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SERVICE BULLETIN

SUBJECT: ELECTRICAL POWER – Modification of Static Inverter Part Number 1-002-0102-2173 to Part Number 1-002-0102-2573.

TRANSMITTAL: Service Bulletin 1-002-0102-2573-24-44 Initial Release (Revision 0).

I. Planning Information

A. Effectivity

Applies to Static Inverters, AI² Part Number 1-002-0102-2173, serial numbers before KC001126. Existing Units that are before serial number KC001126 shall require the changes outlined in this service bulletin.

Note: Part Numbers that are not included in section I, paragraph "A" (Effectivity) may be returned to the manufacturer (AI²) to have the changes listed in this service bulletin applied. This shall be done through a commercial agreement, at cost. The modification described herein is registered by Avionic Instruments under NOC 17-002, NOC 17-003, and NOC 17-005.

B. Concurrent Requirements

All previous modification level changes to the part number 1-002-0102-2173 must be applied to the unit to ensure that it is MOD "E" before initializing the modification described in this service bulletin.

MOD LEVEL (2173)	SERVICE BULLETIN NUMBER
MOD "B"	1-002-0102-2173-24-29
MOD "C", MOD "D", MOD "E"	1-002-0102-2173-24-36

This service bulletin incorporates the changes of configurations "MOD –", and "MOD A" to the unit. As previously described, the upgrade to MOD "F" is not mandatory for the application of the modification described in this service bulletin. However, part number 1-002-0102-2173 labelled as MOD "F" can be directly upgraded to part number 1-002-0102-2573 MOD "A" through the application of this service bulletin.

C. Reason

Analysis conducted by Avionic Instruments has determined that specific capacitors used on the EMI Output Assembly, and DC Connector Assembly of Static Inverter PN 1-002-0102-2173 may experience failure. Product improvement to the Static Inverter upgrades the unit from part number "1-002-0102-2173" to "1-002-0102-2573" which replaces capacitors 1-001-0306-0136, 1-001-0325-0003, and 1-001-0306-0073 (C601 through C605, and C1006) with new capacitors that have had additional quality screening (i.e. burn-in). In addition, the replacement capacitor manufacturer has replaced the previous manufacturer on all ATR products. The part number 1-002-0102-2573 MOD –, and 1-002-0102-2573 MOD A configurations can be found in ECNs 7571, and 7645 respectively.

D. Description

Replacement of capacitors 1-001-0306-0136, 1-001-0325-0003, and 1-001-0306-0073 (C601 through C605, and C1006) will require partial disassembly of the Static Inverter Unit, including removal of the cover, transformer, EMI output PCB assembly, and DC connector PCB assembly. However, if any of the 1-001-0306-0136 or 1-001-0325-0003 are damaged, the entire PCBA 1-002-0108-0256 shall be replaced with 1-002-0108-0395.

E. Compliance Recommendation

Recommended – Service Bulletin recommended to be accomplished to prevent significant operational disruptions. The change is non-mandatory.

F. Approval

The technical content of this document is approved under the authority of DOA Ref. EASA.21J.044.

G. Manpower

The estimated time required to accomplish the task of disassembly, inspection and/or rework, and reassembly of the unit in relation to this service bulletin is two (2) hours. Activity related to product return to service is included in this time estimate.

H. Weight and Balance

Subject change has no impact on balance and weight.

I. Electrical Load Data

Subject change has no effect on electrical performance or connections.

J. Software Accomplishment Summary

Subject change has no effect on Software.

K. References

- Component Maintenance Manual 1-001-4902-0051 (24-20-A6)

L. Other Publications Affected

- Component Maintenance Manual 1-001-4902-0051 (24-20-A6) from Rev 1 to Rev 2

M. Interchangeability of Parts

Please refer to ATR RIL-2017-06 for interchangeability and mixability at the aircraft level.

N. Re-Identification

Refer to III.B (Completion).

II. Material Information

A. Planning and Communication

This service bulletin will be administered via ATR or STS Component Solutions. Either ATR or STS will contact airlines to manage the modification of the 1-002-0102-2173 to 1-002-0102-2573 static inverter. For inquiries, contact your ATR customer support location or STS Component Solutions at: 2910 SW 42nd Avenue
Palm City, FL 34990
888-777-2960
Email: ATRSB@sts-cs.com

B. Material

Customers may contact Avionic Instruments customer service at +1-732-388-3500. Products upgraded by Avionic Instruments will be performed at no charge for an indefinite amount of time. Avionic Instruments will not perform any repair beyond that which is specified in this document without first notifying the customer of any associated charges and receiving customer consent.

Part Number	Name	Unit Price (Indefinite)
1-001-0306-0152	Capacitor	Free of Charge
1-001-0325-0044	Capacitor	Free of Charge
1-001-0306-0151	Capacitor	Free of Charge
1-001-2503-0001	Label (Output EMI PCB)	Free of Charge
1-001-2503-0001	Label (DC Connector PCB)	Free of Charge

THE NEW CAPACITORS (1-001-0306-0151, 1-001-0306-0152, AND 1-001-0325-0044) DISQUALIFY THE ORIGINAL CAPACITOR MANUFACTURER AS AN APPROVED SUPPLIER.

Any units received in-house for service bulletin upgrade will be subjected to the ATP prior to the upgrade being completed. AI² will notify the airline customer of any out-of-specification condition noted during performance of the ATP. The unit would need to be repaired prior to the upgrade being initiated. The modification will be performed within the contractual Shop Processing Time (S.P.T.).

C. Material Necessary for Each Component

Quantity	Part Number	Nomenclature
3	1-001-0306-0152	Capacitor C602, 603, 604
2	1-001-0325-0044	Capacitor C601, 605
1	1-001-0306-0151	Capacitor C1006
1	1-001-2503-0001	Label (Output EMI PCB)
1	1-001-2503-0001	Label (DC Connector PCB)

D. Material Necessary for Each Spare

See Section II, Item C

E. Re-identified Parts/Existing Parts Accountability

The parts shown below are changed as shown in this Service Bulletin.

New P/N	Keyword	Old P/N	Disposition
1G500-1A-2573	MODEL NUMBER	1G500-1A-2173	CONFIGURATION CONTROL
1-002-0102-2573	PART NUMBER/ FINAL ASSEMBLY	1-002-0102-2173	CONFIGURATION CONTROL
1-002-0117-0294	BASE PLATE ASSEMBLY	1-002-0117-0097	CONFIGURATION CONTROL
1-002-0103-0245	FRONT PANEL ASSEMBLY	1-002-0103-0169	CONFIGURATION CONTROL
1-002-0108-0395	PCB ASSEMBLY, EMI OUTPUT	1-002-0108-0256	CONTAINS NEW CAPACITOR PART NUMBERS
1-002-0108-0394	PCB ASSEMBLY, DC CONNECTOR	1-002-0108-0235	CONTAINS NEW CAPACITOR PART NUMBERS

F. Special Tooling

1. Standard Tools
2. Drill

III. Accomplishment Instructions

NOTE:
Some screws may be different sizes or types. Note the sizes and locations of the screws and hardware (nuts, washers) when disassembling the unit. Upon reassembly, ensure all screws and hardware are put in the correct locations.

A. Instructions for Part Number 1-002-0102-2173

1. Remove 48 screws (51957-12) from the cover of the unit. (Figure 1).
2. Remove the cover from the unit. (Figure 2)
3. Disconnect the transformer from the base plate by removing (4) screws (24693-C2) from the base of the unit. (Circled in yellow). (Figure 3).
4. Disconnect the PCB EMI Input/Bracket assembly from the base plate by removing (2) screws (24693-C2) from the base of the unit. (Circled in blue). (Figure 3).
5. Disconnect the Front panel Assembly from the base plate by removing (8) screws (24693-C2) and (1) screw (24693-C273) from the base of the unit. (Circled in red). (Figure 3).
6. Disconnect the connector from the AC connector/ alarm assembly. (Figure 5, Figure 6).
7. Disconnect the wires/cables by de-soldering at locations E602, E603, E605, E608, E609 and E610 on the EMI Output board assembly (Soldering Iron tip JBC C245-741). (Figure 7, Figure 8, Figure 9, Figure 10, Figure 11, Figure 12).
8. Remove EMI Output Assembly from EMI shield by removing (4) screws and washers. (Figure 13).
9. Remove capacitors by cutting leads with a cutter. (Figure 14).
10. Remove excess capacitor leads soldered to the PCB using solder wick and soldering iron set at 650F.
11. Remove excess solder in PCB holes using solder wick and soldering iron (tip JBC C245-741 or equivalent) set at 650F.
12. Manually clean the PCB holes with alcohol.
13. Apply thinner (1-001-2302-0019, T521-5L) over the old RTV and peel it off after 5 mins of dwell time. (Figure 15).
14. Sequentially (#1-5) install and solder the new capacitors (1-001-0325-0003 (2), 1-001-0306-0136 (3)). Solder top & bottom lead of capacitors using solder wire (1-001-2301-0002, CLEANLINE 7000, 0.032”DIA, 63 SN 37 PB 2% FLUX)) and soldering iron (tip JBC C245-906 or equivalent) set at 650F. Manually clean soldered areas with alcohol. (Figure 16).

NOTE:
Make sure the capacitors have “Red” dot marking on top to indicate quality screening (burn-in).
Make sure the capacitors are installed with correct orientation.

