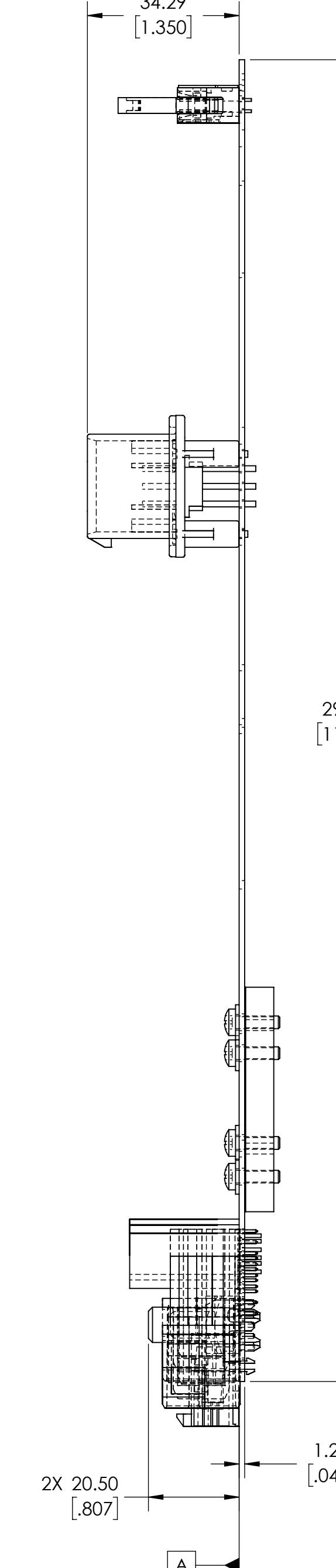
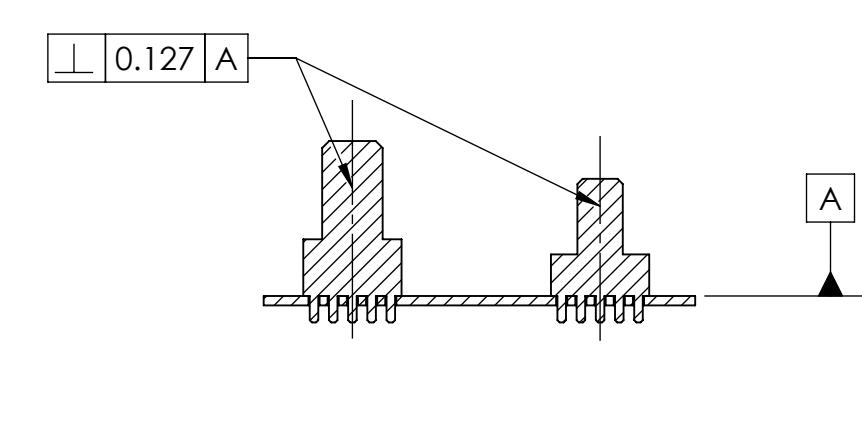
