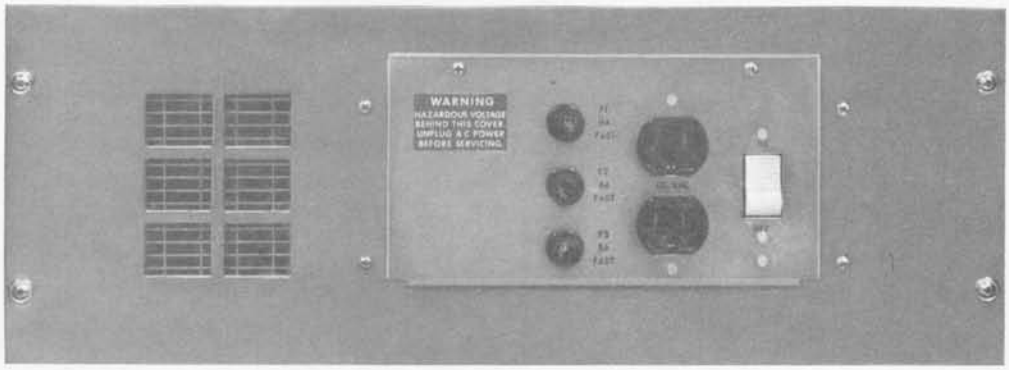
MOBILE RADIO

# MASTR II MAINTENANCE MANUAL

## BASE STATION 60 Hz POWER SUPPLY

Maintenance Manual LBI4806E
DATAFILE FOLDER - DF0072
DATAFILE FOLDER - DF0076 IMTS




## SPECIFICATIONS *

| OUTPUT VOLTAGE | TO P.A. | TO SYSTEM |
|---|---|---|
| 30 Amp Model | 12.3 VDC @ 27 Amperes | 12.3 VDC @ 3 Amperes |
| 18 Amp Model | 12.2 VDC @ 15 Amperes | 12.2 VDC @ 3 Amperes |
| INPUT VOLTAGE | 121/242 VAC, 60 Hertz only | |
| LOAD DUTY CYCLE | Continuous @ ±10% Line<br>Operable @ ±20% Line | |
| Dimensions (HxWxD) | 7 1/4" x 19" x 10 1/2" | |
| Weight | 65 lbs. | |

BASE STATION 60 Hz POWER SUPPLY

*These specifications are intended primarily for the use of the serviceman. Refer to the appropriate Specification Sheet for the complete specifications.

GENERAL ELECTRIC

# TABLE OF CONTENTS



## ILLUSTRATIONS



**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!

## DESCRIPTION

General Electric MASTR®II Station 60 Hertz Power Supplies are provided in 18 Ampere or 30 Ampere chassis models for 60 Hz, 121 VAC operation. If a 242 VAC, 60 Hz source is to be used for the station, jumper connections located on the back of the front panel of the supply must be changed. The 30 Ampere model is designed for stations with 81-128 Watts RF power output. The 18 Ampere model is designed for stations with 16-66 Watts RF power output. Refer to the following chart.

| CHASSIS (60 Hz) | POWER SUPPLY MODEL |
|---|---|
| 18 Amperes | 19E501149G2 |
| 30 Amperes | 19E501149G1 |

The input voltage is stepped down to 12 Volts by a ferroresonant transformer which provides line regulation of ±2% for a ±20% primary change. A power switch, primary and secondary fuses and two AC outlets are located on the power supply front panel. A high-current fuse for the PA supply is located on the rear panel of the power supply chassis. The rear panel hinges to provide access to the power supply components for in-rack servicing.

## CIRCUIT ANALYSIS

When the power supply ON-OFF switch S1 is in the ON position, 121 VAC is connected across the primary of power transformer T802 (on the 18 Ampere chassis) or T803 (on the 30 Ampere chassis). The power transformer is a ferroresonant type which has inherent good line regulation so that no additional high-current regulators are required (refer to Figure 1). C801 (on the 30 Ampere chassis) or C805 (on the 18 Ampere chassis) serves as a resonating capacitor across the secondary taps of the transformer. Optional supplies are available for operation from a 50 Hz source. Option 9500 provides a supply with an 18 Ampere chassis for 50 Hz operation and Option 9501 provides a supply with a 30 Ampere chassis for 50 Hz operation.