15. Apply RTV (MIL-A-46146) around the capacitors. (Figure 17, Figure 18).
16. Manually brush capacitors (top surface & soldered areas) with conformal coating (MIL-I-46058).
17. On the reverse side of the EMI output assembly, place the (2) new labels (1-001-2503-0001) which show the new part number of the assembly (1-002-0108-0395), manually brush areas with conformal coating (MIL-I-46058). (Figure 19 (label in red area)).
18. Assemble the repaired EMI output assembly (1-002-01008-0256) onto the EMI shield using (4) screws/washers.
19. Solder wires/cables at locations E602, E603, E605, E608, E609 & E610 on the EMI Output board assembly using solder wire (1-001-2301-0002, CLEANLINE 7000, 0.032"DIA, 63 SN 37 PB 2% FLUX)) and soldering iron (tip JBC C245-906 or equivalent). (Figure 7, Figure 8, Figure 9, Figure 10, Figure 11, Figure 12).

NOTE:
Use caution when soldering the wires/cables to the board as to not damage any components.

20. Apply conformal coating (MIL-I-46058) to the soldered areas.
21. Disconnect (4) lugs by removing (4) nuts (35649-245T), (4) washers (15795-803),(4) washers (35338-135) and shrink tubing (M23053/5). (Figure 20).

NOTE:
Ensure that red and black cables are marked for reassembly.

22. Carefully move the PCB EMI Input/Bracket assembly over to access the area where the capacitor is located. (Figure 21).
23. Remove (1) nut (25082-C4), (1) washer (1-001-3201-0084), and (1) washer (1-001-3202-0073) from the diode assembly. (Figure 22).

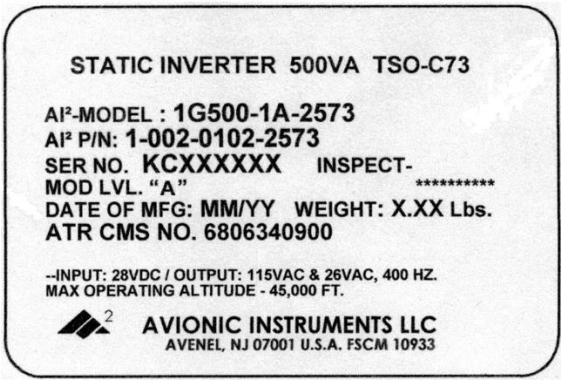
NOTE:
Steps 24 through 27 allow access to the bottom of the DC connector assembly for the purpose of relabeling the assembly.

24. Remove (1) nut (35650-304), (1) nut (35650-3254), (1) washer (35338-138), (1) washer (35338-139), and (1) washer (15795-809). (Figure 22).
25. Remove (4) screws (51957-16) from the terminal block assembly and (3) screws (51957-13), and (1) screw (24693-C2) from the front panel. (Figure 23).
26. Remove (1) nut (35650-304), (1) nut (35650-3254), (1) washer (35338-138), (1) washer (35338-139), (1) washer (15795-808), and (1) washer (15795-809) from the studs of the terminal block. (Figure 23).
27. Soften the RTV around the capacitor and remove it by cutting the leads with a cutter. (Figure 22).
28. Remove excess capacitor leads soldered to the PCB using solder wick and soldering iron set at 650F.

29. Remove excess solder in PCB holes using solder wick and soldering iron (tip JBC C245-741 or equivalent) set at 650F.
30. Manually clean the PCB holes with alcohol.
31. Apply thinner (1-001-2302-0019, T521-5L) over the old RTV and peel it off after 5 mins of dwell time.
32. Install and solder the new capacitor (1-001-0306-0151). (Figure 26).
33. Solder top & bottom lead of capacitors using solder wire (1-001-2301-0001) (KESTER, 955AG, HI-TEMP0.031" DIA) and soldering iron (tip JBC C245-906 or equivalent) set at 650F. Manually clean soldered areas with alcohol.
34. On the reverse side of the DC connector assembly, place the (2) new labels (1-001-2503-0001) which show the new part number of the assembly (1-002-0108-0394), manually brush areas with conformal coating (MIL-I-46058) (label in red area) (Figure 24, Figure 25).
35. Reinstall (1) nut (35650-304), (1) nut (35650-3254), (1) washer (35338-138), (1) washer (35338-139), and (1) washer (15795-809). (Figure 22).
36. Reinstall (1) nut (35650-304), (1) nut (35650-3254), (1) washer (35338-138), (1) washer (35338-139), (1) washer (15795-808), and (1) washer (15795-809) to the studs of the terminal block. (Figure 23).
37. Reinstall (4) screws (51957-16) to the terminal block and (3) screws (51957-13), and (1) screw (24693-C2) to the front panel. (Figure 23).
38. Reinstall (1) nut (25082-C4), (1) washer (1-001-3201-0084), and (1) (1-001-3202-0073) to the diode assembly. (Figure 27).
39. Reinstall the transformer to the base plate by inserting (4) screws (24693-C2) to the base of the unit. (Circled in yellow). (Figure 3).
40. Reinstall the PCB EMI Input/Bracket assembly to the base plate by inserting (2) screws (24693-C2) into the base of the unit. (Circled in blue). (Figure 3).
41. Connect the Front panel Assembly to the base plate by inserting (8) screws (24693-C2) and (1) screw (24693-C273) into the base of the unit. (Circled in red). (Figure 3).
42. Connect (4) lugs by attaching (4) nuts (35649-245T), (4) washers (15795-803),(4) washers (35338-135) and shrink tubing (M23053/5). (Figure 20).
43. Connect the connector from the AC connector/alarm assembly (1-002-0108-0255). (Figure 5, Figure 6).
44. Secure the wires with grommet (1-001-0204-0029, Type 6/6). Secure the cables with cable tie (MS3367-5-9). (Figure 28, Figure 29)
45. Reinstall the top cover of the unit by inserting (48) screws (51957-12) into the unit. (Figure 1, Figure 2).

B. Completion

Upon completion of the modification, the label on the cover will be changed to indicate the model/part number change. Units that have completed the modification described in this service bulletin are to be changed to model number 1G500-1A-2573, part number 1-002-0102-2573 MOD "A".



C. Testing

Upon completion of the modification and re-labeling of the unit, the unit shall complete and pass the testing shown in the "Testing and Troubleshooting" section of CMM 1-001-4902-0051 (24-20-A6) before returning to service.

