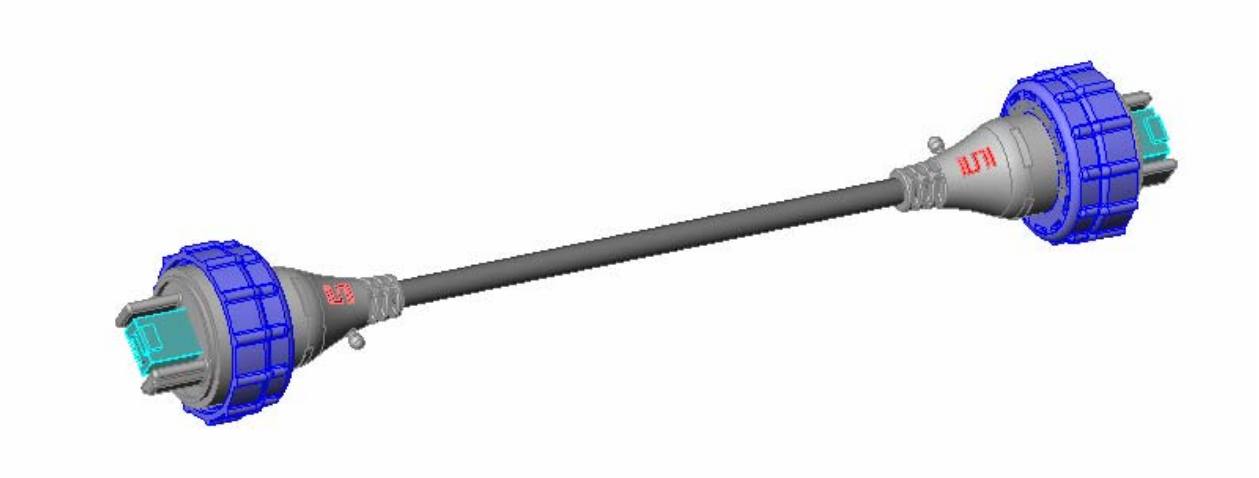
Project Number:	Tracking Code: TC068--0943		
Requested by: Corey Rose	Date: 2/20/2006	Product Rev: 4	
Part #: SCPE-G-2.00-D/SCRE-01	Lot #: 9-22-05	Tech: Troy Cook	Eng: Dave Scopelliti
Part description: SCXE			Qty to test: 45
Test Start: 03/01/2006	Test Completed: 3/29/2006		



SCXE DVT Report

SCPE-G-2.00-D/
Mated with SCRE-01

Project Number:	Tracking Code: TC068--0943		
Requested by: Corey Rose	Date: 2/20/2006	Product Rev: 4	
Part #: SCPE-G-2.00-D/SCRE-01	Lot #: 9-22-05	Tech: Troy Cook	Eng: Dave Scopelliti
Part description: SCXE			Qty to test: 45
Test Start: 03/01/2006	Test Completed: 3/29/2006		

CERTIFICATION

All instruments and measuring equipment were calibrated to National Institute for Standards and Technology (NIST) traceable standards according to IS0 10012-l and ANSI/NCSL 2540-1, as applicable.

SCOPE

To perform the following tests: PER SCXE FLOWCHART

APPLICABLE DOCUMENTS

Standards: EIA Publication 364

TEST SAMPLES AND PREPARATION

1) All materials were manufactured in accordance with the applicable product specification.
2) All test samples were identified and encoded to maintain traceability throughout the test sequences.
3) After soldering, the parts to be used for LLCR and DWV/IR testing were cleaned according to TLWI-0001.
4) Either an automated cleaning procedure or an ultrasonic cleaning procedure may be used.
5) The automated procedure is used with aqueous compatible soldering materials.
6) The ultrasonic procedure can be used with either aqueous or non-aqueous soldering components and follows:
    a. Sample test boards are to be ultrasonically cleaned after test lead attachment, preparation and/or soldering.
    b. Sample test boards are immersed into Branson 3510 cleaner containing Kyzen Ionox HC1 (or equivalent) with the following conditions:
        i. Temperature: -------55° C+/- 5° C
        ii. Frequency:----------40 KHz
        iii. Immersion Time: ---5 to 10 Minutes
    c. Sample test boards are removed and placed into the Branson 3510 cleaner containing deionized water with the following conditions:
        i. Temperature: --------55° C +/- 5° C
        ii. Frequency:----------40 KHz
        iii. Immersion Time: ---5 to 10 Minutes
    d. Sample test boards are removed and placed in a beaker positioned on a hot plate with a magnetic stirrer containing deionized water warmed to 55° C +/- 5° C for 1/2 to 1 minute.
    e. Upon removal, the sample boards are rinsed for ½ to 1 minute at room temperature with free flowing deionized water.
    f. After the final rinse, the sample test boards are dried in an air-circulating oven for 10 to 15 minutes at 50° C +/- 5° C.
    g. Sample test boards are then allowed to set and recover to room ambient condition prior to testing.

7) Parts not intended for testing LLCR and DWV/IR are visually inspected and cleaned if necessary.
8) Any additional preparation will be noted in the individual test sequences.
9) Solder Information: None Used
10) Re-Flow Time/Temp: Not applicable to this test. Parts were not soldered..
11) Internal Test PCBs used: None Used

FLOWCHARTS

Current Carrying Capacity

TEST STEP	GROUP A All Contacts
01	CCC

Normal Force

TEST STEP	GROUP A 10 Connectors	GROUP B1 Individual Contacts Ambient	GROUP B2 Individual Contacts Thermal (Mated)
01	Mating / Unmating	Setup Approve	Setup Approve
02	Data Review	Normal Force	Thermal (Mated)
03	100 Cycles	Data Review	Normal Force
04	Mating / Unmating		
05	250 Cycles (+150)		
06	Mating / Unmating		
07	500 Cycles (+250)		
08	Mating / Unmating		
09	1000 Cycles (+500)		
10	Mating / Unmating		
11	Data Review		
12	Thermal Aging (Mated)		
13	Mating / Unmating		
14	Data Review		
15	Humidity (Mated)		
16	Mating / Unmating		

FLOWCHARTS Continued

IR / DWV

TEST STEP	GROUP A1 Ambient	GROUP B1 Ambient	GROUP B2 Thermal	GROUP B3 Humidity
01	IR	DWV/Working Voltage	Thermal	Humidity
02	Data Review		DWV/Working Voltage	DWV/Working Voltage
03	Thermal			
04	IR			
05	Data Review			
06	Humidity			
07	IR			

Durability/Thermal/Humidity

TEST STEP	GROUP A1 8 connectors 1000 Cycles
01	LLCR-1
02	Data Review
03	100 Cycles
04	LLCR-2
05	Data Review
06	Thermal
07	LLCR-3
08	Data Review
09	Humidity
10	LLCR-4

Gas Tight

TEST STEP	GROUP A1 8 connectors
01	LLCR-1
02	Gas Tight
04	LLCR-2

ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

THERMAL:

1) EIA-364-17, *Temperature Life with or without Electrical Load Test Procedure for Electrical Connectors.*
2) Test Condition 11 at 65° C.
3) Test Time Condition A for 96 hours.
4) Connectors are sometimes mated and all samples are pre-conditioned at ambient.