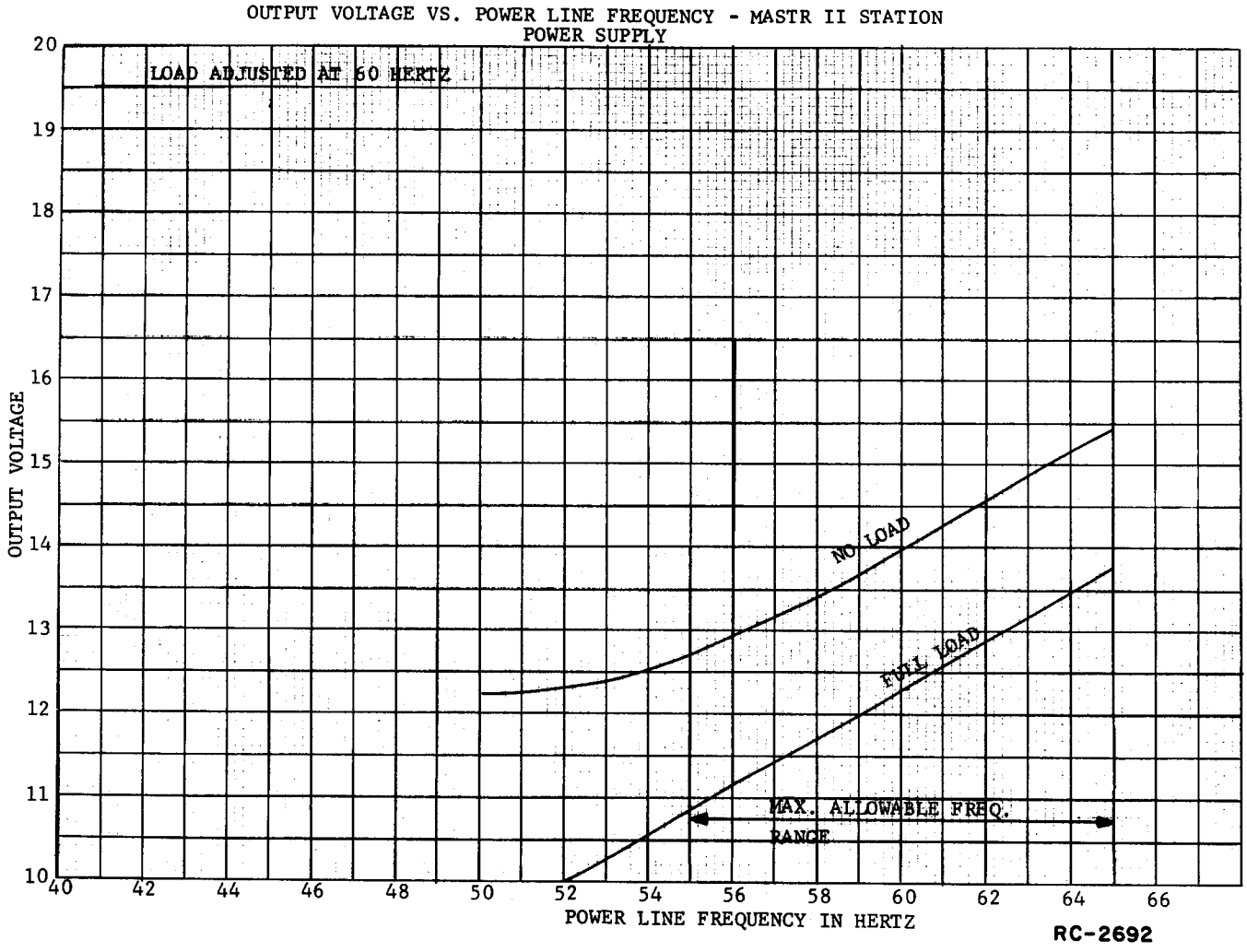



Figure 1 - Power Supply Line Regulation

The transformer steps the input voltage down to 12 Volts and this lower voltage is applied to the bridge rectifier composed of CR1, CR2 (mounted on heat sink A803) and CR801 and CR802. Connector P801 in the bridge circuit mates with the battery standby option connector P1. This option (Option 9502) mounts on the power supply rear panel.

The rectified output of the bridge is fed to the low and high current filters (see Figure 2). The high current filter consists of C802, C803 and L801 (on the 30 Ampere chassis) or L803 (on the 18 Ampere chassis). R801 serves as a bleeder for the high current supply, and the output of the filter is applied through the high current fuse (F801) to the station transmitter power amplifier. Output connections are made to terminals 2 and 3 of the high-current fuse block. The high current output is rated at 12.3 Volts, 27 Amperes.

The low current filter is composed of C802, L802 and C804. The low current supply is rated at 12 Volts, 3 Amperes and supplies the station transmitter exciter and receiver circuits. The output of the low current supply is fused by F3, located on front panel A801. External connections are made at J801. Diode CR803 helps to suppress high voltage transients in the high current supply.

The Relay Control Board uses L801/L803 as a current sensing device, with pins 1 and 4 of J2 connected across L801/L803. When the power supply load current is less than 5 amps, Q2 is biased on. With Q2 saturated Q3 is biased off, and cannot supply base current to turn on Q4. With Q4 off, no energizing current is supplied to K801 and the resonating capacitor C801/C805 is out of the circuit. This is the condition for quiet operation of the supply.

