



Division of ILSCO  
4730 Madison Rd  
Cincinnati, OH 45227

Test Report: 698  
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Date: 11-Jan-16  
Product: Break A Way SLC  
Type Test: ANSI C119. 6 Class A  
Test Facility: UTILCO

Tested By: Pat Keller Date: 9/23/2015

Supervisor: Bill Mitchell Date: 1/11/2016

Reviewed By: Bryan Donell Date: 7/9/2015

**Purpose:**

Qualification Test – Part # / Cat # **N1281-03**  
Main Wire Range **1/0-#14**  
Tap Wire Range  
Connector Material **6061 T6**  
Screw (Wire Binding) **E1376**  
Lubricant (Screws) **616 Safety Film**  
  
Plating **616 Safety Film**  
Mounting Screws **n/a**  
Mounting Torque **n/a**  
  
Wire Size Used for testing **1/0 and**  
Conductor Strength  
Manufacturer (Wire)  
Insulation Type, Thickness **None**

**Device:**

**UTILCO's N1281-03** is made from extruded high strength aluminum and is clear plated with 616 Safety Film. The screw is manufactured from aluminum and is clear plated.

**Procedure:**

**The N1281-03** connector was tested using bare **Aluminum (AA-1350)** conductors. The conductors were wire brushed and De-Ox was applied.  
The screw was torqued to: **60** In-lbs

**Two N1281-03s** were used in this test. Thermocouples were placed on the wire entry area.  
Conductor Length: 36"

The test consisted of 500 cycles. Each Cycle had **1 Hours "On" Time** and **1 hours "Off" time**  
The test current was raised over the first 25 cycles so the control conductor attained a 100° -105°C temperature rise over ambient temperature.  
The test current used was **248 amperes**.

**Results:**

**UTILCO's N1281-03** connector successfully completed the ANSI Heat Cycle test using bare aluminum conductors. The connector temperatures did not exceed the temperature of the control conductor, stability was within +/- 10 and the resistance of the connections did not exceed ± 5% of the average resistance.  
The maximum stability value was: **10.0**

**Condition after testing:**

All Samples appeared to be undamaged after testing

See data sheets and charts attached for the test details.

**ANSI C119. 6**  
**Current Cycle Data Sheet**

Class of Test A  
 Part Tested: N1281-03 Date Started: 9/23/15 Date Completed: 12/26/15  
 Cable (main) Size 1/0 Type AL Length 36"  
 Cable (tap) Size 0 Type 0 Length 0  
 Current Cycle: On Period (Hrs) 1 Off Period (Hrs) 1 Test Current: 248

Test Method: CCT  
 Project # 698  
 Conductor Preparation: Compounded? Yes  
Wire Brushed? Yes  
 Amps 698  
 Test # 698

Mechanical Connector Compound Used De-Ox  
 Number of Screws E1376 3 screw/bolt (s) per conductor:  
 Torque: 60 In-lb  
 Mounting Bolts n/a Torq: n/a

