



INNER SECTOR O.A. Serial No. 01



TRAVELER S-01

PAD PLANE PC Board VISUAL INSPECTION

SECTOR type: Outer ___ Inner ___ Serial No. _____

Date Received ___/___/199__

Scribe the serial # on the Pad Plane PC Board (1/16 in high letter)

After answering each of the following questions please initial your name.

CERTIFICATION CONFIRMATION

1. Is the Buckbee-Mears inspection sheet complete, signed and dated?
(attach inspection sheet to this traveler) Yes __, No __
2. Is the substrate material (NEMA G-10) certified to contain bromide below 200 ppm.
NEMA G_10 Purchase Order # :_(LBL)_____
Name of Testing Lab:_____
Test Certificate #:_____

IF THE ANSWER TO ANY QUESTION ABOVE IS NO TAG BOARD with
"NO CERTIFICATION" AND NOTIFY COGNIZANT ENGINEER.

VISUAL INSPECTION

3. Is there measling, haloing, exposed fibers and/or delaminations exceeding ANSI/IPC-A-600D Class 3 limits?
Yes __, No __
If yes list and quantify _____
4. Is there uneven or incomplete etching (use magnifying glass)
Yes __, No __
5. Are there any loose traces?
Yes __, No __

6. Do the pad surfaces appear rough? Yes __, No __

7. When resting on table with crown up, is the distance from board surface to the table more than 0.500 inches? Take measurement from both sides Yes __, No __

8. Is the copper surface stained or otherwise discolored? Yes __, No __

9. When viewed on edge is the board surface wavy? Yes __, No__

10. Are there any dents, scratches or pits greater than .004 inches in any one dimension in the physics pads? Yes __, No__

11. Is there any epoxy on the physics pads? Yes __, No__

12. Does the edge of the pad plane have gouges and/or intrusions into the perimeter channel etched in the copper on the physics pad side, resulting from improper routing. Yes __, No__

13. Are there any voids in the plated vias? Check 20 places. The inspection of sample vias must be spread apart as much as possible. Yes __, No__

14. Are distances from outside edges of the sector to outside edges of the pad plane less than 0.470 inches? Yes __, No__

15. Are any of the five ground plane solder points on the insulator side missing? Yes __, No __

INSTRUCTIONS

If any item (3 - 12) is marked **YES**, tag the board "**REJECTED-VISUAL**", check below "**REJECTED**", and place it in "reject" storage. If items 3 - 12 are all marked **NO**, check below "**PASSED**", attach this inspection record, and place the board in pre-assembly storage.

PASSED _____

REJECTED _____

Inspector's signature _____ Inspection date: ____/____/199__



TRAVELER S-02

PAD PLANE PC Board LEAK CHECK

SECTOR type: Outer _____ Inner Serial No. ϕ1

After answering each of the following questions please initial your name.

MAXIMUM DEFLECTION MEASUREMENT

1. Lay board on surface table and measure maximum gap between table and board: _____ in
(Take measurement from both sides)

Is the gap LESS than 0.500 in? Yes No _____

If the answer to item 1 is NO, stop checking and see instructions.

LEAK CHECK

2. Connect the board test fixture to the Assembly Shop vacuum bench which has a 30 cfm roughing pump. Tape the edges of the pad plane into the test fixture and then press a dot of Duxseal over the corners where one piece of the tape crosses over another. Open the valve to the bench and read the thermocouple gauge #2 on the bench manifold.

Does the thermocouple gauge read 10 microns (millitorr) or below? Yes No _____

3. If the answer to question 2 is NO, rub the tapes down with a fingernail around all edges again. Recheck all locations where one piece of the tape crosses over another. Be sure that all corners are sealed with Duxseal. Check with helium leak detector for leak locations along the sealed region. after possible shield area leaks are eliminated.

After possible leak is eliminated does the thermocouple gauge reading is 10 microns or below? Yes No _____

Write down the reading: 7 microns

INSTRUCTIONS

If the answer to item 3 is **YES**, attach this inspection record and place board in pre-assembly storage .

If the answer to item 1 is **NO** tag board with **REJECTED - WARPED** .

If the answer to 3 is **NO** tag board with **REJECTED-NOT LEAK**, **TIGHT**. Determine where the leaks are and attach this inspection record with a diagram showing the location(s) of the leak(s) and place board in to-be-repaired storage.