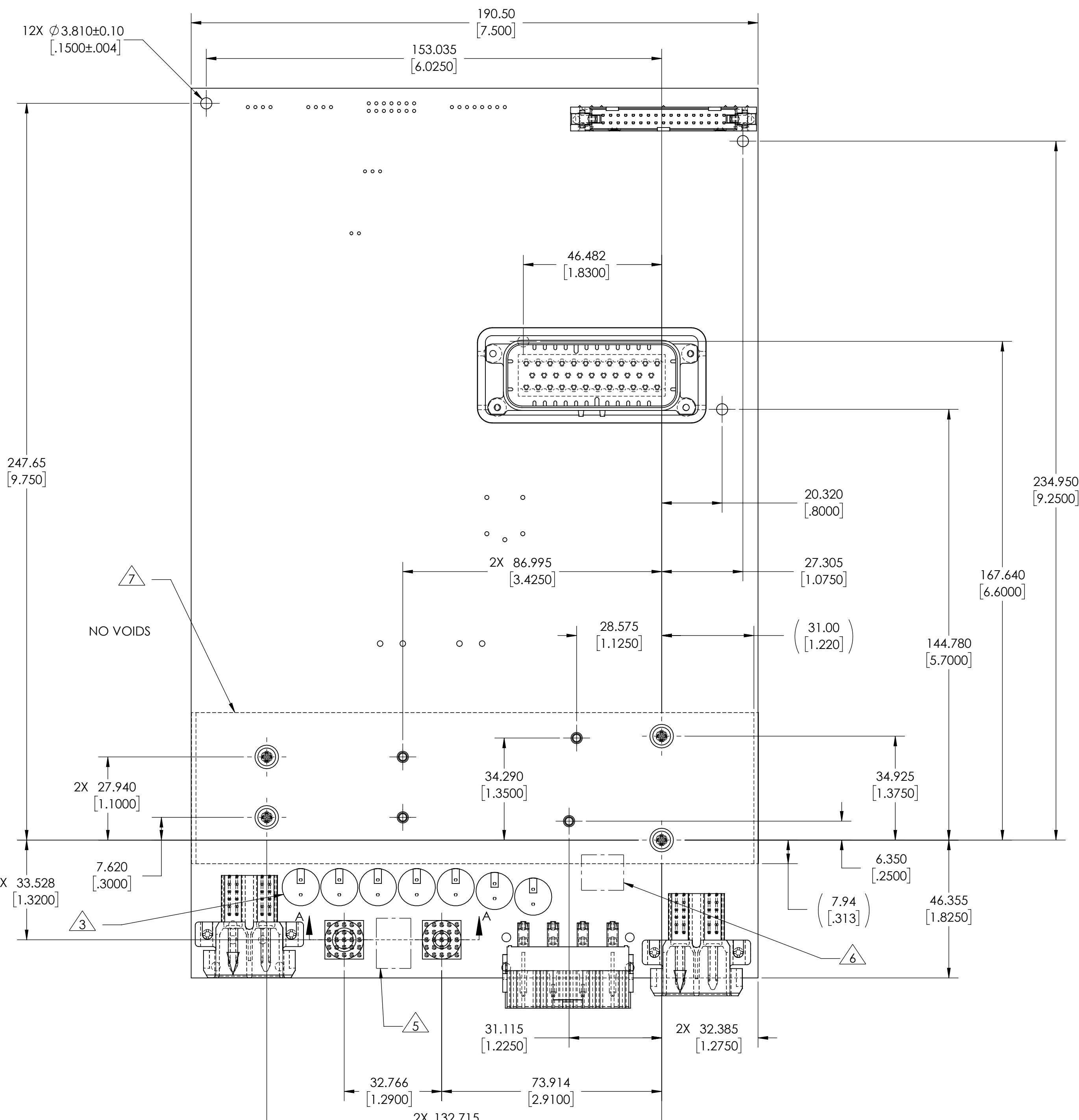


| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|--------------------------------------|------|
| 1 | 1019218 | WASHER, FLAT, 0.14B 0.31D .03, NYL | 4 |
| 2 | 6920 | SCREW, PAN, PHL, M3 X 0.50 X 10, 4.8 | 4 |
| 3 | 1015127 | PLATE, SINK, HEAT | 1 |
| 4 | 1016816 | PAD, THERMAL, HEAT SINK | 1 |

| REVISONS | | |
|----------|-------------|------|
| REV. | DESCRIPTION | DATE |



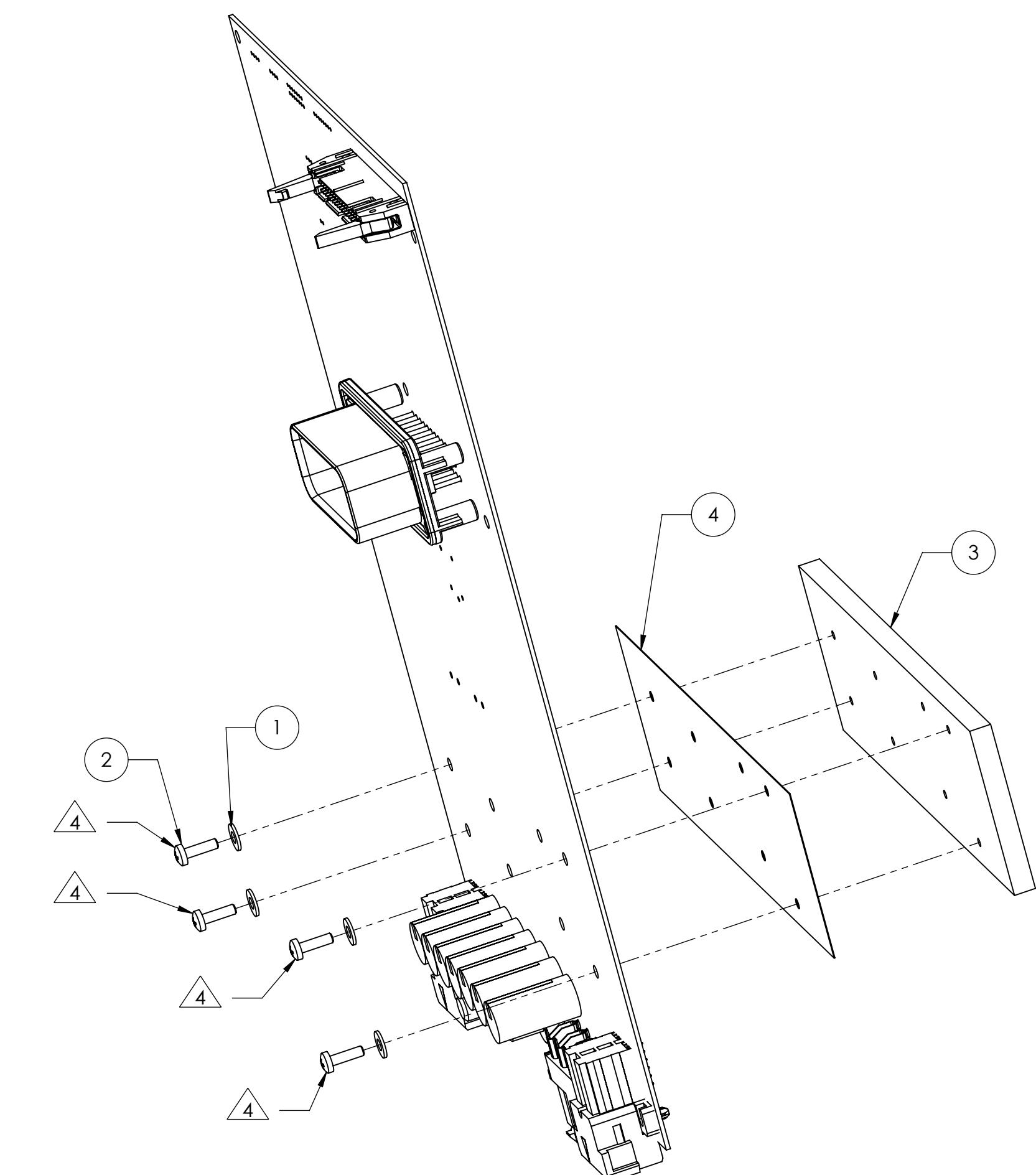
DEVELOPMENT PART

MATERIAL SPECIFICATIONS:
NOTED
PART NAME:
CIRCUITBOARD, LOGIC[R14/STR RIDER]

OTHER TREATMENTS AND FINISHES:
NOTED
PAINT - COLOR
MDR:
GLOSS
PERFORMANCE
ACCEPTANCE
DES:
STACEY CLEMENS
10/28/2008

WELDING NOTATION IN ACCORDANCE
WITH AWS A2.4-98
UNLESS OTHERWISE SPECIFIED
DIMENSIONS TOLERANCING IN
ACCORDANCE WITH ASME Y14.5-2009
ALL UNTOLERANCED DIMENSIONS ARE
CONTROLLED BY:
REV: -B
DATE: 08/06/2025
XX ±1.5 ±[.06]
XXX ±0.75 ±[.030]
XXXX ±0.250 ±[.0098]
CHANGED BY:
MDR:
GLOSS
PERFORMANCE
ACCEPTANCE
DES:
STACEY CLEMENS
10/28/2008
ANGLES ±2°

