INNER SECTOR O.A. Serial No. 09

STAR

TRAVELER S-06

PAD PLANE /STRONGBACK DIMENSIONAL CHECK

SECTOR type: Outer ___ Inner ✓ Strongback Serial No. 09

Pad Plane Printed Circuit Board Serial No. 14.

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

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

DIMENSIONAL CHECK

OUTER SECTORS: Use dwg **#24A3936** O-RING GROOVE MACHINING

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

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

1. 3.407 -.0001 in
2. 3.4071 +.0000 in
3. 3.4071 +.0000 in
4. 3.407 -.0001 in

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

Outer left corner 3.407 in Outer right corner 3.407 in

Inner left corner 3.4071 in Inner right corner 3.4071 in

OUTER SECTORS: Are all height measurements between 3.249 in and 3.251 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 ✓, No __

If the answer to any part of question 1 and 2 is NO, discontinue checking and follow the instructions a 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. HORLICK Inspection date 3 / 26 /1996

INSTRUCTIONS

If the answer to all items 1 thru 7 is YES, sign this inspecion record and place it in the Traveller envelope for this Sector.

If the answer to any part of question 1 and 2 is **NO,** tag this assembly **"REJECTED-DIMENSIONAL CHECK"** and place in **"REJECTED"** storage.

If the answer to any part of question 3 thru 7 is **NO,** tag this assembly **"HOLD FOR RE-WORK'**

- General Comments:

STAR

TRAVELER S-01

PAD PLANE PC BOARD VISUAL INSPECTION

Inner Sector Serial No. 14

Date Received 2 / 12 /1996

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?
   Yes ✓, **No** __
   (attach inspection sheet to this traveler)

2. Is the substrate material (NEMA G-10) certified to contain bromide below 200 ppm.
   Yes __, **No** __

   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 D. HORUER Inspection date: 2/15/1996

STAR

TRAVELER S-02

PAD PLANE PC Board LEAK CHECK

SECTOR type: Outer____ Inner✓ Serial No. 014

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 X

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 X No___

   Write down the reading: 09 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 Richard Stupin Inspection date: 2/15/96

STAR

TRAVELER S-04

PAD PLANE PC Board Resistance and Continuity

SECTOR type: Outer ____ (Inner) ____ Serial No. 14

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

1. Are there any connector pin to ground or pin to pin resistances < 800 M Ohm? If yes, list the connector(s) and pin(s) **Yes** __, No L

Connector #165 pin #20 and pin #22 Res ≈ 80hm

Connector # 173 pin # 8 res ≈ 5.990hm

Repaired 03.05.96

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

Connector #128 - bad geographic addr. (129)

Repaired 03.01.96

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

_____

_____

- General Comments:

_____

_____

_____

_____

INSTRUCTIONS

If any item (1 - 3) 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 L **Rejected** _____

Inspector's signature _____ Date: 03 / 06 /1996

```
SHORT CIRCUIT DETECTION TEST
Test conducted 03/04/96,13:58

Board Type =  Inner Sector
Serial number = b14
Operator/Remarks: test res
max short resistance =  8.00000000000000E+0008 (800.0 M ohm)
min open circuit resistance =  9.00000000000000E+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# 165, pin# 20 relay# 97
Resistance = 8.835 ohm

Short circuit found on connector# 165, pin# 22 relay# 99
Resistance = 7.102 ohm

Short circuit found on connector# 173, pin# 8 relay# 165
Resistance = 5.991 ohm

Bad Geographic Address Value of 175 on Connector# 181.

[ End of Error List ]
-----------------------------
SHORT CIRCUIT DETECTION TEST
Test conducted 03/04/96,14:55

Board Type =  Inner Sector
Serial number = b14
Operator/Remarks: test res
max short resistance =  8.00000000000000E+0008 (800.0 M ohm)
min open circuit resistance =  9.00000000000000E+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 ]
```

fixed 3/5/96 ard

fixed 3/5/96 ard

con #181

O.C.