Passed ✓

Rejected _____

Inspectors Signature D. Horner

Inspection date: 8/25/95



TRAVELER S-03

PAD PLANE PC Board DIMENSIONAL CHECK

SECTOR type: Outer _____ Inner _____ Serial No. _____

CAUTION: Do not mar, scratch or otherwise disturb the copper surface of the Pad Plane

After answering each of the following questions please initial your name.

BOARD THICKNESS MEASUREMENT

OUTER SECTORS: Refer to dwg # 24A4465 for locations to be measured

INNER SECTORS: Refer to dwg # 24A _____ for locations to be measured

1. Record thickness measurements in 5 places indicated on inspection drawing.

- 1. _____ in 2. _____ in 3. _____ in
- 4. _____ in 5. _____ in

*.1425-145
.149 RT MID*

Measure the thickness of the BOARD at the CENTER and each CORNER:
Are all measurements greater than 0.116 and less than 0.136 inches?

YES _____ NO _____

2. Is the variation in board thickness less than 0.002 inches?

YES _____ NO _____

If either item 1 or 2 is marked **NO**, discontinue the dimensional checks and follow the instructions on page 2.

CMM MEASUREMENTS (using "Vision" machine)

3. Are all pads located within 0.2 mm (0.008 inches) of their ideal positions? (Measured with respect to fiducials). If no, stop the inspection and follow the instructions on page 2.

YES _____ NO _____

AT THIS POINT DRILL THE REFERENCE HOLES FOR BOTH THE BONDING AND SOLDERING FIXTURES.

4. Are the bonding fixture holes within 0.025 mm (0.001 inches) of ideal position?
YES _____ NO _____

5. Are the soldering fixture holes within 0.1 mm (0.004 inches) of ideal position?
YES _____ NO _____

If the answer to 4 or 5 is no, inspect the appropriate jig for wear or damage.

6. Choose 15 Connector locations. Determine the footprint location from the outside corners of four corner solder pads. Measuring with respect to the bonding fixture reference holes, are the connector pad footprints within 0.4 mm (0.016 inches) of ideal position?
YES _____ NO _____

INSTRUCTIONS:

If any item (1 - 6) is marked **NO** tag the board "REJECTED-DIMENSIONAL CHECK" and indicate below and place it in "reject" storage with it's CMM printout (if any).

If items 1-6 are all marked **YES**, attach this inspection record and CMM print out and place the board in pre-assembly storage.

Passed _____

Rejected _____

Inspector's signature _____

Inspection date: __/__/199__



TRAVELER S-04

PAD PLANE PC Board Resistance and Continuity

SECTOR type: Outer ___ Inner Serial No. 01

After answering each of the following questions please initial your name.

1. Are there any connector pin to ground or pin to pin resistances ~~< 100~~ ⁸⁰⁰ MOhm? If yes, list the connector(s) and pin(s) Yes __, No __

2. Are any connector geographic addresses coded incorrectly? If yes, list the connector number. Yes __, No __

3. Does any pin lack continuity (> 4 ohms) to the appropriate pad? If yes, list connector address and pin number. Yes __, No __

4. Is the capacitance of any trace less than 5 or greater than 20 pf? If yes, list the connector/pin number attached to the trace. Yes __, No __

• General Comments:

INSTRUCTIONS

If any item (1 - 4) is marked **YES**, tag the board "REJECTED SHORTS/OPEN", so indicate below, and place it in "reject" storage.

If items 1-4 are all marked **NO**, attach this inspection record and electrical test print out and place the board in pre-assembly storage.

Passed _____ Rejected _____

Inspector's signature _____ Inspection date: __/__/199__



TRAVELER S-05

STRONGBACK MACHINING DIMENSIONAL CHECK

SECTOR type: Outer_____ Inner_____ Serial No._____

FULL DIMENSIONAL CHECK

If this Strongback has been selected for a full dimensional check, check here _____ and do not fill out items 1 thru 6 below. Follow instructions at the end of this traveler.

SPOT CHECK ONLY

If this Strongback has been selected for a Spotcheck only, proceed below.

After answering each of the following questions please initial your name.

CRITICAL DIMENSIONS CHECK

OUTER SECTORS: Use dwg # 24A4285 OUTER STRONGBACK SPOT INSPECT.

