(6) Remove the six Phillips screws (B26) holding the VSWR/XFMR PWB Assy to the rear of the chassis.

(7) Remove the VSWR/XFMR PWB Assy.

b. Replacement.

Reverse the order of the above steps.

6-12. **FAN INVERTER PWB ASSY.**

a. Removal.

(1) Disconnect the input power from the 1 KW Linear Power Amplifier.

(2) Loosen the two 1/4-turn fasteners (B9), and remove the top cover (B10).

(3) Remove the Tube Assy cable (B11) from its retainer clips, and move it out of the way of the Fan Inverter mounting plate (B12).

(4) Loosen the two slotted, spring-loaded captive screws (B13) holding the Fan inverter mounting plate.

(5) Lift up the Fan inverter mounting plate, and disconnect the two cables on the Fan Inverter PWB Assy (B14).

(6) Loosen the four captive Phillips screws holding the Fan Inverter PWB Assy to the Fan inverter mounting plate.

(7) Remove the Fan Inverter PWB Assy from the Fan Inverter Mounting plate.

b. Replacement.

Reverse the order of the above steps.

6-13. **POWER CONTROL PWB ASSY.**

a. Removal.

(1) Disconnect the input power from the 1 KW Linear Power amplifier.

(2) Loosen the four captive Phillips screws (A30) on the front panel (A1).

(3) Swing the front panel down into its horizontal position.

(4) Disconnect the two cables from the Power Control PWB Assy (B7).

(5) Loosen the five captive Phillips screws (B8) holding the Power Control PWB Assy.

(6) Remove the Power Control PWB Assy.

b. Replacement.

(1) Reverse the order of the above steps.

(2) After installing the Power Control PWB Assy, complete realignment must be accomplished, starting with R34, CW/FSK Power Adjustment, which is normally set fully counterclockwise (full power). Next realign R96, max Plate Current Adjustment to 400 ma, so that the 1 KW Power Amplifier will produce sufficient power to accomplish the realignment. This realignment must be accomplished to bring the Power Control PWB Assy within specifications for use in the 1 KW Power Amplifier. Use the procedures in Section V. Alignment Procedures, Para 6-23. e. Power Control PWB Assy, A5. (See Figure 6-17)

6-14. **MICRO CONTROL PWB ASSY.**

a. Removal.

(1) Disconnect the input power from the 1 KW Linear Power Amplifier.

(2) Loosen the four captive Phillips screws (A30) on the front panel (A1).

(3) Swing the front panel down into its horizontal position.

(4) Disconnect the ribbon cable from the Front Panel PWB Assy (B3).

(5) Unhook the front panel support arm (B5), and remove the front panel from the chassis.

(6) Loosen the six captive Phillips screws (B6) holding the Micro Control PWB Assy (B4) to the chassis.

(7) Lean the Micro Control PWB Assy forward, and disconnect the ribbon cable from the back.

(8) Remove the Micro Control PWB Assy.

b. Replacement.

Reverse the order of the above steps.

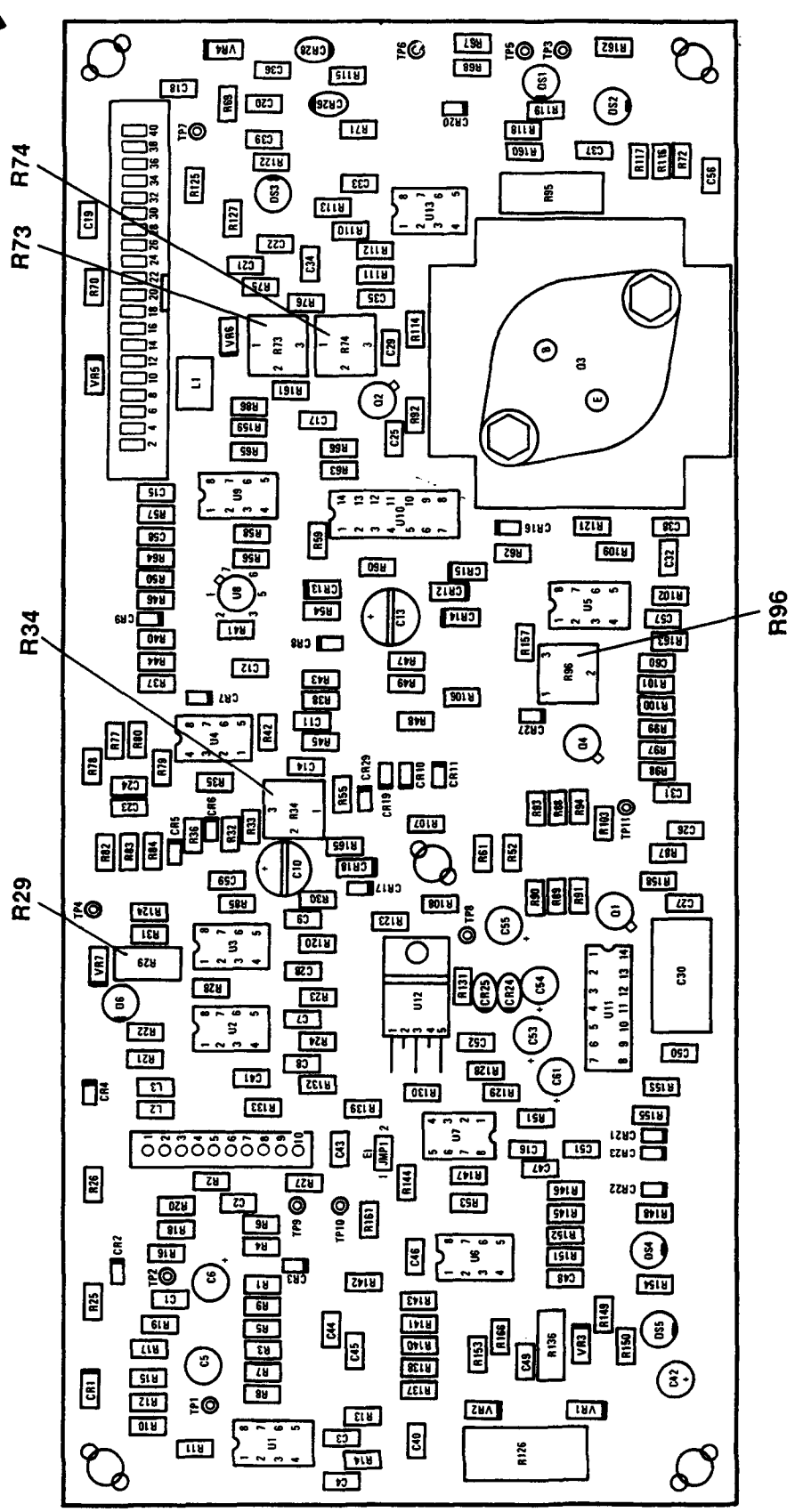


Figure 6-17. Power Control PWB Assy

6-15. FRONT PANEL PWB ASSY.

a. Removal

(1) Disconnect the input power from the 1 KW Linear Power Amplifier.

(2) On the front panel (A1), remove the retaining nuts, washers, and lock washers from the five toggle switches and from the SELF TEST pushbutton switch.

(3) Remove the knobs from the AUTO/MANUAL BAND and METER rotary switches. Each knob is secured by two setscrews. Remove the nuts and lock washers from the switches.

(4) Loosen the four captive Phillips screws (A30) on the front panel.

(5) Swing the front panel down into its horizontal position.

(6) Remove the two Phillips screws (B2) and the lock washers holding the Front Panel PWB Assy (B3).

(7) Disconnect the ribbon cable from the Front Panel PWB Assy.

(8) Remove the Front Panel PWB Assy.

b. Replacement.

Reverse the order of the above steps.

6-16. TEMP SENSOR PWB ASSY.

a. Removal.

(1) Remove the Tube Assy (B16). Follow the procedure in paragraph 6-13.

(2) Remove the two Phillips mounting screws for the Temp Sensor PWB Assy.

(3) Disconnect the cable from the Temp Sensor PWB Assy.

(4) Remove the Temp Sensor PWB Assy.

b. Replacement

Reverse the order of the above steps.

6-17. INTERCONNECT PWB ASSY.

a. Removal.

(1) Disconnect the three cables from the Interconnect PWB Assy (B24).

(2) Loosen the two captive Phillips screws holding the Interconnect PWB Assy to the chassis.

(3) Remove the Interconnect PWB Assy.

b. Replacement.

Reverse the order of the above steps.

6-18. LOW PASS FILTER ASSY.

a. Removal.

(1) Remove the Tube Assy (B16). Follow the procedure in paragraph 6-13.

(2) Disconnect the coax cables from the antenna connector (J5 at the rear of the chassis) and the internal coax connector (B19) on the Low Pass Filter Assy (B20).

(3) Remove the six Phillips screws holding the Low Pass Filter Assy to the chassis (two of these are at the J5 antenna connector).

(4) Remove the Low Pass Filter Assy.

b. Replacement.

Reverse the order of the above steps.

6-19. FAN ASSY.

a. Removal.

(1) Remove the Tube Assy (B16). Follow the procedure in paragraph 6-13.

(2) Remove the Tube Assy cable (B11) from the retainer clip on top of the Fan Inverter mounting plate (B12). Move the cable out of the way.

(3) Loosen the two slotted, spring-loaded captive screws holding the Fan Inverter mounting plate.

(4) Lift up the Fan Inverter mounting plate, and disconnect the two cables from the Fan Inverter PWB Assy (B14).

(5) Set the Fan Inverter mounting plate aside.

(6) Loosen the four captive Phillips screws (A30) on the front panel (A1).

(7) Swing the front panel down into its horizontal position.

(8) Remove the four Phillips screws holding the Fan Assy (B18) to the chassis.

(9) Remove the Fan Assy.

b. Replacement.

Reverse the order of the above steps.

6-20. AIR FILTER.

a. Removal. Remove the air filter by grasping it between your fingers and pulling it out.

b. Replacement. Push the filter back in along the edges of the front panel (A1) cutout.

c. Cleaning. Wash the filter (A31) in a solution of mild soap and water, dry, and replace.

Section IV. PERIODIC MAINTENANCE PROCEDURES

6-21. PERIODIC MAINTENANCE ACTIONS. The 1KW Linear Power Amplifier requires only a limited amount of periodic maintenance. The following actions are recommended at the intervals listed. During any of the specific procedures listed, take note of any unusual equipment conditions which may indicate degrading or degraded performance, and make the necessary corrections.

a. Front Panel Meter Readings. Every 56 days of equipment operation, check and observe all front panel meter readings. Observe that they are within normal limits and that no degradation of parameters is noted.

b. Clean Air Filter. Clean the equipment air filter every 56 days of 24-hour continuous equipment operation, or sooner if filter is noticeably soiled. Use soap and water; dry thoroughly before replacing.

c. Lubricate Tank Assy. Every 168 days of equipment operation, or 500 tune cycles, whichever comes first, the Tank Assy A1A2 should be lubricated. See paragraph 6-10 for tank assembly removal. Do the following:

(1) Clean the coil turns, coil shafts, and the electrical contacts on the coil shafts with isopropyl alcohol.

(2) Apply a light coat of Dow Corning DC 44(FSCM 71984) silicone lubricant to the coil turns using a soft, lint-free cloth. The lubricant should be invisible to the naked eye but sufficient to make the turns feel slippery.