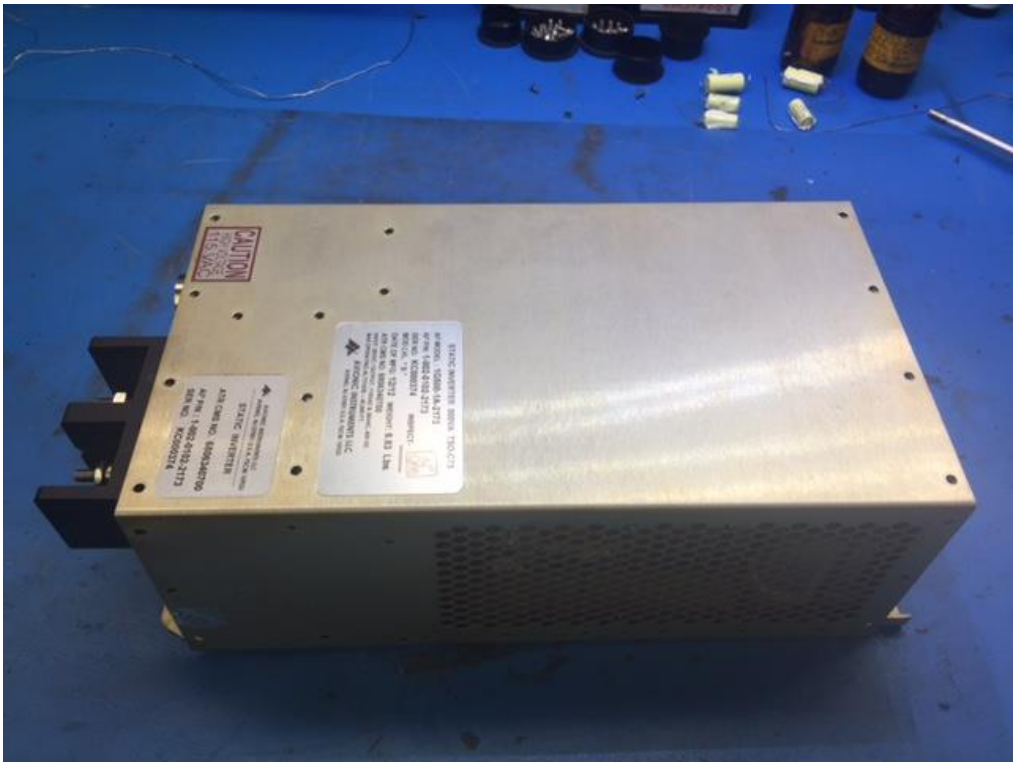


Figure 1

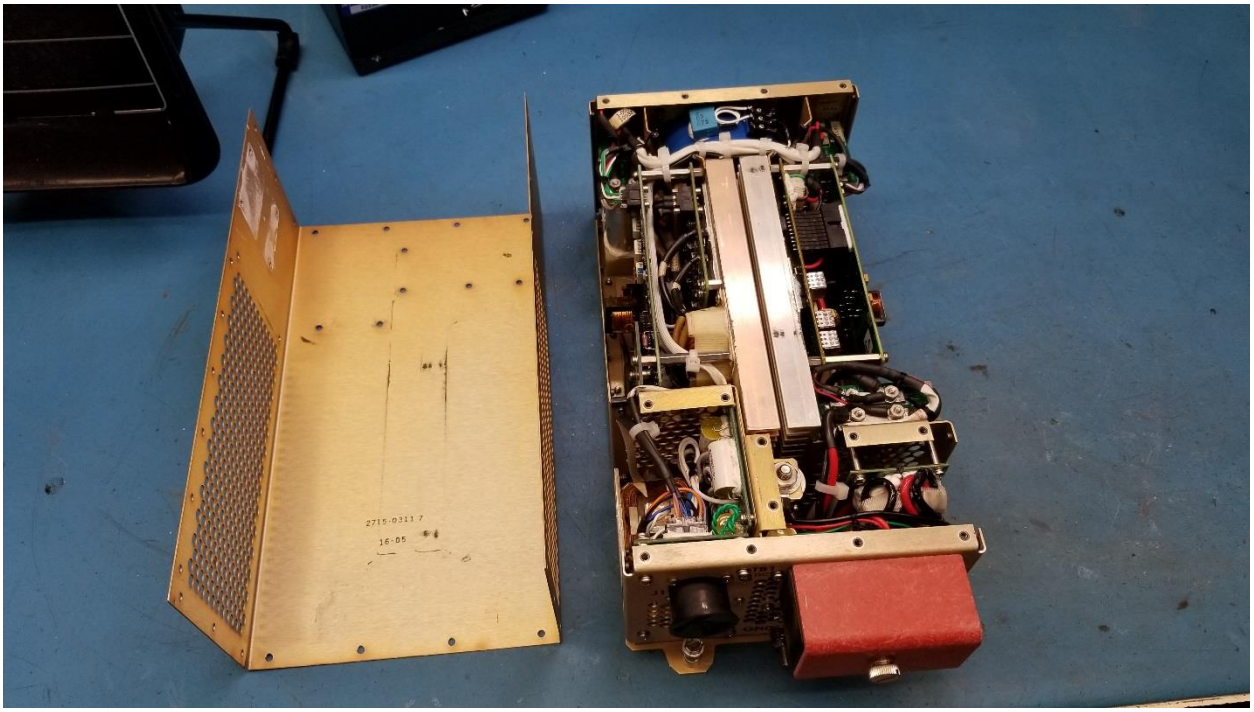


Figure 2

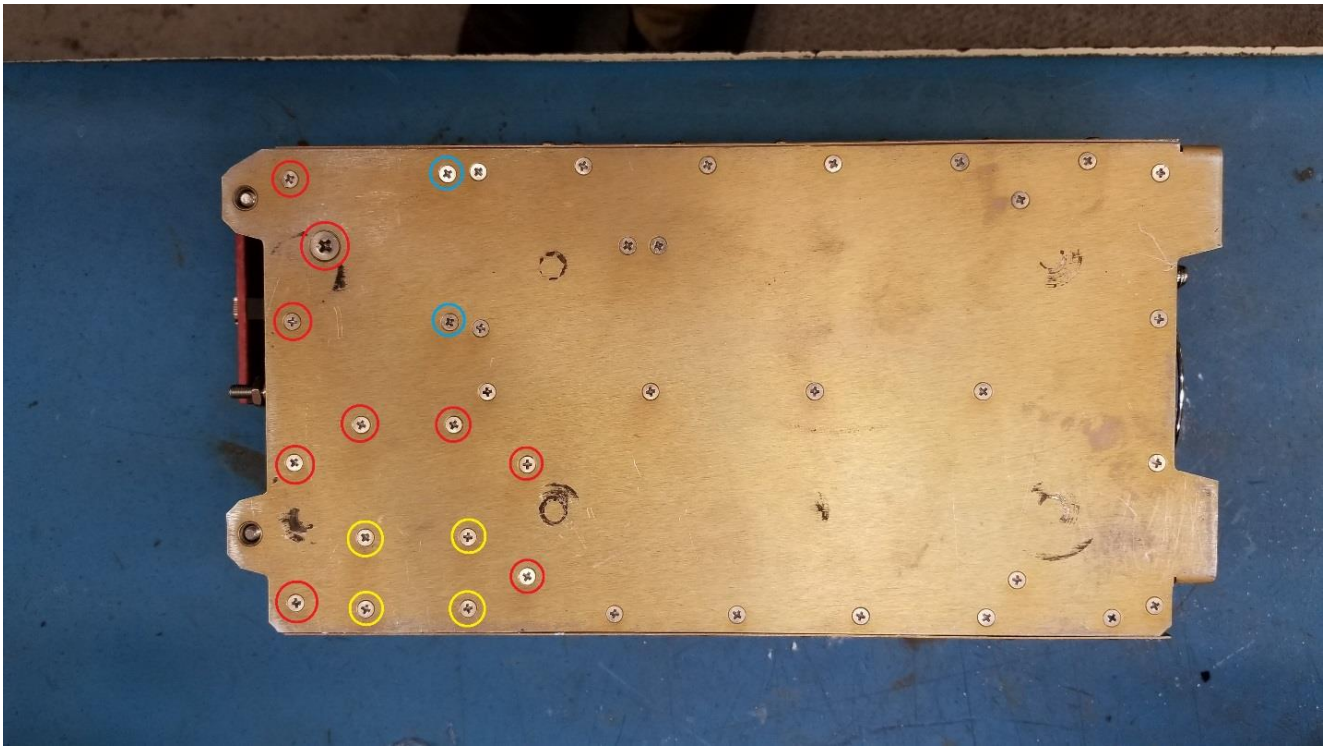


Figure 3

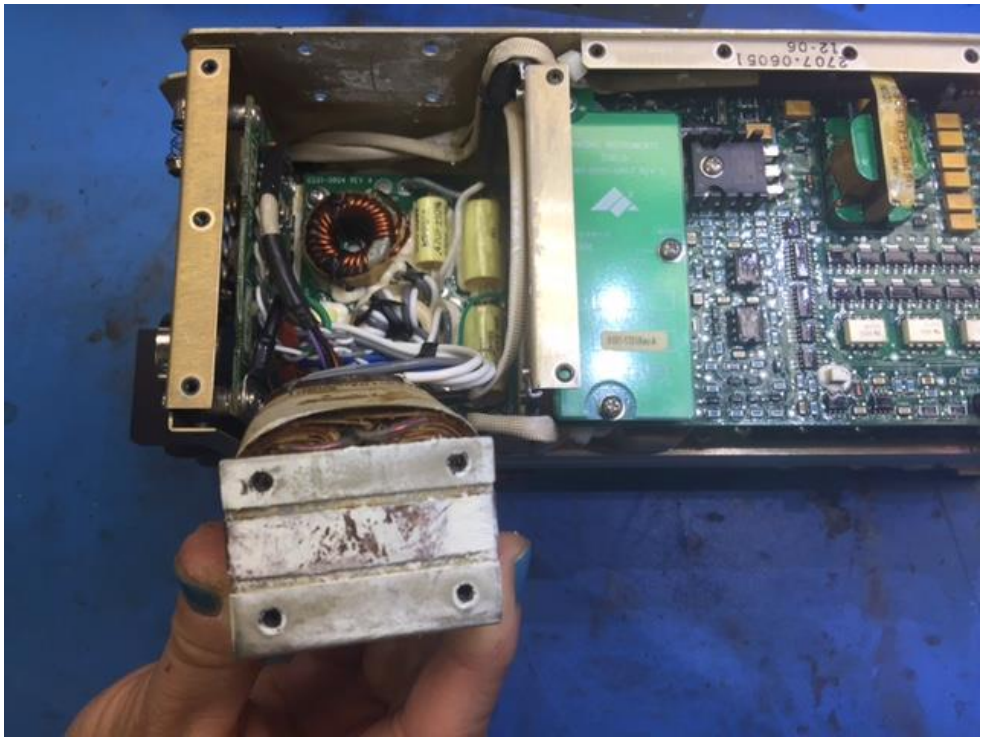


Figure 4

