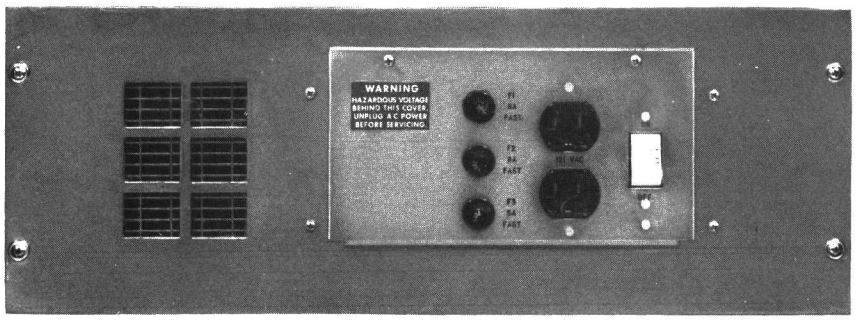
GE Mobile Communications



MASTR® II

BASE STATION 60 Hz POWER SUPPLY
19D430272G7
BASE STATION 50 Hz POWER SUPPLY
19D430272G8

Maintenance Manual

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ILLUSTRATIONS

SPECIFICATIONS

	TRANSMIT	RECEIVE
OUTPUT VOLTAGE	26 VDC @ 15 Amperes	13.0 VDC @ 3 Amperes
INPUT VOLTAGE	121/242 VAC, 60 Hz Only 100/110/123.5/200/220/ 247 VAC, 50 Hz Only	
LOAD DUTY CYCLE	Continuous @ ±10% Line Operable @ ±20% Line	
DIMENSIONS (H x W X D)	7-1/4" x 19" x 10-1/2"	
WEIGHT	65 lbs.	

WARNING

No one should be permitted to handle any portion of the equipment that is supplied with high voltage; or to connect any external apparatus to the units while the units are supplied with power. KEEP AWAY FROM LIVE CIRCUITS.

High-level RF energy in the transmitter Power Amplifier assembly can cause RF burns. KEEP AWAY FROM THESE CIRCUITS WHEN THE TRANSMITTER IS ENERGIZED!

IMPORTANT SAFETY INSTRUCTIONS

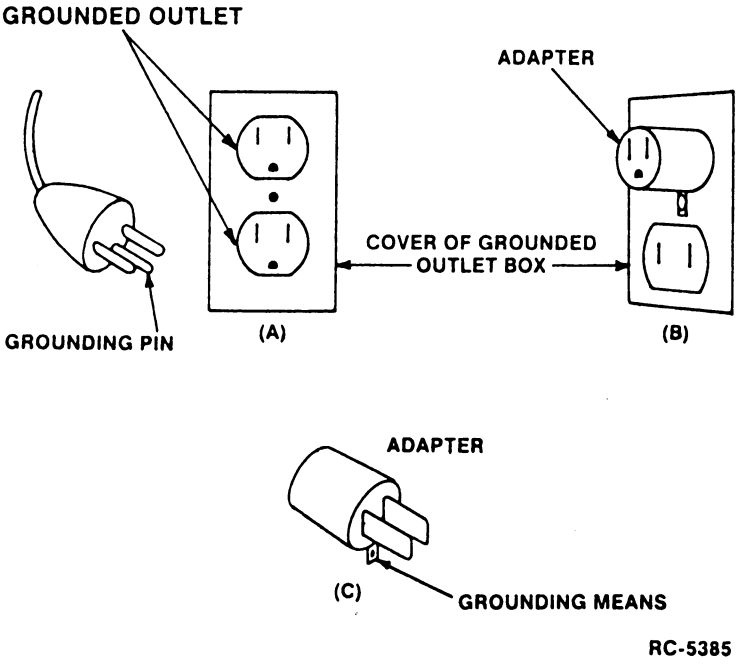
1. **SAVE THIS MANUAL** - It contains important safety and operating instructions for Power Supplies 19D430272G7 and G8.
2. Before using the Power Supply, read all instructions and cautionary markings.
3. Do not expose Power Supply to rain or snow.
4. Do not use auxiliary equipment not recommended or sold by the manufacturer. To do so may result in a risk of fire, electric shock, or injury to persons.
5. To reduce risk of damage to electric plug and cord, pull by plug rather than cord when disconnecting Power Supply.
6. Make sure the cord is located so that it will not be stepped on, tripped over, or otherwise subject to damage or stress.
7. An extension cord should not be used unless absolutely necessary. Use of improper extension cord could result in a risk of fire and electric shock. If extension cord must be used, make sure:
    a. That pins on plug of extension cord are the same number, size and shape as those of plug.
    b. That extension cord is properly wired in good condition; and
    c. That wire size is large enough for AC ampere rating as specified in Table 1.

