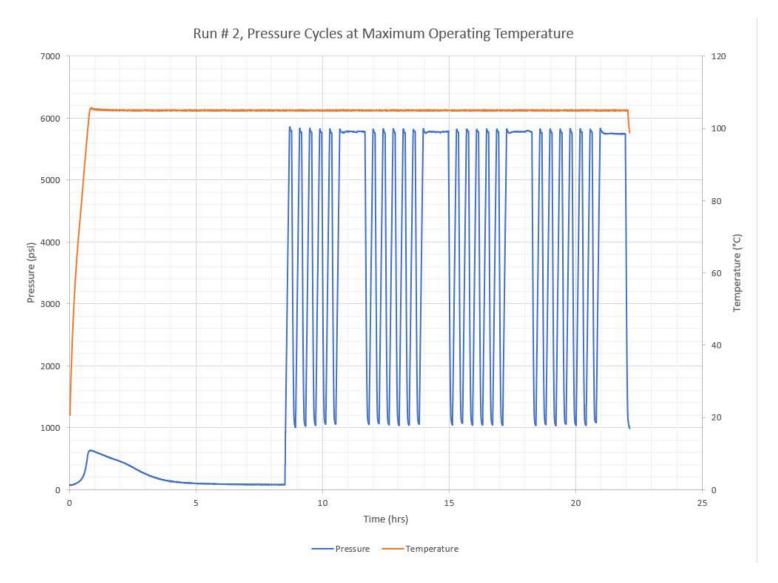


Description	Run 2, Typical Ambient Pressure Test Plot	
Test Name	QTP-1246 Pressure Testing at Temperature	
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)	

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#### **Test Plots**



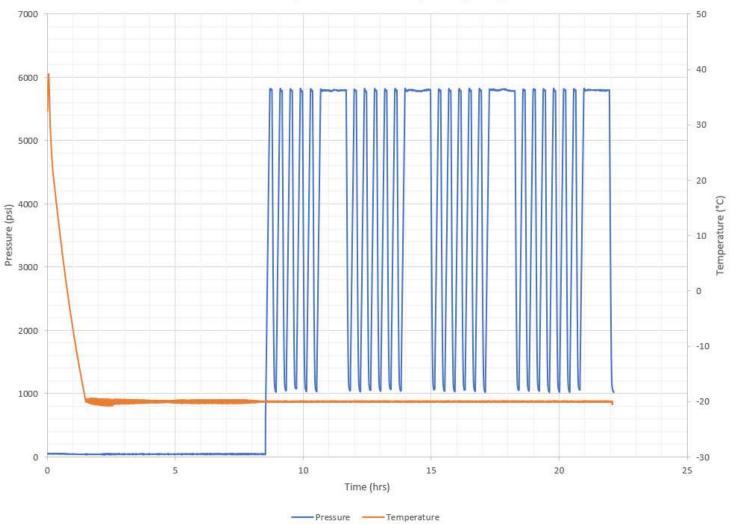


Description	Run 2, Typical Pressure Cycles at Maximum Operating Temperature Test Plot	
Test Name	QTP-1246 Pressure Testing at Temperature	
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)	

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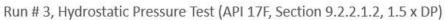


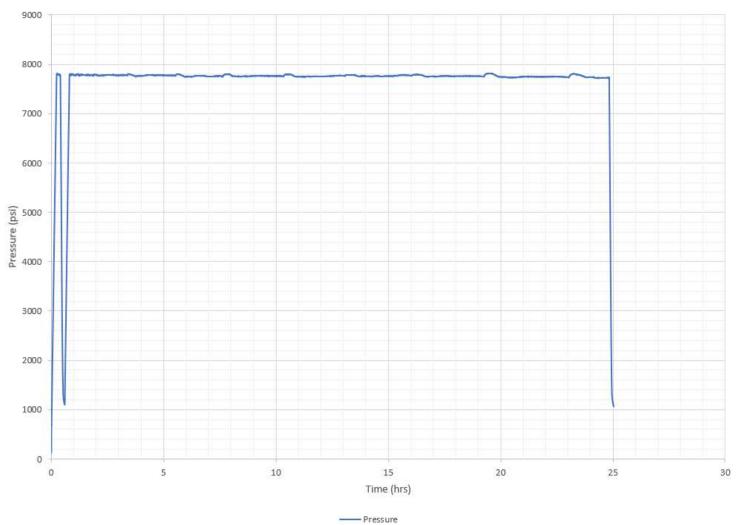


Description	Run 2, Typical Pressure Cycles at Minimum Operating Temperature Test Plot	
Test Name	QTP-1246 Pressure Testing at Temperature	
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)	