INNER SECTORS: Use dwg # 24A INNER STRONGBACK SPOT INSPECT.

1. Is the surface tagged -A- on this part flat within .003" in the unrestrained condition? YES___ NO___
If the answer is no, write the total variation:_____in

2. Record HEIGHT measurement in 4 places indicated on Spotcheck dwg:
1._____in 2._____in 3._____in 4._____in

OUTER SECTORS: Does the height of the part exceed 3.135 in?

INNER SECTORS: Does the height of the part exceed 3.295 in?
YES___ NO___

3. Record SIZE and LOCATION of Datum holes -X- and -Y-:
Dia hole -X-:_____in LOC: X_____ Y_____in
Dia hole -Y-:_____in LOC: X_____ Y_____in
Distance between hole -X- and hole -Y-:_____in

ARE the holes -X- and -Y- in within TOLERANCE and is the PATTERN located within TOLERANCE:
YES___ NO___

If the answer to any question 1 through 3 is **NO** discontinue the dimensional check and follow the instructions at the end of this traveler.

SECONDARY DIMENSIONS CHECK

4. Record SIZE and LOCATION of the three nominal .2503 dia hole pattern:
- | | | | |
|-----------------------|-------|-------|-------|
| | X | Y | |
| HOLE #1 DIA: _____ in | _____ | _____ | _____ |
| HOLE #2 DIA: _____ in | _____ | _____ | _____ |
| HOLE #3 DIA: _____ in | _____ | _____ | _____ |

ARE the three .2503 Dia holes in TOLERANCE and True Position in TOLERANCE: YES___ NO___

5. Record SIZE and LOCATION of the six each SLOTS highlighted in red on the Spotcheck dwg:

SLOT #	WIDTH	LENGTH	X loc.	Y loc.
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____

Are the 6 SLOTS measured in TOLERANCE with respect to SIZE and LOCATION? YES___ NO___

6. Record SIZE and DEPTH of the 6 each .3125-18UNC-2B tapped HOLES

HOLE #1: Go/No Go ? : _____	LOC: X _____	Y _____	in
HOLE #2: Go/No Go ? : _____	LOC: X _____	Y _____	in
HOLE #3: Go/No Go ? : _____	LOC: X _____	Y _____	in
HOLE #4: Go/No Go ? : _____	LOC: X _____	Y _____	in
HOLE #5: Go/No Go ? : _____	LOC: X _____	Y _____	in
HOLE #6: Go/No Go ? : _____	LOC: X _____	Y _____	in

Are the 6 MOUNTING HOLES in TOLERANCE and is their LOCATION in TOLERANCE. YES___ NO___

INSTRUCTIONS

FULL DIMENSIONAL CHECK

If this Strongback was selected for a full dimensional check, use a copy of Dwg # 24A3925G as a checkprint. Write the Strongback serial number on the print just above the Title block. Fill out the pass-rejected line below, sign the traveler and place it and the checkprint in the folder for this Strongback

SPOT CHECK

If the answer to all items 1 thru 6 is **YES**, place this inspection record and the spotcheck drawing for this sector in the traveller envelope for this Strongback and place this Strongback in the pre-assembly storage .

If the answer to any items 1 thru 3 is **NO**, tag the Strongback "**REJECTED-DIMENSIONAL CHECK**", so indicate below and place in "rejected" storage.

If the answer to any items 4 thru 6 is **NO**, tag the Strongback "**HOLD FOR RE-WORK**" and place this Strongback in the to-be-reworked storage

PASSED _____

REJECTED _____

Inspector's Signature _____ Inspection Date: __/__/199



TRAVELER S-06

PAD PLANE /STRONGBACK DIMENSIONAL CHECK

Inner Strongback Serial No. 01

Pad Plane Printed Circuit Board Serial No. 001

CAUTION: Do not mar, scratch or otherwise disturb the copper surface of the Pad Plane

After answering each of the following questions please initial your name.

DIMENSIONAL CHECK

INNER SECTORS: Use dwg #24A3816 O-RING GROOVE MACHINING

1a. Record HEIGHT measurement taken in similar location as the machining spotcheck drawing.

1. 3.4077 in

3. 3.4076 in

2. 3.4074 in

4. 3.408 in

1b. Record HEIGHT measurement of each corner of the sector at a spot 1/2" from both edges.