When the power supply load current is 5 amps or more, the increased voltage drop across L801/L803 is in the proper direction to turn Q2 off. Now Q3 is biased on through R4, and Q4 is biased on through Q3 and R6. With Q4 turned on K801 is energized. The capacitor C801/C805 is placed across the #9 and #10 winding of the transformer T802/T803.

At the instant Q3 turns off C2 and C6 are in a discharged condition. While they are charging up they furnish base current to keep Q4 turned on, and K801 energized, for a few seconds. This delay prevents excessive keying of the relay during fast transmit-receive exchanges.

The bridge rectifier, CR1 through CR4, is connected across the resonating capacitor C801/C805, and delivers a full wave unfiltered voltage to the divider R14 and R13. This voltage is delivered to the base of Q4 through C1 and does not allow Q4 to turn off until C801/C805 has maximum voltage across it. This action prevents the relay from opening with high current through C801/C805 and minimizes burning of the contacts.

The circuit comprised of VR3, Q5 and Q6 is for over-voltage protection and is normally inactive. It will be activated only if the power supply output voltage

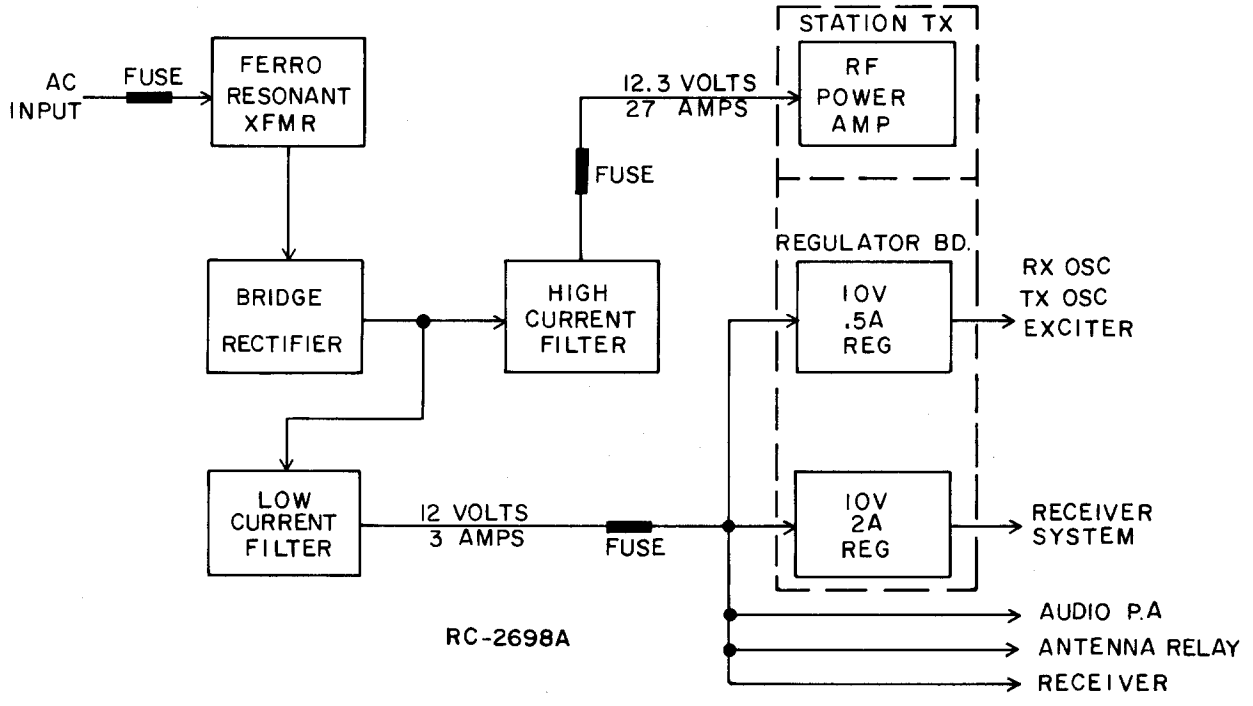



Figure 2 - Power Distribution

exceeds about 18 V. This could happen with excessive input voltage or lightning surges. When the voltage at the emitter of Q4 causes VR3 to conduct the resulting voltage at the junction of R8 and R10 will turn on Q6. The current through Q6 will turn on Q5 and Q5 will turn on Q4, thereby energizing K801. Once the circuit is activated C801/C805 will be locked into the resonating circuit and will remain in this condition until the input voltage to the supply is turned off and then on again. During this period all functions of the radio will be normal, but the power supply hum will be audible.

Zener VR1 provides stable base voltage for Q2, and Q1 provides temperature compensation for the emitter-base junction of Q2. The trip point of the circuit is adjusted by R1.

The relay trip point is normally adjusted at the factory, but if R1 becomes misadjusted it can be adequately set in the field as follows:

## ADJUSTMENT

Adjust R1 all the way CCW. Unsquelch the receiver and set the volume control for maximum volume. Adjust R1 CW until the relay is energized (listen for a click or a change in power supply hum). Adjust R1 CCW until the relay just drops out. Turn the volume down.