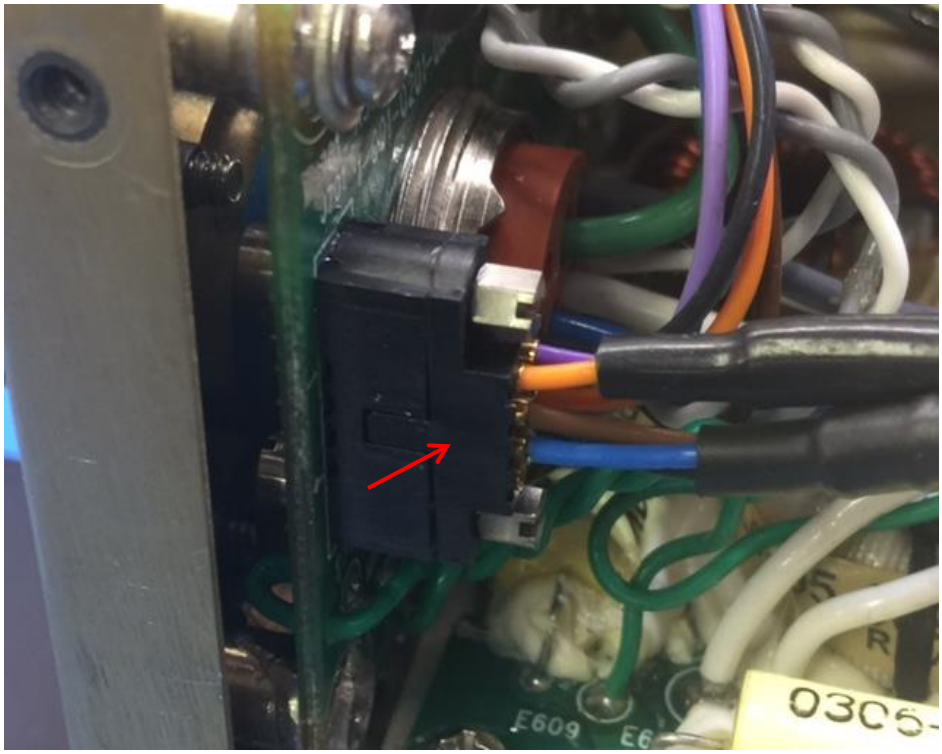


Figure 5

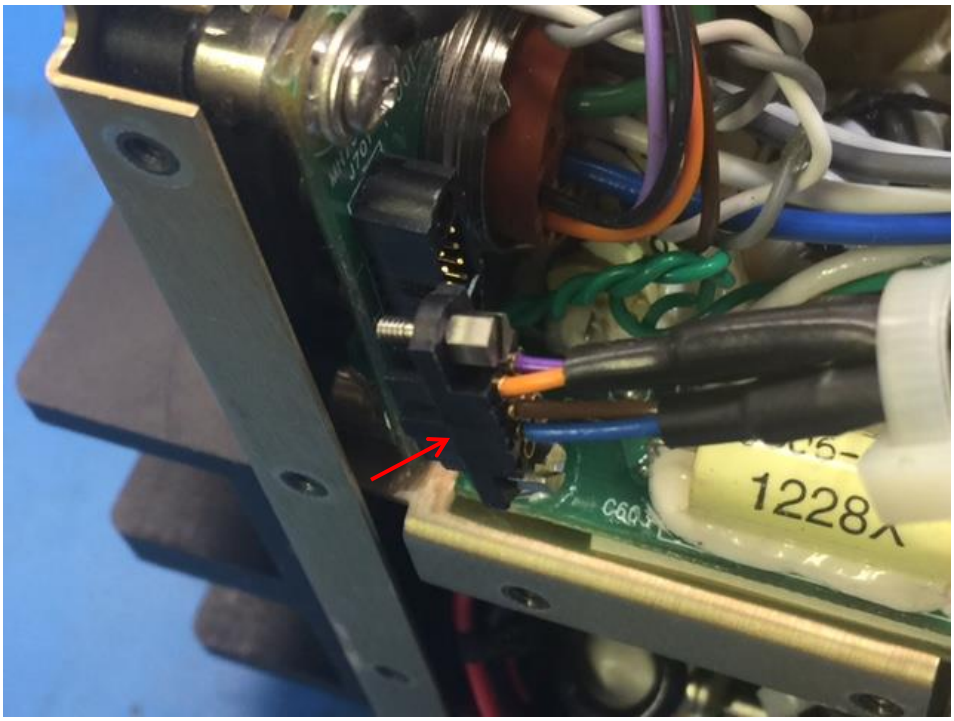


Figure 6

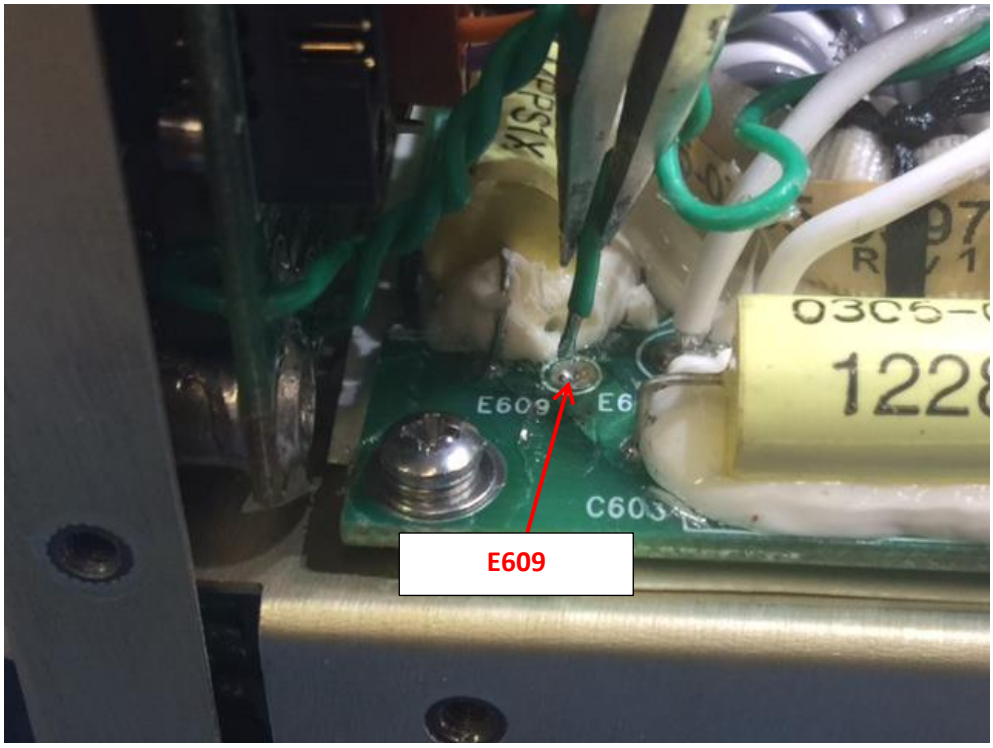


Figure 7

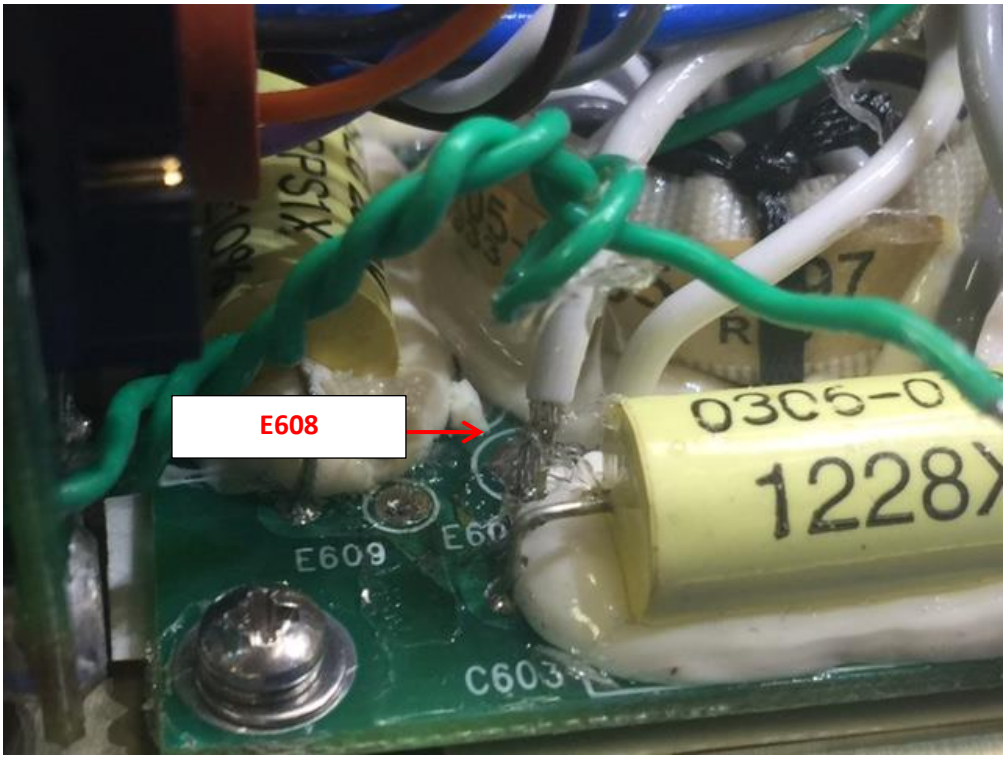


Figure 8

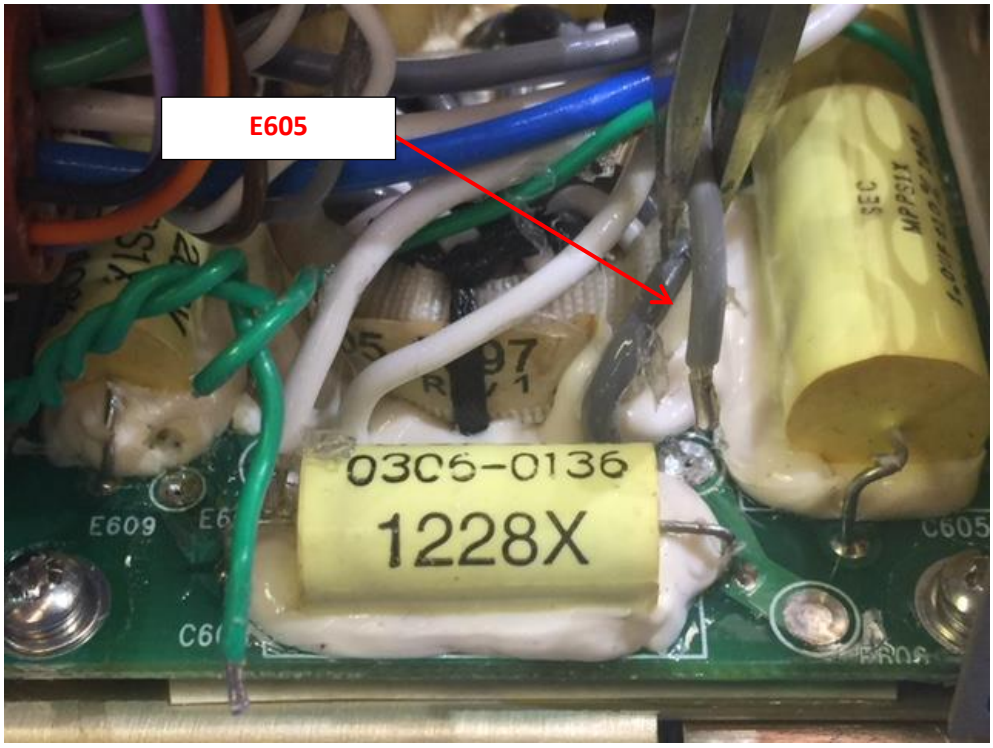