HUMIDITY:

1) Reference document: EIA-364-31, *Humidity Test Procedure for Electrical Connectors.*
2) Test Condition A, 96 Hours.
3) Method II, but at + 65° C, 90% to 98% Relative Humidity excluding sub-cycles 7a and 7b.
4) Connectors are sometimes mated and all samples are pre-conditioned at ambient.

TEMPERATURE RISE (Current Carrying Capacity, CCC):

1) EIA-364-70, *Temperature Rise versus Current Test Procedure for Electrical Connectors and Sockets*.
2) When current passes through a contact, the temperature of the contact increases as a result of I^2R (resistive) heating.
3) The number of contacts being investigated plays a significant part in power dissipation and therefore temperature rise.
4) The size of the temperature probe can affect the measured temperature.
5) Copper traces on PC boards will contribute to temperature rise:
    a. Self heating (resistive)
    b. Reduction in heat sink capacity affecting the heated contacts
6) A de-rating curve, usually 20%, is calculated.
7) Calculated de-rated currents at three temperature points are reported:
    a. Ambient
    b. 30^{o} C
    c. 40^{o} C
    d. 50^{o} C
8) Typically, neighboring contacts (in close proximity to maximize heat build up) are energized.
9) The thermocouple (or temperature measuring probe) will be positioned at a location to sense the maximum temperature in the vicinity of the heat generation area.
10) A computer program, *TR 803.exe*, ensures accurate stability for data acquisition.
11) Hook-up wire cross section is larger than the cross section of any connector leads/PC board traces, jumpers, etc.
12) Hook-up wire length is longer than the minimum specified in the referencing standard.

MATING/UNMATING:

1) Reference document: EIA-364-13, *Mating and Unmating Forces Test Procedure for Electrical Connectors*.
2) The full insertion position was to within 0.003" to 0.004" of the plug bottoming out in the receptacle to prevent damage to the system under test.
3) One of the mating parts is secured to a floating X-Y table to prevent damage during cycling.

NORMAL FORCE (FOR CONTACTS TESTED IN THE HOUSING):

1) Reference document: EIA-364-04, *Normal Force Test Procedure for Electrical Connectors*.
2) The contacts shall be tested in the connector housing.
3) If necessary, a "window" shall be made in the connector body to allow a probe to engage and deflect the contact at the same attitude and distance (plus 0.05 mm [0.002"]) as would occur in actual use.
4) The connector housing shall be placed in a holding fixture that does not interfere with or otherwise influence the contact force or deflection.
5) Said holding fixture shall be mounted on a floating, adjustable, X-Y table on the base of the Dillon TC^2, computer controlled test stand with a deflection measurement system accuracy of 5.0 μm (0.0002").
6) The nominal deflection rate shall be 5 mm (0.2")/minute.
7) Unless otherwise noted a minimum of five contacts shall be tested.
8) The force/deflection characteristic to load and unload each contact shall be repeated five times.
9) The system shall utilize the TC^2 software in order to acquire and record the test data.
10) The permanent set of each contact shall be measured within the TC^2 software.
11) The acquired data shall be graphed with the deflection data on the X-axis and the force data on the Y-axis and a print out will be stored with the Tracking Code paperwork.

INSULATION RESISTANCE (IR):

To determine the resistance of insulation materials to leakage of current through or on the surface of these materials when a DC potential is applied.

1) PROCEDURE:
    a. Reference document: EIA-364-21, *Insulation Resistance Test Procedure for Electrical Connectors*.
    b. Test Conditions:
        i. Between Adjacent Contacts
        ii. Electrification Time 2.0 minutes
        iii. Test Voltage (500 VDC) corresponds to calibration settings for measuring resistances.
2) MEASUREMENTS:
3) When the specified test voltage is applied (VDC), the insulation resistance shall not be less than 100 megohms.

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

To determine if the sockets can operate at its rated voltage and withstand momentary over potentials due to switching, surges, and other similar phenomenon. Separate samples are used to evaluate the effect of environmental stresses so not to influence the readings from arcing that occurs during the measurement process.

1) PROCEDURE:
    a. Reference document: EIA-364-20, *Withstanding Voltage Test Procedure for Electrical Connectors*.
    b. Test Conditions:
        i. Between Adjacent Contacts
        ii. Rate of Application 500 V/Sec
        iii. Test Voltage (VAC) until breakdown occurs
2) MEASUREMENTS/CALCULATIONS
    a. The breakdown voltage shall be measured and recorded.
    b. The dielectric withstanding voltage shall be recorded as 75% of the minimum breakdown voltage.
    c. The working voltage shall be recorded as one-third (1/3) of the dielectric withstanding voltage (one-fourth of the breakdown voltage).

LLCR:

1) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
2) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
3) The following guidelines are used to categorize the changes in LLCR as a result from stressing
    a. <= +5.0 mOhms: ---------- Stable
    b. +5.1 to +10.0 mOhms:---------- Minor
    c. +10.1 to +15.0 mOhms: ---------- Acceptable
    d. +15.1 to +50.0 mOhms: ---------- Marginal
    e. +50.1 to +2000 mOhms: ---------- Unstable
    f. >+2000 mOhms:---------- Open Failure

GAS TIGHT:

To provide method for evaluating the ability of the contacting surfaces in preventing penetration of harsh vapors which might lead to oxide formation that may degrade the electrical performance of the contact system.

1) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
2) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
3) The following guidelines are used to categorize the changes in LLCR as a result from stressing
    a. <= +5.0 mOhms: ---------- Stable
    b. +5.1 to +10.0 mOhms:---------- Minor
    c. +10.1 to +15.0 mOhms: ---------- Acceptable
    d. +15.1 to +50.0 mOhms: ---------- Marginal
    e. +50.1 to +2000 mOhms: ---------- Unstable
    f. >+2000 mOhms:---------- Open Failure
4) Procedure:
    a. Reference document: EIA-364-36, *Test Procedure for Determination of Gas-Tight Characteristics for Electrical Connectors, Sockets and/or Contact Systems*.
    b. Test Conditions:
        i. Class II--- Mated pairs of contacts assembled to their plastic housings.
        ii. Reagent grade Nitric Acid shall be used of sufficient volume to saturate the test chamber
        iii. The ratio of the volume of the test chamber to the surface area of the acid shall be less than 10.
        iv. The chamber shall be saturated with the vapor for at least 15 minutes before samples are added.
        v. Exposure time, 55 to 65 minutes.
        vi. The samples shall be no closer to the chamber walls than 1 inches and no closer to the surface of the acid than 3 inches.
        vii. The samples shall be dried after exposure for a minimum of 1 hour.
        viii. Drying temperature 50^{o} C
        ix. The final LLCR shall be conducted within 1 hour after drying.