SHORT CIRCUIT DETECTION TEST $H = 62\%, T_{room} = 70°F$

Test conducted 03/06/96,11:03

Board Type = Inner Sector
Serial number = b14
Operator/Remarks: retest con.#165, #173.
max short resistance = 8.00000000000000E+0008 (800.0 M ohm)
min open circuit resistance = 9.00000000000000E+0000 (9.000 ohm)
number of data samples per pin = 1
DMM device = KEITH
Relay Delay (Set) = 500 msec
Relay Delay (Release) = 50 msec

Bad Geographic Address Value of 156 on Connector# 165.

Bad Geographic Address Value of 173 on Connector# 166.

[End of Error List]

```
--------------------------------------------------------------------------------
OPEN CIRCUIT DETECTION TEST
--------------------------------------------------------------------------------
      Test conducted 03/01/96,10:09

      Board Type =  Inner Sector
      Serial number = b14
      Operator/Remarks: test OPENS
      max short resistance =  8.00000000000000E+0008 (800.0 M ohm)
      min open circuit resistance =  9.00000000000000E+0000 (9.000 ohm)
      number of data samples per pin = 1
      DMM device = KEITH
      Relay Delay (Set) = 500 msec
      Relay Delay (Release) = 50 msec
        ------------------------------------------------------------------------

Bad Geographic Address Value of 129 on Connector# 128.

[ End of Error List ]
-----------------------------
```

(175) 1 → 1

CON 175 - BAD PIN ? Replaced per 3/5/96 MH

[End of Error List]

SHORT CIRCUIT DETECTION TEST H=67%

Test conducted 04/17/96,11:25

Board Type = Outer Sector
Serial number = s#09
Operator/Remarks: retest con#77 after 2' cleaned
max short resistance = 8.0000000000000E+0008 (800.0 M ohm)
min open circuit resistance = 9.0000000000000E+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]