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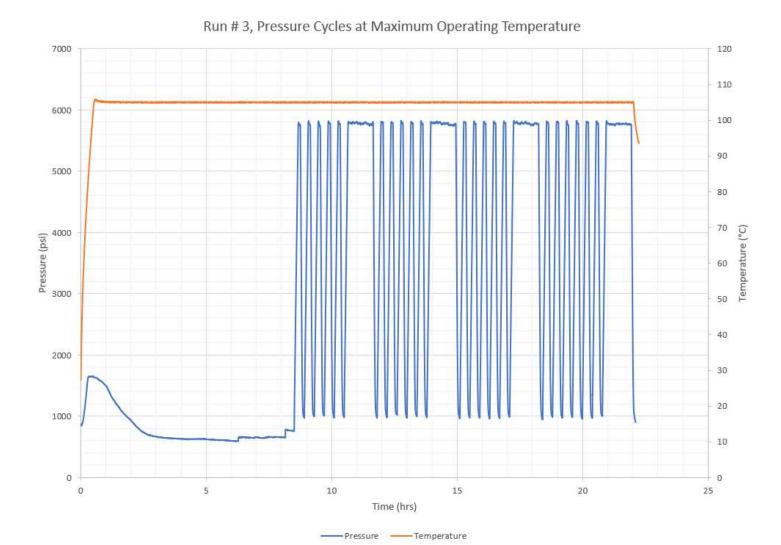




Description	Run 3, Typical Ambient Pressure Test Plot
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)

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 Description
 Run 3, Typical Pressure Cycles at Maximum Operating Temperature Test Plot

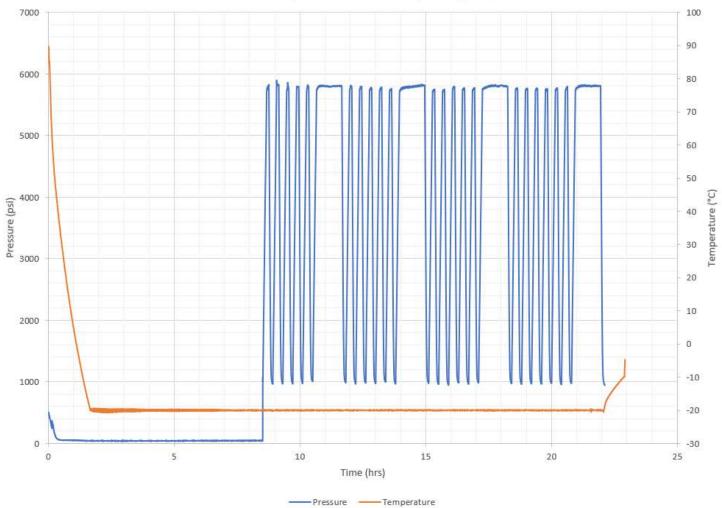
 Test Name
 QTP-1246 Pressure Testing at Temperature

 Part Name
 SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)

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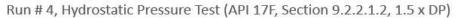


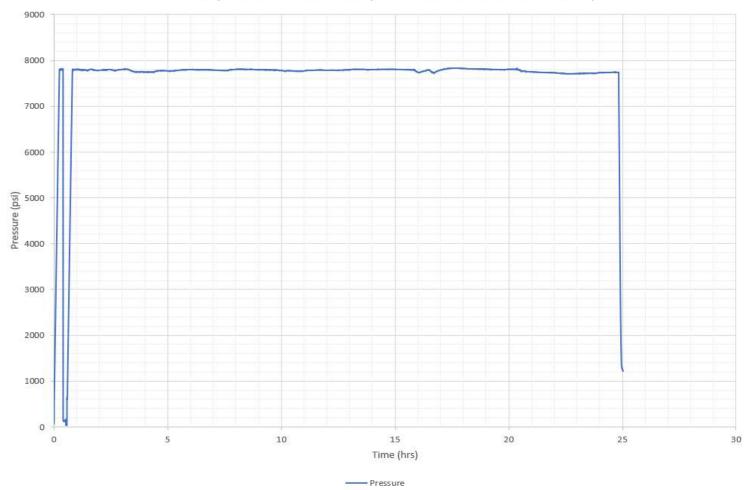


Description	Run 3, Typical Pressure Cycles at Minimum Operating Temperature Test Plot
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)