RESULTS

Temperature Rise, CCC at a 20% de-rating

- **CCC for a 30°C Temperature Rise----------1.0 A per contact with 8 adjacent contacts powered**

Mating – Unmating Forces

- **Initial**
  - **Mating**
    - **Min ---------- 3.4 Lbs.**
    - **Max---------- 5.0 Lbs.**
  - **Unmating**
    - **Min ---------- 1.8 Lbs.**
    - **Max---------- 2.5 Lbs.**
- **After 100 Cycles**
  - **Mating**
    - **Min ---------- 3.8 Lbs.**
    - **Max---------- 7.1 Lbs.**
  - **Unmating**
    - **Min ---------- 2.5 Lbs.**
    - **Max---------- 4.3 Lbs.**
- **After 250 Cycles**
  - **Mating**
    - **Min ---------- 5.1 Lbs.**
    - **Max---------- 7.5 Lbs.**
  - **Unmating**
    - **Min ---------- 3.9 Lbs.**
    - **Max---------- 5.2 Lbs.**
- **After 500 Cycles**
  - **Mating**
    - **Min ---------- 5.4 Lbs.**
    - **Max---------- 7.16Lbs.**
  - **Unmating**
    - **Min ---------- 4.3 Lbs.**
    - **Max---------- 5.5 Lbs.**
- **After 1000 Cycles**
  - **Mating**
    - **Min ---------- 6.1 Lbs.**
    - **Max---------- 8.2 Lbs.**
  - **Unmating**
    - **Min ---------- 4.6 Lbs.**
    - **Max---------- 6.9 Lbs.**
- **Thermal**
  - **Mating**
    - **Min ---------- 2.4 Lbs.**
    - **Max---------- 4.5 Lbs.**
  - **Unmating**
    - **Min ---------- 1.7 Lbs.**
    - **Max---------- 3.4 Lbs.**
- **Humidity**
  - **Mating**
    - **Min ---------- 2.2 Lbs.**
    - **Max---------- 3.0 Lbs.**
  - **Unmating**
    - **Min ---------- 1.3 Lbs.**
    - **Max---------- 2.0 Lbs.**

Normal Force at .050" deflection

- **Initial**
  - **Min ---------- 283.2 grams Set ----- 0.000"**
  - **Max ---------- 322.8 grams Set ----- 0.001"**
- **Thermal**
  - **Min ---------- 276.4 grams**
  - **Max ---------- 328.5 grams**

Insulation Resistance minimums, IR

- **Initial**
  - **Mated ----------100,000 Meg Ω ---------- Pass**
  - **Unmated ----------100,000 Meg Ω**
- **Thermal**
  - **Mated ----------100,000 Meg Ω**
  - **Unmated ----------100,000 Meg Ω**
- **Humidity**
  - **Mated ----------100,000 Meg Ω**
  - **Unmated ---------- 25,000 Meg Ω**

Dielectric Withstanding Voltage minimums, DWV

- **Initial**
  - **Breakdown**
    - **Mated ----------1,400 VAC**
    - **Unmated----------1,400 VAC**
  - **DWV**
    - **Mated ----------1,050 VAC**
    - **Unmated----------1,050 VAC**
  - **Working voltage**
    - **Mated ----------350 VAC**
    - **Unmated----------350 VAC**
- **Thermal**
  - **Breakdown**
    - **Mated ----------1,300 VAC**
    - **Unmated----------1,500 VAC**
  - **DWV**
    - **Mated ----------975 VAC**
    - **Unmated----------1,125 VAC**
  - **Working voltage**
    - **Mated ----------325 VAC**
    - **Unmated----------375 VAC**
- **Humidity**
  - **Breakdown**
    - **Mated ----------1,100 VAC**
    - **Unmated----------1,200 VAC**
  - **DWV**
    - **Mated ----------825 VAC**
    - **Unmated----------900 VAC**
  - **Working voltage**
    - **Mated ----------275 VAC**
    - **Unmated----------300 VAC**

LLCR Durability (61 LLCR test points)

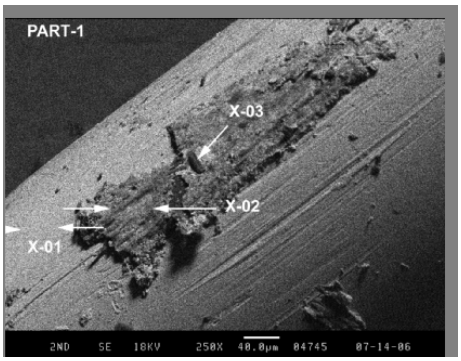
- **Initial ---------- 81.1 mOhms Max**
- **Durability, 1000 Cycles**
  - **<= +5.0 mOhms ---------- 61 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 0 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**
- **Thermal**
  - **<= +5.0 mOhms ---------- 58 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 3 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**
  -
- **Humidity**
  - **<= +5.0 mOhms ---------- 58 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 2 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 1 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**

LLCR Gas Tight (64 LLCR test points)

- **Initial ---------- 98.7 mOhms Max**
- **Gas-Tight**
  - **<= +5.0 mOhms ---------- 63 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 0 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 1 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**

KNOWN ISSUE: The contact cavity should be kept clean of fibrous and particulate contamination. Particles and fibers could lodge in the interface and result in elevated contact resistance.

NOTE: Three contact positions were excluded from the Humidity due to fibrous contamination in the interface.