GENERAL NOTES
PRIMARY DIMENSIONS ARE METRIC. REFERENCE
DIMENSIONS WITH BRACKETS ARE INCH. UNLESS
OTHERWISE SPECIFIED ALL DIMENSIONS ARE
AFTER TREATMENTS AND FINISHES.
PROPRIETARY INFORMATION
MAY NOT BE REPRODUCED OR DISCLOSED
TO OTHERS WITHOUT WRITTEN PERMISSION
OF TENNANT COMPANY.
DWG D SIZE 1278139
PART NUMBER
SHEET 1 OF 3



NOTES:

1. WORKMANSHIP STANDARD PER: IPC-J-STD-001D, IPC-A-610. SOLDERING AND ELECTRICAL CONNECTIONS: IPC-S-815B
2. MASKED AREA WILL HAVE NO CONFORMAL COATING ON THESE AREAS.
 - a. COMPONENTS: J2, J5, J6, J8, J9, J10, J11, J15, J16, CR2, F2, J7.
 - b. (12) MOUNTING HOLES AND UNDER SCREW HEADS AND WASHERS.
 - c. AREA UNDER HEAT SINK SIL PAD ON BOTTOM OF PCB.
3. APPLY RTV SILICONE FOR MECHANICAL STRENGTH ON BOTH SIDES OF CAPACITORS, EXCEPT BETWEEN POWER LUGS J7 AND J11.
4. TORQUE SCREWS FOR HEAT SINK TO MIN 0.4519-.5084 Nm [63.99-71.99 OZ. INCH, 4.0-4.5 IN-LBS].
5. LABEL MUST CONTAIN THE FOLLOWING INFORMATION AND BE LOCATED BETWEEN J7 AND J11
 - a. TENNANT'S ASSEMBLY PART NUMBER WITH CURRENT DRAWING REVISION P/N: 1278139 REV 00
 - b. TENNANT'S QPL BOM PART NUMBER WITH CURRENT ALPHA REVISION. (BOM1278139revA.xlsx)
 - c. MANUFACTURER PART NUMBER
 - d. MANUFACTURER SERIAL NUMBER
 - e. TO BE IN A POSITION WHERE RTV DOES NOT MASK THE PRINT ON THIS LABEL
 - f. MANUFACTURERS PART NUMBER MUST FACILITATE TRACEABILITY OF PARTS USED TO CREATE THE POPULATED BOARD
6. LABEL MUST HAVE MACHINE MODEL LISTED. SEE "PART NAME" CELL BETWEEN [] FOR MACHINE MODEL
7. NO VOIDS IN BOTTOM SIDE SOLDERMASK IN THIS AREA (HEAT SINK AREA)
8. BUILD USING QPL BILL OF MATERIALS: BOM1278139revA.xlsx
9. PROGRAM USING FIRMWARE FILE: RSR081514.OUT

CHANGELOG:

REV 00: REPLACES 1073764, NEW VAC FAN CONNECTOR

TENNANT

FUNCTIONAL TEST INSTRUCTIONS

Test Setup:

1. SW 8 = CLOSED
2. SW 9 = OPEN
3. SW 10 = CLOSED
4. SW 11 = OPEN
5. SW 12 = OPEN
6. SW 13 = CLOSED
7. SW 14 = OPEN
8. SW 15 = OPEN
9. SW 16 = OPEN
10. Plug in connectors; J5, J6, J8, J9, J10.
11. Connect power supply ground to J7 (Stud).
12. Connect power supply 24 Volts to J11 (Stud).
13. Connector J6 pin 34 = 1.0 volts.
14. Connector J6 pin 33 = 1.0 volts.
15. Perform four modes of operation, to complete test.