(3) Apply a heavier, slightly visible coating to each of the electrical contact shafts and to the spring contact shafts. Some lubricant buildup, after running the coil, is acceptable.

(4) Apply one drop of Anderol 401D (FSCM 99559) instrument oil (or equivalent silicone oil) to each of the oilite bushings in the coil end plates. It is not necessary to apply lubricant to the nylon gears.

d. Dust Accumulation. Check the tube fins on the Tube Assy for dust accumulation every 56 days. Remove any excessive accumulation as required.

Section V. ALIGNMENT PROCEDURES

6-22. INTRODUCTION. This section contains instructions for checking and adjusting the replaceable subassemblies in the 1KW LPA. This section also contains circuit board layouts to help you identify the components that can be adjusted. To do the procedures described in this section, you need the test equipment listed in Table 6-3.

Table 6-3. Test Equipment

Generic Name	Military Designation	Manufacturer, Model No.	Federal Stock No.	Required Range
Electronic Voltmeter w/ AC Probe & T-connector		Hewlett Packard, Model 410C Model 11036A Model 11042A		20 to 224 V rms; 1.6 to 30 MHz (peak reading)
Digital Multimeter		Fluke, Model 8012A		200 mV to 250 Vac; 200 mV to 40 Vdc; 0 to 20 megohms
Dummy Load		Bird, Model 8833		1000 W, 50 ohms

NOTE: Equivalent Items Authorized

6-23. ALIGNMENT PROCEDURES

a. TUBE ASSY, A1

R3, RF Plate Sample Adjustment

NOTE

This adjustment assumes the following initial conditions:

- The LPA has been turned off for a least 10 seconds.
- The LPA's AUTO/MANUAL BAND Switch is in the AUTO position.

(1) Using a Model 11042A T-connector, connect an HP-410C Voltmeter (or equilvalent) between the LPA's RF output connector J5 and a dummy load.

(2) Remove the top cover from the LPA, and pull the interlock switch all the way up to the "cheat" position.

(3) Turn the LPA on and set the operating frequency at the transceiver to 7.0000 MHz in CW mode. After the LPA has warmed up (is in STANDBY), place LPA IN OPERATE and tune the system.

(4) Place the LPA in Manual mode with the AUTO/MANUAL BAND Switch in the 6-8 position. Set the ANTENNA Switch to the 50 ohm position and the LOCAL KEY Switch to ON. Key the transceiver, and monitor the voltage on the RF voltmeter.

(5) With a reading of 223 ±2 Vac on the meter, adjust R3 (accessible through a hole in the Tube Assy near the connector--see figure 6-18) so that the RF PLATE (VOLTS) position on the LPA front panel meter reads 2100 ±20.

b. TANK ASSY., A2

No adjustments

c. VSWR/XFMR PWB ASSY., A3

(1) R5, Null Adjustment.

NOTE

This adjustment assumes the following initial conditions:

- The LPA has been turned off for at least 10 seconds.
- The LPA'S AUTO/MANUAL BAND Switch is in the AUTO position.

(a) Connect the 1KW LPA antenna connector J5 to a dummy load.

(b) Remove the top cover from the LPA, and pull the interlock switch all the way up to the "cheat" position.

(c) Lower the LPA front panel to its horizontal position to gain access to the Power Control PWB Assy.

(d) Connect a digital multimeter between test point TP2 and ground on the Power Control PWB Assy (see figure 6-19).

(e) Turn the LPA on and set the operating frequency at the transceiver to 16.0000 MHz in CW mode. After the LPA has warmed up (is in STANDBY), place the LPA in OPERATE and tune the system.

(f) Key the system and adjust R5 (on the VSWR/XFMR PWB Assy -- see figure 6-20) for a null (minimum voltage) on the multimeter.

(2) R8, Forward Power Sample

NOTE

This adjustment assumes the following initial conditions:

- The LPA has been turned off for at least 10 seconds.
- The LPA's AUTO/MANUAL BAND Switch is in the AUTO position.

(a) Using a Model 11042A T-connector, and a Model 11036A AC Probe, connect an HP-410C Voltmeter (or equilvalent) between the LPA's RF output connector J5 and a dummy load.

(b) Remove the top cover from the LPA, and pull the interlock switch all the way up to the "cheat" position.

(c) Lower the LPA front panel to its horizontal position to gain access to the Power Control PWB Assy.

(d) Connect a digital multimeter between test point TP1 and ground on the A5 Power Control PWB Assy (see figure 6-19).

(e) Turn the LPA on and set the operating frequency at the transceiver to 16.0000 MHz in CW mode. After the LPA has warmed up (is in STANDBY), place the LPA in OPERATE and tune the system.

(f) Key the system and observe the output voltage on the HP-410C and the forward power sample voltage on the digital multimeter. The HP-410C should read 223 Vac and the multimeter should read 7.00 Vdc.

(g) If both read higher or both read lower than the above voltages, adjust the Loop Gain Potentiometer R29 on the Power Control PWB Assy so that the HP-410C reads 223 Vac. Observe the voltage on the multimeter.

(h) If the multimeter reads 7.0000 ±0.05 Vdc, no adjustment of R8 is required.

(i) If the reading on the multimeter is less than 6.95Vdc, adjust R29 on the Power Control PWB Assy for a reading of slightly less than 223 Vac on the HP-410C. Then adjust R8 for a reading of 223 Vac on the HP-410C. Continue this procedure until the

multimeter voltage is 7.00 ±0.05 Vdc when the HP-410C voltage is 223 ±2 Vac.

(j) If the reading on the multimeter is more than 7.05 Vdc, adjust R8 for a reading of slightly less than 6.95 Vdc on the multimeter. Readjust R29 on the Power Control PWB Assy for 223 Vac on the HP-410C. Continue this procedure until the multimeter voltage is 7.00 ±0.05 Vdc when the HP-410C voltage is 223 ±2 VAC.

(3) R6, Reflected Sample Adjustment

NOTE

This adjustment assumes the following initial conditions:

- The LPA has been turned off for at least 10 seconds.
- The LPA's AUTO/MANUAL BAND Switch is in the AUTO position.
- R5 and R8 on the VSWR/XFMR PWB Assy are correctly adjusted.

(a) Connect the LPA's RF output connector J5 to a dummy load.

(b) Remove the top cover from the LPA, and pull the interlock switch all the way up to the "cheat" position.

(c) Lower the LPA front panel to its horizontal position to gain access to the Power Control PWB Assy.

(d) Connect a digital multimeter between test points TP1 and TP2 on the A5 Power Control PWB Assy (see figure 6-19).

(e) Turn the LPA on and set the operating frequency at the transceiver to 16.0000 MHz in CW mode. After the LPA has warmed up (is in STANDBY), place the LPA in OPERATE and tune the system.

NOTE

Dummy load must be disconnected for this test because reflected power is being measured. Radio AMP does have self protection circuit to prevent damage to final LPA.

(f) Unkey the system if keyed and disconnect the dummy load from the J5 antenna connector.

(g) Key the system, and adjust R6 for 0.00 ±0.05 Vdc on the digital multimeter.

d. FAN INVERTER PWB ASSY., A4

No adjustments.

e. POWER CONTROL PWB ASSY., A5

(1) R29, Loop Gain Control

NOTE

This adjustment assumes the following initial conditions:

- The LPA has been turned off for at least 10 seconds.
- The LPA's AUTO/MANUAL BAND Switch is in the AUTO position.
- R5, R6, and R8 on the VSWR/XFMR PWB Assy are correctly adjusted.

(a) Using a Model 11042A T-connector, connect an HP-410C Voltmeter (or equilvalent) between the LPA's RF output connector J5 and a dummy load.

(b) Lower the LPA front panel to its horizontal position in order to gain access to the Power Control PWB Assy.

(c) Adjust Power Control Potentiometer R74 on the Power Control PWB Assy fully clockwise, and adjust R34 fully counterclockwise.

(d) Turn the LPA on and set the operating frequency at the transceiver to 16.0000 MHz in CW mode. After the LPA has warmed up (is in STANDBY), place the LPA in OPERATE and tune the system.

(e) Key the system and adjust the Loop Gain Control R29 for a reading of 223 to 230 Vac on the HP-410C.

(2) R34, CW/FSK Power Adjustment

This adjustment is normally set fully counterclockwise in the 1 KW LPA. If

reduced power is required in the CW or FSK mode, then the required reduced power output may be obtained by adjusting R34 in a clockwise direction during normal operation.

(3) R73, Coupler Tune Power Adjustment

NOTE

This adjustment assumes the following initial conditions:

- The LPA has been turned off for at least 10 seconds.
- The LPA's AUTO/MANUAL BAND Switch is in the AUTO position.
- R5, R6, and R8 on the VSWR/XFRM PWB Assy are correctly adjusted.

(a) Connect the LPA's RF output connector J5 to a dummy load.

(b) Lower the LPA front panel to its horizontal position in order to gain access to the Power Control PWB Assy.

(c) Turn the LPA on and set the operating frequency at the transceiver to 16.0000 MHz in CW mode. After the LPA has warmed up (is in STANDBY), place the LPA in OPERATE and tune the system.

(d) Connect a ground to the J1-5 side of R121 on the Power Control PWB Assy (see figure 6-19). This will place the Power Control PWB Assy into the coupler tune mode.

(e) Set the LPA meter select switch on the front panel to the FWD PWR (WATTS) position and key the system. Adjust R73 on the Power Control PWB Assy for 200 watts on the front panel meter.

(f) Unkey the system and remove the ground from R121.

(4) R74, Power Control Adjustment

This potentiometer is normally set fully clockwise. If reduced output power is required in all modes, then this is accomplished by adjusting R74 counterclockwise until the desired output power is attained.

(5) R96, Max Plate Current Adjustment

NOTE

This adjustment assumes the following initial conditions:

- The LPA has been turned off for at least 10 seconds.
- The LPA's AUTO/MANUAL BAND Switch is in the AUTO position.
- R5, R6, and R8 on the VSWR/XFMR PWB Assy are correctly adjusted.

(a) Connect the LPA's RF output connector J5 to a dummy load.

(b) Lower the LPA front panel to its horizontal position in order to gain access to the Power Control PWB Assy.

(c) Turn the LPA on and set the operating frequency at the transceiver to 16.0000 MHz in CW mode. After the LPA has warmed up (is in STANDBY), set the LPA's AUTO/MANUAL BAND Switch to the 16-24 position.

(d) Set the TUNE PWR Switch to the ON position, and set the METER Switch to the I_K (mA) position.

(e) Adjust R96 on the PWB Assy for 400 ±8 on the front panel meter.

f. MICRO CONTROL PWB ASSY., A6

No adjustments

g. FRONT PANEL PWB ASSY., A7A1

No adjustments.

h. TEMP SENSOR PWB ASSY., A8

NOTE

This adjustment can be performed on a "cold" LPA (one that has been turned off for at least 15 minutes) or a "hot" LPA (one that has been turned on for more than 10 seconds). If you remove the JMP1 jumper (on the Power Control PWB Assy) from a cold LPA, you can begin the adjustment procedure immediately (as soon as you turn the LPA on). However, if you remove the jumper from an LPA that has been on for more than 10 seconds, then you should allow 15 minutes for the temperature sensors to stabilize at ambient before doing the adjustment.