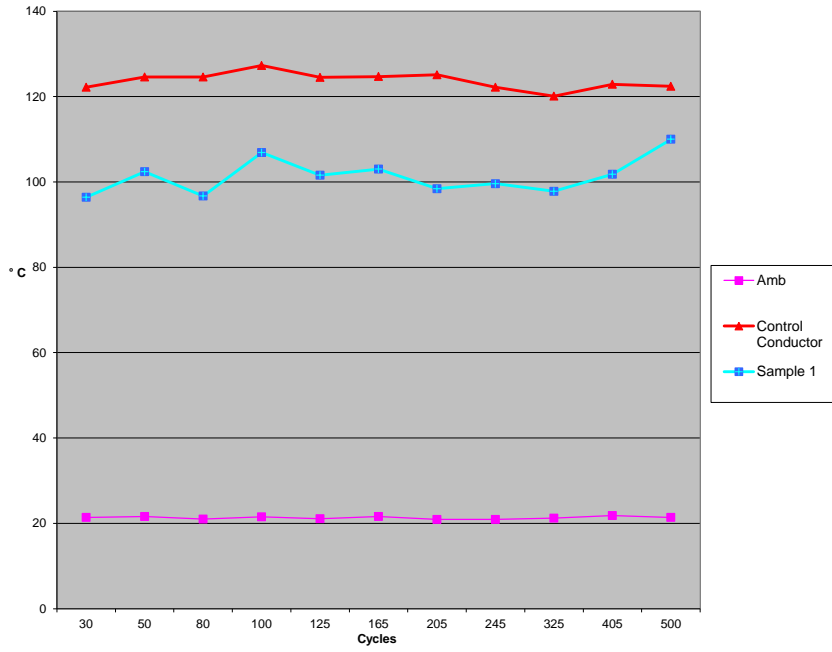
Measurements Points	Cycle Number	Ambient (°C)	Control Conductor (°C)	Connector Temp (°C)				Temperature Difference (°C)				Stability Factor (Si)				Connector Resistance (Measured) Micro Ohms (μΩ)				Connector Resistance (Corrected to 20C) Micro Ohms (μΩ)					
				C1	C2	C3	C4	C1	C2	C3	C4	C1	C2	C3	C4	Amb	C1	C2	C3	C4	C1	C2	C3	C4	
1	30	21.4	122.2	96.4	94.7	101.3	104.9	25.8	27.5	20.9	17.3	3.4	2.4	1.5	1.8	21.1	480.4	482.6	0.0	0.0	478.5	480.7	0.0	0.0	
2	50	21.6	124.6	102.4	101	105.3	108.7	22.2	23.6	19.3	15.9	0.2	1.5	0.1	0.4	21.0	484.1	488.0	0.0	0.0	482.4	486.2	0.0	0.0	
3	80	21	124.6	96.7	95.3	100.1	103.4	27.9	29.3	24.5	21.2	5.5	4.2	5.1	5.7	21.5	486.8	490.0	0.0	0.0	484.2	487.4	0.0	0.0	
4	100	21.5	127.3	106.9	105.3	108.5	111.5	20.4	22	18.8	15.8	2.0	3.1	0.6	0.3	21.3	486.3	487.6	0.0	0.0	484.0	485.3	0.0	0.0	
5	125	21.1	124.5	101.6	100.4	102.5	106.1	22.9	24.1	22	18.4	0.5	1.0	2.6	2.9	21.8	485.2	488.0	0.0	0.0	482.1	484.9	0.0	0.0	
6	165	21.6	124.7	103	99	105.8	109.2	21.7	25.7	18.9	15.5	0.7	0.6	0.5	0.0	21.9	488.6	484.6	0.0	0.0	485.3	481.3	0.0	0.0	
7	205	20.9	125.1	98.4	95.2	103	106.7	26.7	29.9	22.1	18.4	4.3	4.8	2.7	2.9	21.6	489.7	494.6	0.0	0.0	486.9	491.8	0.0	0.0	
8	245	20.9	122.2	99.6	95	101.5	107	22.6	27.2	20.7	15.2	0.2	2.1	1.3	0.3	21.6	492.9	494.9	0.0	0.0	490.1	492.1	0.0	0.0	
9	325	21.2	120.1	97.8	94.1	103	106.9	22.3	26	17.1	13.2	0.1	0.9	2.3	2.3	21.2	494.6	494.1	0.0	0.0	492.5	492.0	0.0	0.0	
10	405	21.8	122.9	101.8	98.7	106.5	110.1	21.1	24.2	16.4	12.8	1.3	0.9	3.0	2.7	20.7	494.0	497.1	0.0	0.0	492.8	495.9	0.0	0.0	
11	500	21.4	122.4	110	106	110	115.5	12.4	16.4	12.4	6.9	10.0	8.7	7.0	8.6	21.6	493.0	497.9	0.0	0.0	490.2	495.0	0.0	0.0	
<b>Average Temperature Difference</b>								<b>22.4</b>	<b>25.1</b>	<b>19.4</b>	<b>15.5</b>						<b>Average Resistance</b>				<b>486.3</b>	<b>488.4</b>	<b>0.0</b>	<b>0.0</b>	
<b>Maximum Stability Factor</b>												<b>10.0</b>	<b>8.7</b>	<b>7.0</b>	<b>8.6</b>			<b>Min Acceptable Resistance</b>				<b>461.9</b>	<b>464.0</b>	<b>0.0</b>	<b>0.0</b>
																		<b>Max Allowable Resistance</b>				<b>510.6</b>	<b>512.8</b>	<b>0.0</b>	<b>0.0</b>