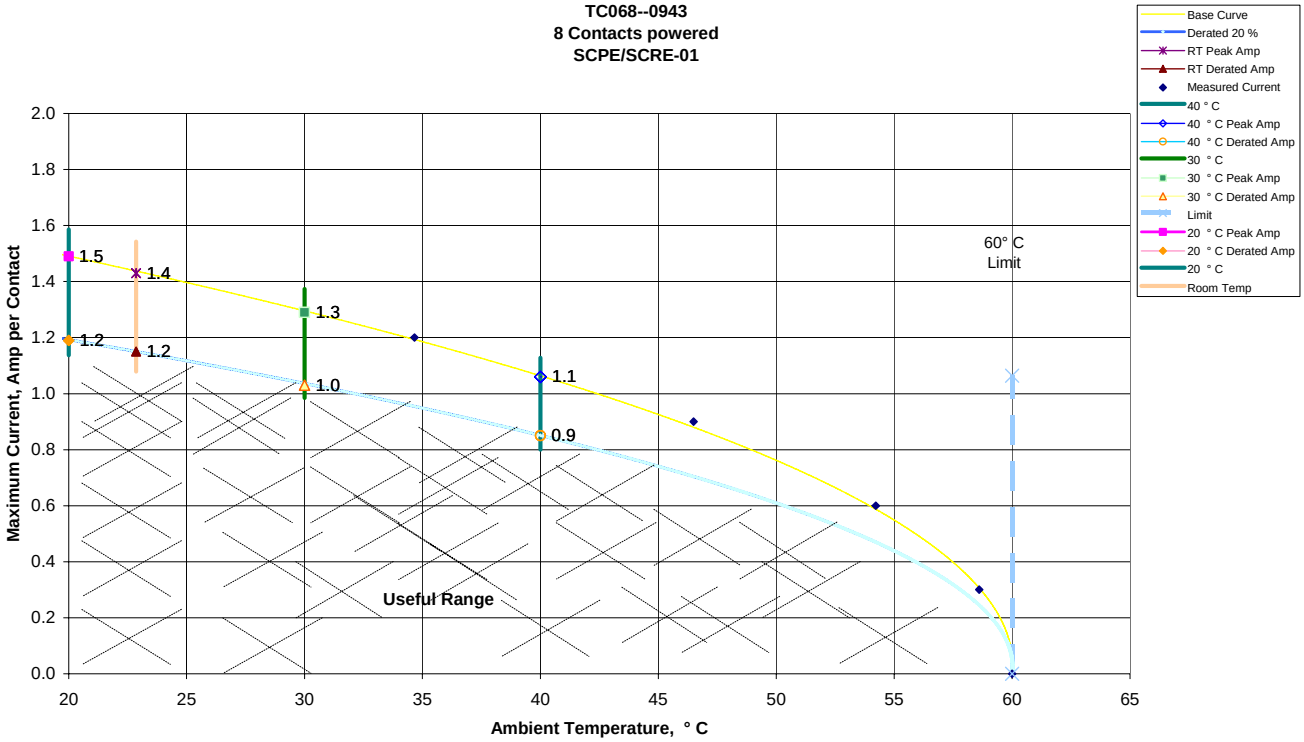


Scanning Electron Micrograph of Fibrous Contamination

DATA SUMMARIES

TEMPERATURE RISE (Current Carrying Capacity, CCC):

1) High quality thermocouples whose temperature slopes track one another were used for temperature monitoring.
2) The thermocouples were placed at a location to sense the maximum temperature generated during testing.
3) Temperature readings recorded are those for which three successive readings, 15 minutes apart, differ less than 1° C (computer controlled data acquisition).
4) Adjacent contacts were powered:
    a. Linear configuration with eight adjacent conductors/contacts powered



DATA SUMMARIES Continued

MATING/UNMATING:

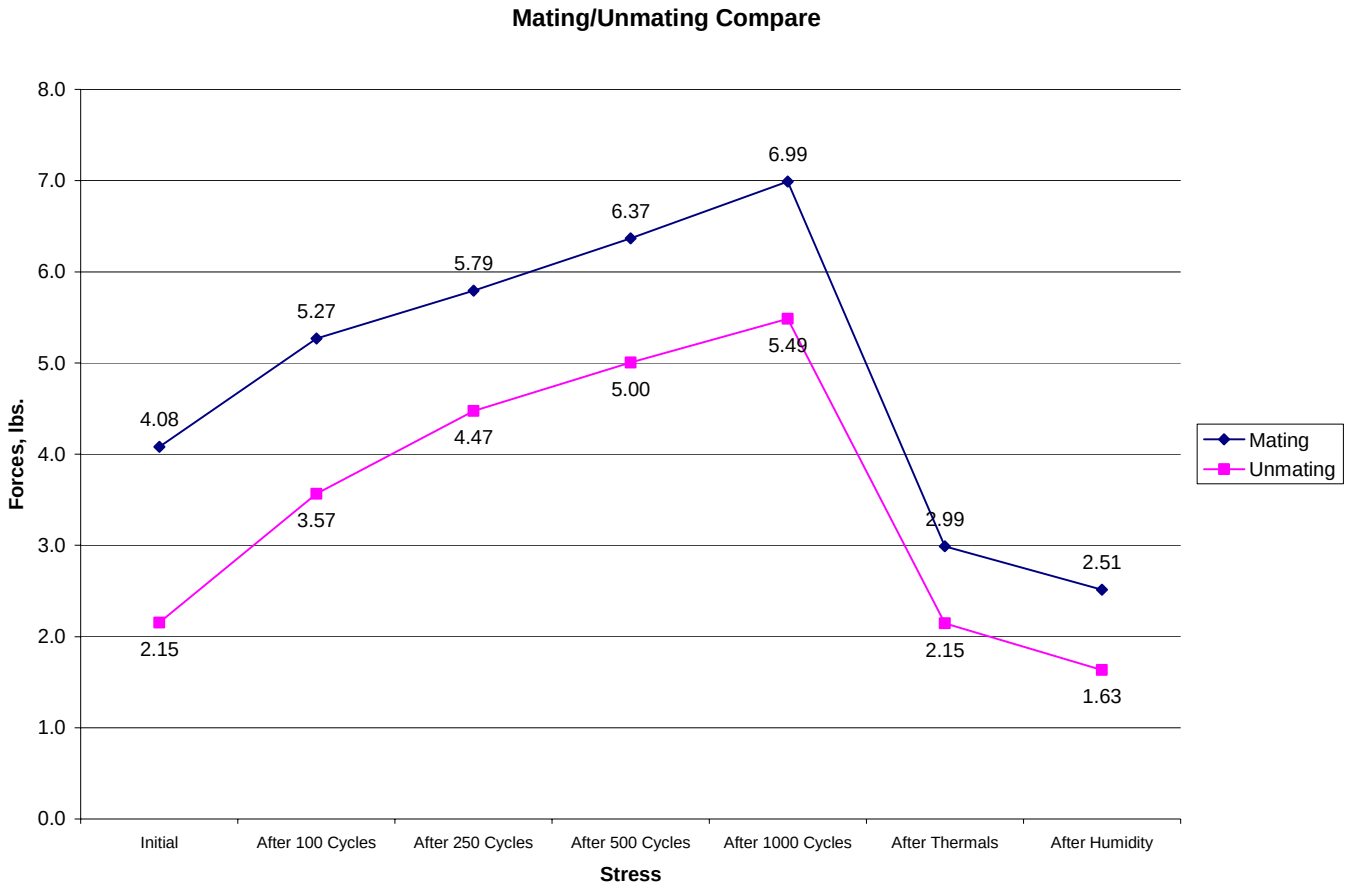
	Initial				After 100 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)
Minimum	53.6	3.35	29.0	1.81	61.1	3.82	39.7	2.48
Maximum	*80.2*	*5.0*	*40.5*	*2.5*	*113.1*	*7.1*	*69.1*	*4.3*
Average	***65.3***	***4.1***	***34.5***	***2.2***	***84.3***	***5.3***	***57.0***	***3.6***