(1) Lower the LPA front panel to its horizontal position to gain access to the Power Control PWB Assy.

(2) Remove JMP1 (PN65474-001) on the Power Control PWB Assy (see figure 6-19).

(3) With the LPA in warmup (for a cold LPA) or standby (for a hot LPA), connect a digital multimeter between test points TP9 and TP10 on the Power Control PWB Assy.

(4) If the voltage on the multimeter is 0± 2 mV, no adjustment is necessary. If not, adjust R2 (R2 is accessible through the rear grille of the LPA--see figures 6-18 and 6-21) until the voltage is within the limits.

(5) Re-install JMP1 on the Power Control PWB Assy.

i. INTERCONNECT PWB ASSY., A9

No adjustments.

j. LOW PASS FILTER ASSY., A10

No adjustments.

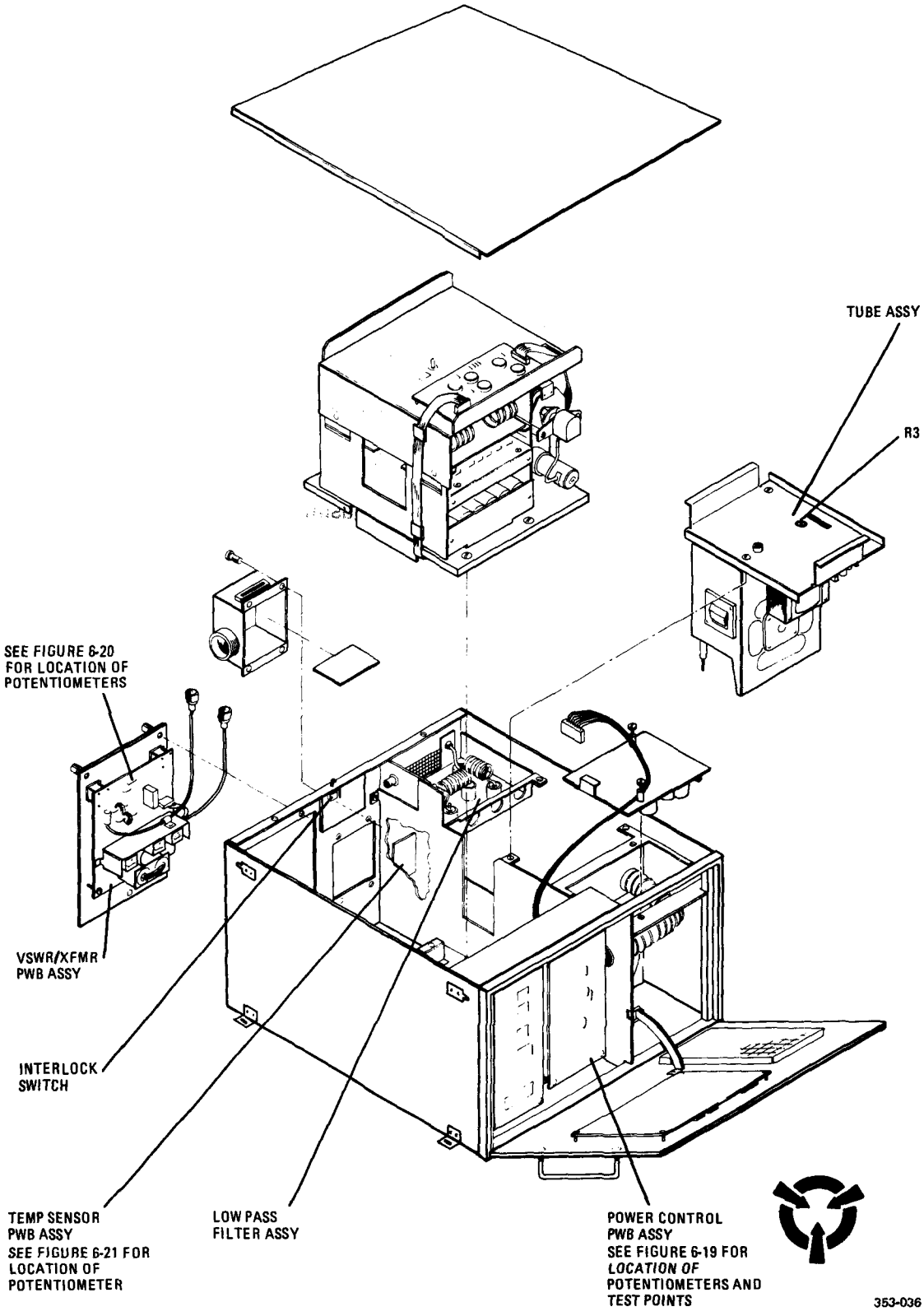


Figure 6-18 1 KW LPA

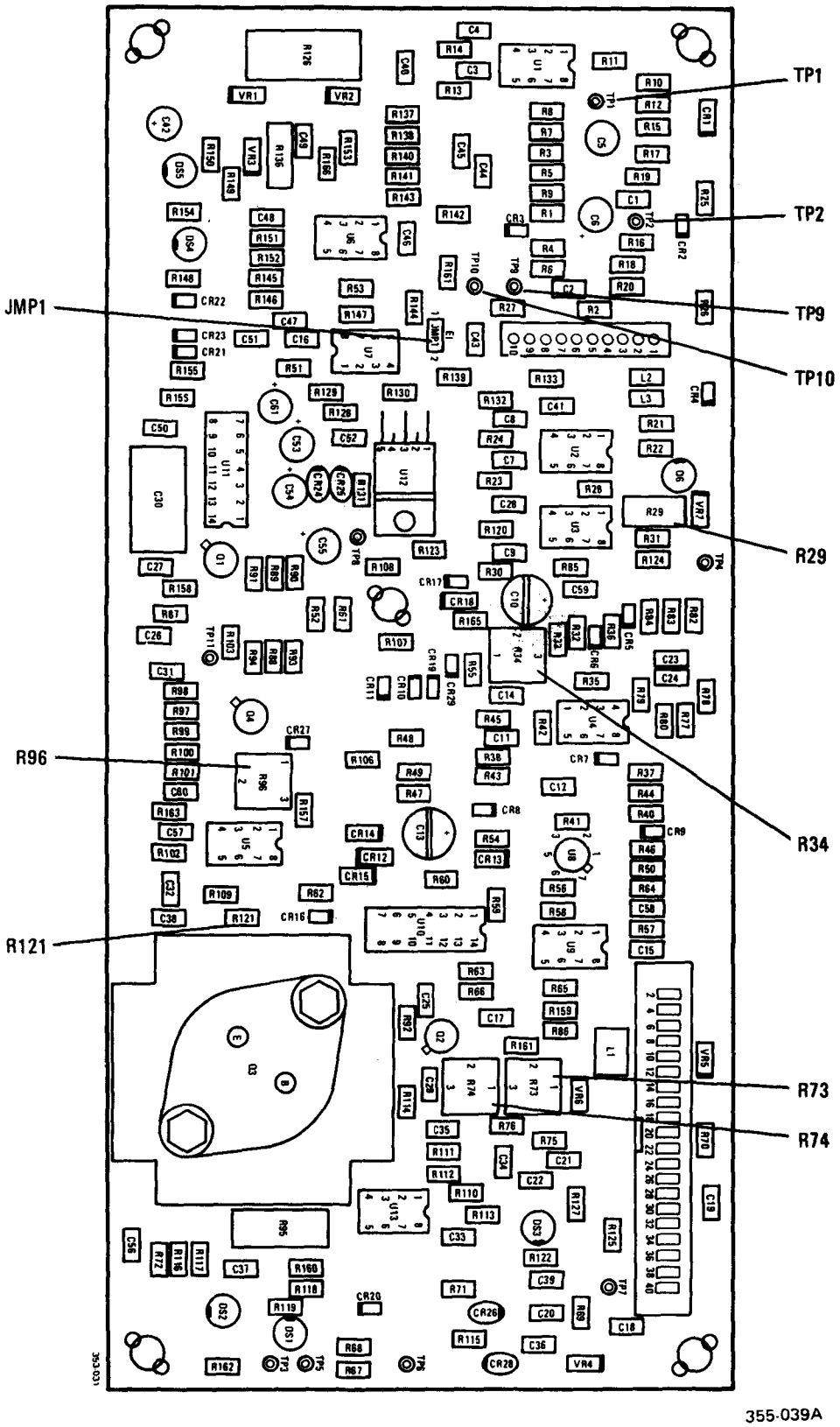


Figure 6-19. Power Control PWB Assy

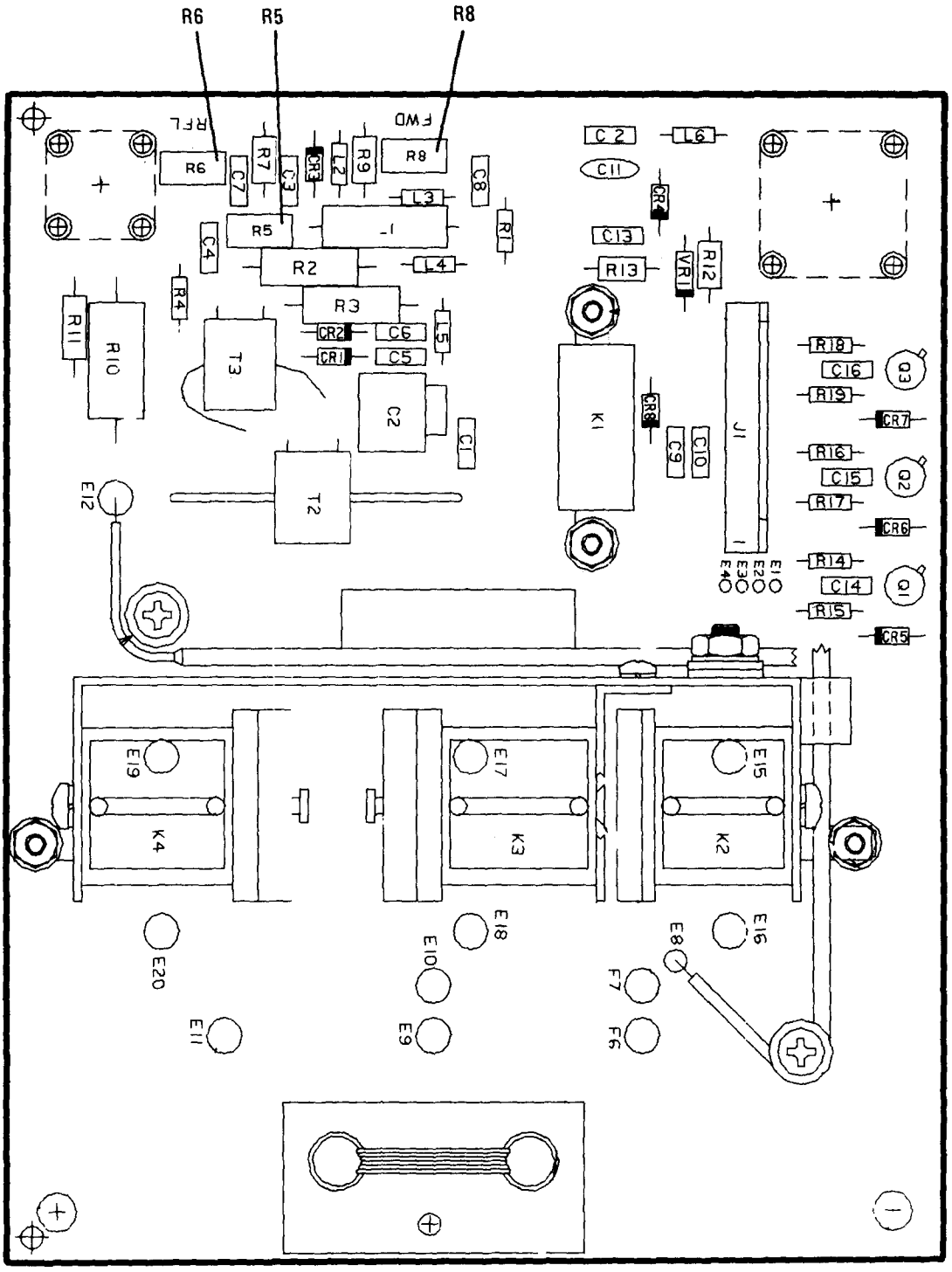


Figure 6-20. VSRW/XFMR PWB Assy

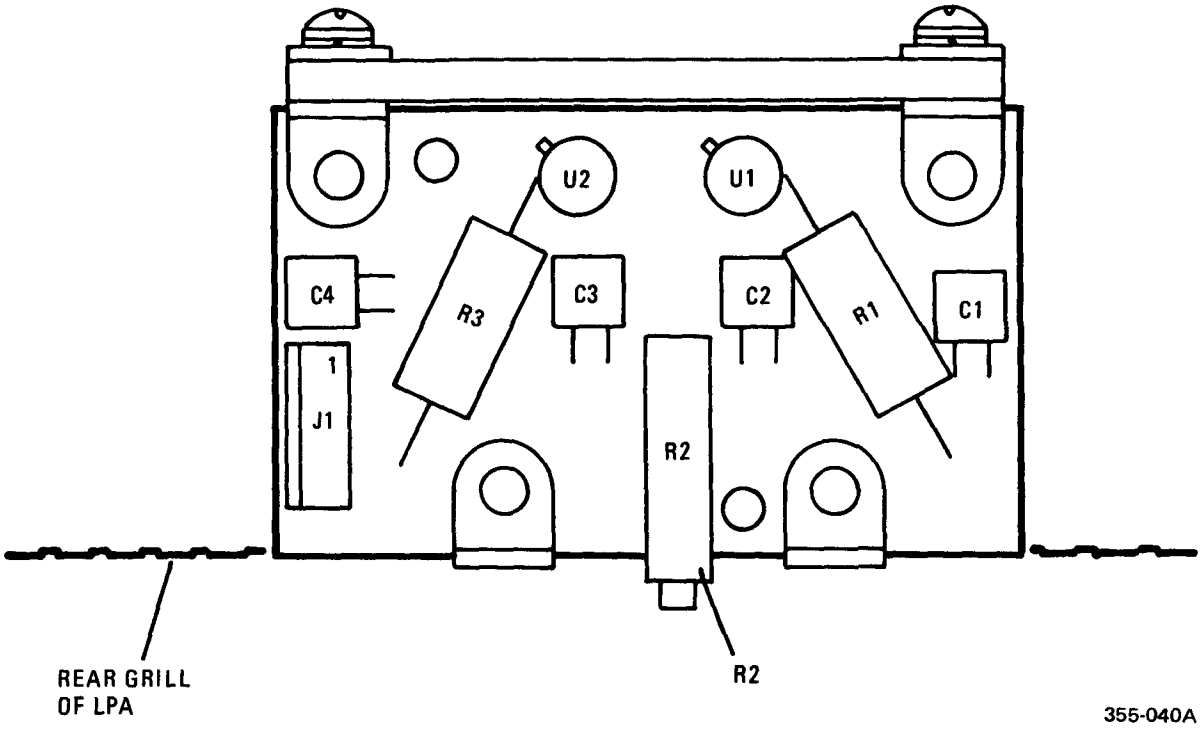


Figure 6-21. Temp Sensor PWB Assy

APPENDIX

CHECKS PERFORMED DURING THE AUTOMATIC BIT ROUTINE FOR THE 1 KW LPA

NOTE

If BIT is initiated during WARMUP, only the tests up to and including the Band Switch/Servo Coil Test are performed.

1. Front Panel Test. At the start of the test, the front panel is disabled and remains so for the remainder of the test. Also at the start of the test, all front panel LCD segments and LED indicators are turned on. They stay on for the remainder of the test with the exception of the condition when tune power is requested from the 100 Watt Transceiver (see "Keying Test").

2. Micro Control Test. The microprocessor is checked. If its operation is determined to be incorrect, FAULT 2-01 is declared.

3. Primary Power Test. The primary power level is sampled. If it is not between 80 and 120% of the nominal value, FAULT 2-03 is declared.

4. Low Voltage Supply Test. The 13.5 V supply is sampled. If it is not between 10 and 16 Vdc, FAULT 2-04 is declared.

5. Transmitter Fault Test. If the XMTR-FAULT signal line (temperature sensor) is active, FAULT 2-05 is declared.

6. Band Switch/Servo Coil Test. For this test, a band other than the current operating band is selected for the band switch. Once this position is reached, the switch returns to the current operating band position. If the switch does not turn, or if it takes over 10 seconds to reach the selected band, FAULT 2-06 is declared. The coil is moved to MIN L and then to MAX L, and the coil position counter is checked at both limits. If the coil does not move, or if the position counter is inaccurate, FAULT 2-07 is declared. If the 1 KW LPA is in WARMUP, no further testing is done.

7. High Voltage Test. With the 1 KW LPA in STANDBY, FAULT 2-08 is declared if the DC plate voltage is greater than 100 volts. The 1 KW LPA is put into OPERATE. If the DC plate voltage is not between 2000 and 5000 volts, FAULT 2-09 is declared. If the plate current is greater than 5 mA, FAULT 2-10 is declared.

8. Bias Test. The power amplifier bias is turned on (the LPA is keyed without RF drive). If the plate current is not between 20 and 150 mA, FAULT 2-11 is declared.

9. Keying Test. An RF MUTE message is sent to the 100 Watt Transceiver. If the RF input signal level is not below 6 watts in 200 milliseconds, FAULT 2-12 is declared. If the RF input falls below 6 watts, the T/R relay is keyed and the RF MUTE signal is removed. Tune Power Request (TPR) and Transmit Gain Control Tune Power Request (TGC TPR) messages are sent to the 100 Watt Transceiver. The message "rF" is sent to the METER LCD display to let the operator know that RF input power is required to complete the test. This message remains until the RF input signal level is greater than 5 watts. If the RF input signal is not greater than 5 watts in 20 seconds, FAULT 2-13 is declared. If the RF input signal level is sufficient, the power amplifier plate current is checked. If the power amplifier plate current is not between 325 mA and 480 mA, FAULT 2-14 is declared. The DC plate voltage is checked again at this point; and if it is not within the previously specified limits for the OPERATE mode (2000 to 5000 Vdc), FAULT 2-09 is declared.

10. Tuning Test. A TGC Lock command is sent to the 100 Watt Transceiver. Using the auto-tuning software, the coil is moved toward MIN L while searching for a tune peak. If no tune peak is found, FAULT 2-15 is declared. When the tune peak is found, forward power is checked. If the forward power is not between 100 watts and 400 watts, FAULT 2-16 is declared. If the forward power is normal, the VSWR is checked. If the VSWR is not less than 2.25:1, FAULT 2-17 is declared. If the VSWR is normal, the ratio of forward power to RF