Figure 9

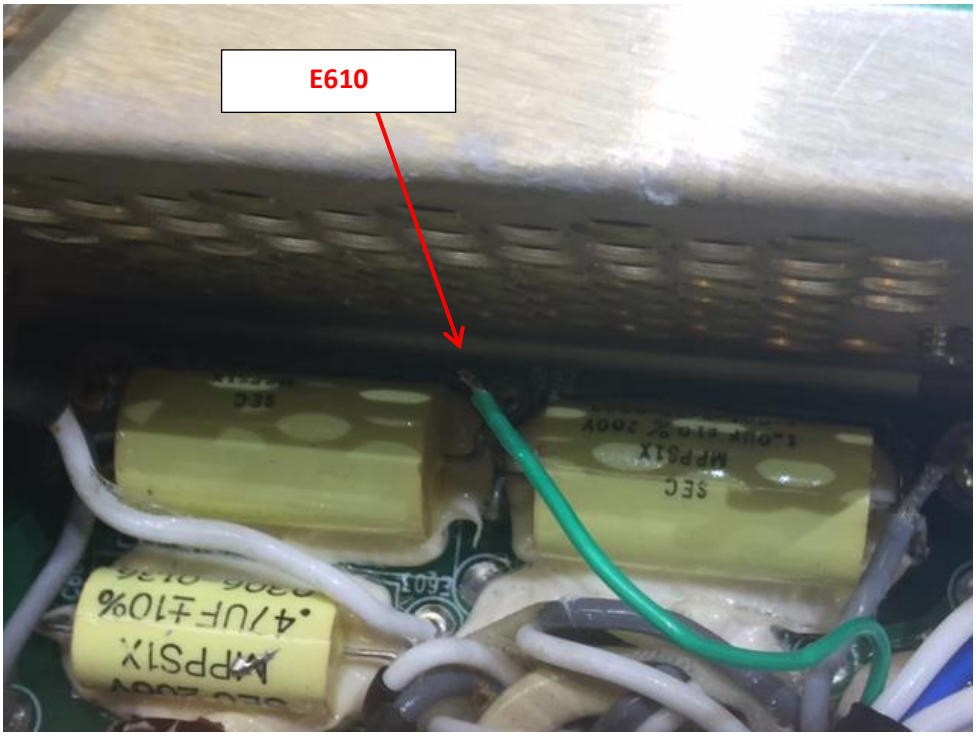
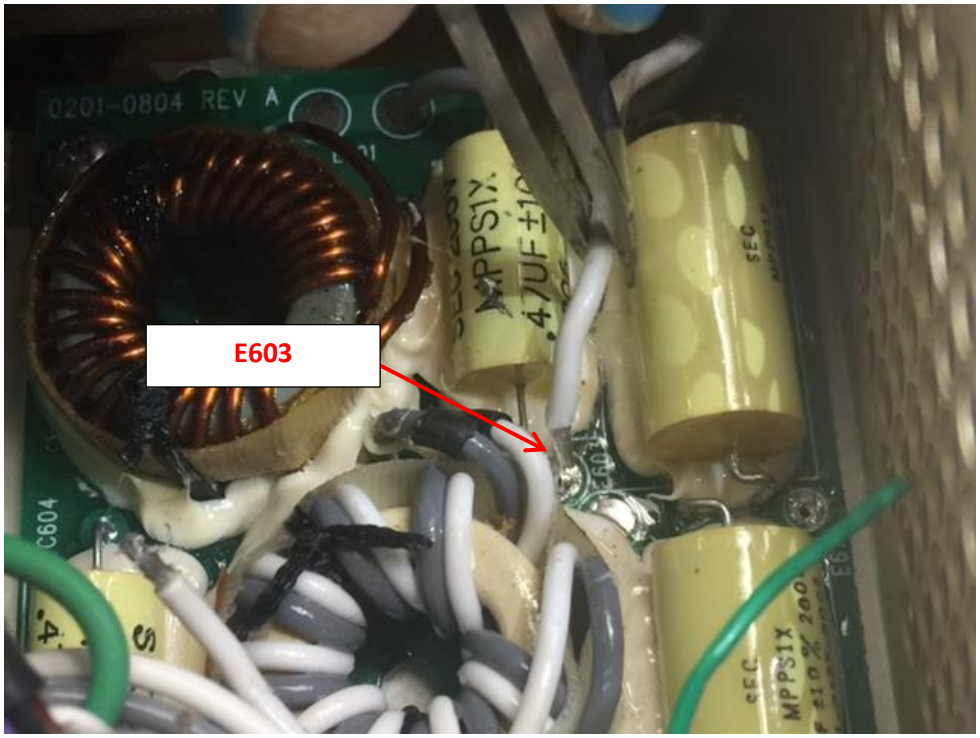


Figure 10



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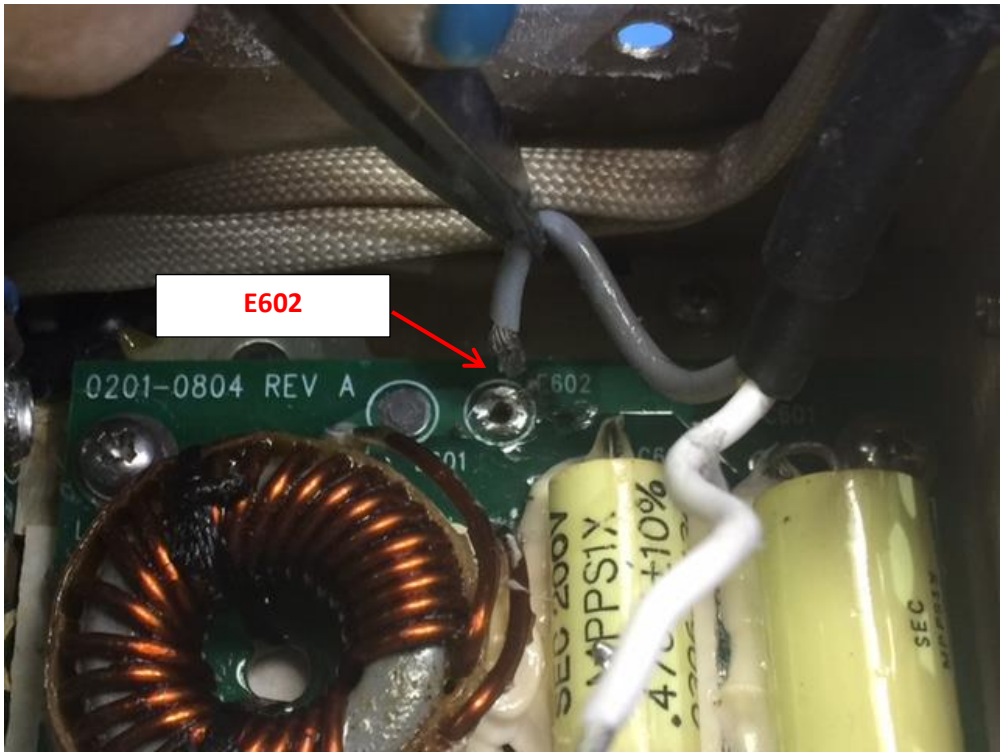