## POWER SUPPLY MODIFICATIONS

The power supply is modified as described below for use with a 242 VAC power source. Refer to Figure 3 for location of the following changes.

1. Remove P802 from power cable W801 and replace with the porper 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.

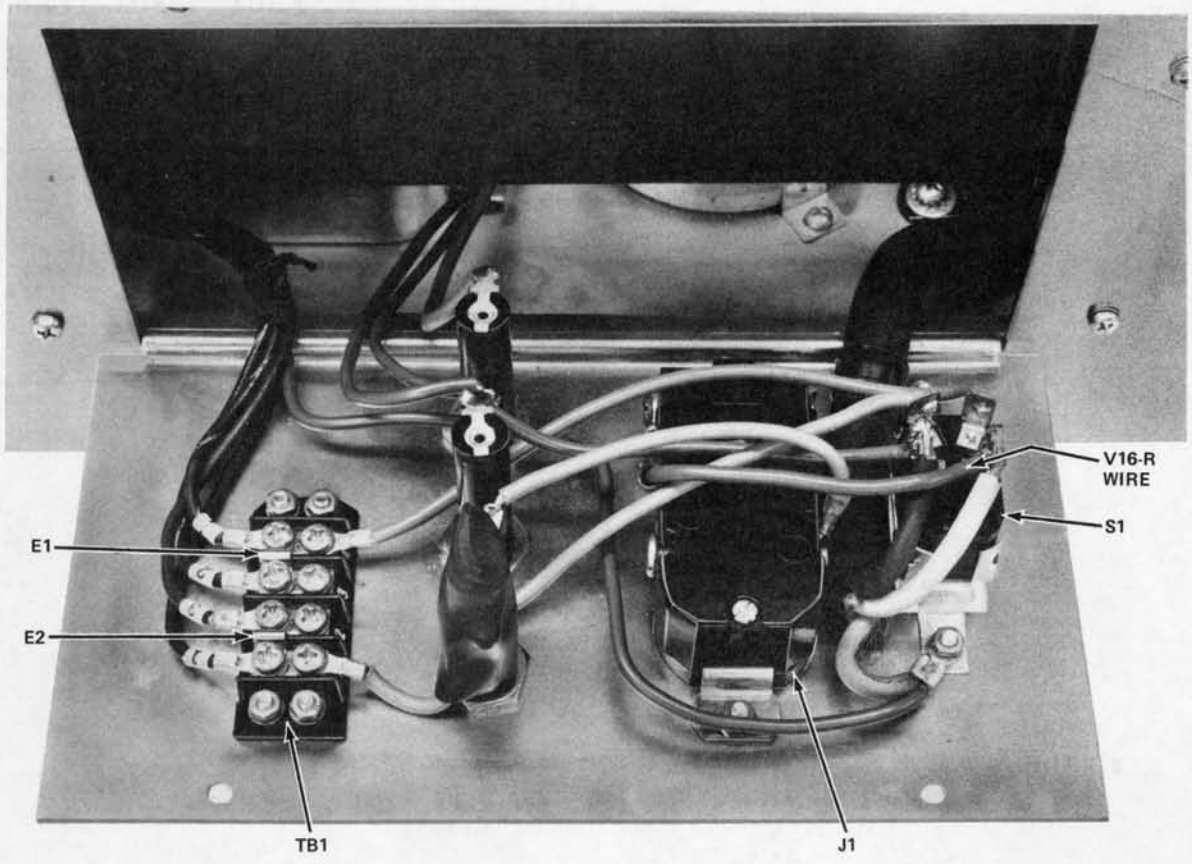
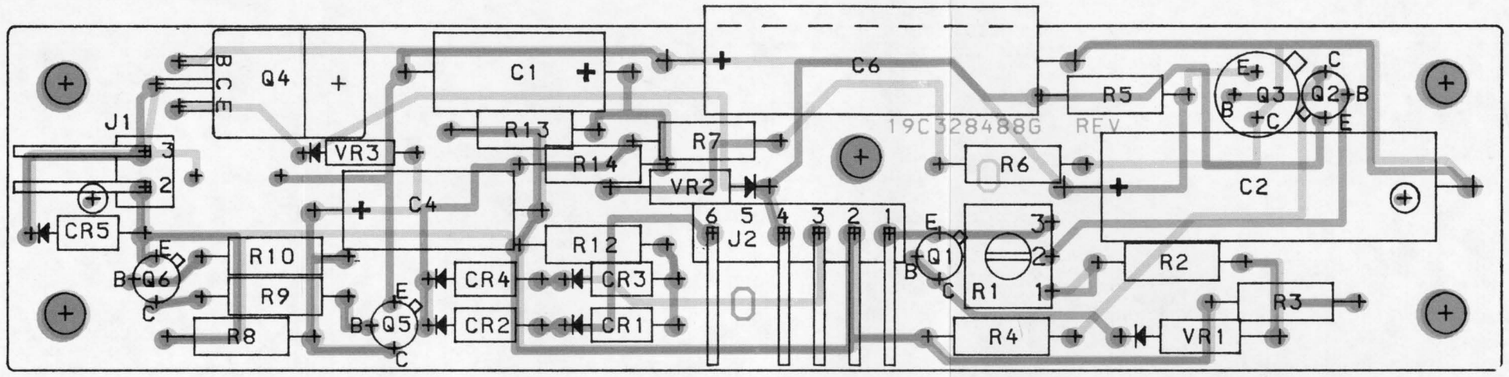