input power is checked. This ratio must be between 5 and 60. If not, FAULT 2-18 is declared. Tune Power Request Off, TGC Tune Power Request Off, and TGC Lock Off commands are sent to the 100 Watt Transceiver when this part of the test is completed.

11. Transceiver Serial Link Test. As in normal operation, certain failures in the serial link to the transceiver during the BIT test cause FAULT 2-21 to be declared.

12. Test Completion.

(a) The BIT tests described in the above paragraphs are continued until a fault is encountered. When a fault is flagged, all further testing is aborted.

(1) If the BIT test was initiated from the 100 Watt Transceiver, the fault code is displayed on the transceiver LCD display. The fault code will also appear on the LPA's LCD display if the METER selector switch is placed in the STATUS/FAULT position. The fault code may be cleared by commanding the LPA to OPERATE from the 100 Watt Transceiver or by moving the METER selector switch out of the STATUS/FAULT position.

(2) If the BIT test was initiated from the LPA, the fault code is displayed on the LPA's front panel meter. The fault code will also appear on the transceiver's LCD display if "2ND," "TEST" is pressed. To remove the LPA from the test mode, the METER selector switch must be moved out of the STATUS/FAULT position. The fault code may be cleared by commanding the LPA to OPERATE from the 100 Watt Transceiver (if the LPA is placed back in AUTO) or by moving the METER selector switch to the STATUS/FAULT position and then out again.

(b) If no fault is encountered during any of the tests, the following occurs:

(1) If the BIT test was initiated from the 100 Watt Transceiver, the message "PASSEd" is displayed on the transceiver front panel for 5 seconds; and the LPA front panel returns immediately to its normal operating mode.

(2) If the BIT test was initiated from the LPA, the message "PASS" is displayed on the meter. The message will remain there as long as the METER selector switch is in the STATUS/FAULT position. When the selector switch is moved out of the STATUS/FAULT position, the message disappears and the LPA front panel returns to its normal operating mode.

CHAPTER 7

ILLUSTRATED PARTS BREAKDOWN

Section I. INTRODUCTION

7-1. PURPOSE. This chapter lists, illustrates, and describes the assemblies and detail parts for the 1 KW LPA. Its purpose is for the identification, requisitioning, and issuance of parts at the organizational (on-equipment) level.

7-2. SCOPE. Only parts that are coded as replaceable at the organizational level are listed in this chapter. These include the major assemblies and a few detail parts. Mounting hardware is listed only if it is used to attach a replaceable assembly or detail part and only if it is not held captive to the assembly or part. In general, the assemblies and parts installed at the time the 1 KW LPA was manufactured are listed and identified in this chapter. When an assembly or part (including vendor items), which is different from the original, was installed during the manufacture of later items, series, or blocks, all assemblies and parts are listed (and "Usable-On" coded). However, when the original assembly or part does not have continued application (no spares of the original were procured or such spares are no longer authorized for replacement), only the preferred assembly or part is listed. Also, when an assembly or part was installed during modification, and the original does not have continued application, only the preferred item is listed. Interchangeable and substitute assemblies and parts, subsequently authorized by the Government, are not listed in this chapter; such items are identified by information available through the Interchangeable and Substitute (I & S) Data Systems. Refer to T.O. 00-25-184. When a standard size part can be replaced with an oversize or undersize part, the latter parts, showing sizes, are also listed. Repair Parts kits and Quick Change Units are listed when they are available for replacement.

7-3. CHAPTER ORGANIZATION. This chapter is divided into two sections. Section I, Introduction, explains the purpose, scope, and organization of the chapter. Section II, MAINTENANCE PARTS LIST, consists of illustrations, in which the assemblies and detail parts of the 1 KW LPA are identified by numbers (called index numbers), followed by a list which contains parts numbers descriptions, and other relevant data for the items identified on the illustrations.