	After 250 Cycles				After 500 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)
Minimum	82.1	5.1	62.4	3.9	85.8	5.4	68.5	4.3
Maximum	*120.3*	*7.5*	*83.2*	*5.2*	*121.9*	*7.6*	*87.2*	*5.5*
Average	***92.7***	***5.8***	***71.6***	***4.5***	***101.9***	***6.4***	***80.1***	***5.0***

	After 1000 Cycles				After Thermals			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)
Minimum	98.1	6.1	73.4	4.6	38.6	2.4	26.4	1.7
Maximum	*130.4*	*8.2*	*111.0*	*6.9*	*72.0*	*4.5*	*54.9*	*3.4*
Average	***111.8***	***7.0***	***87.8***	***5.5***	***47.8***	***3.0***	***34.3***	***2.1***

	After Humidity			
	Mating		**Unmating**	
	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)
Minimum	2.2	2.15	1.3	1.29
Maximum	*3.0*	*2.98*	*2.0*	*2.03*
Average	***2.5***	***2.51***	***1.6***	***1.63***

DATA SUMMARIES Continued



NORMAL FORCE (FOR CONTACTS TESTED IN THE HOUSING):

Calibrated force gauges are used along with computer controlled positioning equipment.

1) Typically, 8-10 readings are taken and the averages reported.

Initial	Deflections in inches Forces in Grams					
	0.0050	0.0150	0.0250	0.0380	0.0500	SET
Averages	44.60	109.56	166.40	241.56	306.52	0.0005
Min	30.80	96.40	153.00	219.80	283.20	0.0000
Max	62.50	128.10	185.90	258.30	322.80	0.0010
St. Dev	13.74	11.67	12.68	15.39	16.46	0.0005
Count	5	5	5	5	5	5
Thermals	**Deflections in inches Forces in Grams**					
	0.0050	0.0150	0.0250	0.0380	0.0500	SET
Averages	69.86	121.93	174.26	244.73	305.29	0.0006
Min	36.50	107.80	155.30	225.50	276.40	0.0004
Max	94.20	144.00	194.90	260.60	328.50	0.0018
St. Dev	16.91	11.93	11.25	11.67	17.49	0.0005
Count	8	8	8	8	8	8

DATA SUMMARIES Continued

INSULATION RESISTANCE (IR):

	Initial, Meg Ohms		Thermal, Meg Ohms		Humidity, Meg Ohms	
	Mated	Unmated	Mated	Unmated	Mated	Unmated
	Insulation Resistance	Insulation Resistance	Insulation Resistance	Insulation Resistance	Insulation Resistance	Insulation Resistance
Average	100000	100000	100000	100000	100000	100000
Min	100000	100000	100000	100000	100000	100000
Max	100000	100000	100000	100000	100000	100000

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

	Initial, VAC Mated			Initial, VAC Unmated		
	Breakdown Voltage	DWV	Working Voltage	Breakdown Voltage	DWV	Working Voltage
Average	1400	1050	350	1400	1050	350
Min	1400	1050	350	1400	1050	350
Max	1400	1050	350	1400	1050	350
	Thermal, VAC Mated			**Thermal, VAC Unmated**		
	Breakdown Voltage	DWV	Working Voltage	Breakdown Voltage	DWV	Working Voltage
Average	1400	1050	350	1500	1125	375
Min	1300	975	325	1500	1125	375
Max	1500	1125	375	1500	1125	375
	Humidity, VAC Mated			**Humidity, VAC Unmated**		
	Breakdown Voltage	DWV	Working Voltage	Breakdown Voltage	DWV	Working Voltage
Average	1225	919	306	1675	1256	419
Min	1100	825	275	1200	900	300
Max	1300	975	325	2500	1875	625

LLCR:

1) A total of 64 points were measured.
2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
   a. <= +5.0 mOhms: ---------- Stable
   b. +5.1 to +10.0 mOhms:---------- Minor
   c. +10.1 to +15.0 mOhms: ---------- Acceptable
   d. +15.1 to +50.0 mOhms: ---------- Marginal
   e. +50.1 to +2000 mOhms ---------- Unstable
   f. >+2000 mOhms:---------- Open Failure

DATA SUMMARIES Continued

LLCR:

	Feb. 22, 2006	Feb. 24 2006	Mar. 08 2006	Mar. 13 2006
Date				
Room Temp C	26	25	24	25
RH	21%	17%	24%	25%
Name	Troy Cook	Terry Spine	Troy Cook	Troy Cook
mOhm values	**Actual Initial**	**Delta 1000 Cycles**	**Delta Thermal**	**Delta Humidity**
Average	61.6	-0.3	1.4	2.8
St. Dev.	7.4	1.0	2.3	6.4
Min	51.4	-3.0	-2.1	-2.2
Max	81.1	3.1	9.7	7.9
Count	64	64	64	64

GAS TIGHT:

1) A total of 64 points were measured.
2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
   a. <= +5.0 mOhms: ---------- Stable
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   d. +15.1 to +50.0 mOhms: ---------- Marginal
   e. +50.1 to +2000 mOhms: ---------- Unstable
   f. >+2000 mOhms:---------- Open Failure

	March 2 2006	March 14 2006
Date		
Room Temp C	25	21
RH	35%	46%
Name	Terry Spine	Troy Cook
mOhm values	**Actual Initial**	**Delta Gas Tight**
Average	63.6	-0.8
St. Dev.	8.4	3.4
Min	52.3	-18.5
Max	98.7	11.5
Count	64	64

DATA

MATING/UNMATING:

	Initial				After 100 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
Sample#	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)
1	53.6	3.35	29.0	1.81	87.4	5.46	61.1	3.82
2	64.5	4.03	38.1	2.38	76.5	4.78	53.9	3.37
3	60.6	3.79	29.4	1.84	93.9	5.87	66.2	4.14
4	72.2	4.51	40.5	2.53	92.6	5.79	58.4	3.65
5	69.1	4.32	31.0	1.94	61.1	3.82	39.7	2.48
6	62.7	3.92	31.4	1.96	67.2	4.20	47.8	2.99
7	59.5	3.72	36.2	2.26	82.4	5.15	60.0	3.75
8	80.2	5.01	40.2	2.51	113.1	7.07	69.1	4.32