SHORT CIRCUIT DETECTION TEST H=63%

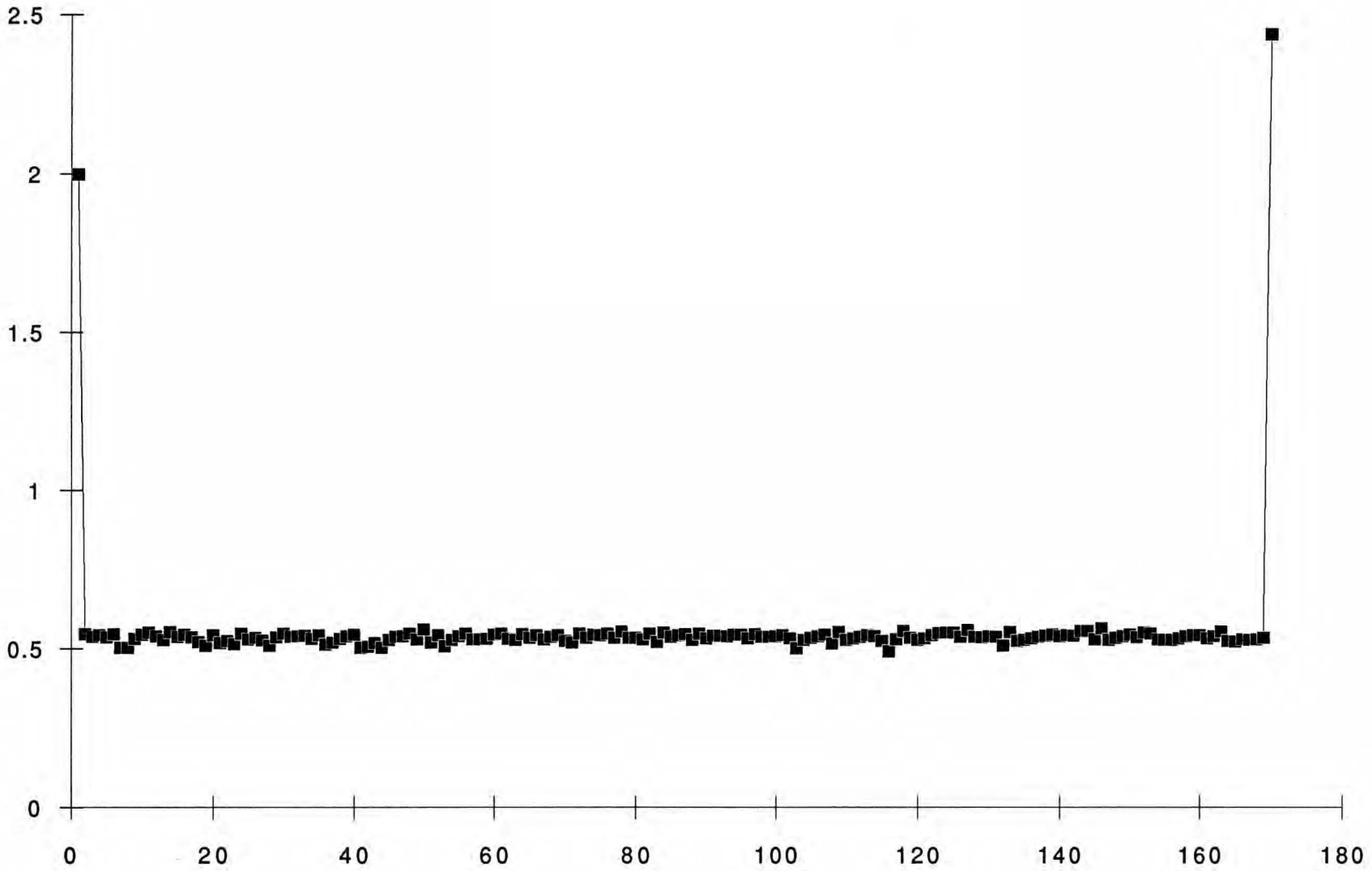
Test conducted 04/17/96,11:44

Board Type = Outer Sector
Serial number = s#09
Operator/Remarks: retest con#77 after 2' cleaned
max short resistance = 8.0000000000000E+0008 (800.0 M ohm)
min open circuit resistance = 9.0000000000000E+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]

Note:
This connector was washed local with Deonized water. ~~THREE~~ times THEY STILL FAILED THEN we used ~~heat~~ Gun. ~~after And water~~ AND Nitrogen, and so we made it three times, AFTER WHICH IT FINALLY PASSED

S9AN-IN graph



STAR

TRAVELER

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? ≤ 4 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.

726 639 638

	1	2	3	4	5	6	7	8	
	#12	#617	#618	#619	#620	#~~621~~	#638	#639	#640	# X
LOAB-0S0R	ABDB	ABDB	ABDB	ABDB	ABDB	ABDB	ABDB	ABDB	LOAB-OSIR

Inspector's signature JWM Inspection date: 4/4/1998

Passed Canary test 692

Passed HV test 1600V 3/28/3-29

Inner Sector #5

4/23/96 Jerome checked gated spid alignment & this sector passed — it was done on Tab 6 2

4/30/96 Removed NBOB 621 (Low anode signal) & replaced w/736 - pc #750

Swapped 638 & 639 - someone is sparking

5/15/96 Replaced turney - Leading
Checked resistance between gg wire "open" no reading on multimeter

9 INNER

TEST EQUIPMENT/RELAY RACK DIAGNOSTIC

Test conducted 05/02/96,11:44

max short resistance = Overflow
min open circuit resistance = 9.000 ohm
number of data samples per pin = 1
DMM device = KEITH

Short circuit found on test connector# 2, pin# 20 relay# 57
Resistance = 1.048 G ohm

Problem on connector# 2, pin# 20 corrected by operator

Short circuit found on test connector# 4, pin# 13 relay# 130
Resistance = 1.033 G ohm

Problem on connector# 4, pin# 13 corrected by operator

Short circuit found on test connector# 4, pin# 15 relay# 132
Resistance = 1.046 G ohm

Problem on connector# 4, pin# 15 corrected by operator

Short circuit found on test connector# 4, pin# 35 relay# 152
Resistance = 1.043 G ohm