Figure 12

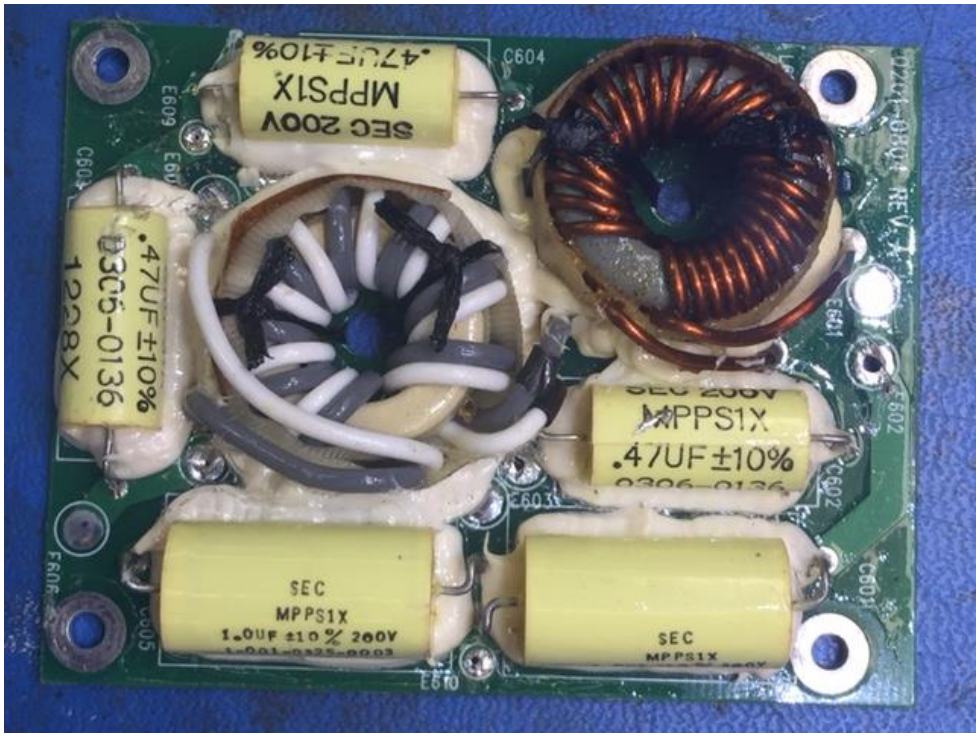

Figure 13

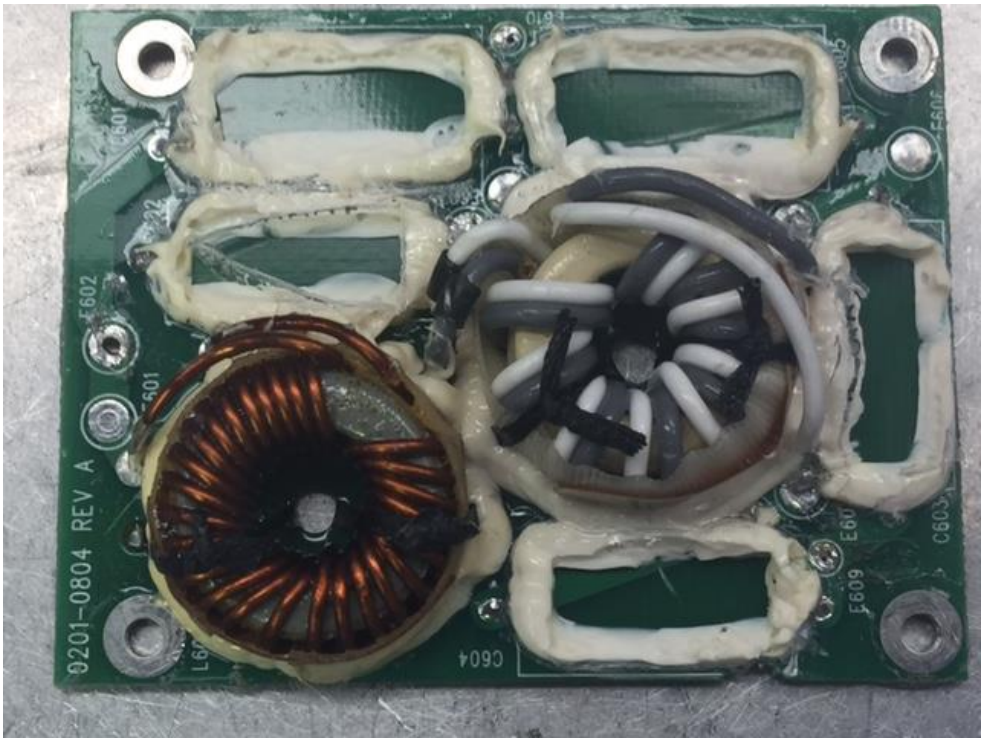

Figure 14

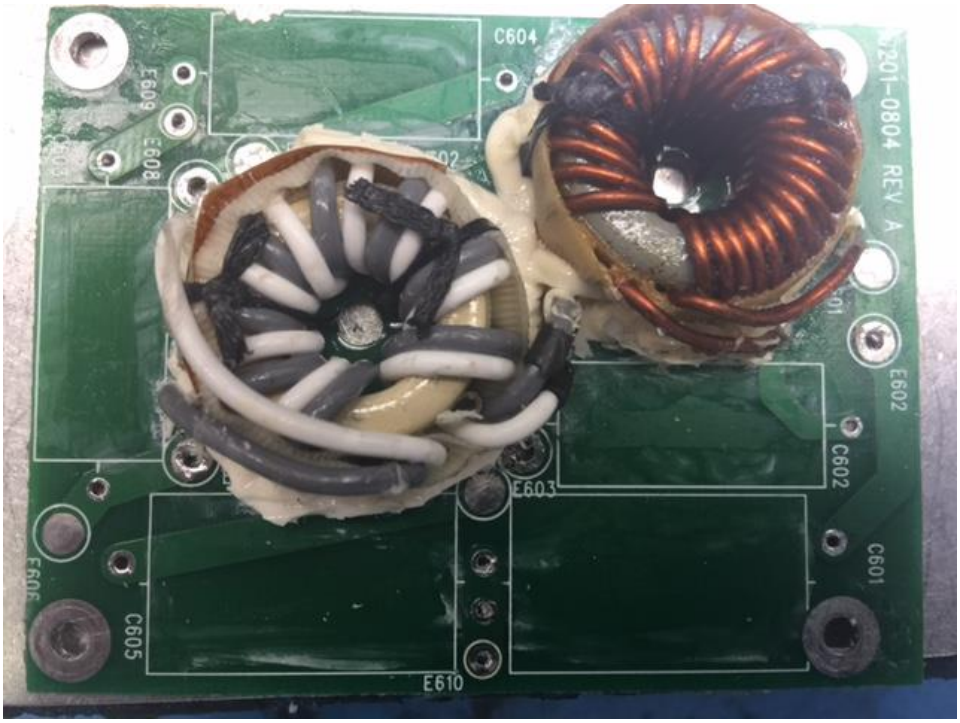

Figure 15

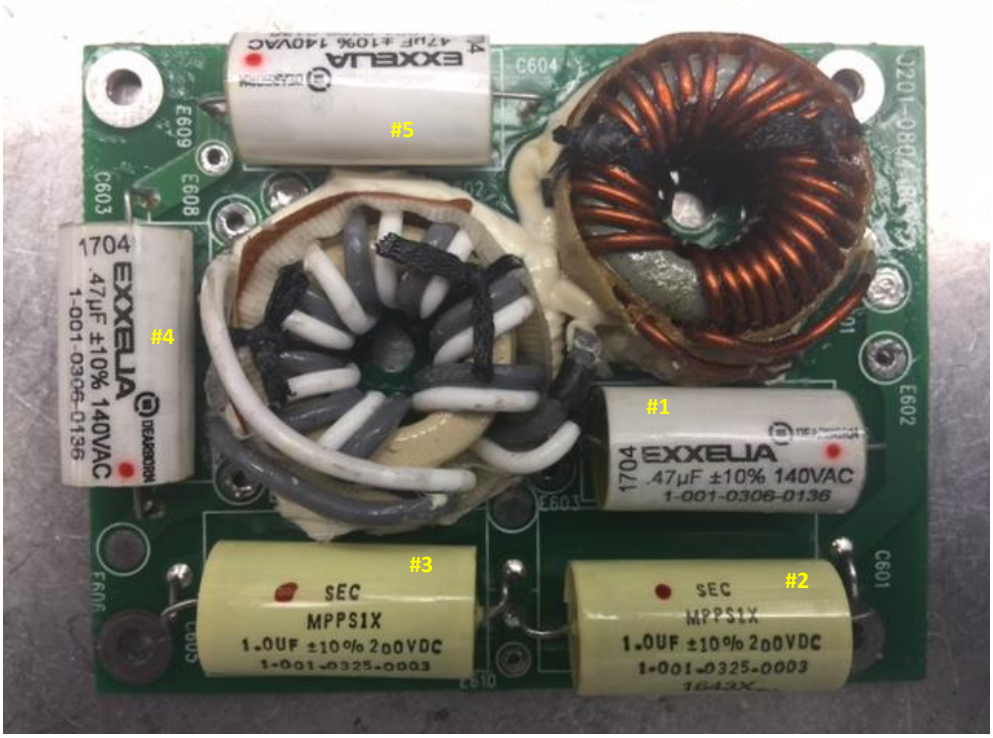

Figure 16

Figure 17