1. The connector temperature cannot exceed the control conductor temperature

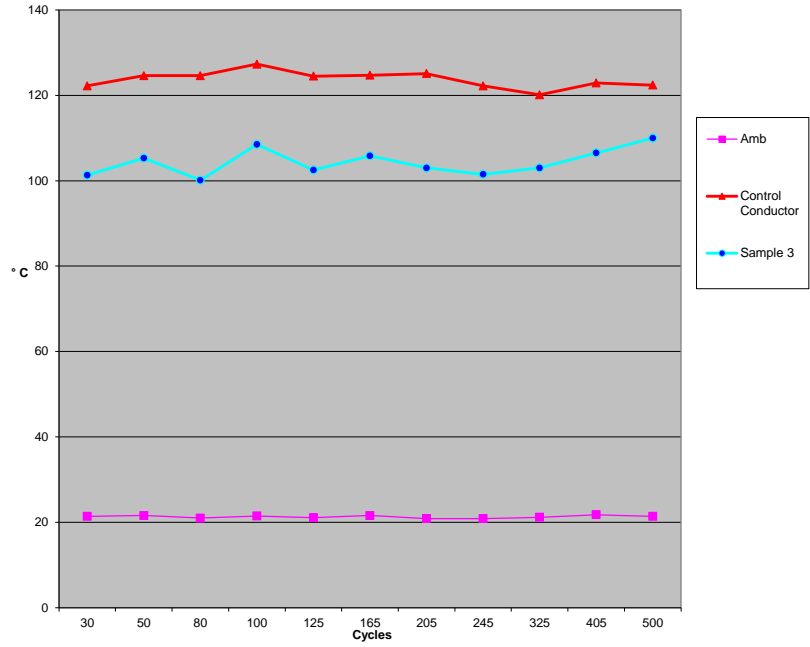
2. The stability factor "Si" shall not exceed 10 for each of the connector temperature measurements recorded at the specified intervals.