Problem on connector# 4, pin# 35 corrected by operator

Short circuit found on test connector# 4, pin# 39 relay# 156
Resistance = 1.039 G ohm

Problem on connector# 4, pin# 39 corrected by operator

Short circuit found on test connector# 4, pin# 42 relay# 159
Resistance = 1.039 G ohm

Problem on connector# 4, pin# 42 corrected by operator

Open circuit found on test connector# 1, pin# 3 relay# 0
Resistance = 52.66 ohm

Problem on connector# 1, pin# 3 corrected by operator

[End of Error List]

SHORT CIRCUIT DETECTION TEST

Test conducted 05/02/96,11:54

Board Type = Inner Sector
Serial number = S09INNER
Operator/Remarks: TEST 1
max short resistance = 8.00000000000000E+0008 (800.0 M ohm)
min open circuit resistance = 9.00000000000000E+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# 132, pin# 32 relay# 229
Resistance = 489.1 M ohm

Short circuit found on connector# 132, pin# 34 relay# 231
Resistance = 401.4 M ohm

Short circuit found on connector# 132, pin# 35 relay# 232
Resistance = 799.3 M ohm

Problem on connector# 132, pin# 35 corrected by operator

Short circuit found on connector# 132, pin# 37 relay# 234
Resistance = 422.3 M ohm

Short circuit found on connector# 132, pin# 38 relay# 235
Resistance = 376.1 M ohm

Bad Geographic Address Value of 164 on Connector# 132.

Short circuit found on connector# 142, pin# 8 relay# 125
Resistance = 267.4 M ohm

Short circuit found on connector# 142, pin# 9 relay# 126
Resistance = 119.8 M ohm

Short circuit found on connector# 142, pin# 10 relay# 127
Resistance = 174.8 M ohm

Short circuit found on connector# 142, pin# 12 relay# 129
Resistance = 752.2 M ohm

Problem on connector# 142, pin# 12 corrected by operator

Short circuit found on connector# 142, pin# 13 relay# 130
Resistance = 761.8 M ohm

Short circuit found on connector# 142, pin# 14 relay# 131
Resistance = 391.3 M ohm

Short circuit found on connector# 142, pin# 15 relay# 132
Resistance = 290.3 M ohm

Short circuit found on connector# 142, pin# 16 relay# 133
Resistance = 387.6 M ohm

Short circuit found on connector# 142, pin# 17 relay# 134
Resistance = 299.7 M ohm

Short circuit found on connector# 142, pin# 18 relay# 135
Resistance = 174.2 M ohm

Short circuit found on connector# 142, pin# 19 relay# 136
Resistance = 127.5 M ohm

Short circuit found on connector# 142, pin# 20 relay# 137
Resistance = 87.46 M ohm

Short circuit found on connector# 142, pin# 21 relay# 138
Resistance = 78.54 M ohm

Short circuit found on connector# 142, pin# 22 relay# 139
Resistance = 148.8 M ohm

Short circuit found on connector# 142, pin# 23 relay# 140
Resistance = 283.0 M ohm

Short circuit found on connector# 142, pin# 24 relay# 141
Resistance = 310.3 M ohm

Short circuit found on connector# 142, pin# 25 relay# 142
Resistance = 387.2 M ohm

Short circuit found on connector# 142, pin# 26 relay# 143
Resistance = 217.3 M ohm

Short circuit found on connector# 142, pin# 27 relay# 144
Resistance = 289.6 M ohm

Short circuit found on connector# 142, pin# 28 relay# 145
Resistance = 221.1 M ohm

Short circuit found on connector# 142, pin# 29 relay# 146
Resistance = 79.25 M ohm

Short circuit found on connector# 142, pin# 30 relay# 147
Resistance = 558.4 M ohm

Short circuit found on connector# 142, pin# 31 relay# 148
Resistance = 657.7 M ohm

Short circuit found on connector# 142, pin# 33 relay# 150
Resistance = 314.4 M ohm

Short circuit found on connector# 142, pin# 34 relay# 151
Resistance = 522.6 M ohm