TABLE 1
RECOMMENDED MINIMUM SIZE FOR EXTENSION CORDS

LENGTH OF EXTENSION CORD (FT.)	25	50	100	150
AWG SIZE OF EXTENSION CORD	18	18	18	16

8. Do not operate Power Supply with damaged cord or plug — replace them immediately.
9. Do not operate Power Supply if it has received a sharp blow, been dropped, or otherwise damaged in any way; return to a qualified service shop.
10. Do not disassemble Power Supply; return to a qualified service shop when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.
11. To reduce risk of electric shock, unplug Power Supply from outlet before attempting any maintenance or cleaning.
12. GROUNDING AND AC POWER CORD CONNECTION - To reduce risk of electrical shock use only a properly grounded outlet (such as is located in the rack). The Power Supply is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. Be sure that the outlet is properly installed and grounded in accordance with all local codes and ordinances.
13. DANGER - Never alter AC cord or plug. If it will not fit outlet, have a proper outlet installed by a qualified electrician. Improper connection can result in risk of an electric shock.

14. The model 19D430272G7 Power Supply is for use on a 110-volt circuit, and has a grounding plug that looks like the plug illustrated in Figure 1. A temporary adapter, which looks like the adapter illustrated in sketches B and C, may be used to connect this plug to a two-pole receptacle as shown in sketch B if a properly grounded outlet is not available. The temporary adapter should be used only until a properly grounded outlet can be installed by a qualified electrician.



15. DANGER - Before using adapter as illustrated, be certain that center screw of outlet plate is grounded. The green-color rigid ear or lug extending from adapter must be connected to a properly grounded outlet—make certain it is grounded. If necessary, replace original outlet cover plate screw with a longer screw that will secure adapter ear or lug to outlet cover plate and make ground connection to grounded outlet.

16. The model 19D430272G8 Power Supply is for use on a circuit having a nominal rating more than 120 volts and is factory-equipped with a specific electric cord to permit connection to an acceptable electric circuit. Make sure that the unit is connected to an outlet having the same configuration as the plug. No adapter should be used with this unit.

DESCRIPTION

The General Electric Power Supplies (19D430272G7 and G8) for Mastr II Base Stations operate on 60 Hertz (Group 7) or 50 Hertz (Group 8) with input voltages ranging from 121 VAC to 242 VAC. The chart below defines the operating parameters of each supply. Jumper connections located on the back of the power supply front panel (A801 or A802) must be connected for the input used. Connections are shown on the Schematic Diagram. Unless otherwise specified, the 60 Hertz supply is connected for 121 VAC operation and the 50 Hertz supply is connected for 220 VAC operation as shipped from the factory.

The input voltage is stepped down to 26/13 volts by a ferroresonant transformer which provides ±2% line regulation for an input voltage variation of ±20% on the primary. A power switch and the primary and 13 VDC secondary fuses are located on the front panel of the Power/ Supply. A high current fuse for the PA supply is located on the rear panel of the Power Supply. The rear panel hinges down to provide access to the power supply components for in-rack servicing.

CIRCUIT ANALYSIS

When the power supply ON-OFF switch is in the ON position, the input voltage is applied across the primary of power transformer T804 or (T805)*. The power transformer is a ferroresonant type which inherently provides good line regulation so that no additional high-current regulators are required. The output voltage will change a maximum of 1.6% of change in line frequency with nominal line voltage input. C801 serves as a resonating capacitor across the resonant winding of the transformer. (A Block Diagram of the Power Supply is shown in Figure 1.)

The transformer provides two outputs across a center tapped secondary: 26 VAC at 15 amperes and 13 VAC at 3 amperes. The 26 VAC is applied across a full wave bridge rectifier composed of CR1, CR2, CR3, and CR4 to provide 26 VDC at 15 amperes.

The output of the bridge rectifier is filtered by a PI filter consisting of C802, C803 and L803. Load resistor R801 is connected across the output. The 26 VDC output is fed through fuse F801 to the station transmitter PAs.

13 VAC is taken from the center tap of the secondary of T804 (T805) and applied to a full wave rectifier consisting of CR1 and CR2. The output is filtered by a PI filter consisting of C804, C807 and L802. The 13 VDC output provides operating voltage to the station receiver circuits.

Power line protector kit (19A129370) located on A801 (A802) provides protection against instantaneous changes in the AC line voltage.

(*) Denotes 50 Hz Supply.