Figure 3 - Power Supply Front Panel A801 (Hinged Down)

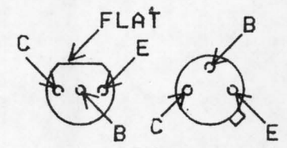
# TROUBLESHOOTING PROCEDURE

| SYMPTON | PROCEDURE |
|---|---|
| No output voltage at J801-1 and J801-5 | Check the following:<br>A1. 121 VAC on TB1-1 and TB1-4.<br>A2. Open F1 or F3.<br>A3. Open T802 (T803), S1, CR1, CR2, CR801, CR802, or L802.<br>A4. Shorted T802 (T803), C801, C802 or C804. |
| No output voltage at F801-2 & 3. | Check the following:<br>B1. Open F1, F801, L801 (L803).<br>B2. Shorted C802, C803. |
| Either output greater than 15.5 Volts. | Check the following:<br>C1. Open C801, C805, R801.<br>C2. Line Frequency. |



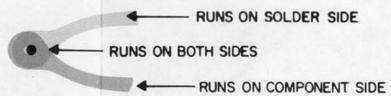

(19C328490, Rev. 0)
(19B232763, Sh. 1, Rev. 0)
(19B232763, Sh. 2, Rev. 0)

LEAD IDENTIFICATION
FOR Q1-Q6



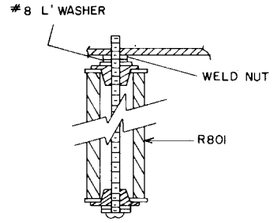

TOP VIEW

NOTE: LEAD ARRANGEMENT, AND NOT CASE SHAPE, IS DETERMINING FACTOR FOR LEAD IDENTIFICATION.

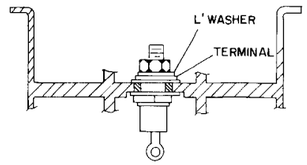



## OUTLINE DIAGRAM

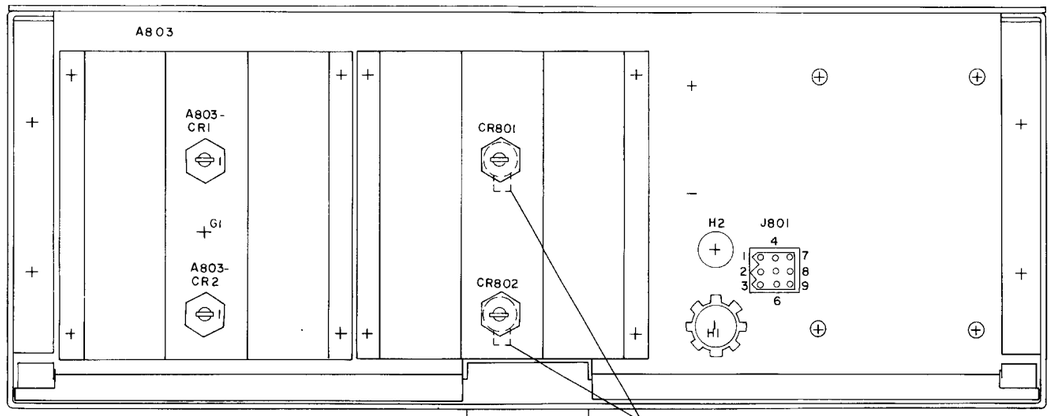
RELAY CONTROL BOARD
19C328488G1



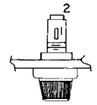

TYPICAL MOUNTING FOR R801




TYPICAL MOUNTING
FOR CR801 & CR802

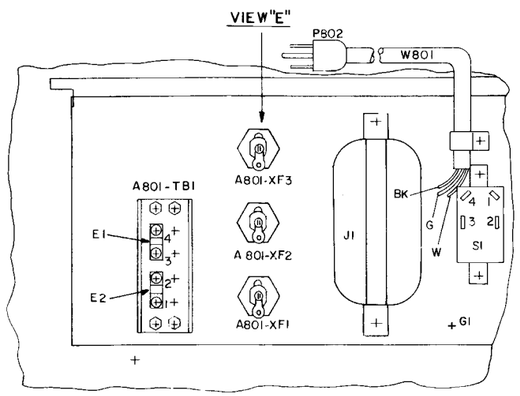



"VIEW A"