	After 250 Cycles				After 500 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
Sample#	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)
1	90.7	5.67	78.4	4.90	104.0	6.50	86.6	5.41
2	82.1	5.13	62.4	3.90	85.8	5.36	68.5	4.28
3	94.2	5.89	75.0	4.69	107.5	6.72	87.2	5.45
4	98.9	6.18	66.9	4.18	107.5	6.72	78.9	4.93
5	82.6	5.16	68.6	4.29	95.8	5.99	76.5	4.78
6	83.8	5.24	68.5	4.28	92.2	5.76	77.8	4.86
7	89.0	5.56	69.6	4.35	100.2	6.26	83.5	5.22
8	120.3	7.52	83.2	5.20	121.9	7.62	81.6	5.10

	After 1000 Cycles				After Thermals			
	Mating		**Unmating**		**Mating**		**Unmating**	
Sample#	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)
1	109.9	6.87	88.6	5.54	49.4	3.09	30.1	1.88
2	99.7	6.23	73.4	4.59	41.0	2.56	30.2	1.89
3	130.4	8.15	111.0	6.94	47.5	2.97	54.9	3.43
4	112.5	7.03	78.4	4.90	46.9	2.93	32.0	2.00
5	117.3	7.33	94.7	5.92	72.0	4.50	46.4	2.90
6	98.1	6.13	86.1	5.38	38.6	2.41	26.4	1.65
7	98.7	6.17	86.9	5.43	41.0	2.56	26.6	1.66
8	128.0	8.00	82.9	5.18	46.2	2.89	28.0	1.75

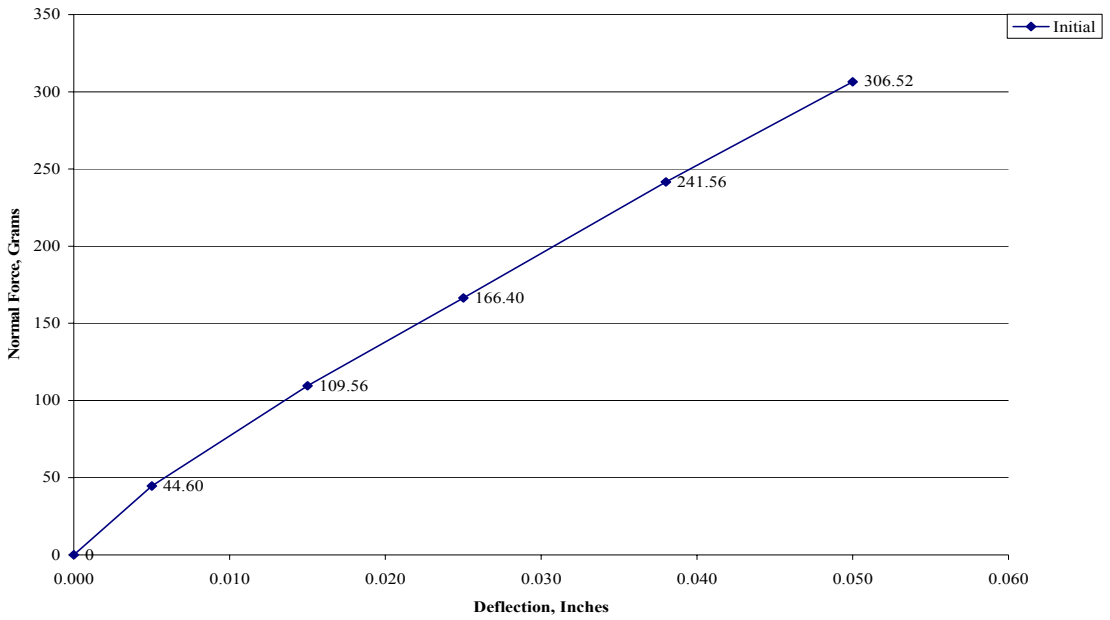
	After Humidity			
	Mating		Unmating	
Sample#	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)
1	44.5	2.78	32.5	2.03
2	41.1	2.57	20.6	1.29
3	36.3	2.27	22.4	1.40
4	38.9	2.43	28.8	1.80
5	37.3	2.33	25.6	1.60
6	41.4	2.59	30.6	1.91
7	34.4	2.15	21.9	1.37
8	47.7	2.98	26.7	1.67

NORMAL FORCE (FOR CONTACTS TESTED IN THE HOUSING):

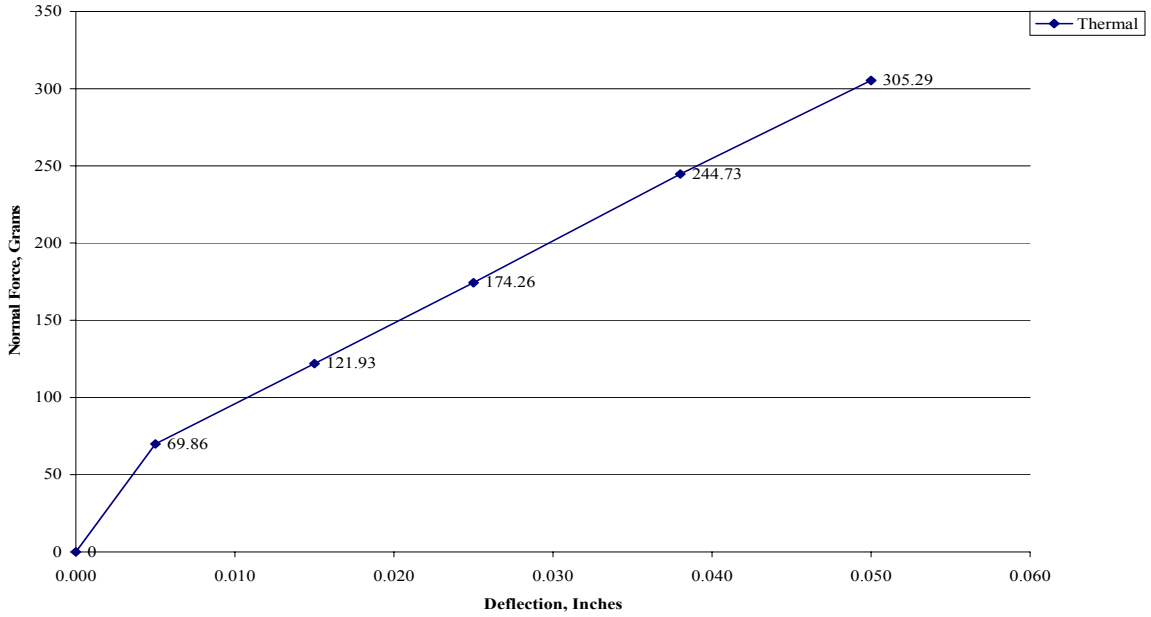
Initial	Deflections in inches Forces in Grams					
Sample #	0.0050	0.0150	0.0250	0.0380	0.0500	*SET*
1	38.70	106.60	166.60	247.00	310.40	0.00000
2	35.30	96.40	157.60	232.30	296.80	0.00090
3	30.80	105.50	168.90	250.40	319.40	0.00100
4	62.50	128.10	185.90	258.30	322.80	0.00000
5	55.70	111.20	153.00	219.80	283.20	0.00060