7-4 SOURCE, MAINTENANCE, AND RECOVERABILITY (SMR) CODES. This chapter contains Air Force Peculiar In-Being Source and Repair Codes only. Definitions of these SMR codes, as well as detailed coding criteria and transpositions matrices for each coding method may be obtained from T.O. 00-25-195. Refer to page 7-3.

7-5. FEDERAL SUPPLY CODES FOR MANUFACTURERS (FSCM). The codes used in this chapter are as follows. The first list is in numerical order by FSMC; the second is in alphabetical order by manufacturer name.

FSCM	NAME AND ADDRESS
00779	Amp Incorporated 2800 Fulling Mill P.O. Box 3508 Harrisburg, Pennsylvania 17105
06540	Mite Corporation Amatom Electronic Hardware Division 446 Blake Street New Haven, Connecticut 06515
06980	Varian Associates Incorporated Eimac Division 301 Industrial Way San Carlos, California 94070
14304	Harris Corporation RF Communications Group 1680 University Avenue Rochester, New York 14610
32039	Zeus Industrial Products Inc. Fort Thompson Street Raritan, New Jersey 08869
71468	ITT Cannon Electric Division of ITT Corporation 10550 Talbert Avenue P.O. Box 8040 Fountain Valley, California 92708
72794	DZUS Fastener Company, Inc. 425 Union Blvd. West Islip, New York 11795
74868	Amphenol RF Operations An Allied Company 33 East Franklin Street Danbury, Connecticut 06810
74970	E F Johnson Company 299 10th Avenue SW Waseca, Minnesota 56093
77820	Allied Amphenol Products Bendix Connector Operations 40-60 Delaware Street Sidney, New York 13838
88044	Aeronautical Standards Group Department of the Navy and Air Force
96906	Military Specification Code

NAME AND ADDRESS	FSCM
Allied Amphenol Products Bendix Connector Operations 40-60 Delaware Street Sidney, New York 13838	77820
Amp Incorporated 2800 Fulling Mill P.O. Box 3508 Harrisburg, Pennsylvania 17105	00779
Amphenol RF Operations An Allied Company 33 East Franklin Street Danbury, Connecticut 06810	74868
DZUS Fastener Company Inc. 425 Union Blvd. West Islip, New York 11795	72794
E F Johnson Company 299 10th Avenue SW Waseca, Minnesota 56093	74970
Harris Corporation RF Communications Group 1680 University Avenue Rochester, New York 14610	14304
ITT Cannon Electric Division of ITT Corporation 10550 Talbert Avenue P.O.Box 8040 Fountain Valley, California 92708	71468
Mite Corporation Amatom Electronic Hardware Division 446 Blake Street New Haven, Connecticut 06515	06540
Varian Associates Incorporated Eimac Division 301 Industrial Way San Carlos, California 94070	06980
Zeus Industrial Products Inc. Fort Thompson Street Raritan, New Jersey 08869	32039

Note: Field and organizational maintenance of the modules and circuit card assemblies is limited only to the removals, replacements, and alignments given in chapter 6.

JOINT MILITARY SERVICES UNIFORM SMR CODING MATRIX T.O. 00-25-195

SOURCE				MAINTENANCE USE		REPAIR		RECOVERABILITY		ERRC CODE	
1st Position		2nd Position		3rd Position		4th Position		5th Position		6th Position	
P	Procurable	A	Stocked	O	Remove/ Replace at Organizational Level	Z	No Repair	Z	Nonreparable Condemn at 3rd Position Level	N	Nonrecoverable XB3 Condemn at Any Level
		B	Insurance								
		C	Deteriorative								
		E	Support Equipment, Stocked								
		F	Support Equipment, Nonstocked			B	No Repair Recondition	O	Reparable Condemn at Organizational	P	Recoverable XF3 Condemn at Field
		G	Sustained Life Support								
K	Component of a Repair Kit	F	Intermediate Kit	F	Remove/ Replace at Intermediate Level	O	Repair at Organizational	F	Reparable Condemn at Intermediate	C	Recoverable XD1 (SCARS) Condemn at Depot
		D	Depot Kit								
		B	In Both Kits			F	Repair at Intermediate			T	Recoverable XD2 Condemn at Depot
M	Manufacture	O	Organization								
		F	Intermediate								
		D	Depot	D	Remove/Replace at Depot Level	D	Limited Repair at O or F Level Overhaul at Depot	D	Reparable Condemn at Depot	S	Nonexpendable Support Equipment, Depot ND2
A	Assemble	O	Organization								
		F	Intermediate								
		D	Depot								
X	Nonprocured	A	Requisition NHA					A	Special Handling	U	Nonexpendable Support Equipment, Organizational and Intermediate NF2
		B	Reclamation from IM			L	Repair at Depot				
		C	Mfg Drawings								

Section II. MAINTENANCE PARTS LIST

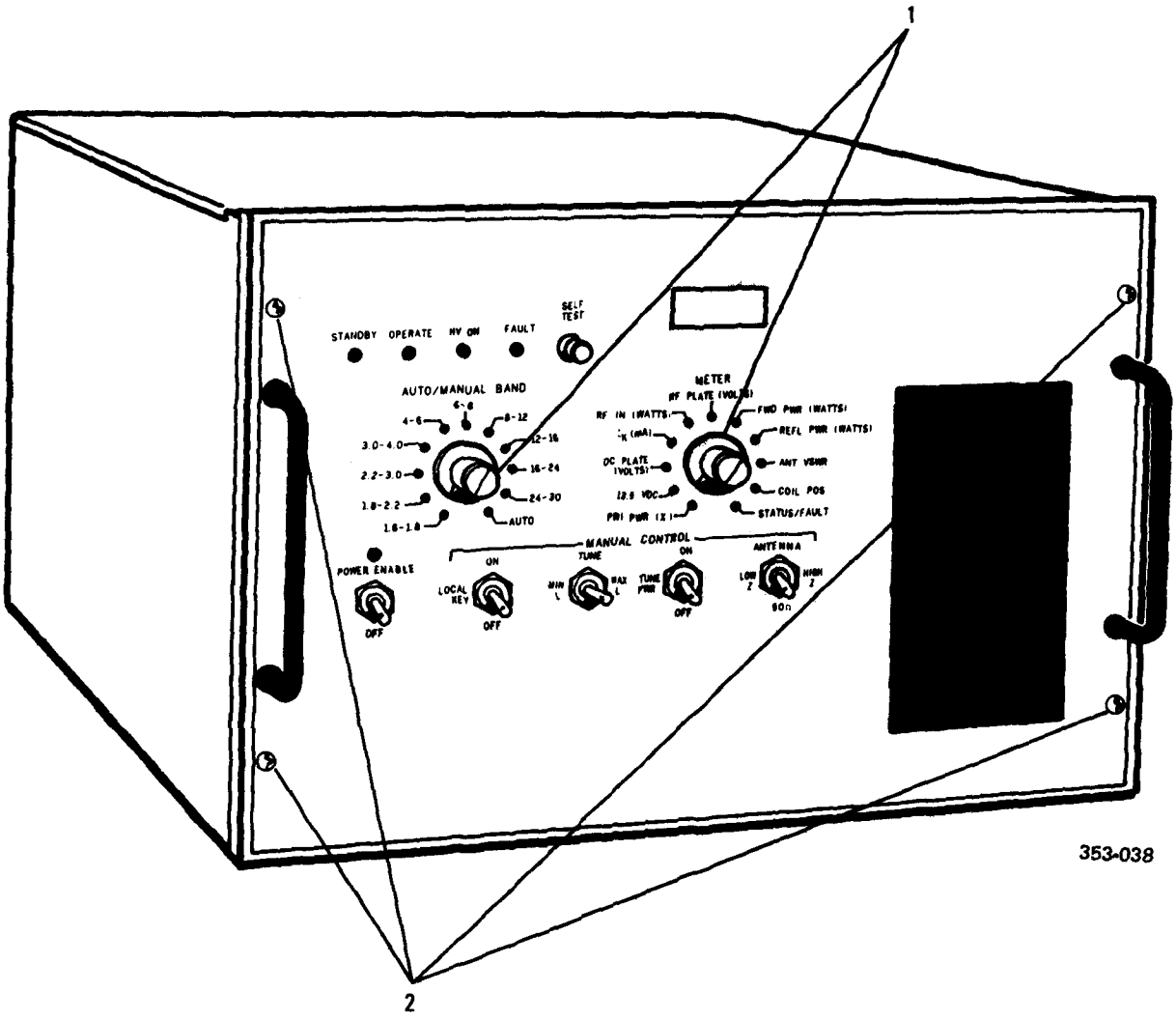


Figure 7-1. 1 KW LPA, AM-7224/URC, Front View

ILLUSTRATED PARTS BREAKDOWN

Fig. & Index No.	Part No.	FSCM	Description 1 2 3 4 5 6 7	Units Per Assy	Usable On Code	SMR Code
7-1-1	MS91528-1F1B	96906	Knob	2		PAOZZ
	AN565DC4L4	88044	. Screw, Set (AP)	4		PAOZZ
2	10087-2012	14304	Screw, Machine	4		XB
	10087-2011	14304	Washer, Flat	4		XB