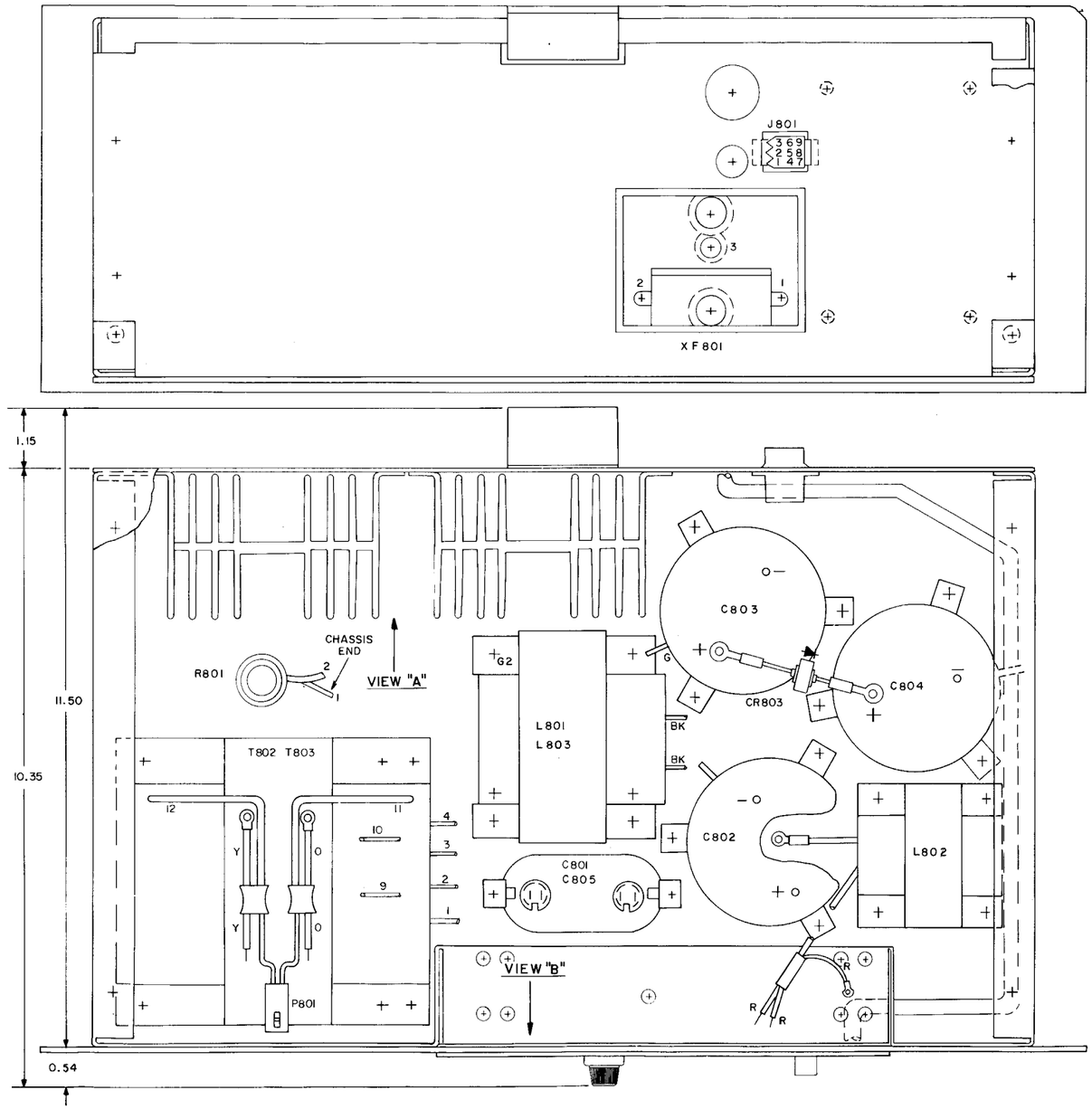



TERMINAL IDENTIFICATION
FOR A801-XF3, A801-XF2 & A801-XF1

VIEW "E"