1st Input Display Mode

1. CLOSE switch SW 7.
2. CLOSE switch SW 9.
3. Two seconds after Main contactor turns on, OPEN switch SW 7.
4. Confirm LED D20 turns ON.
5. CLOSE switch SW 17.
6. Confirm LED D20 turns OFF.
7. OPEN switch SW 17.
8. Confirm LED D22 turns ON.
9. CLOSE switch SW 18.
10. Confirm LED D22 turns OFF.
11. Open switch SW 18.
12. Confirm Indicators are ON; D2, D12, D17, and LED D13 is blinking.
13. CLOSE SW 11 = LED D12 is OFF.
14. OPEN SW 11 = LED D12 is ON.
15. CLOSE SW 12 = LED D11 is ON.
16. OPEN SW 12 = LED D11 is OFF.
17. OPEN SW 13 = LED D10 is ON.
18. CLOSE SW 13 = LED D10 is OFF.
19. CLOSE SW 14 = Beeper sounds Continually.
20. OPEN SW 14 = Beeper silent
21. CLOSE SW 16 = LED D1 is ON.
22. OPEN SW 16 = LED D1 is OFF.
23. OPEN SW 16 = Repeats an 8 beep sequence.
24. CLOSE SW 10 = Continues 8 beep sequence.
25. OPEN SW 8 = LED D2 turns OFF and continues 8 beep sequence.
26. CLOSE SW 8 = LED D2 Remains OFF and continues 8 beep sequence.
27. Open SW 9 = Power OFF.

4th Manual Mode:

1. CLOSE switch SW 5.
2. CLOSE switch SW 9.
3. Two seconds after LED 14 starts to blink, open switch SW 5.
4. Momentarily CLOSE SW 6.
5. Confirm the following Indicator lights turn ON: Left Brush, Right Brush, and Hour Meter.
6. Momentarily CLOSE SW 6.
7. Confirm the following Indicator lights turn OFF: Left Brush, Right Brush, and Hour Meter.

2nd Self Test Mode:

1. CLOSE switches, SW 2 and SW 3.
2. CLOSE switch SW 9 (Turn on Power)
3. Two seconds after Main contactor turns on, OPEN switches SW 2 and SW 3.
4. Confirm Indicators turn ON and OFF, (Left and Right Brush).
5. Confirm Indicator turns ON and OFF, (LVacuum Fan).
6. Confirm LED D22 turns ON.
7. Close switch SW 18 for two seconds.
8. OPEN switch SW 18.
9. Confirm LED D23 turns ON and Off.
10. Allow approx. 40 seconds for automated Self-Test to complete.
11. After Self- Test has finished ,one of two things will happen.
 - a. System OK = Flashing LEDs D12, D13, D14, D15, D16.
 - b. System NOT OK = Error Codes will be displayed using other panel LEDs.
12. If System NOT OK. See "Self Test Error Codes"
13. If System OK. Open SW 9. (Turn off Power)

Self Test Error Codes

Flash LED = OPEN fault
Solid LED = SHORT fault

Fault Indicator (LED) System at Fault

| | |
|-----------------------------|--------------------------|
| 1. ReadySpace..... | ReadySpace Valve |
| 2. Wand..... | Vacuum- Fan |
| 3. Down Pressure (+)..... | Front Brush |
| 4. Down Pressure (-)..... | Rear Brush |
| 5. Speed (+)..... | Brush Head Actuator |
| 6. Speed (-)..... | Extraction Shoe Actuator |
| 7. Solution..... | Solution Pump |
| 8. Extract..... | Extract Valve |
| 9. Solution Tank Empty..... | Brake |
| 10. Recovery Tank Full..... | Beep/Horn |
| 11. Hose Fault LED..... | ReadySpace Flush Valve |