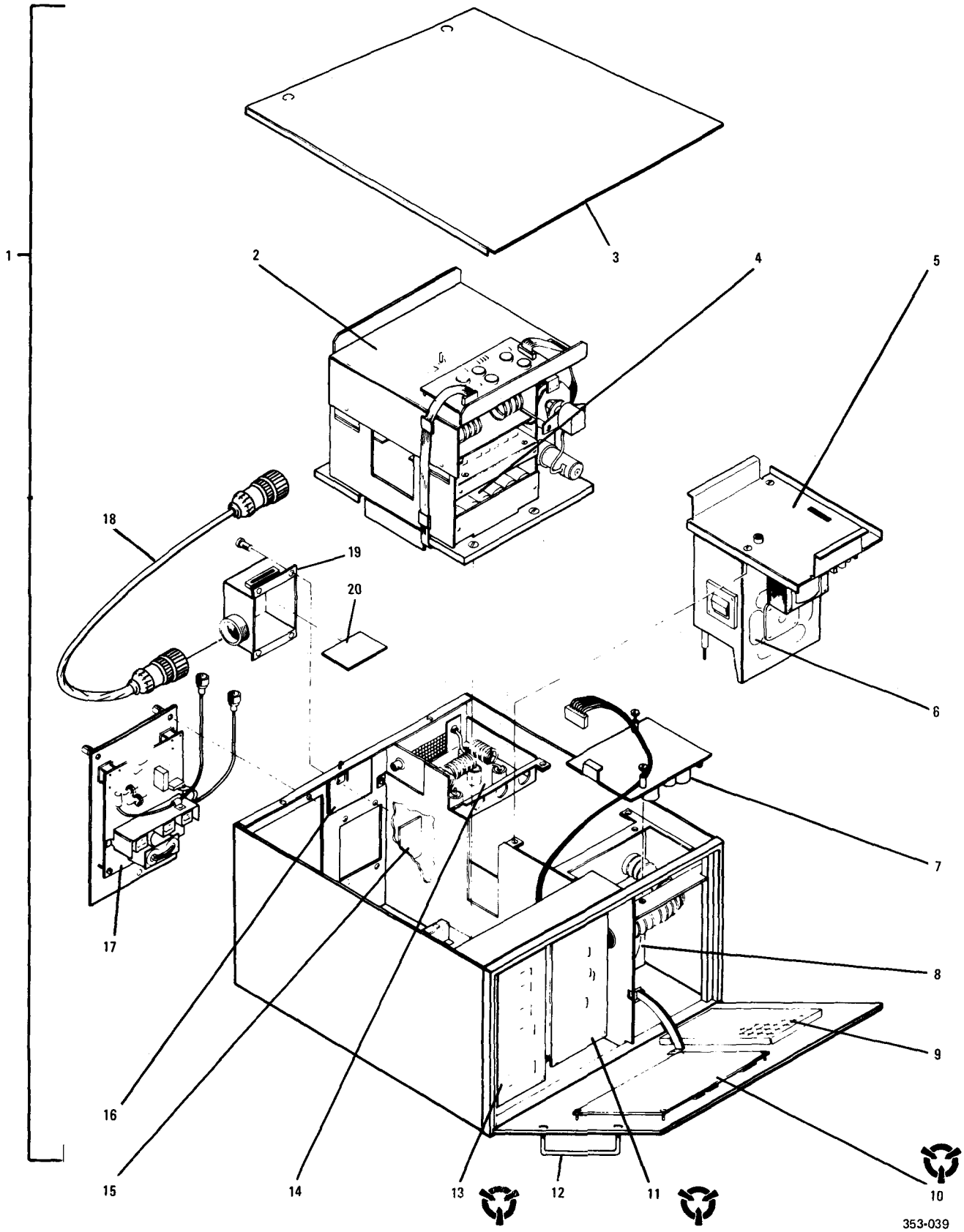


Figure 7-2. 1 KW LPA, AM-7224/URC, Exploded View

ILLUSTRATED PARTS BREAKDOWN

Fig. & Index No.	Part No.	FSCM	Description 1 2 3 4 5 6 7	Units Per Assy	Usable On Code	SMR Code
7-2-	10087-0000	14304	Amplifier, RF *			PEODD
1	10087-3100	14304	. Amplifier, RF	1		XB
2	10087-3700	14304	. . Tank Assy, A2	1		PAODD
3	10087-3104	14304	. . Cover	1		XB
	AJ4-35-SS	32039	. . Stud	2		XB
	SR4	72794	. . Retainer	2		PAOZZ
4	10087-3745	14304	. . Tune Cap. PWB Assy, A2A1A1 and A2A2A1	2		PAOZZ
	MS51957-27	96906	. . Screw, Machine (AP)	10		PAOZZ
	MS35333-71	96906	. . Washer, Lock (AP)	10		PAOZZ
5	10087-3200	14304	. . Electron Tube Assy, A1	1		PAODD
6	8877/3CX1500A7	06980	. . . Tube, Electron	1		PAOZZ
7	10087-1500	14304	. . Fan Inverter PWB Assy, A4	1		PAOLD
8	10086-1400	14304	. . Fan Assy	1		PAOZZ
	MS51957-31	96906	. . Screw, Machine (AP)	4		PAOZZ
	MS115795-806	96906	. . Washer, Flat (AP)	4		PAOZZ
	MS35338-136	96906	. . Washer, Lock (AP)	4		PAOZZ
9	10087-2010	14304	. . Filter, Air	1		XB
10	10087-2100	14304	. . Front Panel PWB Assy, A7	1		PAODD
11	10086-7100	14304	. . Power Control PWB Assy, A5	1		PAODD
12	A1013-29	06540	. . Handle	2		XB
	16022-A2	06540	. . Bushing	4		XB
	MS24693-C272	96906	. . Screw	4		PAOZZ
13	10086-9200	14304	. . Micro Control PWB Assy, A6	1		PAODD
14	10087-4500	14304	. . Low Pass Filter Assy, A10	1		PAOLD
	MS51957-14	96906	. . Screw, Machine (AP)	2		PAOZZ
	MS35338-135	96906	. . Washer, Lock (AP)	2		PAOZZ
	MS51957-27	96906	. . Screw, Machine (AP)	4		PAOZZ
15	10086-7200	14304	. . Thermal Sensor PWB Assy, A8	1		PAODD
	MS51957-14	96906	. . Screw, Machine (AP)	2		PAOZZ
	MS35338-135	96906	. . Washer, Lock (AP)	2		PAOZZ
	MS15795-804	96906	. . Washer, Flat (AP)	2		PAOZZ
16	10087-3140	14304	. . Interconnect PWB Assy, A9	1		PAOLD
	MS16106-4	96906	. . Switch, Interlock	1		PAOZZ
	MS51958-13	96906	. . . Screw, Machine (AP)	2		PAOZZ
	MS35338-135	96906	. . . Washer, Lock (AP)	2		PAOZZ
17	10087-4600	14304	. . VSWR/XFMR PWB Assy, A3	1		PAODD
18	10087-0015	14304	. . Cable Assy, RF	1		MDO
19	10087-3109	14304	. . Cover	1		XB
	MS51957-28	96906	. . Screw, Machine	8		PAOZZ
	MS35338-136	96906	. . Washer, Lock	4		PAOZZ
	MS15795-805	96906	. . Washer, Flat	4		PAOZZ
	H6768	14304	. . Nut, Clinch	5		PAOZZ
20	10087-3170	14304	. . Connector PWB Assy, A11	1		PAOZZ

*Installation includes Ancillary Kit 10087-0060 (See Figure 7-3)

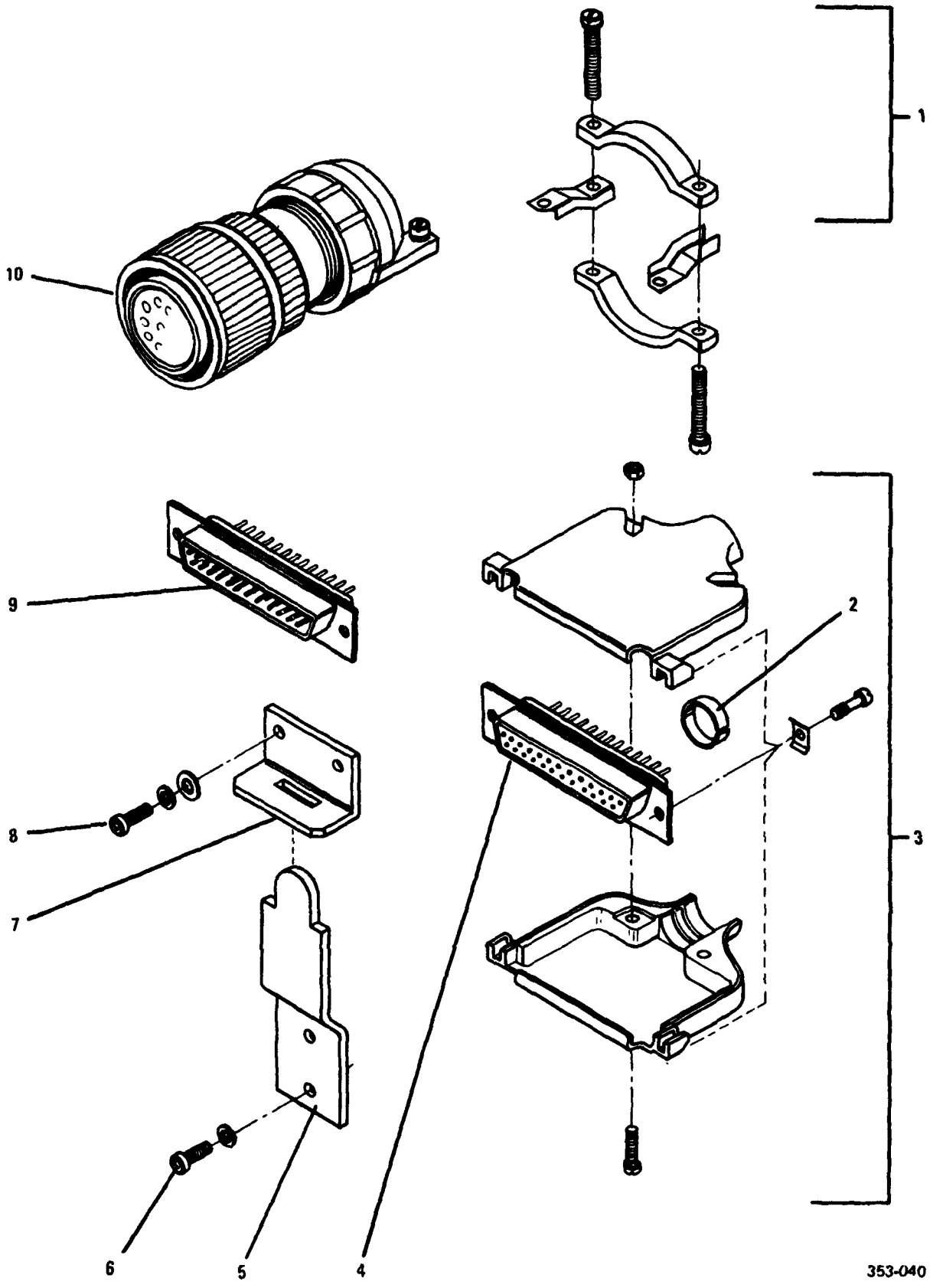


Figure 7-3. Installation Kit for 1 KW LPA

ILLUSTRATED PARTS BREAKDOWN

Fig. & Index No.	Part No.	FSCM	Description 1 2 3 4 5 6 7	Units Per Assy	Usable On Code	SMR Code
7-3-	10087-0060	14304	Installation Kit	1		XB
1	10-36233-243	77820	. Retainer	2		XB
2	745508-8	00779	. Bushing	1		XB
3	745173-2	00779	. Cover, Conn.	1		PAOZZ
4	17-80250-16	74868	. Connector, Rcpt.,Elec.	1		PAOZZ
5	10087-3107	14304	. Bracket, Angle	8		XB
6	MS51957-30	96906	. Screw, Machine	16		PAOZZ
7	10087-3106	14304	. Bracket, Angle	4		XB
8	MS51957-17	96906	. Screw, Machine	8		PAOZZ
9	DBM25P	71468	. Connector, Rcpt., Elec.	1		PAOZZ
10	10-109628-18S	77820	. Connector, Rcpt., Elec.	1		PAOZZ

REFERENCE DESIGNATOR INDEX

Reference Designator	Figure & Index No.	Part Number
A1	7-2-5	10087-3200
A2	7-2-2	10087-3700
A2A1A1, A2A2A1	7-2-4	10087-3745
A3	7-2-17	10087-4600
A4	7-2-7	10087-1500
A5	7-2-11	10086-7100
A6	7-2-13	10086-9200
A7	7-2-10	10087-2100
A8	7-2-15	10086-7200
A9	7-2-16	10087-3140
A9S1	7-2-16	MS16106-4
A10	7-2-14	10087-4500
A11	7-2-20	10087-3170
B1	7-2-8	10086-1400

CHAPTER 8

FOLDOUT DRAWINGS

LIST OF 100/500 WATT ANTENNA COUPLER FOLDOUT DRAWINGS.