Outer left corner 3.4076 in

Outer right corner 3.4079 in

Inner left corner 3.4074 in

Inner right corner 3.4074 in

INNER SECTORS: Are all height measurements between 3.406 in and 3.408 in?:

Yes , No

2. Check the WIDTH and DEPTH of the O-Ring groove in 6 random locations.

ARE ALL WIDTHS BETWEEN .260 in and .270 in?

Yes , No

ARE ALL DEPTH BETWEEN .229 in and .239 in?

Yes , No

ARE ALL ANGLES BETWEEN 13.0° and 17.0°?

YES

Yes , No

If the answer to any part of question 1 and 2 is **NO**, discontinue checking and follow the instructions at the end of this Traveller.

3. Has the Pad Plane been trimmed flush with the edge of the Strongback?:
Yes , No

4. Has the trimmed Strongback/Padplane assembly been cleaned?:
Yes , No

VISUAL CHECK

5. Does the bottom of the O-ring groove have a 32 RMS finish all the way around, without any discontinuities or machining marks:
Yes , No

6. When looking at the edge of the Sector, to the Sector/Epoxy Adhesive/Pad Plane interface, are there any voids in the layer of epoxy adhesive between the pad plane and the aluminum backer?
(if either one of the questions is answered "no" check NO)
Yes , No

7. Look into each Connector Slot. (126 places for the Outer Sector and 55 places for the Inner Sector). Is each Connector free of epoxy drips and/or runs and metal machining chips
Yes , No

If NO, list the number(s) of the connectors (s) with deficiencies:

Passed Rejected

Inspector's signature D. HORLER Inspection date 11 / 8 /1995



ORIGINAL

TRAVELER S-05

STRONGBACK MACHINING DIMENSIONAL CHECK

SECTOR type: Outer _____ Inner X Serial No. 1

FULL DIMENSIONAL CHECK

If this Strongback has been selected for a full dimensional check, check here ✓ and do not fill out items 1 thru 6 below. Follow instructions at the end of this traveler.

SPOT CHECK ONLY

If this Strongback has been selected for a Spotcheck only, proceed below.

After answering each of the following questions please initial your name.

CRITICAL DIMENSIONS CHECK

OUTER SECTORS: Use dwg # 24A4285 OUTER STRONGBACK SPOT INSPECT.

INNER SECTORS: Use dwg # 24A INNER STRONGBACK SPOT INSPECT.

1. Is the surface tagged -A- on this part flat within .003" in the unrestrained condition? YES ✓ NO _____
If the answer is no, write the total variation: _____ in

2. Record HEIGHT measurement in 4 places indicated on Spotcheck dwg:
1. 3.3021 in 2. 3.3021 in 3. 3.3022 in 4. 3.3026 in

OUTER SECTORS: Does the height of the part exceed 3.135 in?

INNER SECTORS: Does the height of the part exceed 3.295 in? YES _____ NO ✓

3. Record SIZE and LOCATION of Datum holes -X- and -Y-:
Dia hole -X-: .5001 in LOC: X 0 Y -1.0513 in
Dia hole -Y-: .5001 in LOC: X 0 Y -26.3298 in
Distance between hole -X- and hole -Y-: 25.2785 in

ARE the holes -X- and -Y- in within TOLERANCE and is the PATTERN located within TOLERANCE:
YES ✓ NO _____

If the answer to any question 1 through 3 is **NO** discontinue the dimensional check and follow the instructions at the end of this traveler.

SECONDARY DIMENSIONS CHECK

4. Record SIZE and LOCATION of the three nominal .2503 dia hole pattern:

		X	Y
HOLE #1 DIA:	<u>.2503</u> in	<u>-3.8945</u>	<u>-9.8646</u>
HOLE #2 DIA:	<u>.2503</u> in	<u>3.8945</u>	<u>-9.8648</u>
HOLE #3 DIA:	<u>.2503</u> in	<u>-.4992</u>	<u>-25.4801</u>

ARE the three .2503 Dia holes in TOLERANCE and True Position in TOLERANCE:

YES NO

5. Record SIZE and LOCATION of the six each SLOTS highlighted in red on the Spotcheck dwg:

SLOT #	WIDTH	LENGTH	X loc.	Y loc.
1	<u>.7512</u>	<u>2.6231</u>	<u>7.9467</u>	<u>1.9862</u>
2	<u>.7516</u>	<u>2.6227</u>	<u>-.0026</u>	<u>3.5640</u>
3	<u>.7513</u>	<u>2.6229</u>	<u>-7.9527</u>	<u>1.9927</u>
4	<u>.7525</u>	<u>2.6229</u>	<u>2.0466</u>	<u>24.0386</u>
5	<u>.7511</u>	<u>2.6231</u>	<u>-2.0368</u>	<u>24.0409</u>
6	_____	_____	_____	_____

Are the 6 SLOTS measured in TOLERANCE with respect to SIZE and LOCATION?