POWER SUPPLY	FREQUENCY	INPUT VOLTAGES	CURRENT RATING
19D430272G7	60 Hz	121 VAC/242 VAC	15A/26VDC; 3A/13VDC
19D430272G8	50 Hz	100/110/123.5/ 200/220 and 247VAC	15A/26VDC; 3A/13VDC

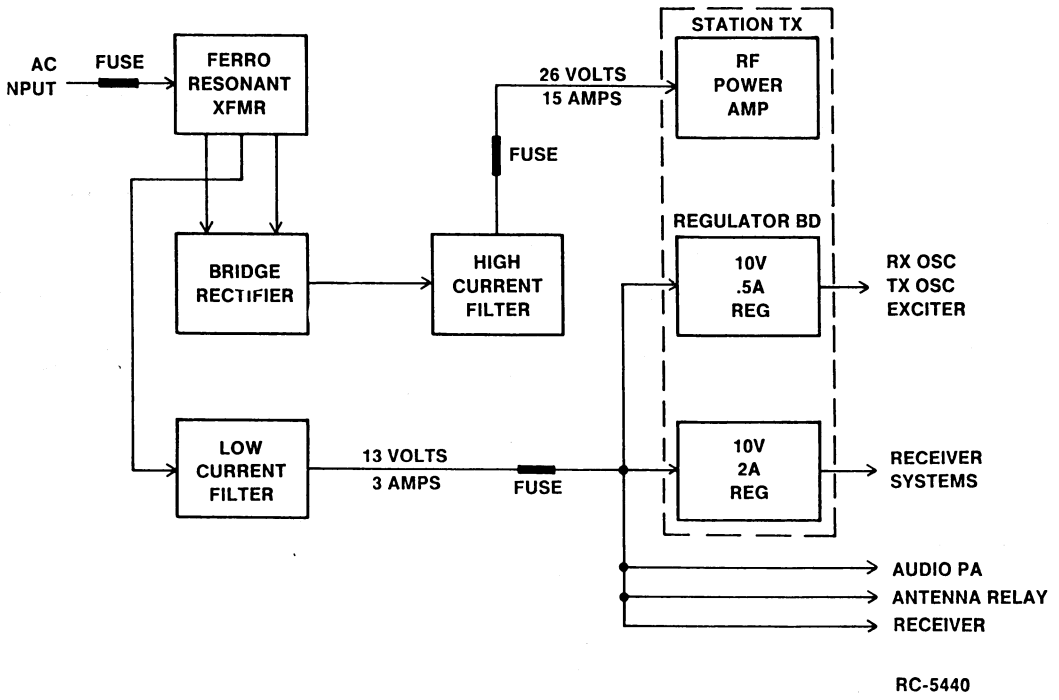


Figure 1 - Power Supply Block Diagram

TROUBLESHOOTING PROCEDURE

SYMPTOM	PROCEDURE
No output voltage, 13 or 26 VDC	• Check on-off switch S1. • Check fuse F1. • Check transformer T804 (T805). • Check AC source voltage.
No 13 VDC output at J801-1 and J801-5	Check the following: • Proper input voltage across primary of T804, (T805). • Open F1 or F3. • Open T804, (T805), S1, L802, CR1 or CR2. • Shorted T804, (T805), C801, C807, or C804.
No 26 VDC output voltage at F801-2 and 3	Check the following: • Open F801, L803. • Shorted C802, C803. • Open T804, (T805).
High output voltages: 13 VDC output greater than 15.5 Volts OR 26 VDC output greater than 31 VDC	Check the following: • Open C801 or R801. • Line frequency. • AC source voltage is low or high.

POWER SUPPLY MODIFICATIONS

The power supply is modified as described below for use with a 242 VAC power source. Refer to Figure 2 for location of the following changes.

1. Remove P801 from power cable W801 and replace with the proper plug to mate with the 242 VAC receptacle.
2. Remove V16-R wire connected between A801-J1-3 and A801-S1-2.
3. Remove jumper (E2) between A801-TB1-1 and A801-TB1-2.
4. Remove jumper (E1) between A801-TB1-3 and A801-TB1-4.
5. Add jumpers (E1 & E2) between A801-TB1-2 and A801-TB1-3.