GPO 687-000/41783

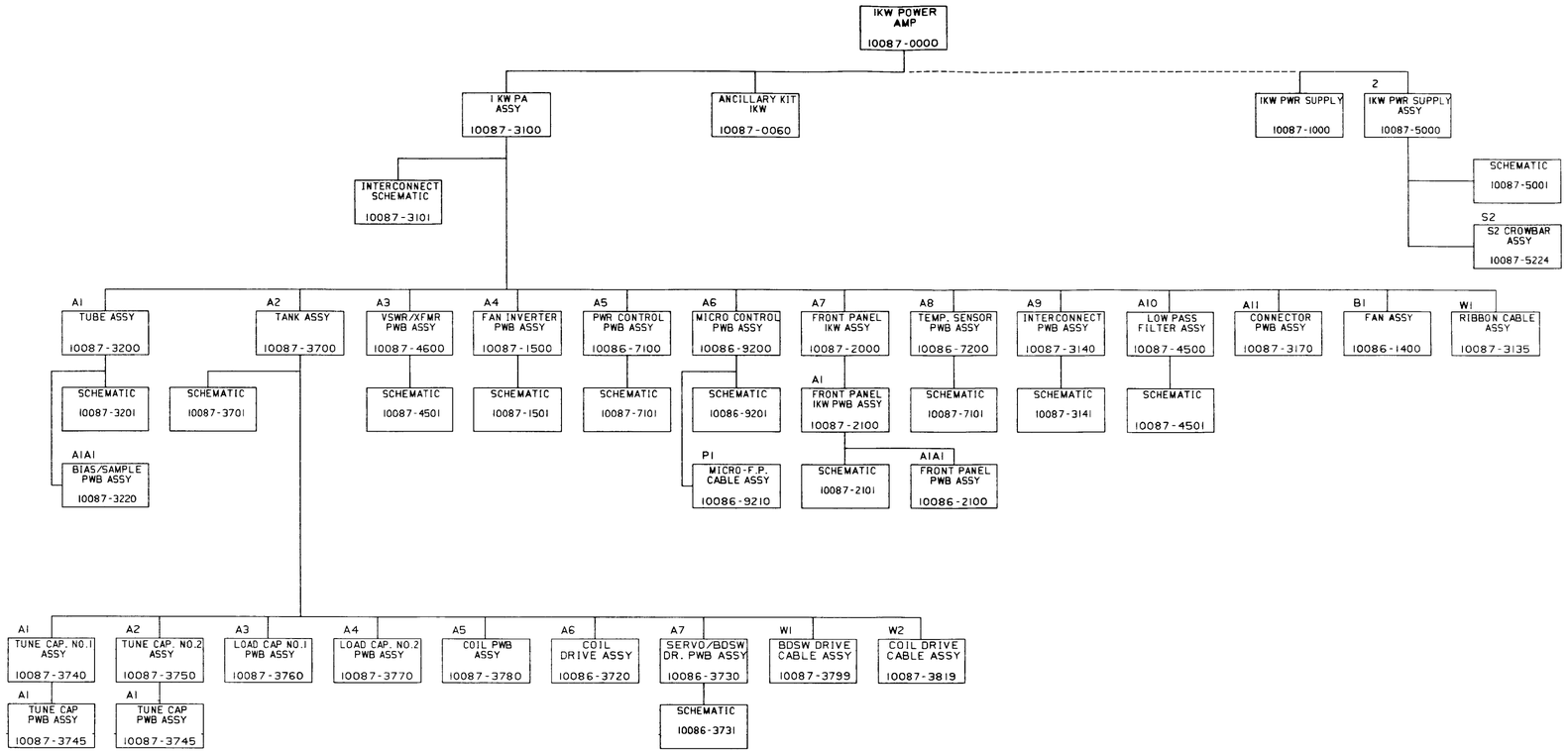


Figure FO-1. Family Tree 1 KW LPA

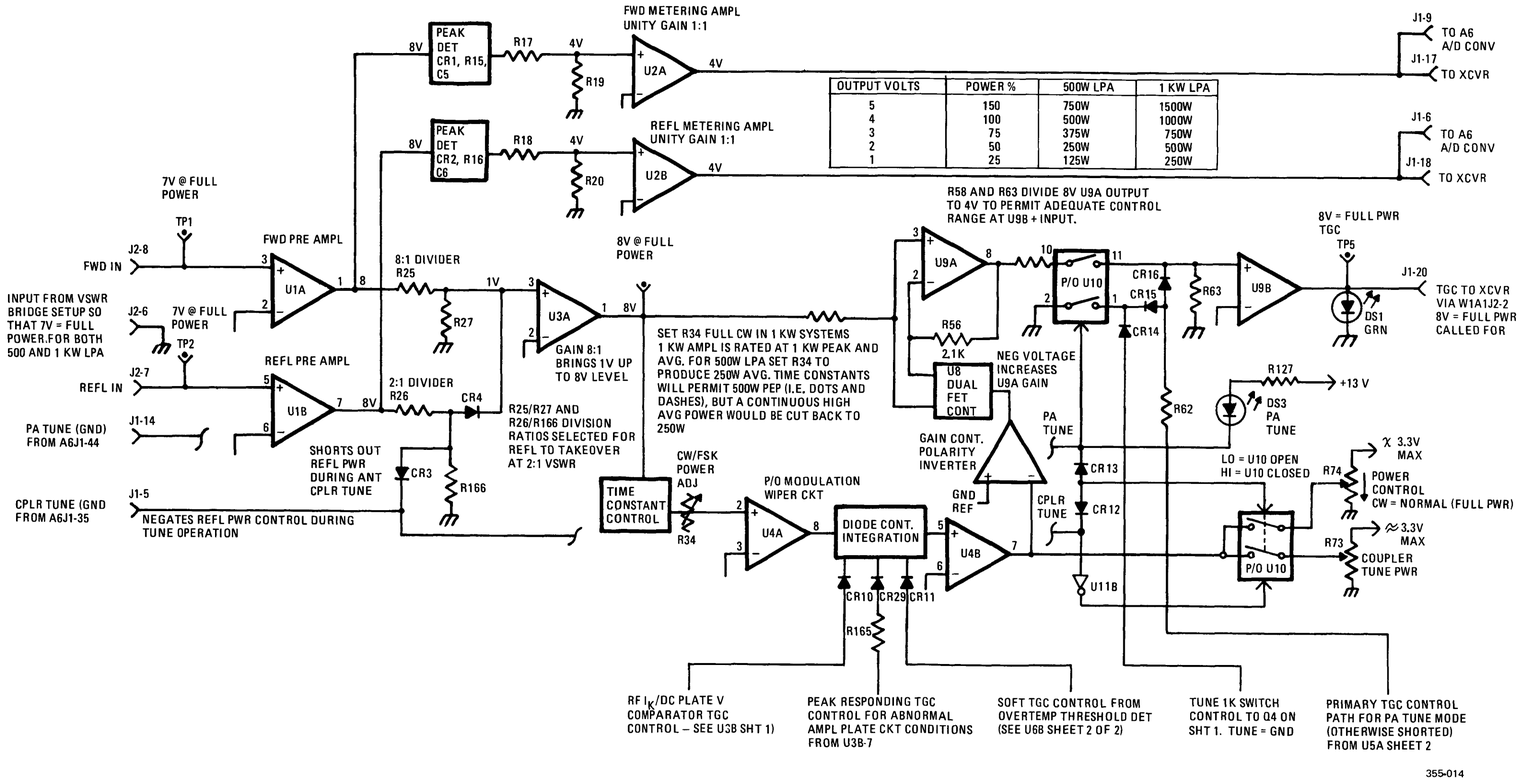


Figure FO-2. Power Control PWB Simplified (Sheet 1 of 2)

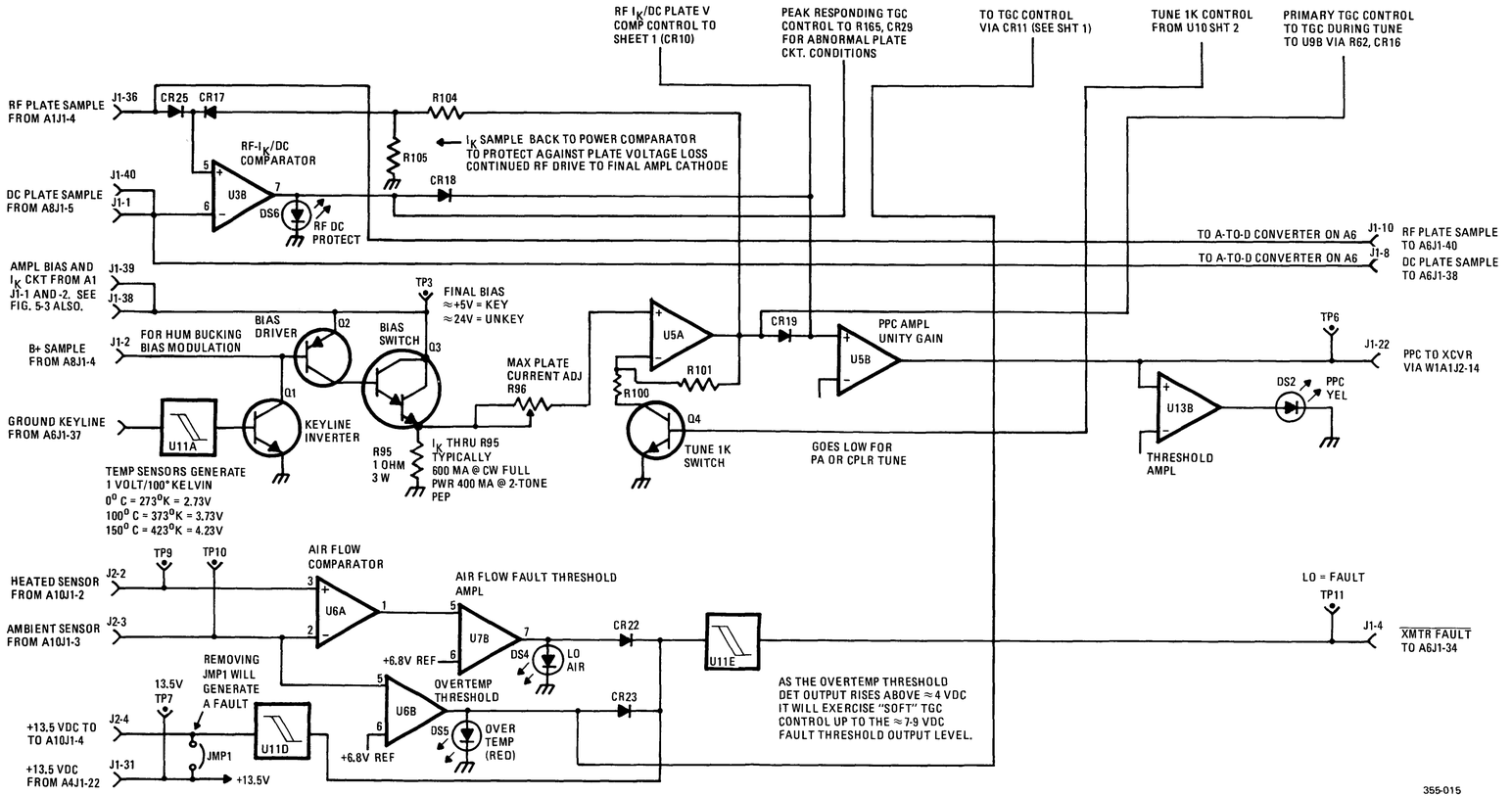
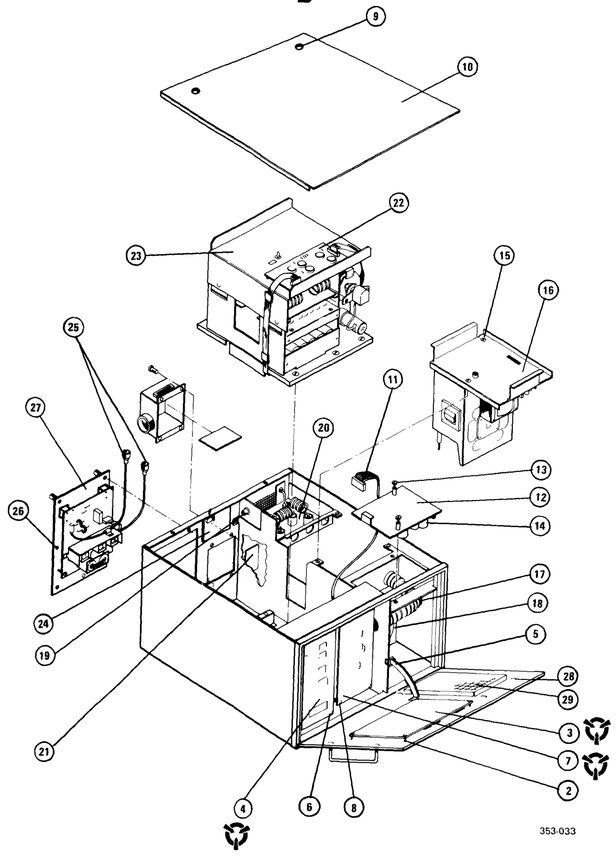