YES NO

6. Record SIZE and DEPTH of the 6 each .3125-18UNC-2B tapped HOLES

HOLE #1: Go/No Go ?:	<u>60</u>	LOC: X	<u>11.3823</u>	Y	<u>1.0512</u> in
HOLE #2: Go/No Go ?:	<u>60</u>	LOC: X	<u>7.9371</u>	Y	<u>13.8982</u> in
HOLE #3: Go/No Go ?:	<u>60</u>	LOC: X	<u>4.1229</u>	Y	<u>26.3296</u> in
HOLE #4: Go/No Go ?:	<u>60</u>	LOC: X	<u>-11.3793</u>	Y	<u>1.0486</u> in
HOLE #5: Go/No Go ?:	<u>60</u>	LOC: X	<u>-7.9360</u>	Y	<u>13.8976</u> in
HOLE #6: Go/No Go ?:	<u>60</u>	LOC: X	<u>-4.1260</u>	Y	<u>26.3280</u> in

Are the 6 MOUNTING HOLES in TOLERANCE and is their LOCATION in TOLERANCE.

YES NO



INNER Sector

TRAVELER

Anode Mount #01

ABDB BURN-IN

ELECTRONIC INSPECTION

- a) Mount eight ABDB, one LOAB-OSOR, and one LOAB-OSIR on to the Left side Anode wire mount.
- b) Place Anode wire mount board with ABDB and LOAB in Left side Anode Wire Mount High Voltage Test tube with 14.7 psi P-10.
- c) Run the Burn-in Voltage of 1600 Volt for 16 hours.

If you observe any sparking from ABDB's and/or LOAB's, replace ABDB's or LOAB's until sparking is eliminated.

What is the total leakage current reading? < 3 nA (nano ampere)

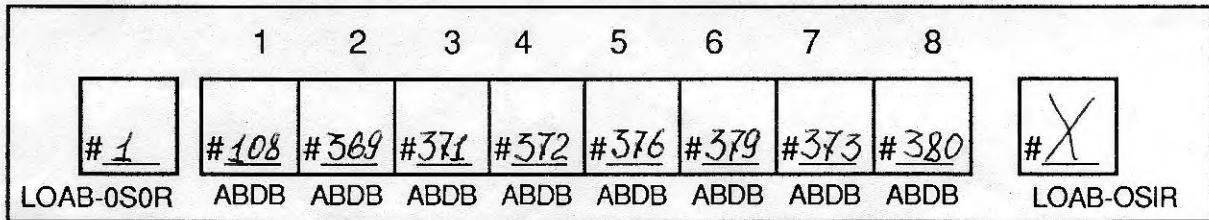
Total Leakage Current must be below 5 nA.

If the leakage current is more than 5nA, replace ABDB's until the total leakage current is below 5 nA.

All the rejected ABDB's and LOAB's must be bagged and tagged with "REJECTED / HIGH LEAK CURRENT". Also indicate each rejected board's leak current.

Indicate below which LEFT SIDE ANODE WIRE MOUNT was tested.

Also indicate in the diagram below the ABDBs, LOAB-OSOR, and LOAB-OSIR used and their locations on the LEFT SIDE ANODE WIRE MOUNT.



