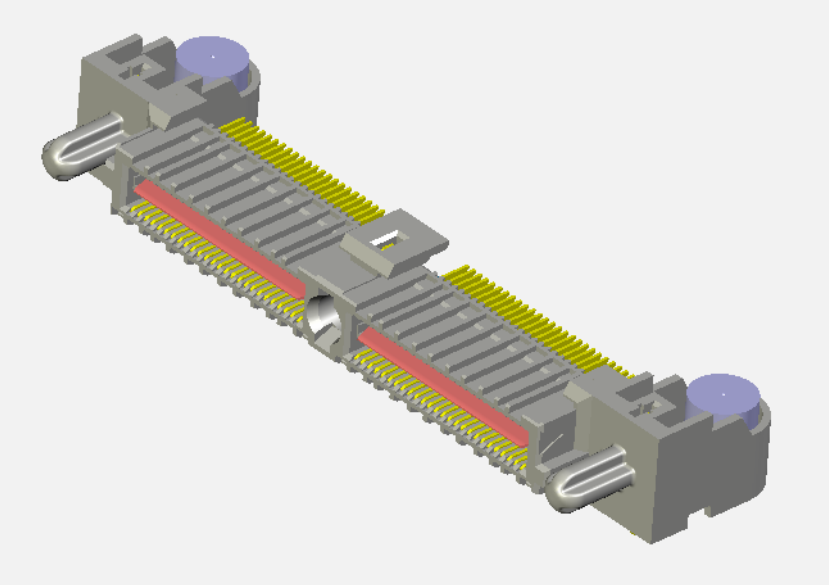
Project Number:	Tracking Code: TC0722--1370		
Requested by: Kevin Meredith	Date: 6/1/2007	Product Rev: 1	
Part #: QMS-104-01-SL-D-RA	Lot #: na	Tech: Tony Wagoner/Tori Meek	Eng: Troy Cook
Part description: QMS			Qty to test: 50
Test Start: 06/06/2007	Test Completed: 7/31/2007		



QMS-104-01-XX-D-RA
DVT SUMMARY REPORT

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: follow test plan QMS-RA Test DVT

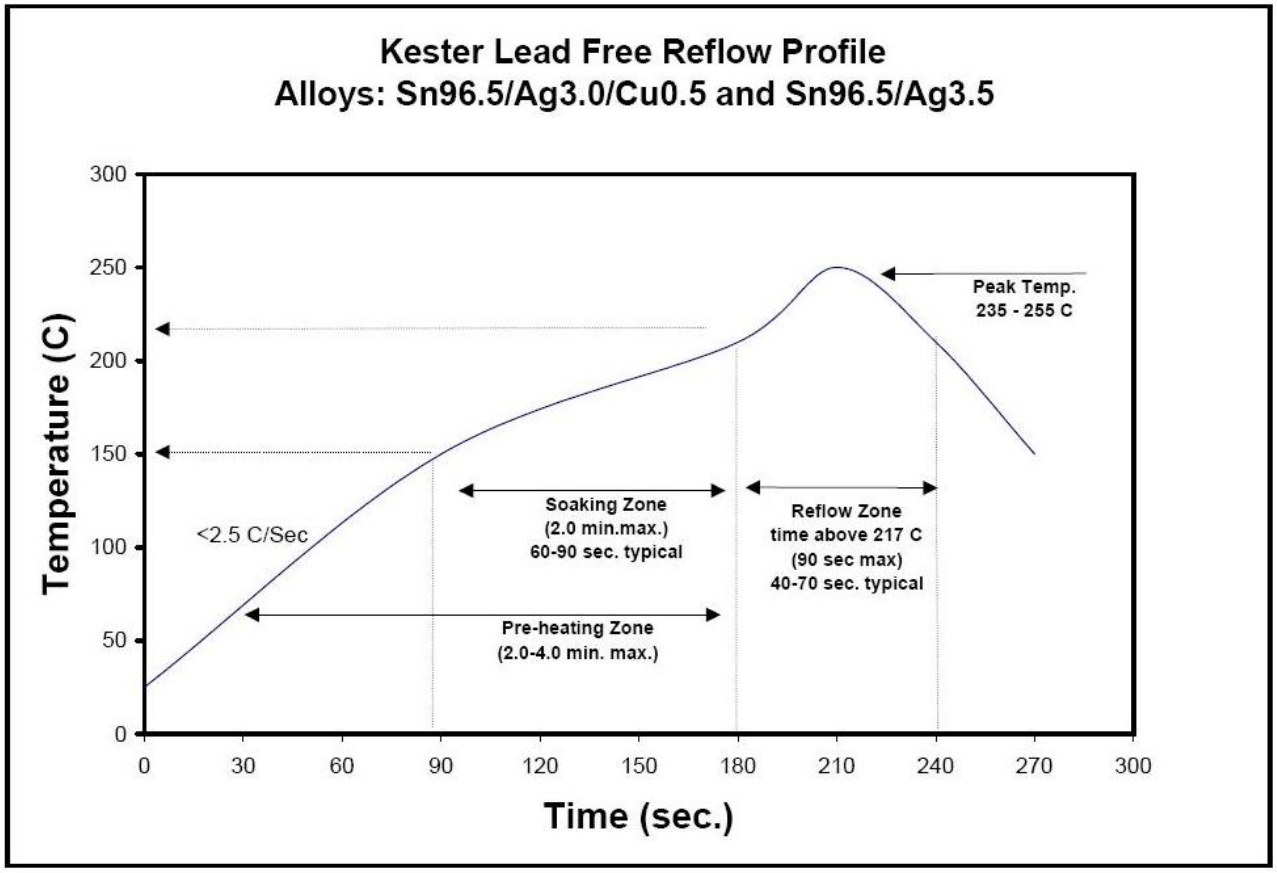
APPLICABLE DOCUMENTS

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) Parts not intended for testing LLCR and DWV/IR are visually inspected and cleaned if necessary.
7) Any additional preparation will be noted in the individual test sequences.
8) Solder Information: Lead Free
9) Re-Flow Time/Temp: See accompanying profile.
10) Internal Test PCBs used: PCB-100670-TST-XX

OVEN PROFILE (Soldering Parts to Test Boards)



FLOWCHARTS

Current Carrying Capacity

TEST STEP	GROUP A 1 board min 6 Contacts in series, clustered if possible
01	CCC

Tabulate calculated current at RT, 85° C, 95° C and 115° C
after derating 20% and based on 125° C
CCC, Temp rise = EIA-364-70

Mating/Unmating/Normal Force

TEST STEP	GROUP A 10 Boards 100 Cycles
01	Contact Meas.
02	Mating / Unmating
03	Data Review
04	100 Cycles
05	Mating / Unmating
06	Contact Meas.
07	Data Review
08	Thermal Aging (Mated)
09	Mating / Unmating
10	Contact Meas.
11	Data Review
12	Humidity (Mated)
13	Mating / Unmating
14	Contact Meas.

Thermal Aging = EIA-364-17, Test Condition 4, 105 deg C;
Time Condition 'B' (250 hours)
Humidity =EIA-364-31, Test Condition 'B' (240 Hours)
and Method III (+25 ° C to +65 ° C @ 90%RH to 98% RH)
ambient pre-condition and delete steps 7a and 7b
Mating/Un-Mating Forces = EIA-364-13
Contact Gaps/Height - No standard method. Usually measured optically

FLOWCHARTS Continued

IR / DWV

TEST STEP	GROUP A 2 Boards Ambient	GROUP B1 2 Boards Ambient	GROUP B2 2 Boards Thermal	GROUP B3 2 Boards Humidity
01	IR	DWV/Working Voltage	Thermal Aging	Humidity
02	Data Review		DWV/Working Voltage	DWV/Working Voltage
03	Thermal Aging			
04	IR			
05	Data Review			
06	Humidity			
07	IR			

Thermal Aging = EIA-364-17, Test Condition 4, 105 deg C;
Time Condition 'B' (250 hours)
Humidity =EIA-364-31, Test Condition 'B' (240 Hours)
and Method III (+25 ° C to +65 ° C @ 90%RH to 98% RH)
ambient pre-condition and delete steps 7a and 7b
IR = EIA-364-21
DWV = EIA-364-20

Durability/Thermal Age/Cyclic Humidity

TEST STEP	GROUP A 200 Points 100 Cycles
01	LLCR-1
02	Data Review
03	100 Cycles
04	LLCR-2
05	Data Review
06	Thermal Age
07	LLCR-3
08	Data Review
09	Cyclic Humidity
10	LLCR-4

Thermal Aging = EIA-364-17, Test Condition 4, 105 deg C;
Time Condition 'B' (250 hours)
Humidity =EIA-364-31, Test Condition 'B' (240 Hours)
and Method III (+25° C to +65° C @ 90%RH/98% RH)
ambient pre-condition and delete steps 7a and 7b
LLCR = EIA-364-23, LLCR
use Keithley 580 in the dry circuit mode, 10 mA Max

FLOWCHARTS Continued

Gas Tight

TEST STEP	GROUP A 200 Points (min)
01	LLCR-1
02	Gas Tight
03	LLCR-2

Gas Tight = EIA-364-36

LLCR = EIA-364-23, LLCR

use Keithley 580 in the dry circuit mode, 10 mA Max

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 4 at 105° C.
3) Test Time Condition B for 250 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 B, 240 Hours.
3) Method III, +25° C to + 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. 85^{o} C
    c. 95^{o} C
    d. 115^{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.