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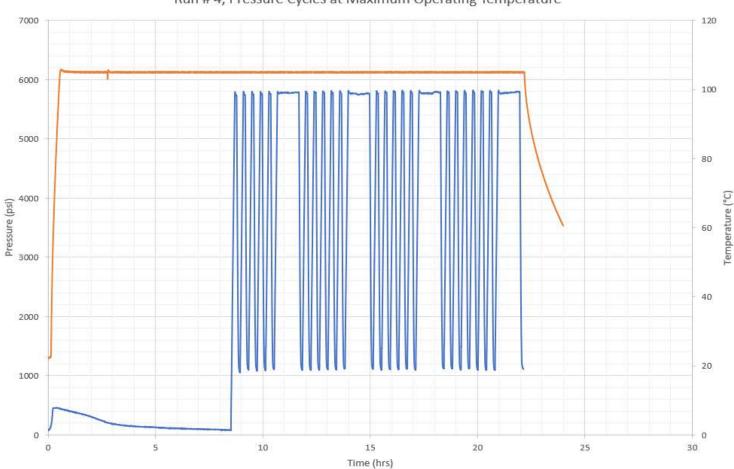




Description	Run 4, Typical Ambient Pressure Test Plot
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)

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Run # 4, Pressure Cycles at Maximum Operating Temperature

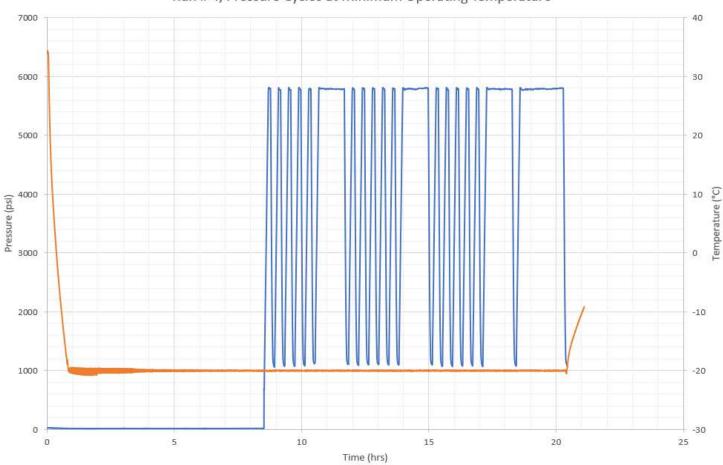
Description	Run 4, Typical Pressure Cycles at Maximum Operating Temperature Test Plot
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)

—Temperature

Pressure -

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Run # 4, Pressure Cycles at Minimum Operating Temperature

Description	Run 4, Typical Pressure Cycles at Minimum Operating Temperature Test Plot
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)