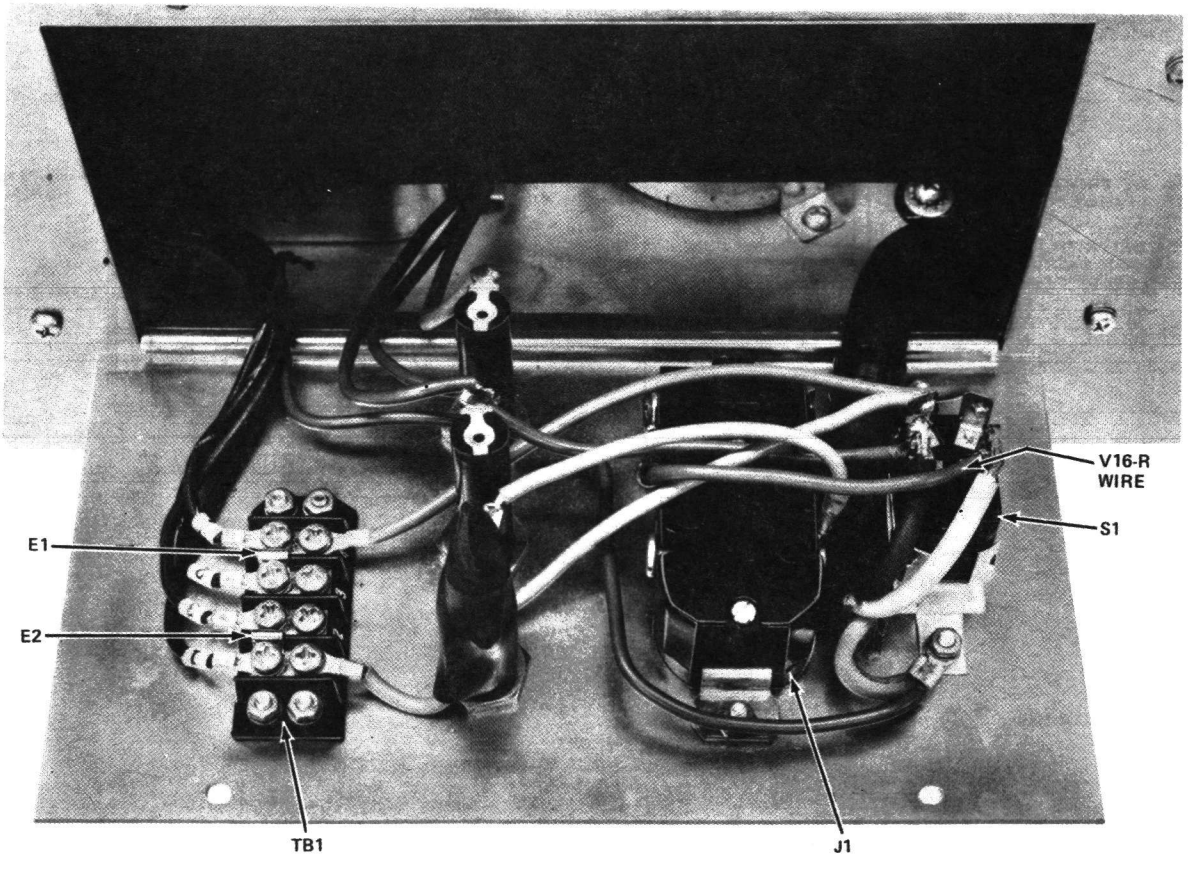
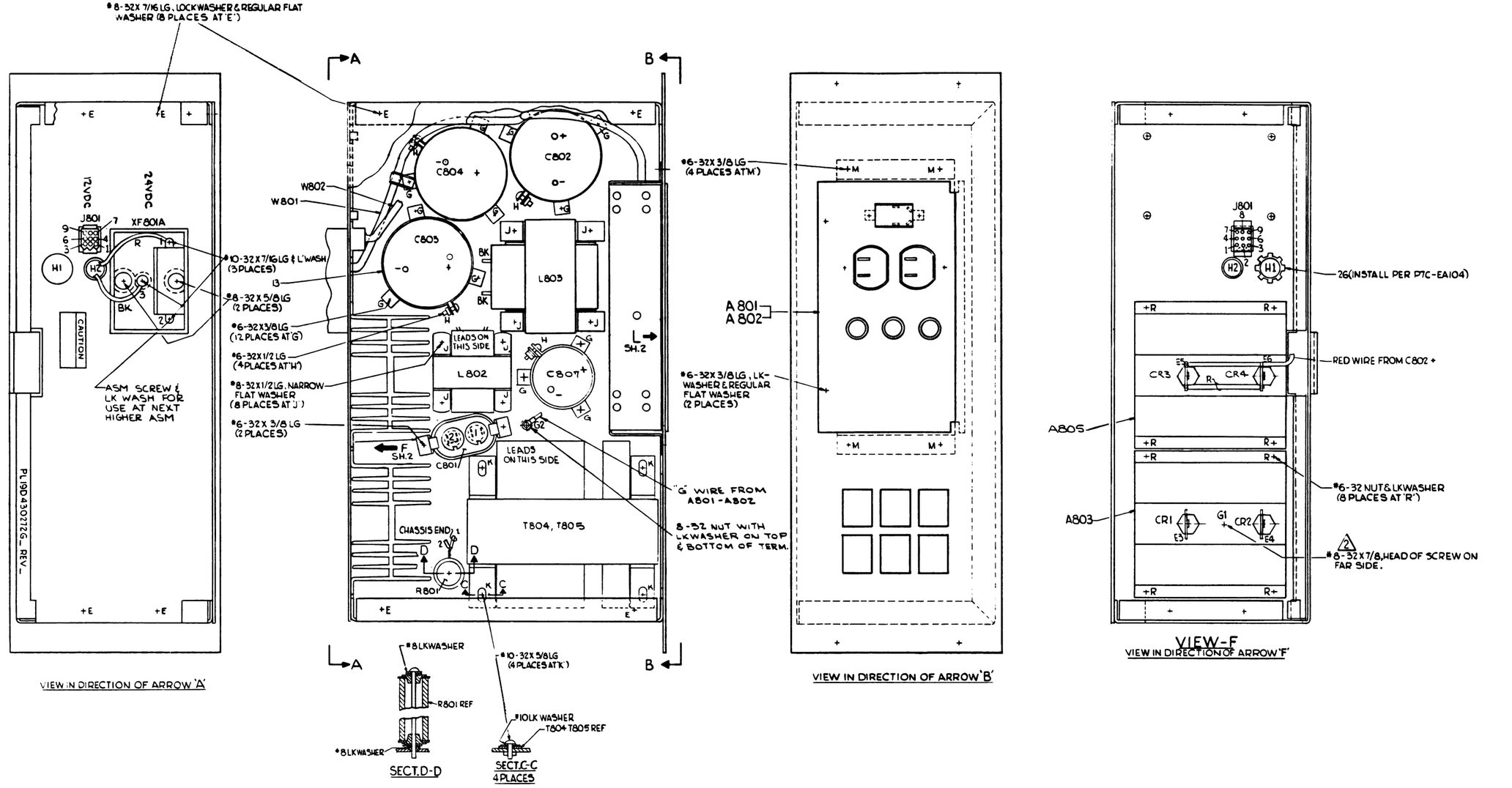