CONTACT GAPS:

1) Contact gaps were measured before and after stressing the contacts (e.g. thermal aging, mechanical cycling, etc.).
2) Typically, all contacts on the connector are measured.

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.

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 5000 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

SEQUENCE.#1:

Temperature Rise, CCC at a 20% de-rating

- **CCC for a 30°C Temperature Rise----------1.3 A per contact with 6 adjacent contacts powered**

SEQUENCE.#2:

Contact Gap – QMS-RA

- **Initial**
  - **Min----------.1112”**
  - **Max----------.1163”**
- **After 100 Cycles**
  - **Min----------.1113”**
  - **Max----------.1166”**
- **Thermal**
  - **Min----------.1089”**
  - **Max----------.1207”**
- **Humidity**
  - **Min----------.1129”**
  - **Max----------.1211”**

Contact Gap – QFS

- **Initial**
  - **Min----------.1256”**
  - **Max----------.1360”**
- **After 100 Cycles**
  - **Min----------.1249”**
  - **Max----------.1353”**
- **Thermal**
  - **Min----------.1044”**
  - **Max----------.1320”**
- **Humidity**
  - **Min----------.1232”**
  - **Max----------.1317”**

Mating – Unmating Forces

- **Initial**
  - **Mating**
    - **Min----------12.9 Lbs.**
    - **Max----------18.4 Lbs.**
  - **Unmating**
    - **Min----------10.2 Lbs.**
    - **Max----------13.0 Lbs.**
- **After 100 Cycles**
  - **Mating**
    - **Min----------14.2 Lbs.**
    - **Max----------20.1 Lbs.**
  - **Unmating**
    - **Min----------10.7 Lbs.**
    - **Max----------14.2 Lbs.**

- **Thermal**
  - **Mating**
    - **Min ---------- 5.2 Lbs.**
    - **Max---------- 8.1 Lbs.**
  - **Unmating**
    - **Min ---------- 2.8 Lbs.**
    - **Max---------- 5.0 Lbs.**
- **Humidity**
  - **Mating**
    - **Min ----------11.1 Lbs.**
    - **Max----------20.5 Lbs.**
  - **Unmating**
    - **Min ---------- 6.7 Lbs.**
    - **Max---------- 9.6 Lbs.**

SEQUENCE.#3:

Insulation Resistance minimums, IR

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

Dielectric Withstanding Voltage minimums, DWV

- **Initial**
  - **Breakdown**
    - **Mated ----------820 VAC**
    - **Unmated----------900 VAC**
  - **DWV**
    - **Mated ----------615 VAC**
    - **Unmated----------675 VAC**
  - **Working voltage**
    - **Mated ----------205 VAC**
    - **Unmated----------225 VAC**
- **Thermal**
  - **Breakdown**
    - **Mated ----------840 VAC**
    - **Unmated----------1,100 VAC**
  - **DWV**
    - **Mated ----------630 VAC**
    - **Unmated----------825 VAC**
  - **Working voltage**
    - **Mated ----------210 VAC**
    - **Unmated----------275 VAC**
- **Humidity**
  - **Breakdown**
    - **Mated ----------800 VAC**
    - **Unmated----------820 VAC**

- **DWV**
  - **Mated ----------600 VAC**
  - **Unmated----------615 VAC**
- **Working voltage**
  - **Mated ----------200 VAC**
  - **Unmated----------205 VAC**

SEQUENCE.#4:

LLCR Durability (200 LLCR test points)

- **Initial ---------- 24.8 mOhms Max**
- **Durability, 100 Cycles**
  - **<= +5.0 mOhms ----------200 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 ----------198 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms----------1 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 ----------197 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 ----------1 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms----------0 Points ---------- Unstable**
  - **>+2000 mOhms----------0 Points ---------- Open Failure**

SEQUENCE.#5:

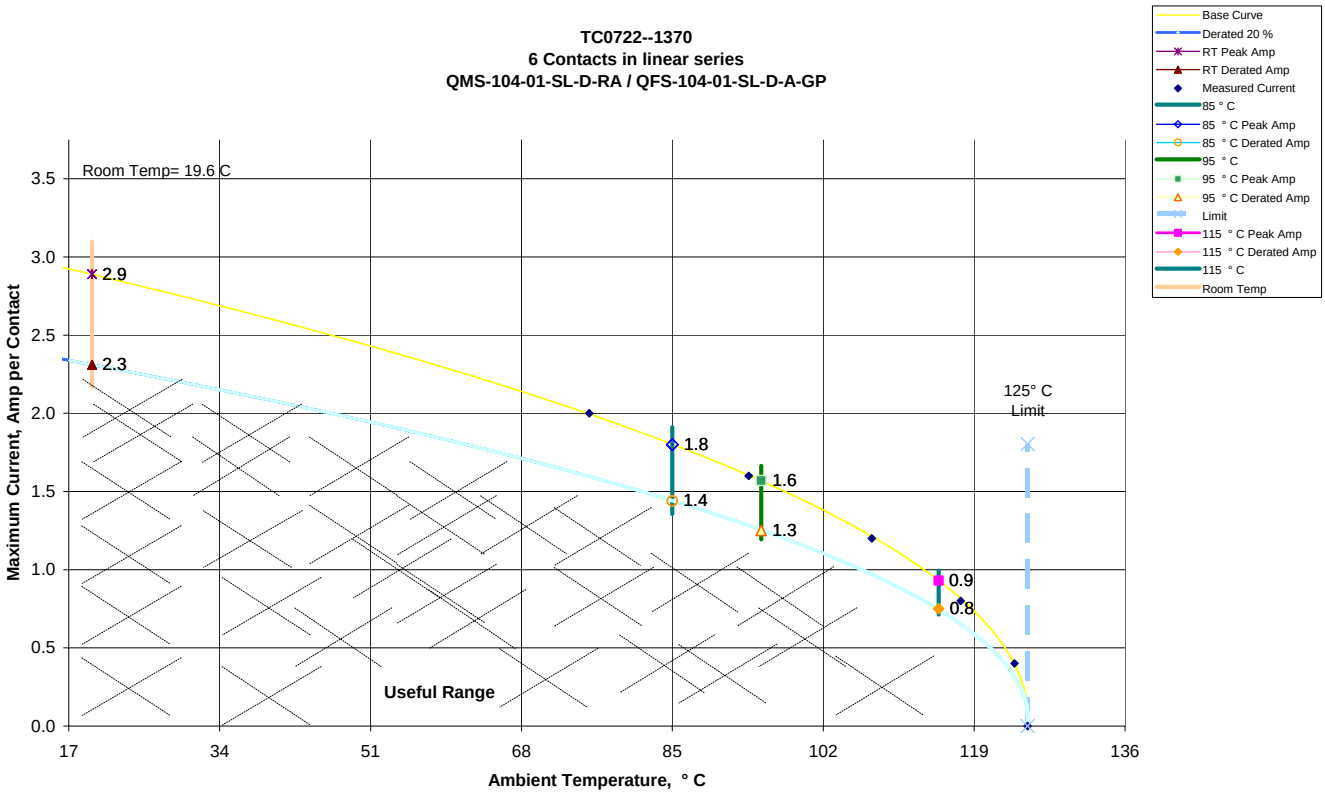
LLCR Gas Tight (200 LLCR test points)

- **Initial ---------- 24.9 mOhms Max**
- **Gas-Tight**
  - **<= +5.0 mOhms ----------198 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms----------2 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**

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 with 6 adjacent contacts in linear configuration.