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**Test Photos** 





Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-E4-Z1PN
Serial No.	E4-1

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**Test Photos** 



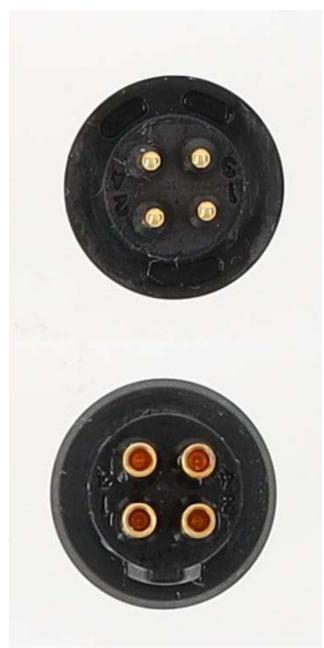


Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-E4-Z1PN
Serial No.	E4-1

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-E4-Z1PN
Serial No.	E4-1

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-E4-Z1PN
Serial No.	E4-2

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**Test Photos** 





Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-E4-Z1PN
Serial No.	E4-2

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-E4-Z1PN
Serial No.	E4-2

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-E4-Z1PN
Serial No.	E4-3

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-E4-Z1PN
Serial No.	E4-3

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-E4-Z1PN
Serial No.	E4-3

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-G8-Z1PN
Serial No.	G8-1

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-G8-Z1PN
Serial No.	G8-1

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-G8-Z1PN
Serial No.	G8-1

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-G8-Z1PN
Serial No.	G8-2

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-G8-Z1PN
Serial No.	G8-2

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-G8-Z1PN
Serial No.	G8-2

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-G8-Z1PN
Serial No.	G8-3

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-G8-Z1PN
Serial No.	G8-3

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-G8-Z1PN
Serial No.	G8-3

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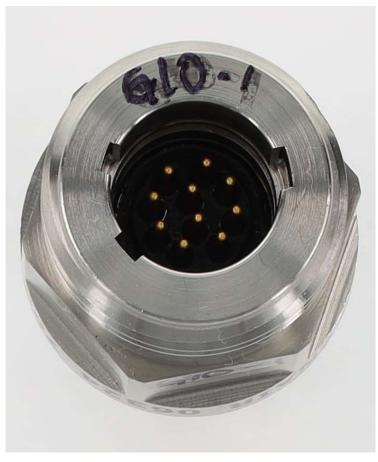
Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-G10-Z1PN
Serial No.	G10-1

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Doc No. 22222R2BMV1







Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-G10-Z1PN
Serial No.	G10-1

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-G10-Z1PN
Serial No.	G10-1

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-G10-Z1PN
Serial No.	G10-2

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-G10-Z1PN
Serial No.	G10-2

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-G10-Z1PN
Serial No.	G10-2

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-G10-Z1PN
Serial No.	G10-3

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-G10-Z1PN
Serial No.	G10-3

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-G10-Z1PN
Serial No.	G10-3

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-K14-Z1PN
Serial No.	K14-1

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-K14-Z1PN
Serial No.	K14-1

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-K14-Z1PN
Serial No.	K14-1

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-K14-Z1PN
Serial No.	K14-2

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-K14-Z1PN
Serial No.	K14-2

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-K14-Z1PN
Serial No.	K14-2

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-K14-Z1PN
Serial No.	K14-3

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-K14-Z1PN
Serial No.	K14-3

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-K14-Z1PN
Serial No.	K14-3

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-K19-Z1PN
Serial No.	K19-1

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-K19-Z1PN
Serial No.	K19-1

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-K19-Z1PN
Serial No.	K19-1

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-K19-Z1PN
Serial No.	K19-2

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-K19-Z1PN
Serial No.	K19-2

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-K19-Z1PN
Serial No.	K19-2

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-K19-Z1PN
Serial No.	K19-3

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-K19-Z1PN
Serial No.	K19-3

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-K19-Z1PN
Serial No.	K19-3

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-L9-Z1PN
Serial No.	L9-1

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-L9-Z1PN
Serial No.	L9-1

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-L9-Z1PN
Serial No.	L9-1

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-L9-Z1PN
Serial No.	L9-2

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-L9-Z1PN
Serial No.	L9-2

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 3
Part No.	700-027-L9-Z1PN
Serial No.	L9-2

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 4
Part No.	700-027-L9-Z1PN
Serial No.	L9-3

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 4
Part No.	700-027-L9-Z1PN
Serial No.	L9-3

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 4
Part No.	700-027-L9-Z1PN
Serial No.	L9-3

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-M37-Z1PN
Serial No.	M37-1

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-M37-Z1PN
Serial No.	M37-1

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-M37-Z1PN
Serial No.	M37-1

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-M37-Z1PN
Serial No.	M37-2

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-M37-Z1PN
Serial No.	M37-2

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-M37-Z1PN
Serial No.	M37-2

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-M37-Z1PN
Serial No.	M37-3

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-M37-Z1PN
Serial No.	M37-3

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 1
Part No.	700-027-M37-Z1PN
Serial No.	M37-3