Inspector's signature [Signature] Inspection date: 9/11/1995

Russel Canary
425 / 8/21/85

Pad Plane / Oper
for Inner Sector 1

OPEN CIRCUIT DETECTION TEST

Test conducted 10/09/95,00:01

Board Type = Inner Sector

Serial number = blpad *I.S.001*

Operator/Remarks: blt3

max short resistance = 2.000000000000000E+0007 (20.00 M ohm)

min open circuit resistance = 5.000000000000000E+0000 (5.000 ohm)

number of data samples per pin = 1

DMM device = KEITH

Relay Delay (Set) = 0 msec

Relay Delay (Release) = 0 msec

Open circuit found on connector# 145, pin# 12 relay# 9

Resistance = Overflow

Problem on connector# 145, pin# 12 corrected by operator

[End of Error List]

Pad Plane / Short
for Sector 1

SHORT CIRCUIT DETECTION TEST

Test conducted 10/09/95,02:03

Board Type = Inner Sector

Serial number = b1pad I.S.001

Operator/Remarks: b1t3

max short resistance = 2.0000000000000000E+0007 (20.00 M ohm)

min open circuit resistance = 5.0000000000000000E+0000 (5.000 ohm)

number of data samples per pin = 1

DMM device = KEITH

Relay Delay (Set) = 0 msec

Relay Delay (Release) = 0 msec

[End of Error List]

SHORT TEST
INNER SECTOR #1 (COMPLETED)

RELAY RACK DIAGNOSTIC

SHORT CIRCUIT DETECTION TEST

H = 60 - 63% T_{sec} 60.5°F T_{room} 65°F

Test conducted 02/26/96, 08:26

Board Type = Inner Sector

Serial number = s1

Operator/Remarks: test 1

max short resistance = 8.000000000000000E+0008 (800.0 M ohm)

min open circuit resistance = 9.000000000000000E+0000 (9.000 ohm)

number of data samples per pin = 1

DMM device = KEITH

Relay Delay (Set) = 500 msec

Relay Delay (Release) = 50 msec

Short circuit found on connector# 152, pin# 18 relay# 55
Resistance = 771.2 M ohm

Short circuit found on connector# 152, pin# 20 relay# 57
Resistance = 663.8 M ohm

U = 69%

Problem on connector# 152, pin# 20 corrected by operator

[End of Error List]

HIGH HUMIDITY

SHORT CIRCUIT DETECTION TEST

Test conducted 02/26/96, 09:26

H = 60 - 63%

TEMP SEC 60.5°F RM 65°F

Board Type = Inner Sector

Serial number = s1

Operator/Remarks: retest con#152

max short resistance = 8.000000000000000E+0008 (800.0 M ohm)

min open circuit resistance = 9.000000000000000E+0000 (9.000 ohm)