DATA SUMMARIES Continued

CONTACT GAP:

QMS-RA:

Initial Measurements in inches		After 100 Cycles Measurements in inches		Thermal Measurements in inches		Humidity Measurements in inches	
Minimum	0.1112	*Minimum*	0.1113	*Minimum*	0.1089	*Minimum*	0.1129
Maximum	0.1163	*Maximum*	0.1166	*Maximum*	0.1207	*Maximum*	0.1211
Average	0.1116	*Average*	0.1117	*Average*	0.1109	*Average*	0.1133
St. Dev.	0.0009	*St. Dev.*	0.0010	*St. Dev.*	0.0019	*St. Dev.*	0.0015
Count	208	*Count*	208	*Count*	208	*Count*	208

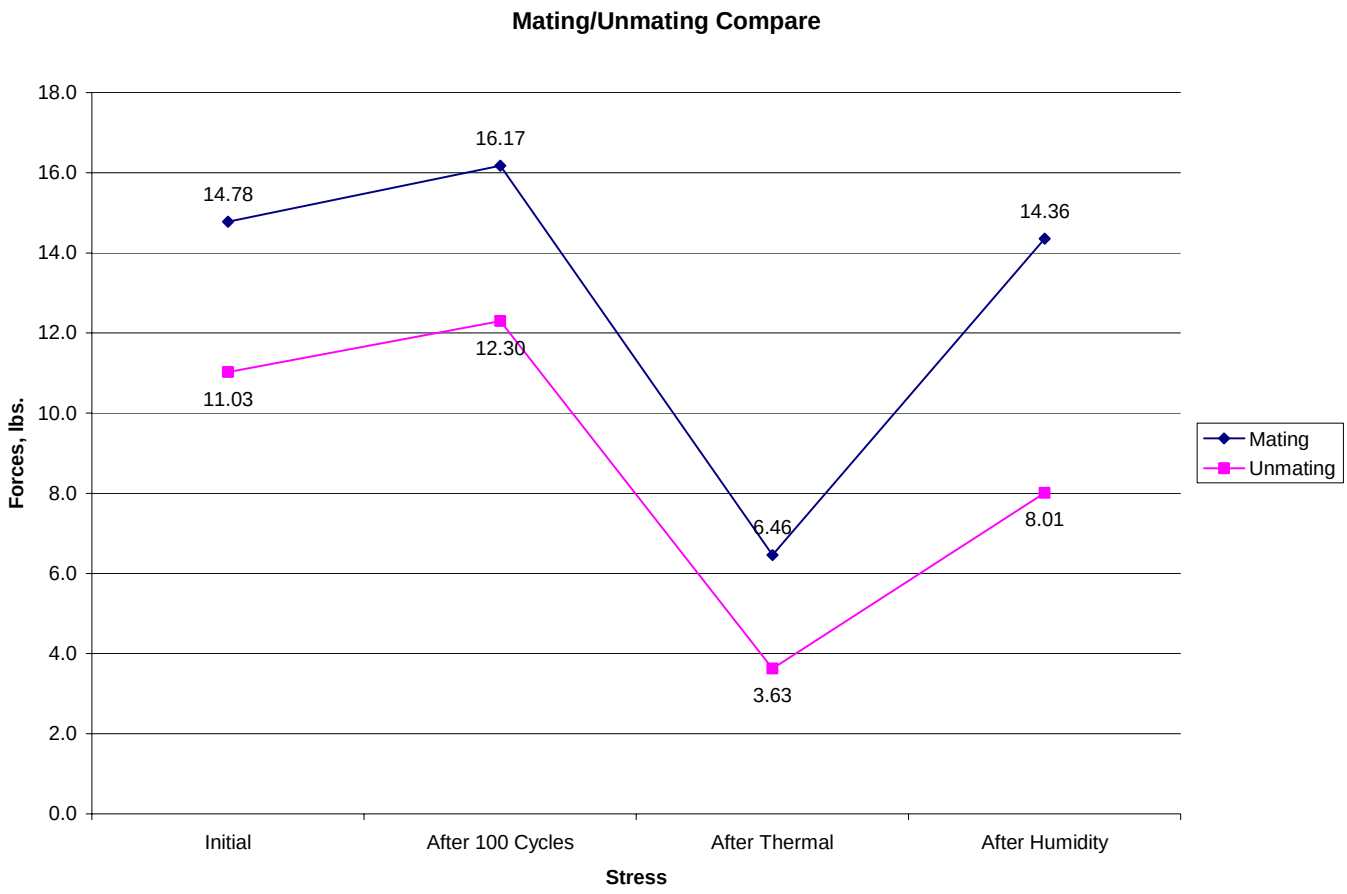
QFS:

Initial Measurements in inches		After 100 Cycles Measurements in inches		Thermal Measurements in inches		Humidity Measurements in inches	
Minimum	0.1256	*Minimum*	0.1249	*Minimum*	0.1044	*Minimum*	0.1232
Maximum	0.1360	*Maximum*	0.1353	*Maximum*	0.1320	*Maximum*	0.1317
Average	0.1328	*Average*	0.1323	*Average*	0.1295	*Average*	0.1294
St. Dev.	0.0014	*St. Dev.*	0.0015	*St. Dev.*	0.0020	*St. Dev.*	0.0013
Count	312	*Count*	312	*Count*	208	*Count*	208

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	207.0	12.94	162.7	10.17	227.4	14.21	171.7	10.73
Maximum	*295.0*	*18.4*	*208.0*	*13.0*	*321.6*	*20.1*	*227.5*	*14.2*
Average	***236.5***	***14.8***	***176.4***	***11.0***	***258.8***	***16.2***	***196.8***	***12.3***
	After Thermal				After Humidity			
	Mating		Unmating		Mating		Unmating	
	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)
Minimum	83.0	5.2	44.2	2.8	178.1	11.1	107.5	6.7
Maximum	*130.1*	*8.1*	*79.2*	*5.0*	*328.2*	*20.5*	*153.4*	*9.6*
Average	***103.3***	***6.5***	***58.0***	***3.6***	***229.7***	***14.4***	***128.1***	***8.0***

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	33333	100000	100000	100000	25000	31667
Min	25000	100000	100000	100000	25000	25000
Max	50000	100000	100000	100000	25000	35000

DATA SUMMARIES Continued

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

	Initial, VAC Mated			Initial, VAC Unmated		
	Breakdown Voltage	DWV	Working Voltage	Breakdown Voltage	DWV	Working Voltage
Average	820	615	205	900	675	225
Min	820	615	205	900	675	225
Max	820	615	205	900	675	225

	Thermal, VAC Mated			Thermal, VAC Unmated		
	Breakdown Voltage	DWV	Working Voltage	Breakdown Voltage	DWV	Working Voltage
Average	840	630	210	1130	848	283
Min	840	630	210	1100	825	275
Max	840	630	210	1160	870	290

	Humidity, VAC Mated			Humidity, VAC Unmated		
	Breakdown Voltage	DWV	Working Voltage	Breakdown Voltage	DWV	Working Voltage
Average	800	600	200	850	638	213
Min	800	600	200	820	615	205
Max	800	600	200	880	660	220

LLCR:

1) A total of 200 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

Date	Jun. 06 2007	Jun. 22 2007	Jul. 06 2007	Jul. 20 2007
Room Temp C	23	24	22	23
RH	50%	44%	56%	49%
Name	Tony Wagoner	Tony Wagoner	Tony Wagoner	Tony Wagoner
mOhm values	**Actual Initial**	**Delta 100 Cycles**	**Delta Thermal**	**Delta Humidity**
Average	22.3	0.3	0.9	1.1
St. Dev.	1.5	0.9	1.0	1.5
Min	18.7	-3.5	-3.0	-2.5
Max	24.8	3.3	6.5	15.8
Count	200	200	199	199

GAS TIGHT:

1) A total of 200 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

Date	Jun. 07 2007	Jul. 25 2007
Room Temp C	22	23
RH	50%	54%
Name	Tony Wagoner	Tony Wagoner
mOhm values	**Actual Initial**	**Delta Gas Tight**
Average	22.3	0.7
St. Dev.	1.5	1.0
Min	19.1	-1.8
Max	24.9	8.0
Count	200	200

DATA

CONTACT GAP:

QMS-RA:

Initial			After 100 Cycles		Thermal		Humidity	
Measurements in inches			Measurements in inches		Measurements in inches		Measurements in inches	
Sample#	B2	B4	B2	B4	B2	B4	B2	B4
1	0.1138	0.1130	0.1136	0.1127	0.1143	0.1134	0.1146	0.1138
2	0.1145	0.1134	0.1142	0.1135	0.1155	0.1150	0.1156	0.1150
3	0.1133	0.1115	0.1140	0.1116	0.1157	0.1139	0.1157	0.1141
4	0.1149	0.1137	0.1154	0.1135	0.1171	0.1159	0.1178	0.1163
5	0.1148	0.1139	0.1150	0.1142	0.1178	0.1168	0.1175	0.1171
6	0.1149	0.1145	0.1150	0.1146	0.1182	0.1174	0.1180	0.1174
7	0.1137	0.1137	0.1146	0.1142	0.1174	0.1174	0.1174	0.1177
8	0.1143	0.1139	0.1146	0.1139	0.1183	0.1172	0.1181	0.1176
9	0.1152	0.1145	0.1153	0.1148	0.1189	0.1181	0.1190	0.1185
10	0.1149	0.1149	0.1154	0.1153	0.1186	0.1192	0.1192	0.1189
11	0.1156	0.1133	0.1160	0.1135	0.1194	0.1171	0.1198	0.1176
12	0.1152	0.1147	0.1155	0.1146	0.1193	0.1182	0.1195	0.1188
13	0.1147	0.1140	0.1148	0.1138	0.1185	0.1175	0.1188	0.1188
14	0.1141	0.1137	0.1147	0.1140	0.1188	0.1178	0.1188	0.1182
15	0.1152	0.1142	0.1156	0.1144	0.1192	0.1181	0.1197	0.1186
16	0.1152	0.1141	0.1159	0.1144	0.1193	0.1183	0.1194	0.1186
17	0.1152	0.1152	0.1162	0.1154	0.1194	0.1187	0.1197	0.1194
18	0.1154	0.1146	0.1155	0.1150	0.1185	0.1187	0.1196	0.1189
19	0.1139	0.1130	0.1147	0.1136	0.1178	0.1167	0.1180	0.1174
20	0.1143	0.1127	0.1143	0.1129	0.1178	0.1161	0.1178	0.1167
21	0.1145	0.1141	0.1148	0.1144	0.1177	0.1175	0.1181	0.1179
22	0.1150	0.1148	0.1152	0.1149	0.1184	0.1176	0.1185	0.1183
23	0.1149	0.1138	0.1152	0.1143	0.1176	0.1174	0.1181	0.1174
24	0.1142	0.1141	0.1146	0.1139	0.1167	0.1167	0.1167	0.1162
25	0.1134	0.1137	0.1138	0.1136	0.1152	0.1149	0.1156	0.1155
26	0.1132	0.1130	0.1135	0.1132	0.1141	0.1141	0.1140	0.1141
27	0.1126	0.1123	0.1131	0.1127	0.1136	0.1129	0.1137	0.1129
28	0.1142	0.1134	0.1141	0.1132	0.1158	0.1152	0.1163	0.1152
29	0.1147	0.1139	0.1150	0.1138	0.1173	0.1163	0.1173	0.1169
30	0.1162	0.1150	0.1163	0.1153	0.1182	0.1178	0.1178	0.1180
31	0.1154	0.1139	0.1159	0.1145	0.1185	0.1171	0.1187	0.1173
32	0.1150	0.1149	0.1157	0.1147	0.1186	0.1182	0.1193	0.1185
33	0.1149	0.1147	0.1154	0.1149	0.1183	0.1182	0.1188	0.1183
34	0.1149	0.1144	0.1152	0.1142	0.1185	0.1179	0.1191	0.1187
35	0.1160	0.1153	0.1163	0.1156	0.1198	0.1196	0.1202	0.1197
36	0.1159	0.1153	0.1161	0.1155	0.1201	0.1192	0.1203	0.1194
37	0.1157	0.1156	0.1159	0.1155	0.1207	0.1190	0.1203	0.1197
38	0.1163	0.1151	0.1164	0.1155	0.1203	0.1194	0.1208	0.1196
39	0.1149	0.1134	0.1153	0.1137	0.1197	0.1177	0.1198	0.1179
40	0.1150	0.1139	0.1153	0.1143	0.1190	0.1185	0.1201	0.1191
41	0.1161	0.1157	0.1164	0.1158	0.1205	0.1199	0.1209	0.1200
42	0.1160	0.1152	0.1166	0.1153	0.1202	0.1188	0.1211	0.1198
43	0.1159	0.1159	0.1162	0.1157	0.1203	0.1191	0.1205	0.1198
44	0.1148	0.1149	0.1150	0.1148	0.1189	0.1185	0.1192	0.1189
45	0.1135	0.1132	0.1138	0.1132	0.1176	0.1171	0.1180	0.1177

46	0.1137	0.1131	0.1141	0.1133	0.1174	0.1160	0.1177	0.1171
47	0.1151	0.1145	0.1154	0.1148	0.1193	0.1182	0.1195	0.1187
48	0.1145	0.1144	0.1150	0.1150	0.1175	0.1174	0.1185	0.1182
49	0.1146	0.1137	0.1150	0.1142	0.1182	0.1163	0.1182	0.1167
50	0.1145	0.1135	0.1142	0.1138	0.1167	0.1158	0.1170	0.1164
51	0.1144	0.1138	0.1142	0.1140	0.1157	0.1156	0.1161	0.1156
52	0.1129	0.1129	0.1131	0.1129	0.1141	0.1141	0.1139	0.1135
53	0.1120	0.1116	0.1122	0.1120	0.1135	0.1130	0.1137	0.1134
54	0.1132	0.1134	0.1133	0.1131	0.1152	0.1153	0.1155	0.1153
55	0.1134	0.1141	0.1140	0.1142	0.1164	0.1163	0.1166	0.1163
56	0.1141	0.1141	0.1149	0.1143	0.1171	0.1167	0.1177	0.1170
57	0.1145	0.1146	0.1151	0.1145	0.1173	0.1171	0.1183	0.1176
58	0.1145	0.1145	0.1145	0.1145	0.1183	0.1176	0.1182	0.1178
59	0.1140	0.1147	0.1144	0.1150	0.1179	0.1178	0.1181	0.1183
60	0.1144	0.1151	0.1144	0.1150	0.1178	0.1186	0.1186	0.1191
61	0.1148	0.1139	0.1147	0.1146	0.1185	0.1182	0.1192	0.1186
62	0.1141	0.1147	0.1148	0.1146	0.1184	0.1181	0.1189	0.1193
63	0.1144	0.1152	0.1146	0.1152	0.1186	0.1188	0.1191	0.1200
64	0.1160	0.1153	0.1162	0.1155	0.1200	0.1193	0.1203	0.1200
65	0.1138	0.1130	0.1135	0.1132	0.1185	0.1172	0.1186	0.1174
66	0.1147	0.1140	0.1145	0.1145	0.1188	0.1185	0.1191	0.1190
67	0.1152	0.1154	0.1155	0.1154	0.1202	0.1199	0.1202	0.1199
68	0.1154	0.1157	0.1160	0.1157	0.1201	0.1196	0.1203	0.1204
69	0.1149	0.1137	0.1153	0.1143	0.1194	0.1181	0.1191	0.1187
70	0.1143	0.1149	0.1152	0.1151	0.1189	0.1183	0.1194	0.1192
71	0.1144	0.1147	0.1146	0.1150	0.1187	0.1189	0.1189	0.1189
72	0.1137	0.1133	0.1145	0.1132	0.1177	0.1171	0.1182	0.1171
73	0.1153	0.1146	0.1155	0.1150	0.1194	0.1183	0.1191	0.1183
74	0.1140	0.1151	0.1144	0.1150	0.1171	0.1165	0.1181	0.1186
75	0.1151	0.1145	0.1153	0.1150	0.1179	0.1168	0.1181	0.1176
76	0.1141	0.1133	0.1142	0.1134	0.1165	0.1156	0.1187	0.1186
77	0.1137	0.1134	0.1133	0.1138	0.1152	0.1152	0.1187	0.1186
78	0.1119	0.1127	0.1120	0.1128	0.1126	0.1137	0.1187	0.1187
79	0.1126	0.1122	0.1125	0.1123	0.1137	0.1137	0.1187	0.1187
80	0.1130	0.1121	0.1131	0.1126	0.1149	0.1137	0.1187	0.1187
81	0.1130	0.1126	0.1131	0.1124	0.1152	0.1148	0.1188	0.1188
82	0.1133	0.1136	0.1138	0.1139	0.1156	0.1163	0.1188	0.1188
83	0.1144	0.1141	0.1144	0.1142	0.1174	0.1172	0.1188	0.1188
84	0.1144	0.1125	0.1147	0.1128	0.1176	0.1160	0.1188	0.1189
85	0.1141	0.1138	0.1145	0.1144	0.1179	0.1178	0.1188	0.1189
86	0.1147	0.1145	0.1151	0.1143	0.1185	0.1178	0.1188	0.1189
87	0.1150	0.1145	0.1153	0.1147	0.1191	0.1181	0.1189	0.1190
88	0.1151	0.1144	0.1152	0.1147	0.1190	0.1181	0.1189	0.1190
89	0.1143	0.1138	0.1149	0.1143	0.1187	0.1179	0.1189	0.1190
90	0.1145	0.1148	0.1149	0.1144	0.1186	0.1182	0.1189	0.1191
91	0.1146	0.1137	0.1149	0.1141	0.1190	0.1182	0.1189	0.1191
92	0.1148	0.1144	0.1147	0.1141	0.1193	0.1179	0.1189	0.1191
93	0.1152	0.1142	0.1153	0.1146	0.1193	0.1182	0.1189	0.1192
94	0.1146	0.1141	0.1149	0.1138	0.1182	0.1178	0.1190	0.1192
95	0.1150	0.1145	0.1153	0.1148	0.1191	0.1175	0.1190	0.1192
96	0.1153	0.1144	0.1157	0.1148	0.1186	0.1177	0.1190	0.1193
97	0.1146	0.1144	0.1152	0.1145	0.1185	0.1179	0.1190	0.1193
98	0.1148	0.1143	0.1152	0.1143	0.1179	0.1170	0.1190	0.1193
99	0.1148	0.1139	0.1150	0.1140	0.1177	0.1168	0.1190	0.1194
100	0.1151	0.1145	0.1152	0.1146	0.1175	0.1169	0.1191	0.1194
101	0.1143	0.1134	0.1147	0.1134	0.1089	0.1156	0.1191	0.1194

102	0.1130	0.1112	0.1134	0.1113	0.1149	0.1132	0.1191	0.1194
103	0.1130	0.1130	0.1132	0.1128	0.1144	0.1143	0.1191	0.1195
104	0.1119	0.1122	0.1122	0.1120	0.1131	0.1134	0.1191	0.1195

QFS:

	Initial Measurement in inches			**After 100 Cycles** Measurement in inches			**After Thermal** Meas. in inch.		**After Humidity** Meas. in inch.	
Sample#	**B1**	**B2**	**B4**	**B1**	**B2**	**B4**	**B2**	**B4**	**B2**	**B4**
1	0.1265	0.1256	0.1260	0.1254	0.1249	0.1252	0.1231	0.1242	0.1232	0.1236
2	0.1278	0.1275	0.1281	0.1273	0.1274	0.1273	0.1252	0.1262	0.1248	0.1255
3	0.1296	0.1292	0.1288	0.1295	0.1292	0.1279	0.1262	0.1254	0.1267	0.1258
4	0.1313	0.1309	0.1309	0.1305	0.1307	0.1298	0.1282	0.1274	0.1274	0.1273
5	0.1311	0.1322	0.1314	0.1306	0.1319	0.1308	0.1288	0.1281	0.1292	0.1282
6	0.1325	0.1332	0.1310	0.1322	0.1319	0.1299	0.1295	0.1280	0.1288	0.1275
7	0.1324	0.1334	0.1318	0.1317	0.1325	0.1311	0.1300	0.1290	0.1300	0.1285
8	0.1337	0.1326	0.1322	0.1325	0.1317	0.1315	0.1292	0.1293	0.1290	0.1288
9	0.1335	0.1329	0.1323	0.1325	0.1325	0.1321	0.1304	0.1293	0.1300	0.1297
10	0.1327	0.1347	0.1334	0.1344	0.1341	0.1327	0.1319	0.1304	0.1315	0.1306
11	0.1343	0.1336	0.1332	0.1333	0.1327	0.1322	0.1313	0.1300	0.1309	0.1301
12	0.1329	0.1329	0.1322	0.1320	0.1324	0.1314	0.1308	0.1297	0.1302	0.1293
13	0.1337	0.1345	0.1329	0.1334	0.1335	0.1324	0.1317	0.1304	0.1312	0.1301
14	0.1328	0.1334	0.1326	0.1325	0.1326	0.1322	0.1304	0.1303	0.1308	0.1297
15	0.1315	0.1322	0.1318	0.1310	0.1319	0.1309	0.1298	0.1285	0.1300	0.1289
16	0.1330	0.1326	0.1326	0.1321	0.1326	0.1323	0.1306	0.1300	0.1305	0.1300
17	0.1332	0.1338	0.1326	0.1323	0.1330	0.1317	0.1309	0.1300	0.1304	0.1297
18	0.1342	0.1337	0.1330	0.1330	0.1340	0.1323	0.1317	0.1305	0.1313	0.1304
19	0.1335	0.1339	0.1332	0.1326	0.1330	0.1327	0.1310	0.1309	0.1311	0.1303
20	0.1342	0.1337	0.1334	0.1332	0.1336	0.1322	0.1314	0.1308	0.1311	0.1298
21	0.1350	0.1347	0.1338	0.1336	0.1342	0.1332	0.1315	0.1310	0.1313	0.1308
22	0.1347	0.1341	0.1326	0.1334	0.1331	0.1317	0.1306	0.1300	0.1308	0.1293
23	0.1345	0.1333	0.1327	0.1332	0.1323	0.1319	0.1300	0.1297	0.1299	0.1293
24	0.1334	0.1327	0.1329	0.1327	0.1322	0.1323	0.1300	0.1299	0.1297	0.1295
25	0.1322	0.1336	0.1327	0.1313	0.1327	0.1314	0.1300	0.1290	0.1296	0.1285
26	0.1320	0.1328	0.1311	0.1307	0.1317	0.1302	0.1287	0.1285	0.1289	0.1280
27	0.1319	0.1319	0.1311	0.1307	0.1314	0.1303	0.1286	0.1276	0.1284	0.1277
28	0.1326	0.1326	0.1320	0.1315	0.1320	0.1311	0.1293	0.1289	0.1294	0.1288
29	0.1335	0.1330	0.1335	0.1322	0.1323	0.1326	0.1299	0.1303	0.1294	0.1301
30	0.1341	0.1337	0.1326	0.1334	0.1329	0.1319	0.1308	0.1297	0.1301	0.1293
31	0.1333	0.1330	0.1322	0.1322	0.1326	0.1285	0.1304	0.1298	0.1300	0.1291
32	0.1335	0.1334	0.1317	0.1331	0.1323	0.1309	0.1305	0.1287	0.1301	0.1288
33	0.1339	0.1335	0.1321	0.1336	0.1330	0.1319	0.1311	0.1297	0.1306	0.1296
34	0.1343	0.1334	0.1331	0.1336	0.1325	0.1319	0.1304	0.1295	0.1302	0.1293
35	0.1335	0.1325	0.1322	0.1334	0.1324	0.1319	0.1301	0.1292	0.1300	0.1297
36	0.1336	0.1327	0.1331	0.1334	0.1318	0.1316	0.1301	0.1302	0.1300	0.1298
37	0.1341	0.1334	0.1323	0.1337	0.1332	0.1315	0.1306	0.1300	0.1308	0.1300
38	0.1328	0.1331	0.1316	0.1319	0.1321	0.1314	0.1310	0.1289	0.1304	0.1291
39	0.1348	0.1344	0.1327	0.1342	0.1340	0.1322	0.1315	0.1300	0.1316	0.1299
40	0.1336	0.1338	0.1321	0.1335	0.1329	0.1315	0.1314	0.1296	0.1311	0.1293
41	0.1319	0.1315	0.1309	0.1315	0.1312	0.1300	0.1293	0.1284	0.1292	0.1282
42	0.1335	0.1326	0.1323	0.1333	0.1326	0.1310	0.1304	0.1300	0.1303	0.1297

43	0.1342	0.1334	0.1309	0.1335	0.1330	0.1306	0.1309	0.1289	0.1310	0.1288
44	0.1326	0.1334	0.1329	0.1317	0.1331	0.1321	0.1304	0.1301	0.1306	0.1302
45	0.1339	0.1348	0.1326	0.1330	0.1338	0.1321	0.1311	0.1298	0.1314	0.1297
46	0.1350	0.1348	0.1322	0.1343	0.1338	0.1314	0.1314	0.1298	0.1309	0.1292
47	0.1341	0.1345	0.1322	0.1341	0.1339	0.1322	0.1312	0.1300	0.1311	0.1297
48	0.1340	0.1343	0.1326	0.1334	0.1338	0.1318	0.1311	0.1307	0.1309	0.1294
49	0.1339	0.1339	0.1321	0.1336	0.1338	0.1318	0.1311	0.1295	0.1308	0.1291
50	0.1334	0.1337	0.1315	0.1326	0.1333	0.1305	0.1308	0.1288	0.1300	0.1283
51	0.1333	0.1341	0.1325	0.1290	0.1339	0.1317	0.1309	0.1295	0.1303	0.1289
52	0.1331	0.1330	0.1318	0.1322	0.1317	0.1310	0.1295	0.1286	0.1289	0.1278
53	0.1314	0.1313	0.1313	0.1307	0.1303	0.1308	0.1279	0.1284	0.1279	0.1281
54	0.1330	0.1325	0.1320	0.1324	0.1320	0.1307	0.1301	0.1287	0.1298	0.1287
55	0.1341	0.1327	0.1323	0.1336	0.1320	0.1316	0.1297	0.1289	0.1300	0.1289
56	0.1341	0.1334	0.1315	0.1335	0.1328	0.1311	0.1303	0.1289	0.1305	0.1289
57	0.1339	0.1334	0.1315	0.1331	0.1333	0.1315	0.1307	0.1290	0.1306	0.1285
58	0.1330	0.1346	0.1322	0.1325	0.1331	0.1313	0.1311	0.1289	0.1311	0.1289
59	0.1344	0.1342	0.1319	0.1338	0.1337	0.1312	0.1313	0.1290	0.1310	0.1288
60	0.1343	0.1344	0.1321	0.1341	0.1332	0.1316	0.1308	0.1292	0.1308	0.1290
61	0.1345	0.1345	0.1323	0.1338	0.1334	0.1316	0.1288	0.1293	0.1307	0.1292
62	0.1337	0.1341	0.1322	0.1331	0.1335	0.1311	0.1313	0.1297	0.1305	0.1289
63	0.1340	0.1345	0.1328	0.1330	0.1338	0.1326	0.1316	0.1304	0.1314	0.1302
64	0.1338	0.1326	0.1319	0.1332	0.1321	0.1313	0.1302	0.1278	0.1299	0.1292
65	0.1348	0.1348	0.1329	0.1345	0.1337	0.1322	0.1320	0.1304	0.1317	0.1304
66	0.1337	0.1344	0.1319	0.1332	0.1337	0.1309	0.1316	0.1294	0.1314	0.1294
67	0.1327	0.1322	0.1311	0.1318	0.1318	0.1307	0.1301	0.1289	0.1301	0.1286
68	0.1323	0.1328	0.1316	0.1312	0.1323	0.1309	0.1302	0.1294	0.1303	0.1289
69	0.1330	0.1337	0.1319	0.1323	0.1330	0.1314	0.1308	0.1300	0.1308	0.1291
70	0.1345	0.1345	0.1326	0.1340	0.1341	0.1322	0.1316	0.1302	0.1314	0.1301
71	0.1352	0.1339	0.1326	0.1339	0.1333	0.1327	0.1307	0.1304	0.1306	0.1303
72	0.1345	0.1344	0.1324	0.1341	0.1336	0.1319	0.1315	0.1301	0.1306	0.1295
73	0.1348	0.1339	0.1324	0.1274	0.1330	0.1320	0.1308	0.1301	0.1309	0.1294
74	0.1338	0.1346	0.1327	0.1332	0.1337	0.1319	0.1314	0.1300	0.1309	0.1293
75	0.1345	0.1339	0.1319	0.1337	0.1330	0.1315	0.1305	0.1290	0.1306	0.1290
76	0.1330	0.1333	0.1326	0.1321	0.1335	0.1321	0.1307	0.1295	0.1300	0.1293
77	0.1338	0.1329	0.1325	0.1320	0.1336	0.1321	0.1297	0.1294	0.1292	0.1293
78	0.1334	0.1319	0.1312	0.1320	0.1336	0.1322	0.1285	0.1281	0.1282	0.1275
79	0.1317	0.1308	0.1304	0.1319	0.1337	0.1323	0.1276	0.1274	0.1278	0.1273
80	0.1324	0.1321	0.1319	0.1318	0.1338	0.1323	0.1292	0.1287	0.1285	0.1285
81	0.1335	0.1329	0.1311	0.1317	0.1338	0.1324	0.1293	0.1285	0.1297	0.1284
82	0.1347	0.1338	0.1323	0.1316	0.1339	0.1325	0.1304	0.1293	0.1300	0.1293
83	0.1348	0.1336	0.1317	0.1315	0.1340	0.1325	0.1295	0.1288	0.1298	0.1293
84	0.1352	0.1329	0.1316	0.1314	0.1340	0.1326	0.1301	0.1289	0.1297	0.1289
85	0.1359	0.1328	0.1322	0.1313	0.1341	0.1327	0.1297	0.1296	0.1300	0.1296
86	0.1356	0.1344	0.1330	0.1312	0.1342	0.1328	0.1308	0.1299	0.1309	0.1298
87	0.1356	0.1331	0.1324	0.1311	0.1342	0.1328	0.1304	0.1295	0.1304	0.1296
88	0.1352	0.1329	0.1315	0.1311	0.1343	0.1329	0.1309	0.1290	0.1303	0.1292
89	0.1352	0.1337	0.1325	0.1310	0.1343	0.1330	0.1303	0.1297	0.1301	0.1300
90	0.1347	0.1332	0.1319	0.1309	0.1344	0.1330	0.1303	0.1296	0.1300	0.1297
91	0.1360	0.1344	0.1325	0.1308	0.1345	0.1331	0.1313	0.1305	0.1315	0.1303
92	0.1350	0.1336	0.1329	0.1307	0.1345	0.1332	0.1044	0.1305	0.1308	0.1306
93	0.1332	0.1319	0.1309	0.1306	0.1346	0.1332	0.1289	0.1291	0.1290	0.1290
94	0.1342	0.1330	0.1308	0.1305	0.1347	0.1333	0.1299	0.1285	0.1295	0.1286
95	0.1346	0.1325	0.1311	0.1304	0.1347	0.1334	0.1297	0.1286	0.1300	0.1288
96	0.1345	0.1320	0.1316	0.1303	0.1348	0.1334	0.1295	0.1287	0.1296	0.1292
97	0.1353	0.1322	0.1319	0.1303	0.1348	0.1335	0.1289	0.1291	0.1289	0.1293
98	0.1360	0.1326	0.1319	0.1302	0.1349	0.1336	0.1293	0.1292	0.1293	0.1290