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test Sequence 2
Part No.	700-027-O61-Z1PN
Serial No.	O61-1

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test Sequence 2
Part No.	700-027-O61-Z1PN
Serial No.	O61-1

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test Sequence 2
Part No.	700-027-O61-Z1PN
Serial No.	O61-1

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test Sequence 2
Part No.	700-027-O61-Z1PN
Serial No.	O61-2

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test Sequence 2
Part No.	700-027-O61-Z1PN
Serial No.	O61-2

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test Sequence 2
Part No.	700-027-O61-Z1PN
Serial No.	O61-2

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test Sequence 2
Part No.	700-027-O61-Z1PN
Serial No.	O61-3

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test Sequence 2
Part No.	700-027-O61-Z1PN
Serial No.	O61-3

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test Sequence 2
Part No.	700-027-O61-Z1PN
Serial No.	O61-3

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 2
Part No.	700-027-P4-Z1PN
Serial No.	P4-1

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 2
Part No.	700-027-P4-Z1PN
Serial No.	P4-1

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 2
Part No.	700-027-P4-Z1PN
Serial No.	P4-1

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 2
Part No.	700-027-P4-Z1PN
Serial No.	P4-2

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 2
Part No.	700-027-P4-Z1PN
Serial No.	P4-2

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 2
Part No.	700-027-P4-Z1PN
Serial No.	P4-2

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 2
Part No.	700-027-P4-Z1PN
Serial No.	P4-3

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 2
Part No.	700-027-P4-Z1PN
Serial No.	P4-3

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 2
Part No.	700-027-P4-Z1PN
Serial No.	P4-3

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 2
Part No.	700-027-Q109-Z1PN
Serial No.	Q109-1

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 2
Part No.	700-027-Q109-Z1PN
Serial No.	Q109-1

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Description	Posttest photo	
Test Name	QTP-1246 Pressure Testing at Temperature	
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)	
Test Group	Test sequence 2	
Part No.	700-027-Q109-Z1PN	
Serial No.	Q109-1	

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 2
Part No.	700-027-Q109-Z1PN
Serial No.	Q109-2

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 2
Part No.	700-027-Q109-Z1PN
Serial No.	Q109-2

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Description	Posttest photo	
Test Name	QTP-1246 Pressure Testing at Temperature	
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)	
Test Group	Test sequence 2	
Part No.	700-027-Q109-Z1PN	
Serial No.	Q109-2	

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Description	Pretest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 4
Part No.	700-027-Q109-Z1PN
Serial No.	Q109-3

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Description	Posttest photo
Test Name	QTP-1246 Pressure Testing at Temperature
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)
Test Group	Test sequence 4
Part No.	700-027-Q109-Z1PN
Serial No.	Q109-3

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Description	Posttest photo	
Test Name	QTP-1246 Pressure Testing at Temperature	
Part Name	SeaKing Bulkhead Connector Receptacle (BCR), with GRE Insert(s)	
Test Group	Test sequence 4	
Part No.	700-027-Q109-Z1PN	
Serial No.	Q109-3	

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End of Report

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Appendix	

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## **Test Deviation Form**

<b>Deviation Number</b>	22222DV2BMV1
Test Name	7.2. Pressure Cycles at Maximum Operating Temperature
Part Name	SeaKing GRE Insert
Part No.	See Test Identification Sheet
VL Serial No.	G8-1, G8-2, G10-1, G10-2, G10-3, K19-1, K19-2, M37-1, M37-2, M37-3

### **Test Requirements**

- 1. Start recording pressure and temperature data.
- 2. Heat the thermal chamber to 105°C. Hold for 8 hours to allow for thermal stabilization.
- 3. Perform 25 pressure cycles to 5,500 psi per the following schedule:
- a. Perform 5 cycles with a 5-minute dwell time at 5,500 psi. Ramp rate 507 psi/min.
- b. Perform cycle 6 with a 1-hour dwell time at 5,500 psi.
- c. Perform cycles 7-12 with a 5-minute dwell time at pressure.
- d. Perform cycle 13 with a 1-hour dwell time at pressure.
- e. Perform cycles 14-19 with a 5-minute dwell time at pressure.
- f. Perform cycle 20 with a 1-hour dwell time at pressure.
- g. Perform cycles 21-24 with a 5-minute dwell time at pressure.
- h. Perform cycle 25 with a 1-hour dwell time at pressure.