3. The resistance of the connectors tested shall not vary by more than 5% from the average of the measured values.

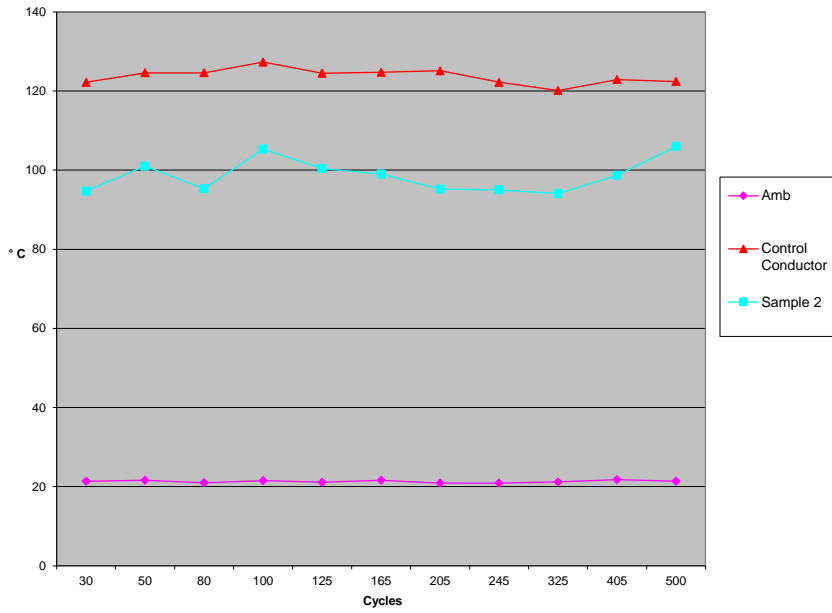
Sample 1 Temperatures



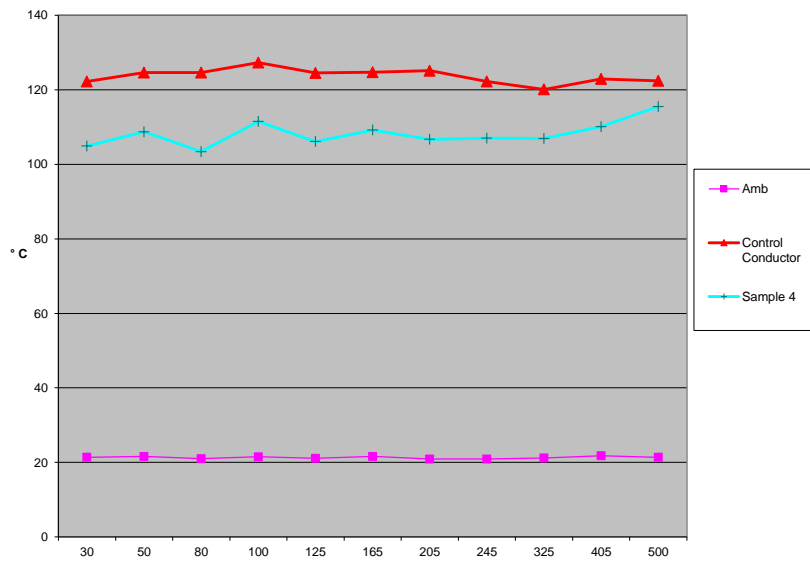
Sample 3 Temperatures



Sample 2 Temperatures