Thermals	Deflections in inches Forces in Grams					
Sample #	0.0050	0.0150	0.0250	0.0380	0.0500	*SET*
1	36.50	107.80	172.30	256.00	328.50	0.00180
2	94.20	144.00	194.90	260.60	324.00	0.00050
3	65.90	108.90	155.30	225.50	276.40	0.00040
4	77.20	123.60	171.20	234.50	288.90	0.00040
5	65.90	120.20	174.50	248.10	309.20	0.00050
6	67.00	120.20	173.40	247.00	310.40	0.00050
7	84.00	132.70	182.50	249.30	309.20	0.00050
8	68.20	118.00	170.00	236.80	295.70	0.00050

Average Normal Force Initial



Average Normal Force After Thermals



INSULATION RESISTANCE (IR):

	Initial, Meg Ohms	
	Mated	Unmated
Sample #	Insulation Resistance	Insulation Resistance
1	100000	100000
2	100000	100000
3	100000	100000
4	100000	100000

	Thermal, Meg Ohms	
	Mated	Unmated
Sample #	Insulation Resistance	Insulation Resistance
1	100000	100000
2	100000	100000
3	100000	100000
4	100000	100000

	Humidity, Meg Ohms	
	Mated	Unmated
Sample #	Insulation Resistance	Insulation Resistance
1	100000	25000
2	100000	100000
3	100000	100000
4	100000	100000

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

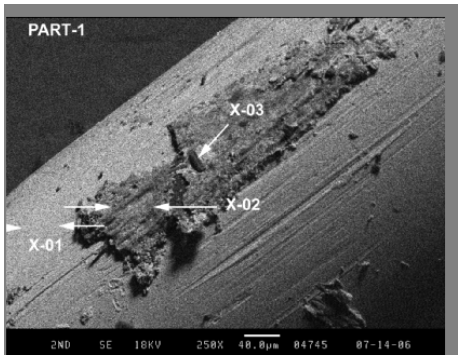
	Initial, VAC Mated			Initial, VAC Unmated		
Sample #	Breakdown Voltage	DWV	Working Voltage	Breakdown Voltage	DWV	Working Voltage
1	1400	1050	350	1400	1050	350
2	1400	1050	350	1400	1050	350

	Thermal, VAC Mated			Thermal, VAC Unmated		
Sample #	Breakdown Voltage	DWV	Working Voltage	Breakdown Voltage	DWV	Working Voltage
1	1500	1125	375	1500	1125	375
2	1300	975	325	1500	1125	375

	Humidity, VAC Mated			Humidity, VAC Unmated		
Sample #	Breakdown Voltage	DWV	Working Voltage	Breakdown Voltage	DWV	Working Voltage
1	1100	825	275	1500	1125	375
2	1300	975	325	1200	900	300

LLCR:

NOTE: Three contact positions were excluded from the following data due to fibrous contamination in the interface.



Scanning Electron Micrograph of Fibrous Contamination

Date	Feb. 22, 2006	Feb. 24 2006	Mar. 08 2006	Mar. 13 2006
Room Temp C	26	25	24	25
RH	21%	17%	24%	25%
Name	Troy Cook	Terry Spine	Troy Cook	Troy Cook
mOhm values	**Actual Initial**	**Delta 1000 Cycles**	**Delta Thermal**	**Delta Humidity**
Average	61.4	-0.3	1.0	1.5
St. Dev.	7.4	1.0	1.7	1.9
Min	51.4	-3.0	-2.1	-2.2
Max	81.1	3.1	5.0	7.9
Count	61	61	61	61

mOhm values		Actual	Delta	Delta	Delta
Board	Position	Initial	1000 Cycles	Thermal	Humidity
1	P1	71.0	2.0	-0.1	3.5
1	P3	61.9	-1.0	1.3	1.2
1	P4	54.8	0.0	5.0	2.8
1	P5	68.6	-1.6	3.0	-0.3
1	P6	53.1	-0.5	1.5	2.7
1	P7	60.3	-1.1	0.0	0.6
1	P8	56.8	0.1	2.4	2.3
2	P1	69.1	0.2	4.7	3.7
2	P2	55.9	-0.6	2.3	1.7
2	P3	62.6	-1.0	5.0	6.1
2	P4	54.1	-2.1	3.9	4.7
2	P5	71.1	-3.0	4.6	0.1
2	P6	53.6	-0.7	-2.1	0.0
2	P7	58.1	-1.0	0.4	1.7
2	P8	58.3	-0.5	1.5	0.6
3	P1	77.4	-0.1	-0.8	-1.2
3	P2	59.1	-0.5	3.5	2.8
3	P3	59.3	3.1	2.7	2.5
3	P4	54.0	0.7	0.2	-2.2
3	P5	69.1	-0.3	3.2	2.1
3	P6	52.4	0.5	0.3	0.7
3	P7	62.9	0.2	0.3	-0.4
3	P8	59.7	-1.0	-0.2	-1.7
4	P1	75.9	0.2	0.6	-0.7
4	P2	62.0	-2.3	1.2	4.2
4	P3	63.6	0.1	-0.4	0.7
4	P4	55.4	-0.6	-0.5	-1.3
4	P5	69.4	-0.7	-0.8	-0.2
4	P6	53.6	-0.7	-0.8	0.0
4	P7	61.9	0.3	-0.1	1.8
4	P8	60.6	0.5	-0.1	2.6
5	P1	70.5	0.0	2.0	1.8
5	P2	54.9	-0.3	1.4	3.9
5	P3	59.6	0.0	0.7	0.4
5	P4	52.6	1.0	0.2	0.9
5	P5	66.2	0.4	2.7	-1.6
5	P6	51.4	0.3	-1.3	-0.7
5	P7	56.6	0.3	-0.7	1.9
5	P8	56.2	1.2	-1.2	2.1
6	P1	80.2	0.0	4.9	3.7
6	P2	61.0	-1.2	1.0	0.8
6	P3	60.4	-0.7	0.0	0.5
6	P4	55.3	0.3	2.6	4.7
6	P5	66.9	-0.6	2.6	0.9