- 4. Depressurize.
- 5. Return thermal chamber to ambient temperature.
  Proceed to next test section

Specification	QTP-1246
Method/Procedure	7.2. Pressure Cycles at Maximum Operating Temperature

#### **Test Deviation Description**

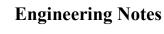
On step 14, the pressure was supposed to ramp to 0 psi and perform the last five 5-minute dwell cycles before the last one-hour hold. However, the set point stayed at 5500psi. So the last portion stayed pressurized for the last remaining cycles needed.

Test Operator	Kevin Liberato	<b>Deviation Date</b>	5/2/2023
<b>Customer Name</b>	Jana Haney	Date Reported to Customer	5/3/2023

#### Resolution

- 1. Start recording pressure and temperature data.
- 2. Heat the thermal chamber to 105°C. Hold for 8 hours to allow for thermal stabilization.
- 3. Perform the remaining six cycles with a 5-minute dwell time at pressure.
- 4. Depressurize.
- 5. Return thermal chamber to ambient temperature. Proceed to next test section.

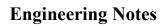
Approval				
<b>Customer Name</b>	Jana Haney			
Customer Signature	Jana N Hansy	1//	Date	6/9/2023
Quality Manager Signature		Flic	Date	6/2/2023





Date	Operator	Notes
		Install inserts into shells
3/27/2023	Kevin Liberato	Take receiving photos
3/28/2023	Kevin Liberato	Install inserts into shells
3/29/2023	Kevin Liberato	Take receiving photos
3/30/2023	Kevin Liberato	Take receiving photos
3/31/2023	Kevin Liberato	Take receiving photos
4/4/2023	Kevin Liberato	Bring test setup from 700 allen start prepping test samples/vessels
4/5/2023	Kevin Liberato	Check in last group for testing Take receiving photos
4/6/2023	Kevin Liberato	Upload all receiving photos to basecamp
4/12/2023	Kevin Liberato	Prep test samples/setup
4/19/2023	Kevin Liberato	Prep test setup/samples
4/20/2023	Kevin Liberato	Prep test setup/samples bring test chamber to 700 allen
4/20/2023	Brian Morales	Assist in assembling units. Look for the bolts needed for the pressure vessels. Order additional parts needed for testing setup. Move over Tenney Chamber and added Digital I/O card.
4/21/2023	Kevin Liberato	Prep test setup/samples
4/21/2023	Brian Morales	Begin laying out vessels inside the new temperature chamber. Four vessels fit at one time.
4/24/2023	Kevin Liberato	Prep test samples
4/25/2023	Kevin Liberato	Prep test setup Load vessels into chamber Start checkout run
4/25/2023	Brian Morales	Set up Watlow to communicate from pressure cart to the Tenney chamber watlow.  Setup test units in the Tenney chamber.  Bend and adjust pressure lines to fit five small pressure vessels.  Program test profiles into the watlow  Monitor and begin the ambient test run checkout.
4/26/2023	Kevin Liberato	Monitor Pressure Cycles
4/26/2023	Brian Morales	Monitor the first ambient checkout at its 24 hour dwell.