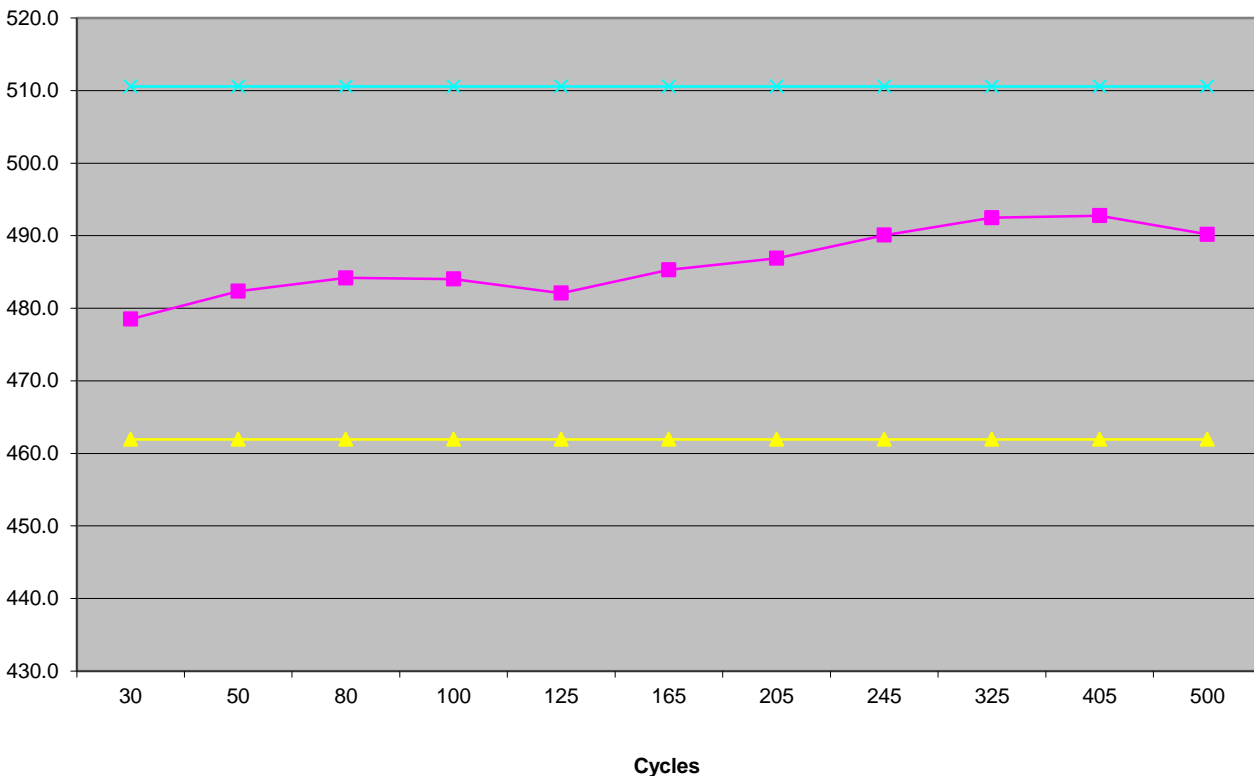


Sample 4 Temperatures



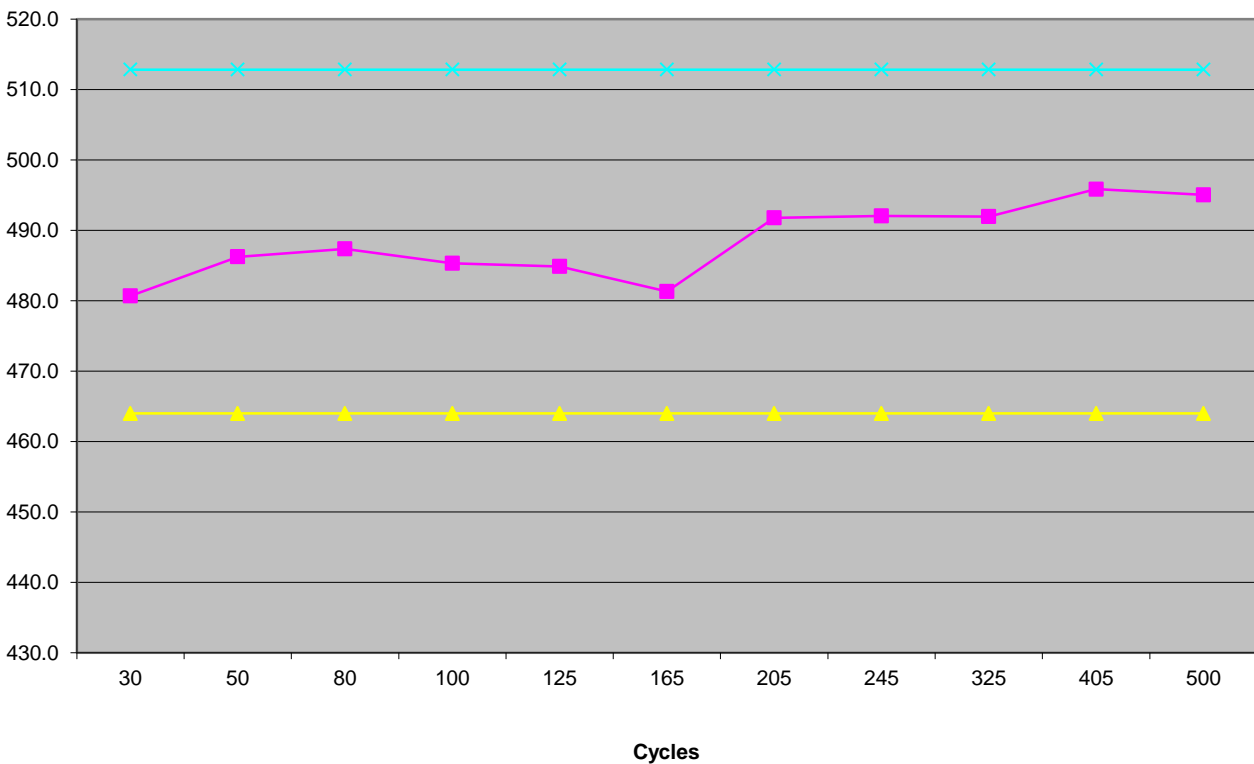
### Resistance 1

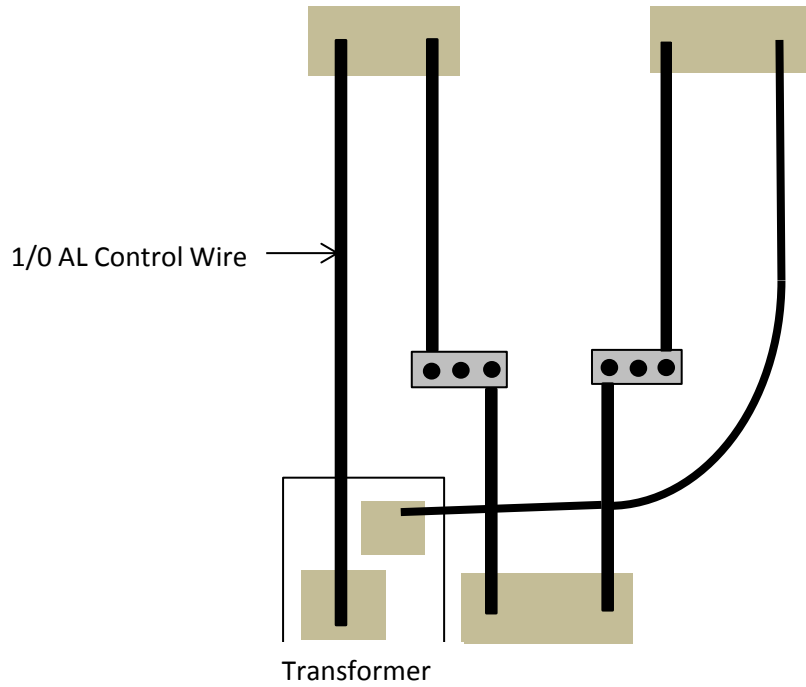
R1 Min Max



### Resistance 2

R2 Min Max





# Test Loop

With (2) N1281 connectors and 1/0 AL wire