Figure 18

SERVICE BULLETIN

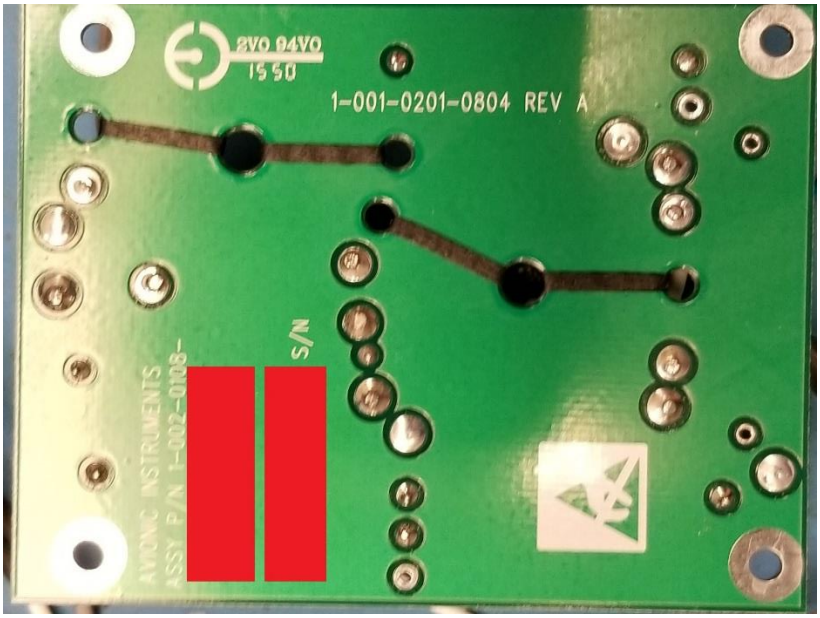

Figure 19

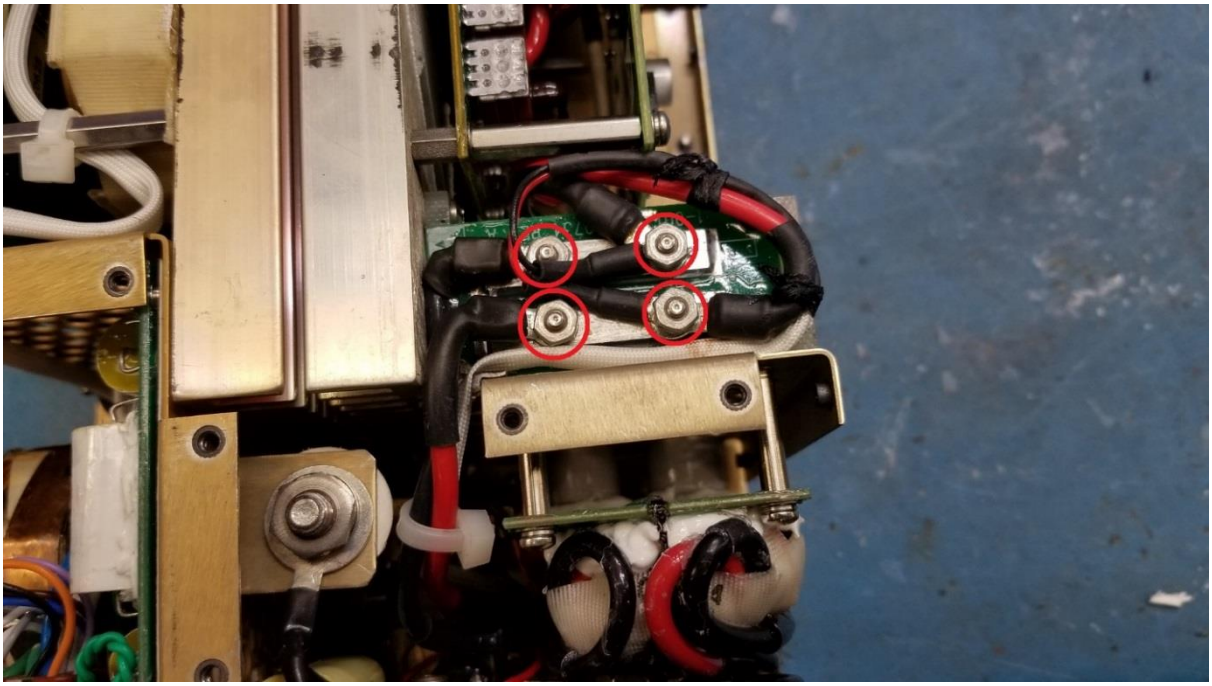

Figure 20

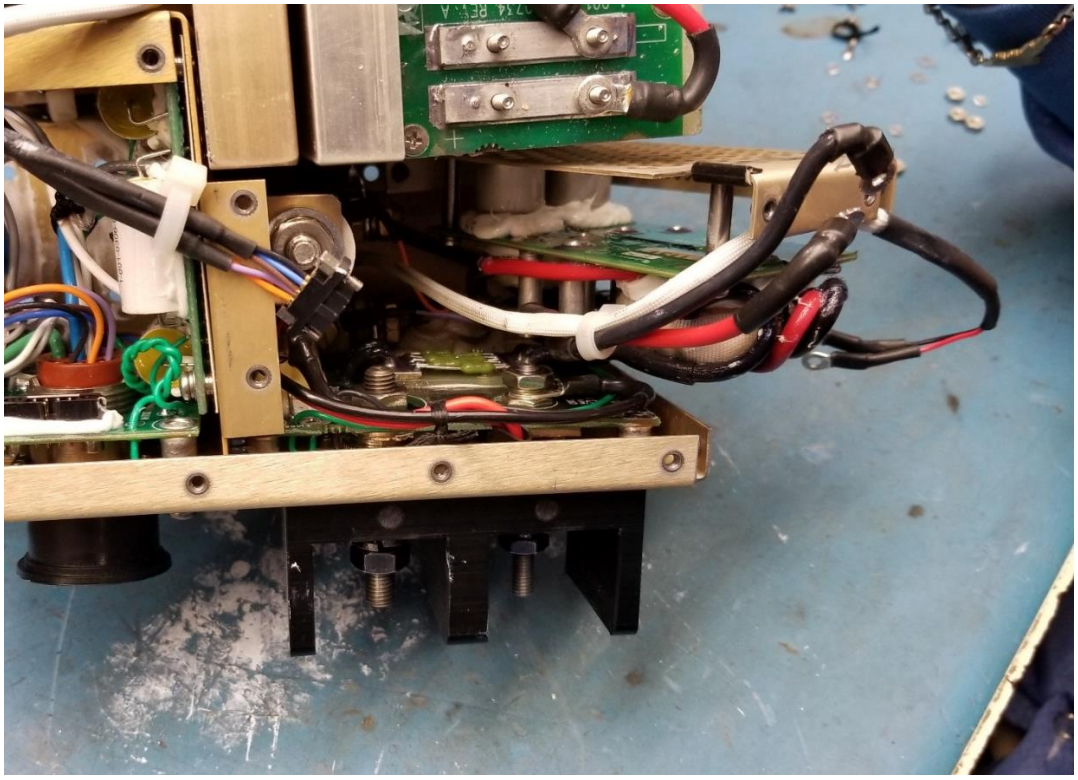

Figure 21

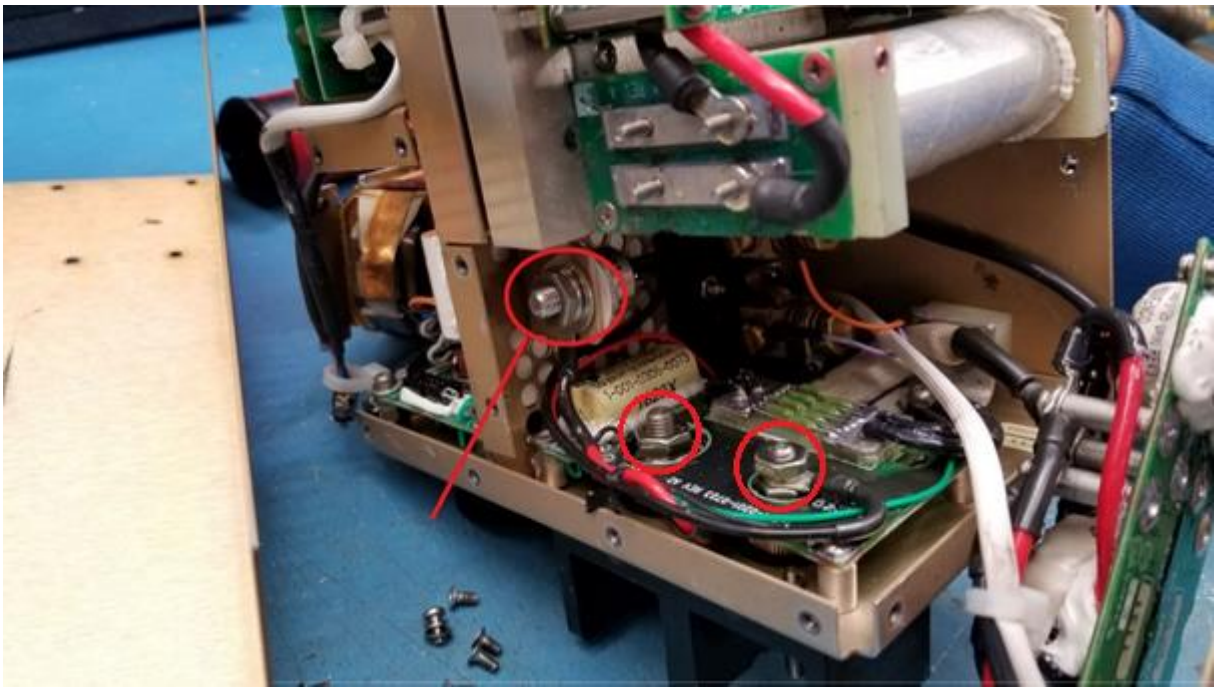

Figure 22