99	0.1346	0.1315	0.1317	0.1301	0.1350	0.1336	0.1279	0.1290	0.1283	0.1290
100	0.1356	0.1317	0.1311	0.1300	0.1350	0.1337	0.1288	0.1282	0.1288	0.1282
101	0.1356	0.1319	0.1310	0.1299	0.1351	0.1338	0.1286	0.1280	0.1281	0.1281
102	0.1341	0.1308	0.1304	0.1298	0.1352	0.1338	0.1274	0.1272	0.1270	0.1272
103	0.1335	0.1293	0.1295	0.1297	0.1352	0.1339	0.1261	0.1265	0.1258	0.1266
104	0.1304	0.1296	0.1290	0.1296	0.1353	0.1340	0.1260	0.1258	0.1255	0.1258

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	236.0	14.75	187.4	11.71	260.3	16.27	207.4	12.96
2	236.6	14.79	179.2	11.20	242.6	15.16	186.1	11.63
3	241.4	15.09	164.3	10.27	270.7	16.92	186.4	11.65
4	215.4	13.46	176.0	11.00	229.4	14.34	171.7	10.73
5	209.8	13.11	173.4	10.84	227.4	14.21	189.9	11.87
6	207.0	12.94	164.2	10.26	237.1	14.82	199.4	12.46
7	241.4	15.09	170.7	10.67	283.4	17.71	201.9	12.62
8	295.0	18.44	208.0	13.00	321.6	20.10	227.5	14.22
9	242.4	15.15	162.7	10.17	258.6	16.16	193.9	12.12
10	239.7	14.98	178.1	11.13	256.8	16.05	204.0	12.75

	After Thermals				After Humidity			
	Mating		**Unmating**		**Mating**		**Unmating**	
Sample#	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)
1	98.1	6.13	77.3	4.83	204.3	12.77	138.1	8.63
2	93.6	5.85	49.0	3.06	193.3	12.08	123.2	7.70
3	83.0	5.19	49.3	3.08	233.1	14.57	117.0	7.31
4	88.8	5.55	47.7	2.98	328.2	20.51	107.5	6.72
5	100.6	6.29	57.8	3.61	215.0	13.44	129.1	8.07
6	92.6	5.79	44.2	2.76	178.1	11.13	128.6	8.04
7	112.6	7.04	57.8	3.61	261.6	16.35	127.5	7.97
8	116.2	7.26	61.4	3.84	225.4	14.09	153.4	9.59
9	117.8	7.36	79.2	4.95	186.2	11.64	121.6	7.60
10	130.1	8.13	57.0	3.56	271.7	16.98	135.4	8.46

DATA Continued

INSULATION RESISTANCE (IR):

	Initial, Meg Ohms		Thermal, Meg Ohms		Humidity, Meg Ohms	
	Mated	Unmated	Mated	Unmated	Mated	Unmated
Sample #	Insulation Resistance	Insulation Resistance	Insulation Resistance	Insulation Resistance	Insulation Resistance	Insulation Resistance
1	25000	100000	100000	100000	25000	35000
2	50000	100000	100000	100000	25000	35000
3	25000	100000	100000	100000	25000	25000

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

	Initial, VAC Mated			Initial, VAC Unmated		
Sample #	Breakdown Voltage	DWV	Working Voltage	Breakdown Voltage	DWV	Working Voltage
1		0	0	900	675	225
2		0	0	900	675	225
3	820	615	205		0	0

	Thermal, VAC Mated			Thermal, VAC Unmated		
Sample #	Breakdown Voltage	DWV	Working Voltage	Breakdown Voltage	DWV	Working Voltage
1				1100	825	275
2				1160	870	290
3	840	630	210			

	Humidity, VAC Mated			Humidity, VAC Unmated		
Sample #	Breakdown Voltage	DWV	Working Voltage	Breakdown Voltage	DWV	Working Voltage
1				820	615	205
2				880	660	220
3	800	600	200			

DATA Continued

LLCR:

mOhm values		Actual	Delta	Delta	Delta	
Board	Position	Initial	100 Cycles	Thermal	Humidity	
1	P1	23.4	0.0	0.0	0.7	
1	P2	19.6	0.2	0.9	0.8	
1	P3	20.7	3.2	open	open	*Bad Solder Joint*
1	P4	21.7	-0.9	0.2	0.1	
1	P5	21.1	0.0	0.9	1.1	
1	P6	20.3	1.6	1.6	3.2	
1	P7	23.7	0.7	1.4	1.8	
1	P8	23.9	0.3	1.1	3.6	
1	P9	23.7	1.1	1.9	2.5	
1	P10	23.4	1.3	1.6	1.7	
1	P11	23.7	1.3	1.6	2.4	
1	P12	24.1	1.5	2.0	1.9	
1	P13	24.0	0.0	2.8	2.5	
1	P14	23.3	1.8	2.8	3.1	
1	P15	23.6	1.1	3.3	2.8	
1	P16	23.0	1.5	1.6	2.4	
1	P17	22.4	1.7	0.4	2.6	
1	P18	22.2	1.8	1.5	2.0	
1	P19	22.7	0.5	1.2	1.4	
1	P20	22.4	-1.9	-1.0	-0.3	
1	P21	23.1	-2.0	-1.0	-0.5	
1	P22	22.3	-1.1	0.5	1.4	
1	P23	19.8	1.1	0.9	0.8	
1	P24	20.0	-0.3	0.1	1.8	
1	P25	21.3	0.7	0.8	0.5	
2	P1	22.0	-0.1	-0.2	0.5	
2	P2	23.1	-3.5	-3.0	-2.5	
2	P3	21.4	-1.5	-1.1	-0.7	
2	P4	21.3	-0.1	1.1	0.6	
2	P5	21.1	0.1	0.5	0.7	
2	P6	21.5	-0.4	0.8	-0.1	
2	P7	23.4	-0.1	0.8	1.2	
2	P8	23.6	0.4	1.1	1.6	
2	P9	24.0	-0.4	0.4	0.8	
2	P10	24.1	-0.3	0.6	0.7	
2	P11	24.2	-0.4	1.2	1.5	
2	P12	24.3	-0.2	1.0	1.8	
2	P13	23.8	0.5	1.4	1.7	
2	P14	23.8	0.2	1.2	2.1	
2	P15	23.9	0.6	1.2	2.3	
2	P16	23.4	0.0	1.5	2.0	