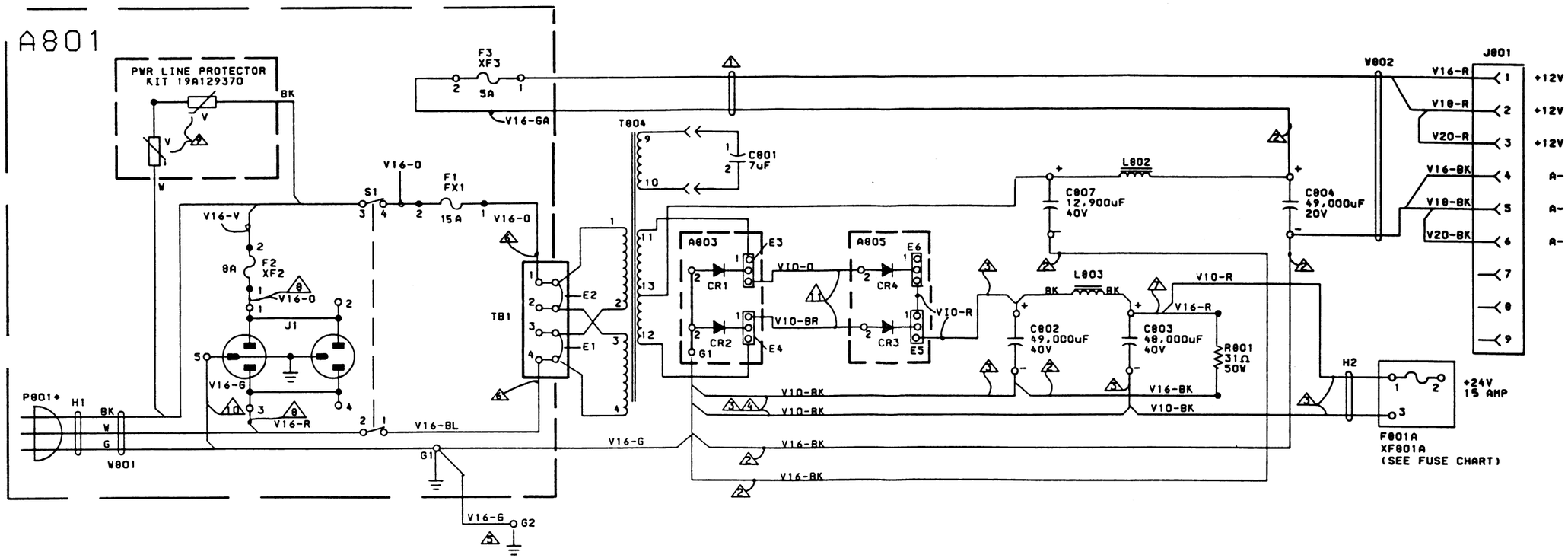
Figure 2 - Power Supply Front Panel A801 (Hinged Down)