number of data samples per pin = 1

DMM device = KEITH

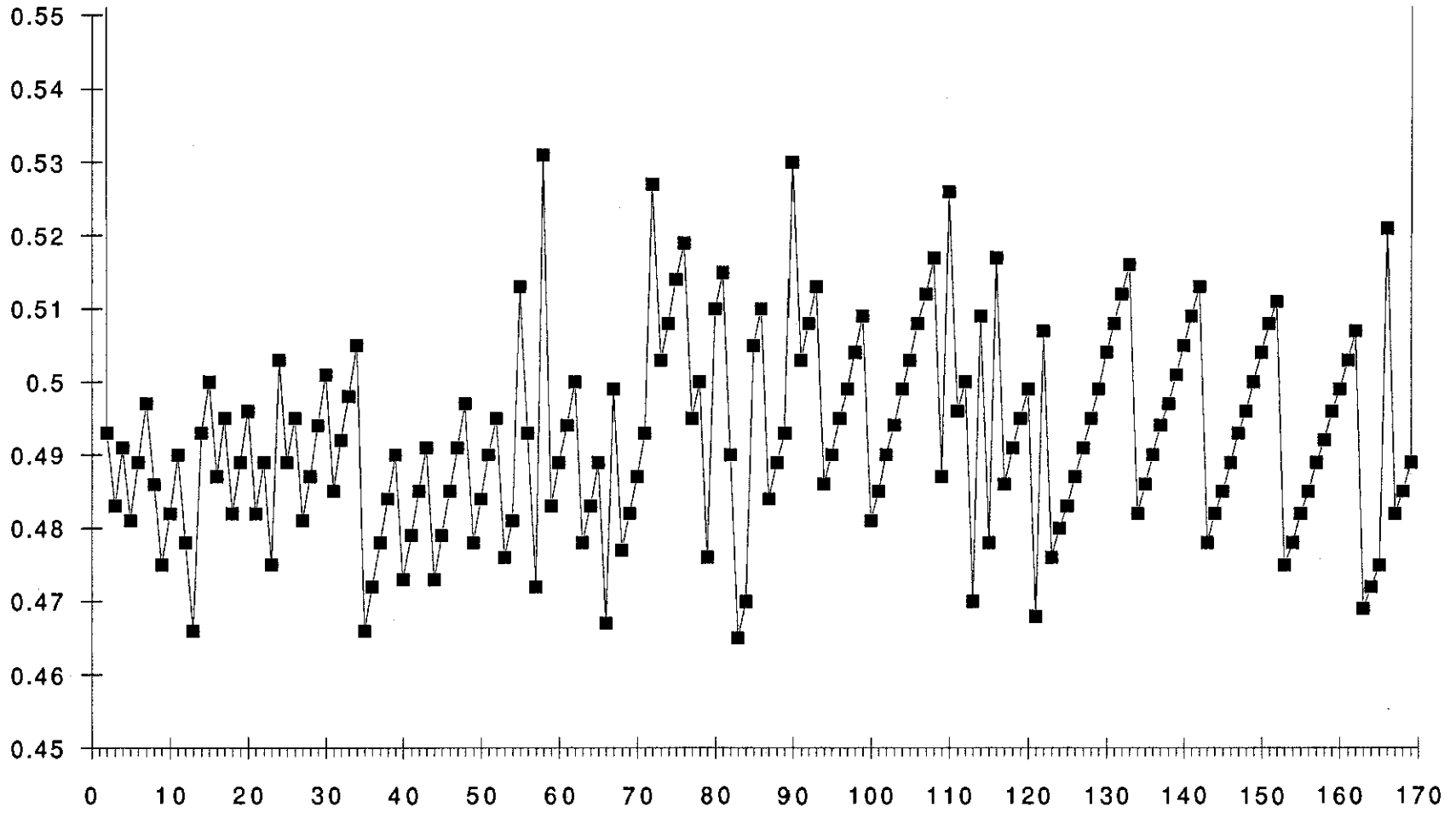
Relay Delay (Set) = 500 msec

Relay Delay (Release) = 50 msec

[End of Error List]

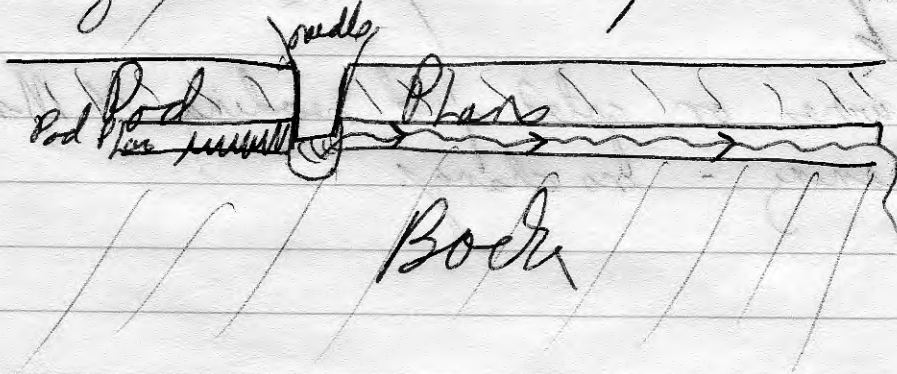
PASSED

Inner Sector 1 anode tension 1/22/9



INNER Sector # 1

- 1) 1/5/96 several bent ABDB pins - in straightening one broke off - replaced (From inner radius - 7th ABDB - pins in bottom row - HV pen - 1st one)
- 2) This sector has a delaminated pad - inner radius side near both corners - a .001 sherrin can be slipped in (2 places) about $\frac{1}{8}$ " if an inch will repair! Fixed 1/5/95 by drilling two #43 holes (with pin vice) into pad plane after determining the extent of case - clamped debris block on perimeter of a opening & using thinner epoxy ^{826 403} 60/40 used the pneumatic applicator at 20 psi & a green tip plaster needle - forced epoxy to edge of sector - clamped back exposed area



- 3) 1/11/95 Replaced two anodes (on repair frame #43 & #180) that slipped from heat of soldering (well use wet string from here on out, Number of wires on Sector # 30 & #167)
- 3) 1/26/98 broke shield tail in evolving new solder mockers replaced (1) shield wire $8\frac{3}{4}$ " in from 75u left side, inner radius
- 5) 2/6/95 Sector Bock connector closest to inner left edge modified to receive mat!