2	P17	22.9	0.5	1.5	2.5
2	P18	22.9	0.5	1.0	2.4
2	P19	22.6	0.0	0.4	2.3
2	P20	20.7	0.6	1.4	0.8
2	P21	21.8	0.5	2.0	1.1
2	P22	21.6	0.0	1.8	0.6
2	P23	19.3	0.4	0.3	1.3
2	P24	20.2	-0.4	-0.2	0.0
2	P25	21.2	0.5	0.6	1.3
3	P1	23.7	-1.2	-0.1	-0.2
3	P2	20.5	0.3	-0.6	-0.7
3	P3	20.9	-0.3	0.1	-0.5
3	P4	23.2	-2.6	-2.2	-2.3
3	P5	19.9	0.5	0.9	1.2
3	P6	20.7	0.5	0.0	1.0
3	P7	24.0	-0.2	0.6	0.4
3	P8	24.4	0.0	0.2	0.1
3	P9	24.2	-0.6	-0.2	-0.2
3	P10	24.5	-0.6	0.2	0.6
3	P11	24.5	-0.7	0.0	-0.2
3	P12	24.8	-0.8	-0.6	0.4
3	P13	24.2	-0.5	1.0	0.8
3	P14	24.2	-0.6	1.8	2.3
3	P15	24.0	-0.6	0.8	0.6
3	P16	24.1	-0.7	0.1	0.0
3	P17	23.9	-1.2	0.7	0.7
3	P18	23.7	-0.3	0.4	0.7
3	P19	23.7	-0.5	0.5	0.7
3	P20	22.6	-1.1	-2.2	-2.4
3	P21	21.7	-0.5	-0.1	-0.3
3	P22	20.9	0.4	1.1	0.9
3	P23	18.9	1.1	2.2	2.3
3	P24	18.7	0.7	1.3	1.1
3	P25	22.7	-0.7	0.1	0.0
4	P1	22.3	0.6	1.2	3.2
4	P2	20.6	0.0	0.5	1.8
4	P3	21.3	-0.8	-0.9	1.2
4	P4	20.6	-0.1	0.6	0.2
4	P5	21.2	-0.5	-0.4	0.1
4	P6	19.9	0.1	0.9	1.0
4	P7	23.7	-0.4	-0.1	0.5
4	P8	24.4	-0.2	0.7	-0.1
4	P9	23.9	3.3	6.5	15.8
4	P10	23.7	0.1	0.3	0.3
4	P11	23.6	0.6	2.0	2.7
4	P12	23.8	0.4	1.4	1.0
4	P13	23.8	0.3	1.4	1.6
4	P14	23.3	0.2	1.7	1.6
4	P15	23.4	0.0	1.6	1.8

4	P16	23.4	-0.3	1.7	1.5
4	P17	23.7	-0.1	1.7	1.9
4	P18	23.6	0.3	1.1	1.8
4	P19	22.3	0.4	2.7	8.2
4	P20	21.6	-1.1	-0.8	-0.2
4	P21	21.8	-0.2	0.1	1.7
4	P22	22.1	0.5	2.3	0.1
4	P23	19.4	0.5	1.3	0.8
4	P24	19.6	0.6	1.0	-0.2
4	P25	21.6	0.4	1.1	1.8
5	P1	22.7	1.8	0.5	1.2
5	P2	20.6	-0.2	1.0	0.2
5	P3	21.1	0.3	0.0	-0.5
5	P4	21.1	0.4	1.5	0.7
5	P5	21.3	-0.1	0.8	-0.1
5	P6	20.5	0.2	1.3	-0.2
5	P7	24.1	0.4	0.3	0.9
5	P8	24.4	0.1	-0.1	0.7
5	P9	22.8	1.3	0.5	1.5
5	P10	24.0	0.7	0.6	0.5
5	P11	24.5	1.3	1.3	1.0
5	P12	24.3	1.4	1.1	1.4
5	P13	24.2	0.8	1.6	1.4
5	P14	24.3	1.7	1.0	1.6
5	P15	22.7	2.3	1.5	2.2
5	P16	23.8	0.6	1.3	0.6
5	P17	23.7	0.9	1.6	1.3
5	P18	23.6	0.7	0.6	0.9
5	P19	23.4	0.7	1.7	1.5
5	P20	20.1	2.7	2.5	1.6
5	P21	21.0	2.2	1.8	0.6
5	P22	21.5	0.7	1.9	1.0
5	P23	20.0	1.5	2.4	1.6
5	P24	20.3	0.0	1.4	0.0
5	P25	21.7	1.0	0.5	1.3
6	P1	21.9	0.1	0.2	0.1
6	P2	20.7	-1.2	-0.7	-0.8
6	P3	20.0	-0.1	0.7	0.0
6	P4	19.8	0.4	0.9	1.2
6	P5	21.5	-1.0	0.5	0.4
6	P6	20.6	-0.9	0.0	0.9
6	P7	22.7	0.8	1.2	1.9
6	P8	23.8	-0.4	0.4	0.7
6	P9	23.4	0.8	1.7	2.0
6	P10	23.2	0.3	1.0	1.0
6	P11	23.4	0.5	1.3	0.9
6	P12	23.5	-0.1	1.0	1.2
6	P13	23.4	0.1	2.0	1.7
6	P14	22.8	1.1	2.6	2.4

6	P15	23.5	0.1	1.6	1.4
6	P16	23.4	0.3	0.8	1.0
6	P17	22.1	0.5	1.3	1.5
6	P18	21.6	0.3	1.6	1.8
6	P19	21.6	0.4	1.2	1.3
6	P20	20.8	-0.6	0.8	0.9
6	P21	21.1	-0.2	1.1	1.4
6	P22	22.1	0.6	1.1	1.8
6	P23	19.3	0.6	1.1	0.8
6	P24	19.2	0.4	0.9	1.7
6	P25	21.9	-0.5	-0.4	-0.4
7	P1	21.6	0.8	1.8	0.9
7	P2	19.5	-0.1	0.6	0.4
7	P3	20.0	0.4	0.9	0.9
7	P4	21.2	-0.4	1.3	0.9
7	P5	20.9	-0.3	1.6	1.2
7	P6	20.1	-0.4	0.1	1.8
7	P7	23.4	0.1	1.5	0.3
7	P8	23.5	0.5	2.1	1.2
7	P9	22.7	0.7	2.2	1.2
7	P10	23.4	0.6	1.7	1.1
7	P11	23.7	-0.2	2.5	0.8
7	P12	23.9	-0.1	1.4	1.2
7	P13	23.4	0.4	1.5	1.6
7	P14	23.8	0.4	1.5	1.2
7	P15	24.0	0.6	1.2	1.2
7	P16	23.6	0.4	1.0	0.5
7	P17	23.3	0.0	1.1	0.3
7	P18	23.1	-0.6	1.4	-0.5
7	P19	22.5	0.6	1.8	0.7
7	P20	20.0	0.8	0.6	1.9
7	P21	21.0	-1.0	1.7	1.4
7	P22	21.4	-0.4	0.6	1.4
7	P23	19.2	1.2	1.2	0.7
7	P24	19.7	0.7	0.2	0.7
7	P25	20.9	0.5	1.6	0.6
8	P1	22.4	0.8	0.1	-0.1
8	P2	20.6	0.4	1.1	0.5
8	P3	20.8	-1.4	0.7	0.2
8	P4	21.1	0.5	1.6	1.3
8	P5	22.0	-0.2	0.9	0.6
8	P6	19.9	1.3	1.8	2.0
8	P7	23.2	2.3	0.6	1.5
8	P8	24.1	0.8	0.4	0.4
8	P9	23.6	1.3	0.8	0.7
8	P10	23.5	1.5	2.1	0.9
8	P11	23.8	1.1	1.9	0.5
8	P12	24.2	0.6	1.7	0.4
8	P13	23.8	1.8	2.2	1.9

8	P14	23.5	1.5	1.7	2.1
8	P15	23.6	1.7	1.4	1.2
8	P16	23.6	2.1	1.0	1.2
8	P17	23.6	1.3	0.4	0.7
8	P18	23.7	0.9	0.2	0.3
8	P19	23.6	0.8	0.8	0.7
8	P20	20.5	1.1	1.7	2.0
8	P21	22.7	-1.2	-0.4	-0.4
8	P22	22.2	-1.1	0.2	0.4
8	P23	19.5	1.2	1.1	0.3
8	P24	21.0	-1.4	-1.3	-0.1
8	P25	21.4	1.9	0.5	0.3