OUTLINE DIAGRAM

50/60 Hz 24/12 Volt Power Supplies

RC-5444A
(19D430 272 sh 2, 3)
(Rev. 1)



NOTE:
CHANGES TO THIS DRAWING MAY AFFECT WIRING DIAGRAM 19D438250.

FUSE APPLICATION CHART (F801)	
POWER	FUSE
45W	10A
100W	20A

*POWER SUPPLY IS WIRED FOR 121VAC 60HZ OPERATION. FOR 242 VAC 60 HZ OPERATION, REMOVE P801. REMOVE V16-R WIRE BETWEEN A801-J1-3 AND A801-S1-2.REMOVE JUMPERS (E1 & E2) FROM A801-TB1-1 TO A801-TB1-2 AND A801-TB1-3 TO A901-TB1-4. ADD JUMPERS (E1 &E2) BETWEEN A801-TB1-2 AND A801-TB1-3.

NOTES:

1. THESE WIRES MUST BE ROUTED SEPARATLY FROM OTHER WIRING OF A801.
2. TERMINATE WITH 19B209260P12.
3. TERMINATE WITH 19B209260P11.
4. TERMINATE THESE 2 WIRES AT A803-G1 UNDER THE HEAD OF THE SCREW.
5. TERMINATE END AT A802-G1 WITH 19B209268P101 & AT G2 WITH 19B209268P103.
6. TERMINATE WITH 19B209260P107.
7. TERMINATE BOTH WIRES IN SAME TERMINAL 19A115799P1.
8. TERMINATE WITH 19B209268P3
9. PART OF AC LINE SURGE PROTECTION KIT.
10. TERMINATE ONE END WITH 19B209268P101 AT A801-G1 & 19B209268P3 AT J1-5.
11. TERMINATE WITH TERMINAL 19B209268P107.

MODEL NO.	REV. LETTER
PL19D430272G7	

(19D438249, Sh. 1, Rev. 2)

SCHEMATIC DIAGRAM

60 Hz Power Supply (24/12 VDC)

PARTS LIST

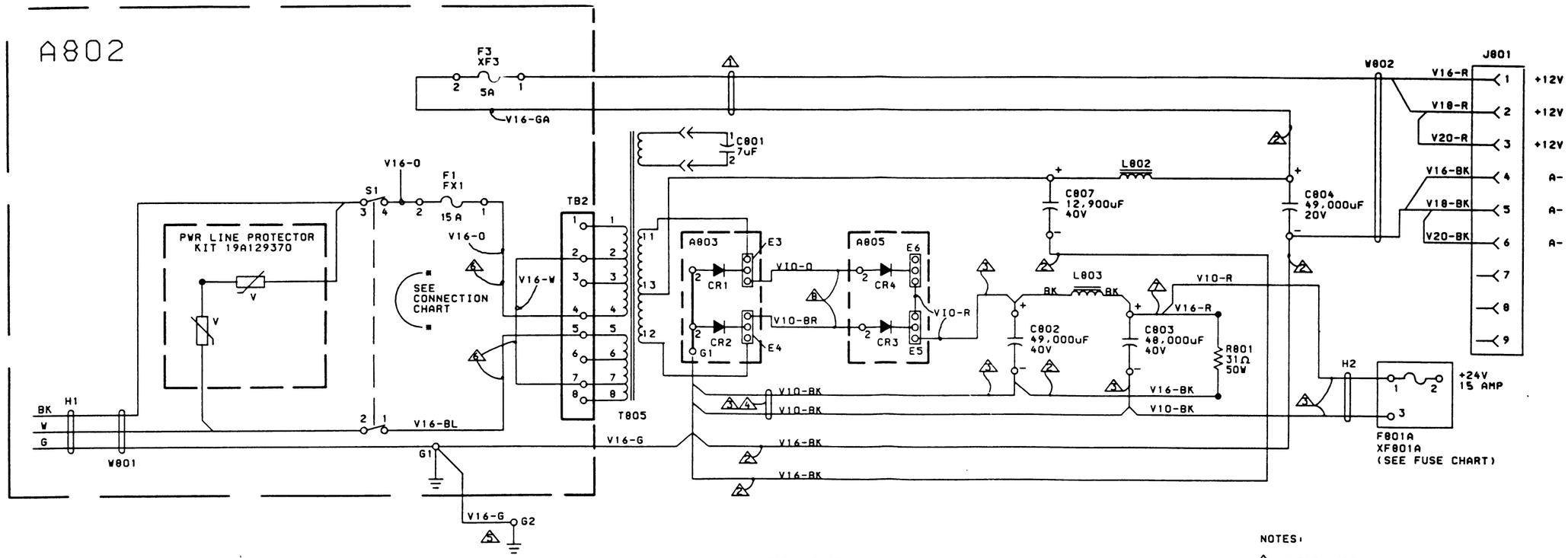
BASE STATION POWER SUPPLY
19D430272G7 60 Hz
19D430272G8 50 Hz
ISSUE 3