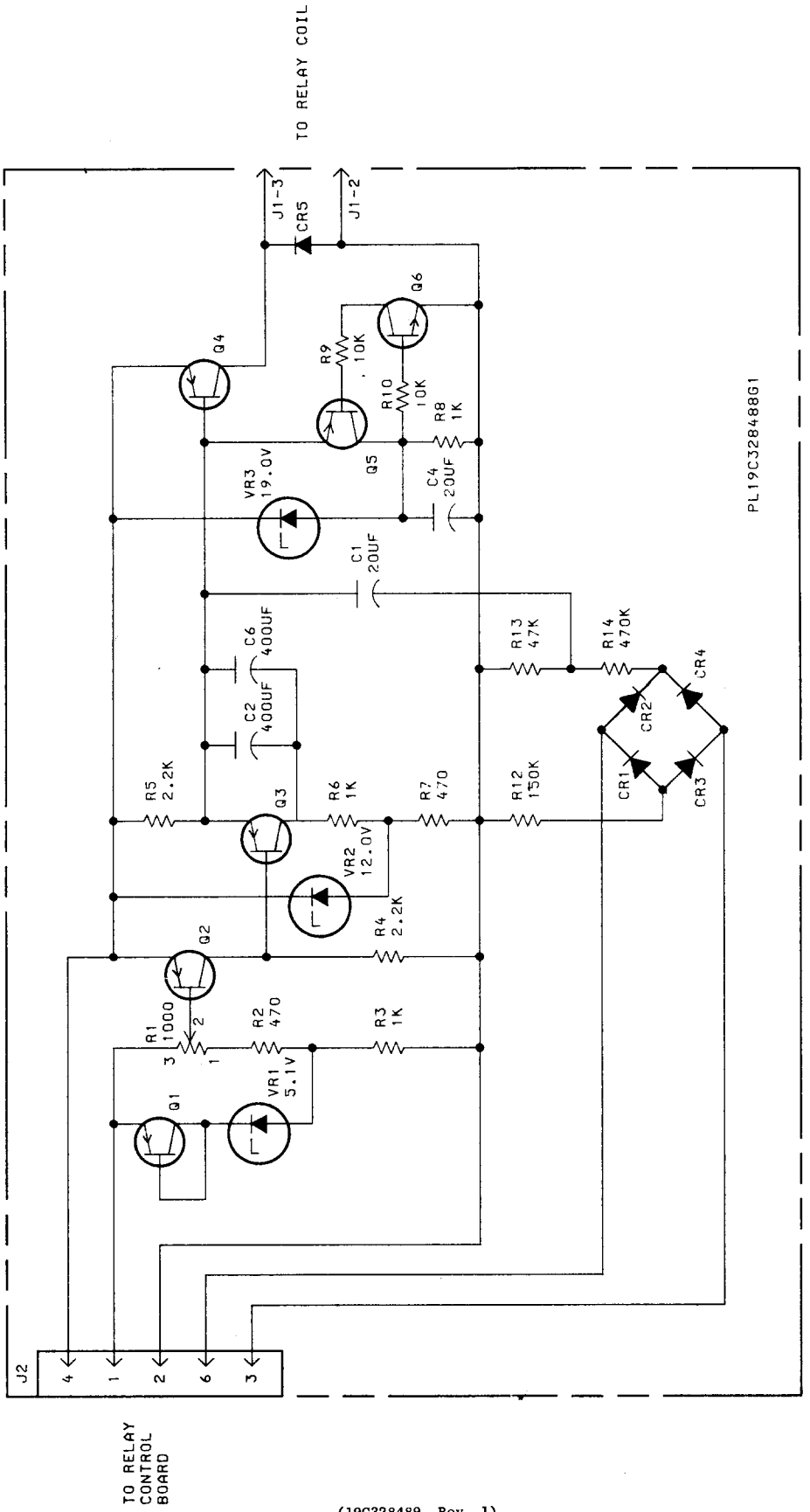

VIEW "B"




(19R622162, Rev. 3)

# OUTLINE DIAGRAM

**BASE STATION 60 Hz POWER SUPPLY**
**19E501149G1, 2, 4 and 5**




| MODEL NO | REV LETTER |
|---|---|
| PL19C328488G1 | |

ALL RESISTORS ARE 1/2 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K-1000 OHMS OR MEG-1,000,000 OHMS. CAPACITOR VALUES IN PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY UF-MICROFARADS. INDUCTANCE VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH-MILLIHENRYS OR H-HENRYS.

(19C328489, Rev. 1)