GAS TIGHT:

mOhm values		**Actual**	**Delta**
Board	**Position**	**Initial**	**Gas Tight**
1	P1	22.6	0.3
1	P2	20.1	0.7
1	P3	20.7	0.4
1	P4	20.0	1.0
1	P5	20.4	0.8
1	P6	21.0	-0.3
1	P7	23.6	1.5
1	P8	23.8	2.0
1	P9	23.6	0.9
1	P10	23.6	0.2
1	P11	24.4	0.0
1	P12	24.0	0.3
1	P13	23.7	0.8
1	P14	23.7	2.6
1	P15	23.9	1.4
1	P16	23.8	0.3
1	P17	22.8	1.3
1	P18	23.0	0.8
1	P19	23.0	2.6
1	P20	20.4	1.4
1	P21	20.7	1.0
1	P22	21.0	1.7
1	P23	19.5	0.2
1	P24	20.3	0.8
1	P25	22.0	0.4
2	P1	22.3	1.2
2	P2	21.1	1.1
2	P3	21.3	0.7
2	P4	23.7	-1.5
2	P5	23.7	-1.2

2	P6	22.3	-1.8
2	P7	23.4	0.7
2	P8	24.3	0.4
2	P9	23.9	0.6
2	P10	23.5	0.8
2	P11	24.6	0.2
2	P12	24.6	0.3
2	P13	24.2	0.2
2	P14	24.1	0.8
2	P15	24.5	-0.2
2	P16	24.0	0.1
2	P17	23.8	0.6
2	P18	23.7	0.7
2	P19	23.7	0.6
2	P20	20.5	-0.1
2	P21	21.7	0.2
2	P22	21.8	-0.1
2	P23	19.3	0.9
2	P24	20.3	0.1
2	P25	21.5	1.6
3	P1	22.4	0.1
3	P2	20.5	-0.7
3	P3	19.9	0.7
3	P4	21.4	0.3
3	P5	20.0	1.4
3	P6	20.5	0.1
3	P7	23.6	0.3
3	P8	23.8	0.4
3	P9	23.5	0.5
3	P10	23.5	0.8
3	P11	23.5	0.4
3	P12	23.5	0.4
3	P13	23.7	0.6
3	P14	23.5	0.4
3	P15	23.5	1.0
3	P16	23.2	0.5
3	P17	22.8	0.7
3	P18	22.4	0.9
3	P19	22.7	0.3
3	P20	19.7	1.1
3	P21	21.1	0.7
3	P22	21.7	0.5
3	P23	19.1	0.1
3	P24	19.9	-0.7
3	P25	21.2	1.0
4	P1	22.9	0.3
4	P2	21.0	-0.2
4	P3	20.9	-0.5
4	P4	21.0	0.3

4	P5	20.3	0.2
4	P6	20.5	0.9
4	P7	23.9	0.5
4	P8	23.9	0.5
4	P9	23.8	0.4
4	P10	23.5	0.9
4	P11	24.5	0.0
4	P12	24.5	0.1
4	P13	23.3	0.9
4	P14	23.7	1.1
4	P15	24.0	1.0
4	P16	22.7	0.8
4	P17	24.3	0.1
4	P18	23.5	0.6
4	P19	23.2	-0.1
4	P20	20.0	0.6
4	P21	22.0	-0.5
4	P22	21.7	0.5
4	P23	20.6	-0.3
4	P24	20.8	-0.2
4	P25	22.1	0.3
5	P1	22.4	0.6
5	P2	20.9	0.0
5	P3	20.0	-0.6
5	P4	22.9	-0.7
5	P5	21.7	0.2
5	P6	20.3	0.6
5	P7	23.9	0.2
5	P8	24.9	-0.6
5	P9	23.8	0.3
5	P10	24.1	0.9
5	P11	23.4	0.6
5	P12	23.5	1.7
5	P13	24.4	0.8
5	P14	24.4	0.0
5	P15	24.2	-0.1
5	P16	24.0	0.4
5	P17	22.5	0.0
5	P18	23.2	0.2
5	P19	22.8	0.4
5	P20	20.3	0.7
5	P21	22.2	0.8
5	P22	22.1	-0.3
5	P23	19.7	0.0
5	P24	19.9	0.3
5	P25	21.3	-0.1
6	P1	22.1	1.8
6	P2	19.8	4.8
6	P3	20.0	8.0

6	P4	20.6	1.1
6	P5	20.4	1.8
6	P6	19.4	2.6
6	P7	22.9	2.4
6	P8	23.3	1.9
6	P9	23.1	2.0
6	P10	23.0	1.6
6	P11	23.1	1.4
6	P12	23.1	1.1
6	P13	23.1	1.3
6	P14	22.5	1.7
6	P15	22.6	1.8
6	P16	23.1	0.9
6	P17	23.2	1.0
6	P18	23.3	0.4
6	P19	22.9	0.7
6	P20	21.2	-1.1
6	P21	21.2	1.3
6	P22	22.1	1.4
6	P23	19.8	1.1
6	P24	19.5	5.7
6	P25	21.8	1.4
7	P1	22.1	1.2
7	P2	21.9	-0.6
7	P3	20.4	0.6
7	P4	20.7	0.6
7	P5	20.3	0.1
7	P6	19.9	0.5
7	P7	23.5	0.9
7	P8	24.1	0.1
7	P9	23.4	0.9
7	P10	23.5	0.6
7	P11	23.6	0.7
7	P12	23.6	0.7
7	P13	23.5	0.5
7	P14	23.3	0.5
7	P15	23.8	0.4
7	P16	24.1	0.1
7	P17	23.2	0.3
7	P18	23.3	0.4
7	P19	23.0	0.6
7	P20	19.4	0.3
7	P21	20.3	0.6
7	P22	22.3	1.4
7	P23	19.7	0.5
7	P24	20.0	0.1
7	P25	21.2	0.0
8	P1	22.6	2.0
8	P2	19.5	0.6

8	P3	19.7	2.1
8	P4	21.9	0.0
8	P5	21.3	0.8
8	P6	20.9	0.8
8	P7	23.0	0.9
8	P8	24.2	0.5
8	P9	24.0	1.4
8	P10	23.3	0.4
8	P11	22.2	1.2
8	P12	23.5	1.0
8	P13	23.6	0.5
8	P14	22.9	0.6
8	P15	23.6	0.4
8	P16	22.3	1.0
8	P17	23.4	0.6
8	P18	22.7	0.0
8	P19	22.6	0.8
8	P20	19.7	0.3
8	P21	20.5	1.2
8	P22	21.4	0.5
8	P23	19.4	0.5
8	P24	20.4	0.6
8	P25	21.7	-0.2

EQUIPMENT AND CALIBRATION SCHEDULES

Equipment #: MO-02
Description: Multimeter /Data Acquisition System
Manufacturer: Keithley
Model: 2700
Serial #: 0780546
Accuracy: See Manual
… Last Cal: 06/22/07, Next Cal: 06/22/08

Equipment #: MO-04
Description: Multimeter /Data Acquisition System
Manufacturer: Keithley
Model: 2700
Serial #: 0798688
Accuracy: See Manual .
… Last Cal: 03/8/07, Next Cal: 03/8/08

Equipment #: PS-01
Description: System Power Supply
Manufacturer: Hewlett Packard
Model: HP 6033A
Serial #: (HP) 3329A-07330
Accuracy: See Manual
… Last Cal: 06/22/07, Next Cal: 06/22/08

Equipment #: TC090601-109/118
Description: IC Thermocouple-109/118
Manufacturer: Samtec
Model:
Serial #: TC090601-109/118
Accuracy: +/- 1 degree C
… Last Cal: , Next Cal:

Equipment #: OGP-01
Description: 6"X 6" Video Measuring Machine
Manufacturer: Optical Gauging Products
Model: Smartscope 200 CFOV
Serial #: SF2001956
Accuracy: See Manual
… Last Cal: 03/13/07, Next Cal: 03/13/08

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: 06/62/07, Next Cal: 06/22/08

Equipment #: THC-01
Description: Temperature/Humidity Chamber
Manufacturer: Thermotron
Model: SM-8-7800
Serial #: 30676
Accuracy: See Manual See Manual
… Last Cal: 8/18/2006, Next Cal: 8/18/2007

Equipment #: HPM-01
Description: Hipot Megommeter
Manufacturer: Hipotronics
Model: H306B-A
Serial #: M9905004
Accuracy: 2 % Full Scale Accuracy
… Last Cal: 06/22/07, Next Cal: 06/22/08

Equipment #: ED-02
Description: STD Series Event Detector
Manufacturer: Analysis Tech
Model: 256
Serial #: 1070629
Accuracy: See Manual
… Last Cal: 06/26/2007, Next Cal: 06/26/2008

Equipment #: MO-03
Description: Multimeter /Data Acquisition System
Manufacturer: Keithley
Model: 2700
Serial #: 0791975
Accuracy: See Manual
… Last Cal: 06/22/07, Next Cal: 06/22/08

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