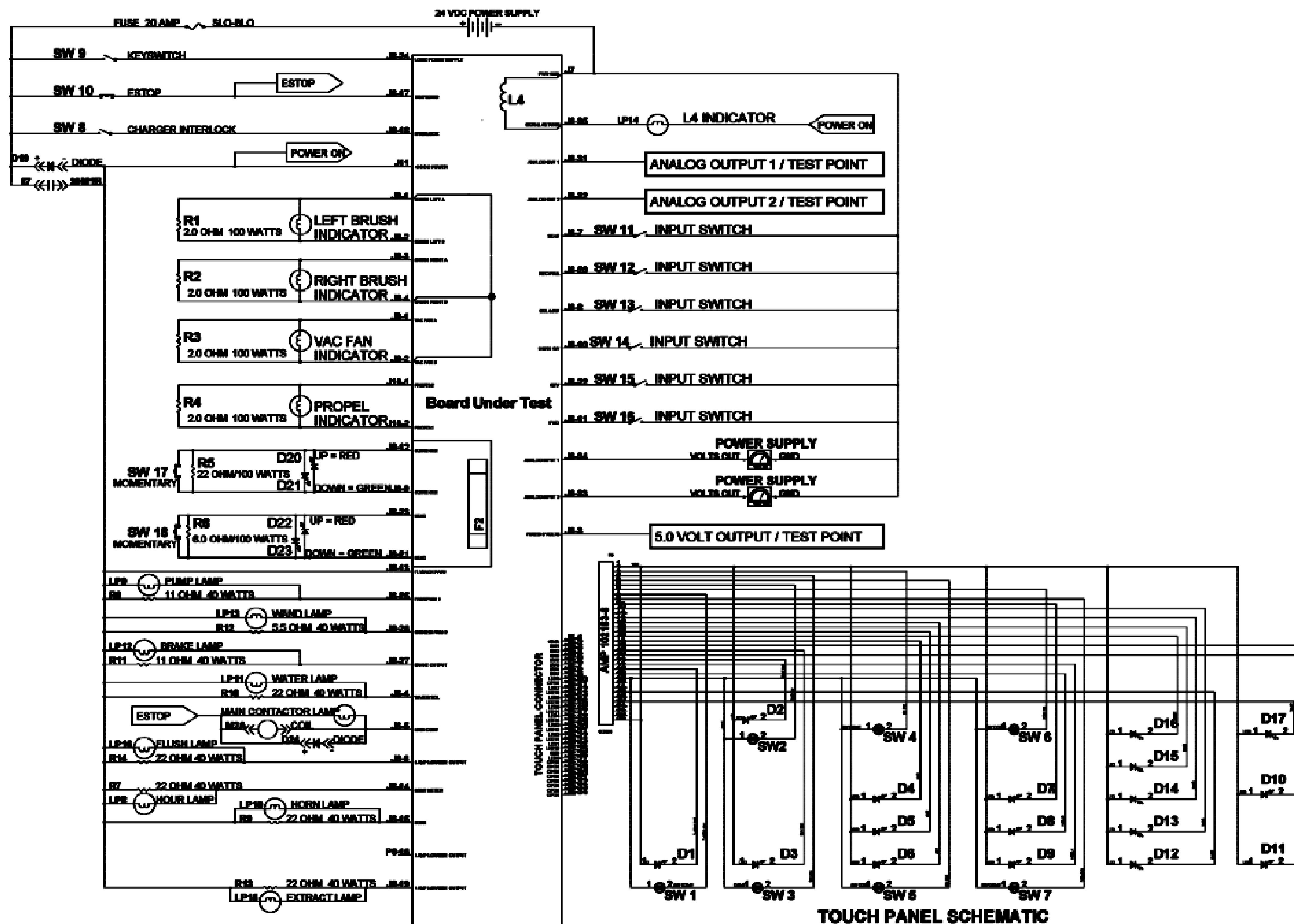
3rd Propel Test Mode:

1. CLOSE switches, SW 2 and SW 4.
2. CLOSE switch SW 9 (Turn on Power)
3. After LED D2 remains ON, and all others turn off, OPEN switches SW 2 and SW 4.
4. CLOSE SW 15 = LED D2 turns OFF, LED D3 turns ON, and Beeper ON (1 per second).
5. Open SW 15 = LED D2 turns ON, LED D3 turns OFF, and Beeper OFF.
6. CLOSE SW 11 = Nothing Changes
7. Slowly increase voltage on Connector J6 pin 33, from 1.0 volts, up to 2.6 volts.
8. Confirm LED turn on sequence, as voltage increases.
 - a. 1st D6
 - b. 2nd D5
 - c. 3rd D4
9. Slowly decrease voltage on Connector J6 pin 33, from 2.6 volts, down to 1.0 volts.
10. Confirm LED turn off sequence, as voltage decreases.
 - a. 1st D4
 - b. 2nd D5
 - c. 3rd D6
11. Slowly increase voltage on Connector J6 pin 34, from 1.0 volts, up to 2.6 volts.
12. Confirm turn on sequence of indicator light LEDs, as voltage increases.
 - a. 1st D9, D16, and Brake Indicator lamp
 - b. 2nd D8
 - c. 3rd D7
13. Confirm LED 16 turns ON.
14. Slowly decrease voltage on Connector J6 pin 34, from 2.6 volts, down to 1.0 volts.
15. Confirm LED turn off sequence, as voltage decreases.
 - a. 1st D7
 - b. 2nd D8
 - c. 3rd D9, D16, and Brake Indicator lamp
16. Confirm LED 16 turns OFF.
17. OPEN SW 11 = Nothing Changes
18. Open SW 9 = Power OFF

DEVELOPMENT PART

| MATERIAL SPECIFICATIONS: NOTED | | OTHER TREATMENTS AND FINISHES: NOTED | | PAINT - COLOR | | MDR: | CHANGED BY: 08/06/2005 | DATE: 08/06/2005 | REV -B | ECO | GENERAL NOTES | |
|--|--|---|-------------|---------------|------------------------|-----------------------|--|---------------------|-----------|-----|--|--|
| PART NAME: CIRCUITBOARD, LOGIC[R14/STR RIDER] | | GLOSS | PERFORMANCE | ACCEPTANCE | DES: STACEY CLEMENS | ANGLES $\pm 20^\circ$ | PRIMARY DIMENSIONS ARE METRIC. REFERENCE DIMENSIONS WITH BRACKETS ARE INCH, UNLESS OTHERWISE SPECIFIED. ALL UNTOLERANCED DIMENSIONS ARE AFTER TREATMENTS AND FINISHES. | | | | PROPRIETARY INFORMATION MAY NOT BE REPRODUCED OR DISCLOSED TO OTHERS WITHOUT WRITTEN PERMISSION OF TENNANT COMPANY. | |
| | | | | | | | CHANGED BY: 10/28/2008 | DATE: 10/28/2008 | | | PROPRIETARY INFORMATION MAY NOT BE REPRODUCED OR DISCLOSED TO OTHERS WITHOUT WRITTEN PERMISSION OF TENNANT COMPANY. | |
| | | | | | | | MDR: STACEY CLEMENS | DATE: 10/28/2008 | REV -B | ECO | | |
| | | | | | | | ANGLES $\pm 20^\circ$ | | | | | |

TENNANT
DWG D
PART NUMBER 1278139
SIZE 1



DEVELOPMENT PART

MATERIAL SPECIFICATIONS:
NOTED
PART NAME:
CIRCUITBOARD, LOGIC[R14/STR RIDER]

OTHER TREATMENTS AND FINISHES:
NOTED
PAINT - COLOR:
MDR:
GLOSS: PERFORMANCE: ACCEPTANCE:

CHANGED BY: DATE: 08/06/2005
REV: -B ECO:
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
ACCORDING TO ASME Y14.5-2009
ALL UNTOLERANCED DIMENSIONS ARE
CONTROLED BY:

GENERAL NOTES
PRIMARY DIMENSIONS ARE INCHES. REFERENCE
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OTHERWISE SPECIFIED. ALL DIMENSIONS ARE
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PROPRIETARY INFORMATION
DWG: D PART NUMBER: 1278139
SIZE:

TENNANT