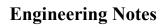
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·		
4/27/2023	Kevin Liberato	Verify test profile Prep test setup Start checkout run
		monitor pressure cycles
4/27/2023	Brian Morales	Change out regulator in the pressure cart and start up the test with the new regulator on First run ambient test units.
4/28/2023	Kevin Liberato	Monitor pressure cycles Start data sheet
5/1/2023	Kevin Liberato	Monitored pressure cycle Prepped test samples
5/1/2023	Brian Morales	Review ambient test run #1data. Plot it and update the customer.  Start and monitor Run # 1 Max Operating Test
5/2/2023	Kane Liang	Meet with Brian to discuss watlow profile issue.
5/2/2023	Kevin Liberato	Updated data sheet Monitored pressure cycle Prepped test samples Took pretest photos
5/2/2023	Brian Morales	Review testing of the maximum operating temperature test. Plot out the data and share it with the customer. A deviation occurred. The unit did not complete the total of 25 cycles. Customer request to test the remaining number of cycles. Start up the deviation test (remaining 6 cycle test).
5/3/2023	Kevin Liberato	Monitored pressure cycle Prepped test samples Took posttest photos on ortery
5/3/2023	Brian Morales	Review the test profiles with Kane. Program new test for deviation. Monitor test start.
5/4/2023	Kevin Liberato	Prepped test setup and Run 2 samples Took pretest photos Started run 2 ambient
5/4/2023	Brian Morales	Plot the testing performed for the minimum temperature pressure test. Removed the units from the chamber. Installed the new set of units and start the ambient test.
5/5/2023	Kevin Liberato	Monitored pressure cycle Updated data sheet
5/5/2023	Brian Morales	Clean and photograph all of the units in the first run. Upload all of them onto basecamp.
5/6/2023	Kevin Liberato	Prepped test setup Started run 2 hot cycle
5/7/2023	Kevin Liberato	Prepped test setup Started run 2 cold cycle

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5/8/2023	Kevin Liberato	Run 2 cold cycle finished Plotted data Prepped test setup, run 3 samples Updated data sheet
5/9/2023	Kevin Liberato	Prepped test setup Loaded all vessels into chamber Start run 3 pressure cycling ambient Monitored pressure cycle Updated data sheet
5/9/2023	Brian Morales	Review testing was performed. Remove the second run units. Clean, photograph and upload the images onto basecamp. Review photographs and note which units had damage.
5/10/2023	Kevin Liberato	Started run 3 hot cycle Plotted data
5/11/2023	Kevin Liberato	Started run 3 cold cycle Updated data sheet
5/11/2023	Brian Morales	Review test maximum operating temperature data. Monitor Minimum Operating temperature data.
5/12/2023	Kevin Liberato	Prepped test set up/ samples Started Run 4 ambient pressure cycle Updated data sheet
5/12/2023	Brian Morales	Remove Run # 3 units from the chamber. Remove the units from the vessels. Clean the units and prepare for photographs.
5/15/2023	Kevin Liberato	Prepped test setup Started pressure at temp, hot cycle on run 4
5/15/2023	Brian Morales	Start the maximum operating pressure on run #4 units. Photograph and clean the inserts in ortery machine. Upload photos onto basecamp.
5/16/2023	Kevin Liberato	Prepped test setup Started pressure at temp, cold cycle on run 4 Plotted data Uploaded data to basecamp, job folder
5/16/2023	Brian Morales	Start the last Minimum Operating temperature test on run #4
5/17/2023	Kevin Liberato	Cold run finished Tear down test setup
5/18/2023	Kevin Liberato	Tear down test setup Updated data sheet
5/18/2023	Brian Morales	Photograph the last two test samples.
5/19/2023	Kevin Liberato	Test setup teardown

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# **Engineering Notes**

5/19/2023	Brian Morales	Upload photos onto basecamp. Clean up and disconnect the Tenney chamber from the Pressure cart.
5/22/2023	Kevin Liberato	updated data sheet Post test photos
5/24/2023	Kevin Liberato	Update datasheet insert pretest and posttest photos to photo tab
5/24/2023	Nicholas Rihn	Conversation with job boss regarding the timeline for completing data sheets and producing the report
5/25/2023	Kevin Liberato	Finish datasheet insert pretest and posttest photos to photo tab Insert test parameters Insert all plots and photo descriptions Sent out for peer review
5/26/2023	Kevin Liberato	Revise datasheet Send to customer
5/26/2023	Brian Morales	Review datasheet.
5/31/2023	Kevin Liberato	Made Customer revisions on datasheet Send out for peer review
6/1/2023	Kevin Liberato	Fill out deviation forms Send out for peer review Send to quality
6/1/2023	Brian Morales	Review and comment on datasheet. Review and rewrite deviations.
6/2/2023	Kane Liang	Review deviation forms. Update action item log.
6/2/2023	Kevin Liberato	Made Customer revisions on datasheet Send out for peer review
6/5/2023	Brian Morales	Make corrections on First Test Report. Finish plotting all 24 test plots.

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