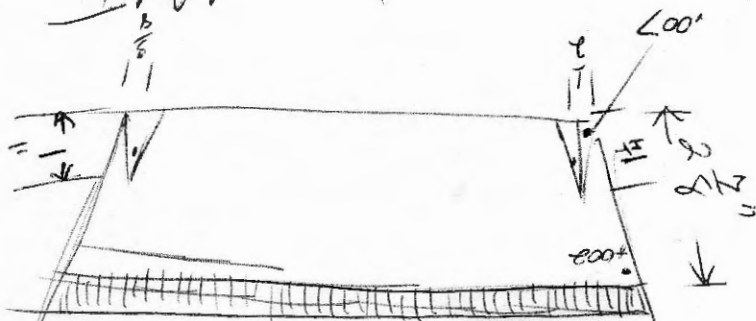
6) 2/9/96 Removed shield plane of wire because first 9 wires tested very low in tension .100 N??

Mockered off epoxy on mounts - too much material removed on rt mount well use new mount & hand seam new tapered per holes

7) 5/8/96 Gated grid on table 1 - inner radius left - pod plane .0045 ↑ inner radius right - pod plane .002 ↑ - pod does not move - no delamination - distortion diminishes to acceptable as indicator brought to center ^{edge} of inner radius edge

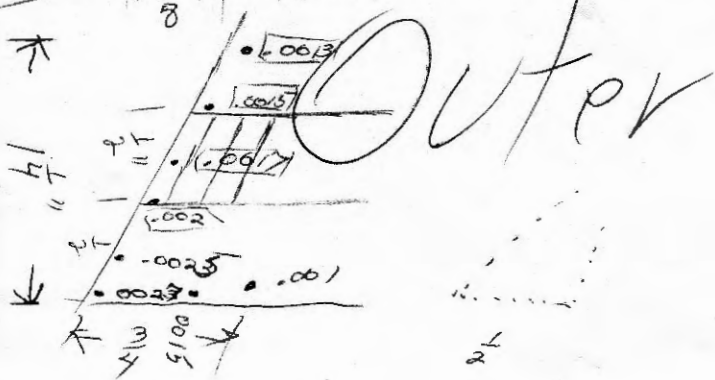
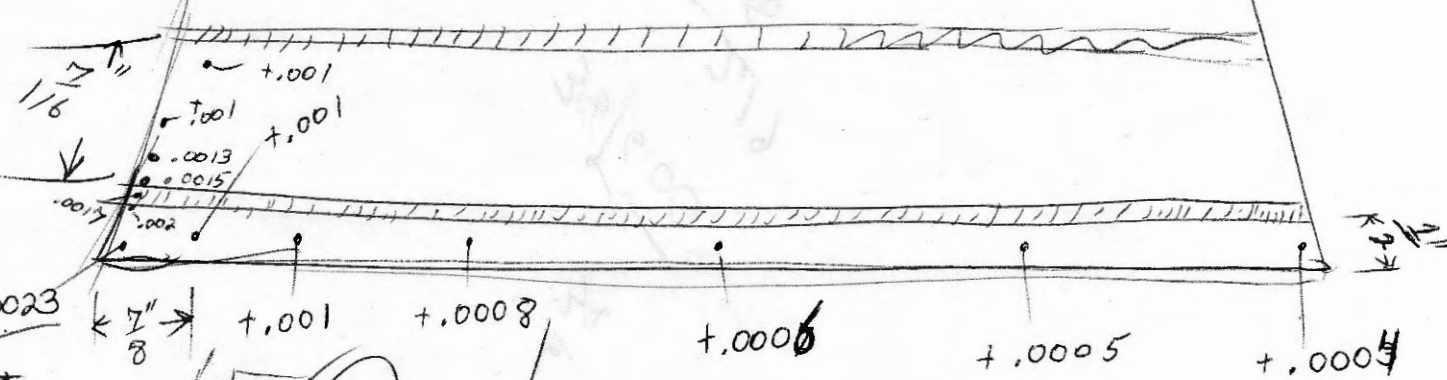
8) 5/15/96 0 wires on gated grid reading 16 Ms tried cleaning - no change

INNER Sector # 1



Right

Left



Outer