Figure 23

Figure 24

Figure 25

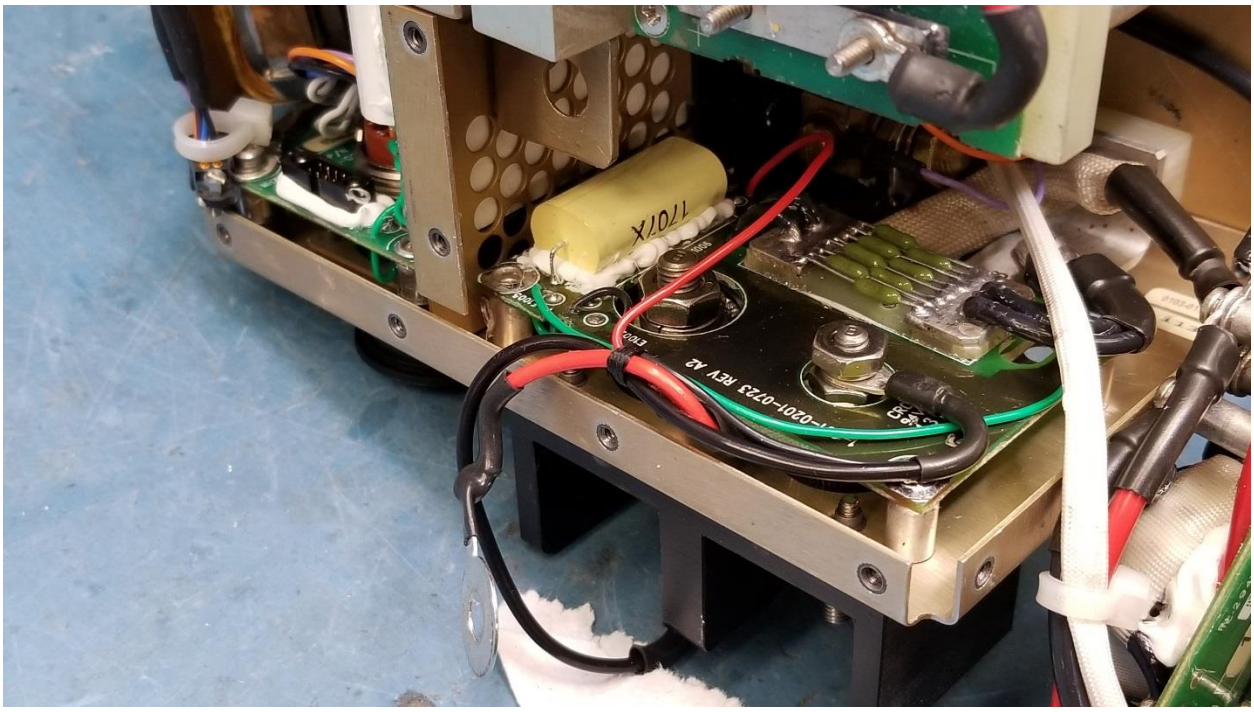

Figure 26

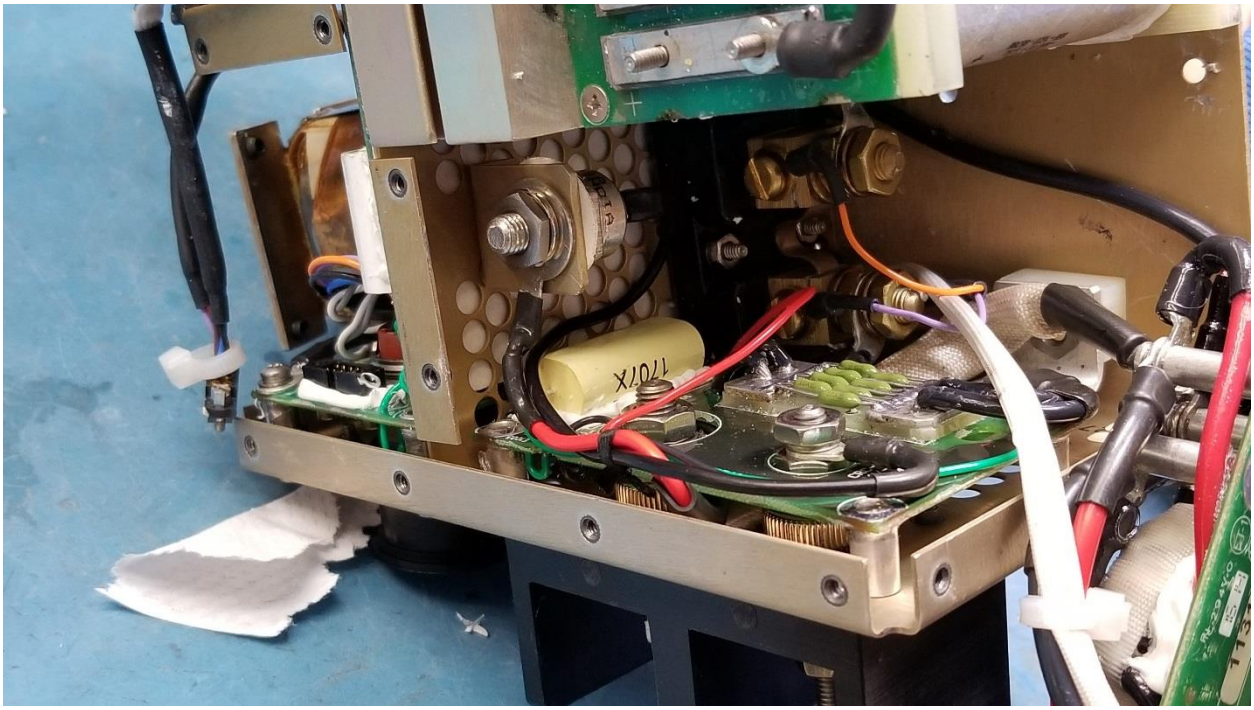

Figure 27

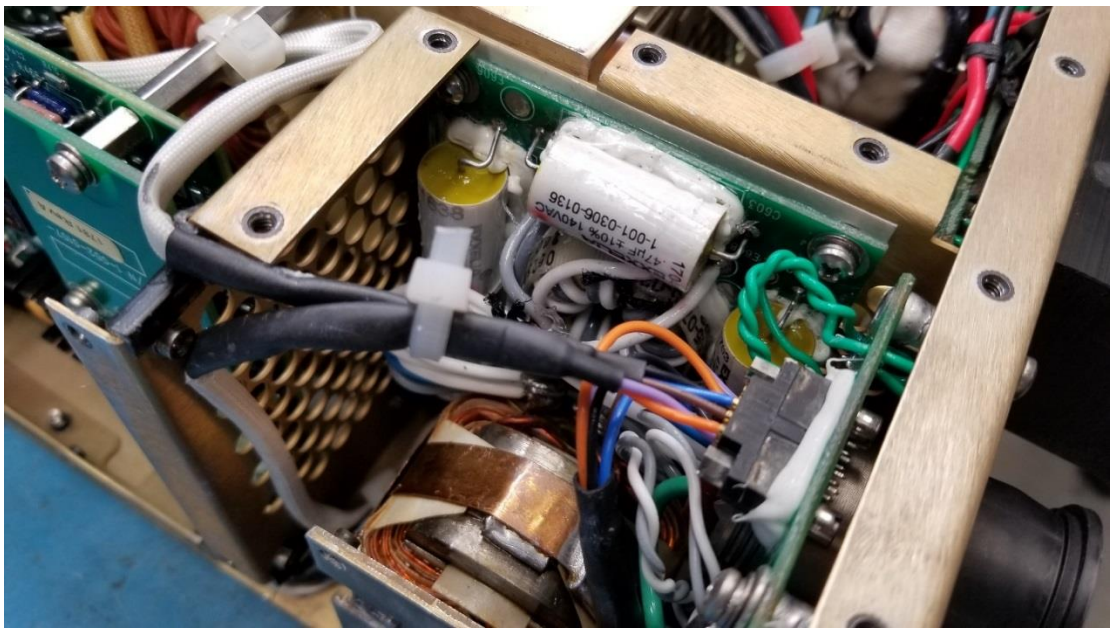

Figure 28

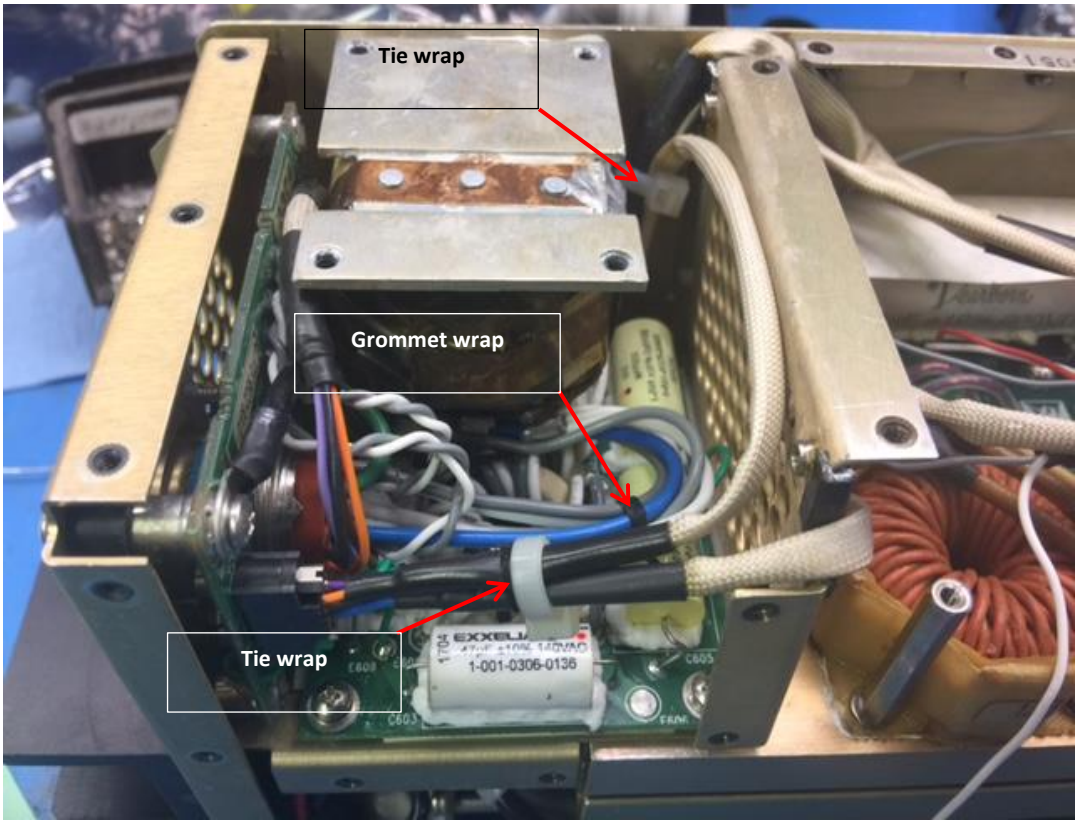

Figure 29