Short circuit found on connector# 142, pin# 35 relay# 152
Resistance = 269.2 M ohm

Short circuit found on connector# 142, pin# 36 relay# 153
Resistance = 352.8 M ohm

Short circuit found on connector# 142, pin# 37 relay# 154
Resistance = 690.8 M ohm

Short circuit found on connector# 142, pin# 38 relay# 155
Resistance = 459.3 M ohm

Short circuit found on connector# 152, pin# 20 relay# 57
Resistance = 784.1 M ohm

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

Short circuit found on connector# 156, pin# 23 relay# 220
Resistance = 590.3 M ohm

Short circuit found on connector# 156, pin# 24 relay# 221
Resistance = 434.8 M ohm

Short circuit found on connector# 157, pin# 8 relay# 5
Resistance = 606.8 M ohm

Short circuit found on connector# 157, pin# 9 relay# 6
Resistance = 453.7 M ohm

Short circuit found on connector# 157, pin# 10 relay# 7
Resistance = 474.6 M ohm

Short circuit found on connector# 157, pin# 11 relay# 8
Resistance = 496.6 M ohm

Short circuit found on connector# 157, pin# 12 relay# 9
Resistance = 495.4 M ohm

Short circuit found on connector# 157, pin# 13 relay# 10
Resistance = 404.1 M ohm

Short circuit found on connector# 157, pin# 14 relay# 11
Resistance = 364.2 M ohm

Short circuit found on connector# 157, pin# 15 relay# 12
Resistance = 335.6 M ohm

Short circuit found on connector# 157, pin# 16 relay# 13
Resistance = 288.1 M ohm

Short circuit found on connector# 157, pin# 17 relay# 14
Resistance = 322.3 M ohm

Short circuit found on connector# 157, pin# 18 relay# 15
Resistance = 182.5 M ohm

Short circuit found on connector# 157, pin# 19 relay# 16
Resistance = 563.1 M ohm

Short circuit found on connector# 157, pin# 20 relay# 17
Resistance = 336.5 M ohm

Short circuit found on connector# 157, pin# 21 relay# 18
Resistance = 333.Ø M ohm

Short circuit found on connector# 157, pin# 22 relay# 19
Resistance = 238.3 M ohm

Short circuit found on connector# 157, pin# 23 relay# 2Ø
Resistance = 211.8 M ohm

Short circuit found on connector# 157, pin# 24 relay# 21
Resistance = 288.3 M ohm

Short circuit found on connector# 157, pin# 25 relay# 22
Resistance = 439.2 M ohm

Short circuit found on connector# 157, pin# 26 relay# 23
Resistance = 416.6 M ohm

Short circuit found on connector# 157, pin# 27 relay# 24
Resistance = 382.7 M ohm

Short circuit found on connector# 157, pin# 3Ø relay# 27
Resistance = 421.7 M ohm

Short circuit found on connector# 157, pin# 31 relay# 28
Resistance = 392.2 M ohm

Short circuit found on connector# 157, pin# 32 relay# 29
Resistance = 1Ø2.6 M ohm

Short circuit found on connector# 157, pin# 33 relay# 3Ø
Resistance = 54.39 M ohm

Short circuit found on connector# 157, pin# 35 relay# 32
Resistance = 352.Ø M ohm

Short circuit found on connector# 157, pin# 36 relay# 33
Resistance = 77Ø.1 M ohm

Short circuit found on connector# 157, pin# 37 relay# 34
Resistance = 731.9 M ohm

Short circuit found on connector# 157, pin# 38 relay# 35
Resistance = 588.2 M ohm

Bad Geographic Address Value of 189 on Connector# 157.

Short circuit found on connector# 158, pin# 18 relay# 55
Resistance = 764.2 M ohm

Short circuit found on connector# 158, pin# 20 relay# 57

Resistance = 693.0 M ohm

Short circuit found on connector# 164, pin# 18 relay# 55 O.K. V.L
Resistance = 669.7 M ohm

Short circuit found on connector# 164, pin# 20 relay# 57 O.K. V.L
Resistance = 581.8 M ohm

[End of Error List]