6	P6	52.7	-1.3	-0.4	-0.3
6	P7	63.7	-0.1	0.0	0.6
6	P8	59.2	0.0	0.3	0.5
7	P1	77.3	0.2	-0.8	1.3
7	P2	59.4	-0.1	0.5	1.6
7	P3	62.8	-1.1	0.9	2.0
7	P4	55.2	-0.7	1.7	0.3
7	P5	69.3	-0.7	-1.0	0.8
7	P6	53.3	-0.5	0.0	0.9
7	P7	63.4	1.6	1.2	1.5
7	P8	60.0	-0.6	-0.7	-0.2
8	P1	81.1	-1.2	2.1	7.9
8	P2	60.7	-0.7	0.1	2.0
8	P4	55.6	-0.6	1.8	4.4
8	P6	51.7	0.3	1.0	1.9
8	P7	64.6	-0.9	-0.9	0.4
8	P8	60.1	0.7	0.1	3.0

GAS TIGHT:

Date	March 2 2006	March 14 2006
Room Temp C	25	21
RH	35%	46%
Name	Terry Spine	Troy Cook
mOhm values	**Actual Initial**	**Delta Gas Tight**
Average	63.6	-0.8
St. Dev.	8.4	3.4
Min	52.3	-18.5
Max	98.7	11.5
Count	64	64

mOhm values		**Actual**	**Delta**
Board	**Position**	**Initial**	**Gas Tight**
1	P1	75.5	2.6
1	P2	58.8	-0.1
1	P3	60.1	-1.2
1	P4	56.4	0.0
1	P5	70.3	1.2
1	P6	52.3	0.1
1	P7	63.4	1.6
1	P8	61.4	0.6
2	P1	83.9	-1.2
2	P2	58.0	0.6
2	P3	62.7	3.3
2	P4	55.8	0.4
2	P5	71.8	-1.8
2	P6	54.6	1.4
2	P7	65.8	-1.2
2	P8	61.5	0.8
3	P1	84.8	-2.7
3	P2	59.5	-1.1
3	P3	63.2	0.1
3	P4	60.6	-3.5
3	P5	75.0	-0.8
3	P6	57.2	-0.7
3	P7	67.2	-3.9
3	P8	63.5	0.6
4	P1	79.2	-2.0
4	P2	61.4	11.5
4	P3	62.4	2.9
4	P4	55.7	-3.8
4	P5	69.2	-4.5
4	P6	53.0	-1.3
4	P7	63.5	-0.7

4	P8	66.0	-6.1
5	P1	78.8	-1.0
5	P2	60.0	1.3
5	P3	65.5	0.7
5	P4	56.2	-0.9
5	P5	71.0	-1.0
5	P6	57.6	-3.0
5	P7	63.0	-1.2
5	P8	59.4	0.4
6	P1	98.7	-18.5
6	P2	61.5	-2.6
6	P3	63.2	-2.7
6	P4	59.8	-4.8
6	P5	68.5	2.2
6	P6	55.4	-3.2
6	P7	63.3	-1.7
6	P8	60.1	-0.9
7	P1	70.8	3.2
7	P2	56.9	-1.4
7	P3	62.2	-0.1
7	P4	54.4	-1.0
7	P5	65.2	4.4
7	P6	56.8	-2.6
7	P7	60.7	-3.1
7	P8	59.8	-2.8
8	P1	70.6	-0.4
8	P2	56.3	-0.4
8	P3	63.8	-1.1
8	P4	56.4	-2.1
8	P5	68.2	1.2
8	P6	54.5	1.2
8	P7	60.4	-1.8
8	P8	59.4	2.1

EQUIPMENT AND CALIBRATION SCHEDULES

Equipment #: THL-02
Description: Temperature/Humidity Chart Recorder
Manufacturer: Dickson
Model: THDX
Serial #: 00120351
Accuracy: Temp: +/- 1C; Humidity: +/-2% RH (0 - 60%) +/- 3% RH (61 - 95%).
… Last Cal: 06/16/05, Next Cal: 06/16/06

Equipment #: PS-01
Description: System Power Supply
Manufacturer: Hewlett Packard
Model: HP 6033A
Serial #: (HP) 3329A-07330
Accuracy: See Manual
… Last Cal: 05/12/05, Next Cal: 05/12/06

Equipment #: TC090601-103/105
Description: IC Thermocouple-103/105
Manufacturer: Samtec
Model:
Serial #: TC090601-103/105
Accuracy: +/- 1 degree C
… Last Cal: , Next Cal:

Equipment #: TCT-03
Description: Dillon Quantrol TC2 Test Stand
Manufacturer: Dillon Quantrol
Model: TC2
Serial #: 02-1033-03
Accuracy: Speed Accuracy: +/- 5% of indicated speed; Displacement: +/- 5 micrometers.
… Last Cal: 5/12/05, Next Cal: 5/12/06

Equipment #: LC-250N (icell)
Description: 250 Newton load cell for Dillon Quantrol test stand
Manufacturer: Dillon Quantrol
Model: icell
Serial #: 04-0020-08
Accuracy: .10 % of Capacity
… Last Cal: 4/19/2005, Next Cal: 4/19/2006
Equipment #: TCT-04
Description: Dillon Quantrol TC21 25-1000 mm/min series test stand
Manufacturer: Dillon Quantrol
Model: TC2 I series test stand
Serial #: 04-1041-04
Accuracy: Speed Accuracy: +/- 5% of indicated speed; Speed Accuracy: +/- 5% of indicated speed;
… Last Cal: 4/28/2005, Next Cal: 4/28/2006

Equipment #: HPM-01
Description: Hipot Megommeter
Manufacturer: Hipotronics
Model: H306B-A
Serial #: M9905004
Accuracy: 2 % Full Scale Accuracy 2 % Full Scale Accuracy
… Last Cal: 5/12/05, Next Cal: 05/12/06

Equipment #: OV-03
Description: Cascade Tek Forced Air Oven
Manufacturer: Cascade Tek
Model: TFO-5
Serial #: 0500100
Accuracy: Temp. Stability: +/-.1C/C change in ambient
… Last Cal: 05/12/05, Next Cal: 05/12/06

Equipment #: THC-01
Description: Temperature/Humidity Chamber
Manufacturer: Thermotron
Model: SM-8-7800
Serial #: 30676
Accuracy: See Manual
… Last Cal: 7/15/2005, Next Cal: 8/15/2006

Equipment #: MO-01
Description: Micro-Ohmeter
Manufacturer: Keithley
Model: 580
Serial #: 0772740
Accuracy: See Manual
… Last Cal: 05/12/05, Next Cal: 05/12/06

Equipment #: MO-03
Description: Multimeter /Data Acquisition System
Manufacturer: Keithley
Model: 2700
Serial #: 00120351
Accuracy: See Manual
… Last Cal: 05/12/05, Next Cal: 05/12/06

…