SYMBOL	GE PART NO.	DESCRIPTION
A801		AC POWER PANEL 60 Hz SUPPLY 19C320779G1
		- - - - - - - - - - - FUSES - - - - - - - - - - -
F1	7484390P1	Cartridge, quick blow: 15 amps at 250 v; sim to Bussmann ABC10.
F2	7484390P4	Cartridge, quick blow: 8 amp at 250 v; sim to Bussmann ABC8.
F3	1R16P8	Cartridge, quick blowing: 5 amps at 250 v; sim to Littelfuse 312005 or Bussmann MTH-5.
		- - - - - - - - - - - JACKS - - - - - - - - - - -
J1	19B209395P1	Receptacle, power: 3 wire grounding 15 amps at 125 v; sim to Circle F Mfg. 1517 or GE 5242-1.
		- - - - - - - - - - - SWITCHES - - - - - - - - -
S1	19B209498P1	Push: DPST, 20 amps at 220 VRMS; sim. to McGill 0811-0188.
		- - - - - - - - - TERMINAL BOARDS - - - - - - - -
TB1	19C301087P2	Terminal Board: 4 terminals rated 15A, 1200Vrms.
		- - - - - - - - - - FUSE SOCKETS - - - - - - - -
XF1 thru XF3	4037402P2	Fuseholder: 15 amps at 250 v; sim to Littelfuse 342001.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19B226097G1	Cover.
	19B209268P3	Terminal, solderless: wire No. 16-22 AWG; sim to Amp 2-32562-3.
	19B209260P107	Terminal, solderless: wire No. 22-16 AWG; sim to AMP 34107.
	NP276466	Nameplate.
	19B209268P101	Terminal, solderless: wire No. 16-22 AWG; sim to 2-36151-2.
A802		AC POWER PANEL 50 Hz SUPPLY 19C320779G2
		- - - - - - - - - - - FUSES - - - - - - - - - - -
F1	7484390P1	Cartridge, quick blow: 15 amps at 250 v; sim to Bussmann ABC10.
F3	1R16P8	Cartridge, quick blowing: 5 amps at 250 v; sim to Littelfuse 312005 or Bussmann MTH-5.
		- - - - - - - - - - - SWITCHES - - - - - - - - -
S1	19B209498P1	Push: DPST, 20 amps at 220 VRMS; sim. to McGill 0811-0188.
		- - - - - - - - - TERMINAL BOARDS - - - - - - - -
TB2	19C301087P4	Terminal Board: 8 terminals rated 15A, 1200Vrms.
		- - - - - - - - - - FUSE SOCKETS - - - - - - - -
XF1	4037402P2	Fuseholder: 15 amps at 250 v; sim to Littelfuse 342001.
XF3	4037402P2	Fuseholder: 15 amps at 250 v; sim to Littelfuse 342001.