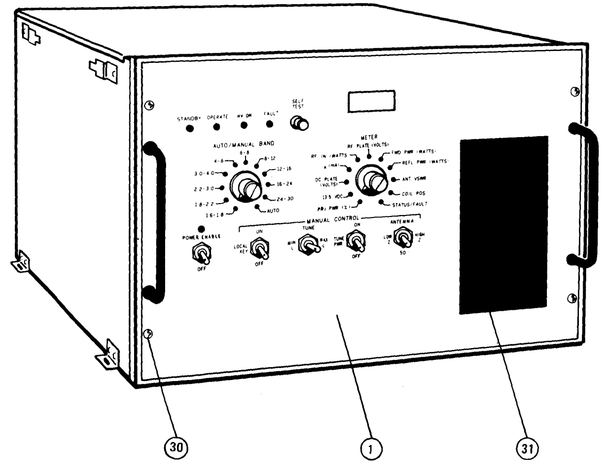
Figure FO-2. Power Control PWB Simplified (Sheet 2 of 2)

B



353-033

A



353-032

Figure FO-3. Component Location Diagram

NOTE: UNLESS OTHERWISE SPECIFIED:

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN FOR DETAIL PARTS. PREFIX THESE WITH UNIT NO. AND/OR ASSEMBLY DESIGNATIONS SHOWN ON DRAWING TO OBTAIN COMPLETE DESIGNATIONS.
2. ALL RESISTOR VALUES ARE IN OHMS, 1/4W, ±5%.
3. ALL CAPACITOR VALUES ARE IN MICROFARADS (UF).
4. ALL INDUCTANCE VALUES ARE IN MILLIHENRIES (MH).
5. VENDOR PART NO. CALLOUTS ARE FOR REFERENCE ONLY. COMPONENTS ARE SUPPLIED PER PART NO. IN PARTS LIST.
6. DC RESISTANCES OF INDUCTIVE ELEMENTS (CHOKES, COILS, MOTOR WINDINGS, ETC.,) ARE LESS THAN 1 OHM.
7. PANEL DECALS ARE INDICATED BY BOLD TYPE IN A BOLD BOX, E.G., **ON/OFF** .
8. ALL RELAYS ARE SHOWN IN THE DE-ENERGIZED STATE.

HIGHEST REFERENCE DESIGNATION

REFERENCE DESIGNATIONS NOT USED

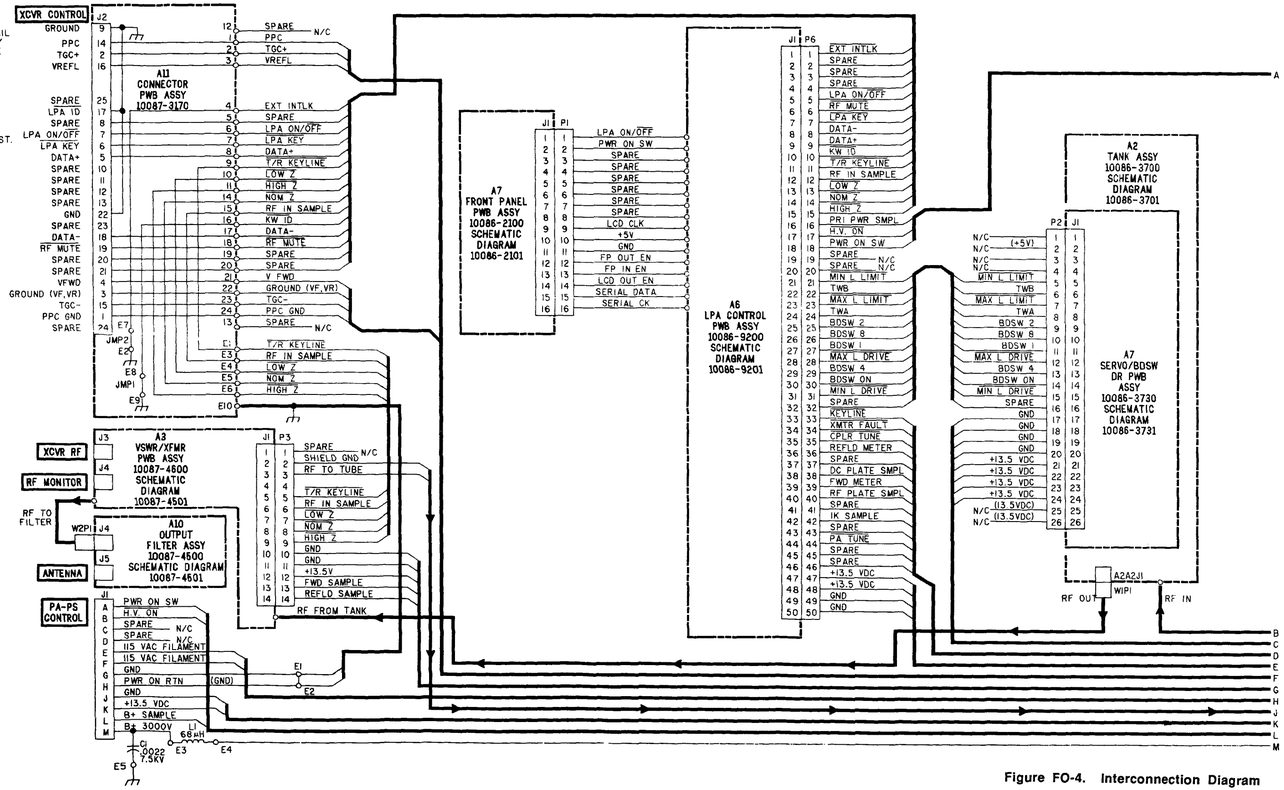


Figure FO-4. Interconnection Diagram (Sheet 1 of 2)

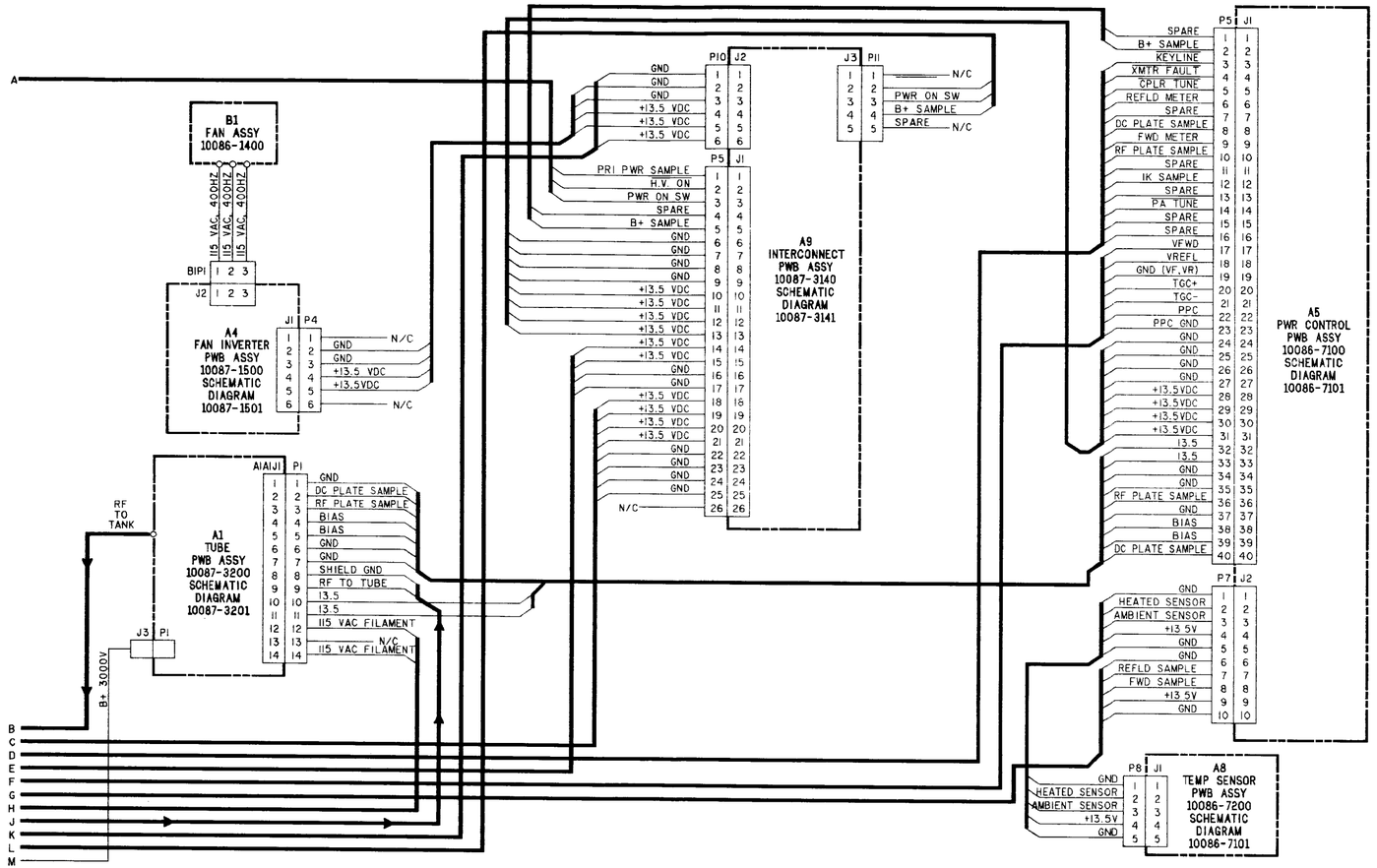


Figure FO-4 . Interconnection Diagram
(Sheet 2 of 2)