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19B226097G2	Cover.
	19B209260P107	Terminal, solderless: wire No. 22-16 AWG; sim to AMP 34107.
	NP276466	Nameplate.
A803		HEAT SINK ASSEMBLY 19C320836G1
		- - - - - - - - - - RECTIFIERS - - - - - - - - - -
CR1 and CR2	19A116524P2	Rectifier: sim to: 1N2158R.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19B226005G1	Aluminum Heat Sink.
	19A115275P5	Insulator.
	N210P20B6	Hex nut: 1/4 x 28.
	19A142689P1	Terminal.
	N81P13006B6	Machine screw: No. 6-32 x 3/8.
	N207P13B6	Hex nut: No. 6-32.
A805		HEAT SINK ASSEMBLY 19C320836G2
CR3 and CR4	19A116524P2	Rectifier: sim to: 1N2158R.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19B226005G1	Aluminum Heat Sink.
	N210P20B6	Hex nut: 1/4 x 28.
	19A142689P1	Terminal.
	N81P13006B6	Machine screw: No. 6-32 x 3/8.
	N207P13B6	Hex nut: No. 6-32.
	19A115276P4	Non-metallic Washer.
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C801	19A134574P2	Quick disconnect: 7 uf + or - 5%, 660 VRMS; sim. to GE 26F664PB.
C802	19A134033P8	Electrolytic: 49,000 uF +50% -10%, 75 VDCW, 92F280AMC.
C803	5496520P19	Electrolytic: 48000 uF -10 +100%, 40 VDCW, 86F561M.
C804	19A134033P1	Electrolytic: 49,000 uf + 50% - 10%, 20 VDCW; sim. to GE 92F180ANB.
C807	5496520P21	Electrolytic: 12900 uF -10 +100%, 40 VDCW, 43F86F159M.
		- - - - - - - - - - - JACKS - - - - - - - - - - -
J801	19B209288P3	Shell. (Part of W802).
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L802	19B226151G1	Reactor. Includes:
	19B209260P12	Solderless terminal.
	19B209508P1	Reactor: 10 mH, 2.5 Amp.
L803	19B209496P1	Reactor: 1 mH, 15 Amp.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R801	2R17P26	Wirewound: 31 ohms + or -5%, 50 w.
		- - - - - - - - - - TRANSFORMERS - - - - - - - -
T804	19B234895P1	Power Transformer: 60 Hz. (Group 7 only).
T805	19B234895P2	Power Transformer: 50 Hz. (Group 8 only).

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - - CABLES - - - - - - - - - - -
W801	19B233188G1	Power Cable Assembly.
W802	19B233189G1	Supply Cable Assembly.
		- - - - - - - - - - FUSE SOCKETS - - - - - - - -
XF801A		FUSEHOLDER ASSEMBLY 19B216021G7
	19D413045P1	Base.
	19B205950P1	Fuse clip.
	N117P15006B6	Tap screw: No. 8-32 x 3/8.
	19A115942P1	Insert, threaded.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19C320748G1	Cover for A804.
	19C320637G1	Rear Cover.
	19D417192P1	Top Cover.
	19B209103P508	Screw, self tapping: No. 10-32 x 1/2. (Used with C802-C804 and C807).
	7143961P1	Bus bar: sim to Kulka No. 600.
	7479571P19	Retainer. (Used with C802-C804).
	7776855P37	Retainer strap. (Used with C801).
	19B209260P11	Solderless terminal.
	19B209260P12	Solderless terminal.
	19A115799P1	Terminal, solderless: sim to AMP 33460.
	19A134022P1	Protective Cap. (Used with C801 and C805).
	19A115594P3	Plastic Grommet. (Used with H1).
	4034225P1	Flat washer: approx 1/2 inch dia. (Used R801).
	7476888P5	Washer, non-metallic. (Used with R801).
	7476888P6	Washer, non-metallic. (Used with R801).
	19A134024P1	Machine screw, round head: No.8-32. (Used to secure R801).
	19A701863P6	Clip loop. (Used to secure W801).
	7479571P7	Retainer. (Used with C807).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES



NOTE:
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FUSE APPLICATION CHART (F801)	
POWER	FUSE
45W	10A
100W	20A

MODEL NO.	REV. LETTER
PL19D430272G8	

220 VAC 50HZ
• CONNECTION SHOWN

INPUT VOLTAGE	CONNECT AT TB2
100 VAC 50 HZ	4 TO 6 & 3 TO 5
110 VAC 50 HZ	2 TO 5 & 4 TO 7
123.5 VAC 50 HZ	1 TO 5 & 4 TO 8
200 VAC 50 HZ	3 TO 6
220 VAC 50 HZ	2 TO 7
247 VAC 50 HZ	1 TO 8

POWER SUPPLY IS WIRED FOR 220 VAC. 50 HZ OPERATION. FOR OPERATION ON OTHER INPUT VOLTAGES, REFER TO CONNECTION CHART.

NOTES:

1. THESE WIRES MUST BE ROUTED SEPARATLY FROM OTHER WIRING OF A801.
2. TERMINATE WITH 19B209260P12.
3. TERMINATE WITH 19B209260P11.
4. TERMINATE THESE 2 WIRES AT A803-G1 UNDER THE HEAD OF THE SCREW.
5. TERMINATE END AT A802-G1 WITH 19B209268P101 & AT G2 WITH 19B209268P103.
6. TERMINATE WITH 19B209260P107.
7. TERMINATE BOTH WIRES IN SAME TERMINAL 19A115799P1.
8. TERMINATE WITH TERMINAL 19B209268P107.

(19D438250, Sh. 1, Rev. 1)

SCHEMATIC DIAGRAM

50 Hz Power Supply (24/12 VDC)