# SCHEMATIC DIAGRAM

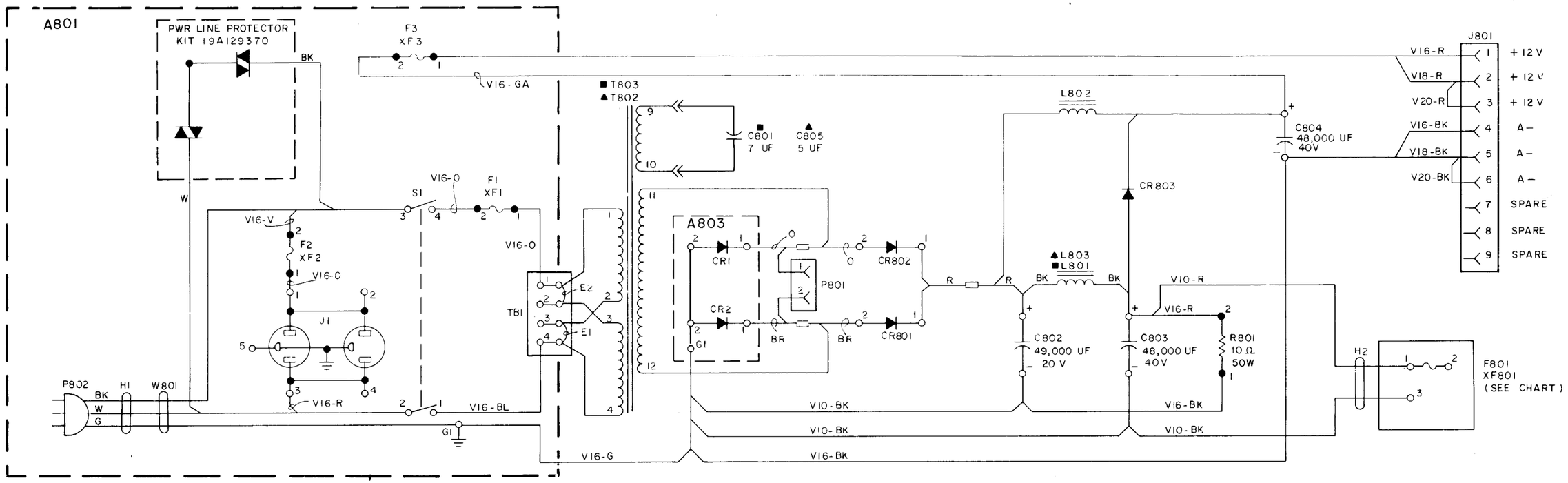
## RELAY CONTROL BOARD 19C328488G1

## PARTS LIST

RELAY CONTROL BOARD A804
19C328488G1

| SYMBOL | GE PART NO. | DESCRIPTION |
|---|---|---|
| | | - - - - - - - - - CAPACITORS - - - - - - - - - |
| C1 | 19A115680P3 | Electrolytic: 20 µf +150% -10%, 25 VDCW; sim to Mallory Type TTX. |
| C2 | 19A115680P24 | Electrolytic: 400 µf +150% -10%, 18 VDCW; sim to Mallory Type TTX. |
| C4 | 19A115680P3 | Electrolytic: 20 µf +150% -10%, 25 VDCW; sim to Mallory Type TTX. |
| C6 | 19A115680P24 | Electrolytic: 400 µf +150% -10%, 18 VDCW; sim to Mallory Type TTX. |
| | | - - - - - - - - DIODES AND RECTIFIERS - - - - - - - |
| CR1 thru CR4 | 4037822P7 | Silicon, 1000 mA, 800 PIV. |
| CR5 | 4037822P2 | Silicon, 1000 mA, 600 PIV. |
| | | - - - - - - - JACKS AND RECEPTACLES - - - - - - |
| J1 | 19A137733G2 | Connector: 2 terminals. |
| J2 | 19A137733G1 | Connector: 6 terminals. |
| | | - - - - - - - - - TRANSISTORS - - - - - - - - - |
| Q1 and Q2 | 19A115852P1 | Silicon, PNP; sim to Type 2N3906. |
| Q3 | 19A115562P2 | Silicon, PNP; sim to Type 2N2904A. |
| Q4 | 19A116375P1 | Silicon, PNP. |
| Q5 | 19A115852P1 | Silicon, PNP; sim to Type 2N3906. |
| Q6 | 19A115910P1 | Silicon, NPN; sim to Type 2N3904. |
| | | - - - - - - - - - - RESISTORS - - - - - - - - - |
| R1 | 19A116559P101 | Variable, cermet: 1K ohms ±20%, .5 w; sim to CTS Series 360. |
| R2 | 3R77P471J | Composition: 470 ohms ±5%, 1/2 w. |
| R3 | 3R77P102J | Composition: 1K ohms ±5%, 1/2 w. |
| R4 and R5 | 3R77P222J | Composition: 2.2K ohms ±5%, 1/2 w. |
| R6 | 3R77P102J | Composition: 1K ohms ±5%, 1/2 w. |
| R7 | 3R77P471J | Composition: 470 ohms ±5%, 1/2 w. |
| R8 | 3R77P102J | Composition: 1K ohms ±5%, 1/2 w. |
| R9 and R10 | 3R77P103J | Composition: 10K ohms ±5%, 1/2 w. |
| R12 | 3R77P154J | Composition: 150K ohms ±5%, 1/2 w. |
| R13 | 3R77P473J | Composition: 47K ohms ±5%, 1/2 w. |
| R14 | 3R77P474J | Composition: 470K ohms ±5%, 1/2 w. |
| | | - - - - - - - VOLTAGE REGULATORS - - - - - - - - |
| VR1 | 19A116325P16 | Zener: 5 w, 5.1 v. nominal. |
| VR2 | 19A116325P4 | Zener: 5 w, 12 v. nominal. |
| VR3 | 4036887P16 | Zener: 500 mW, 19 v. nominal. |
| | | - - - - - - - - - MISCELLANEOUS - - - - - - - - - |
| | 4036555P1 | Insulator, washer: nylon. (Used with Q3). |

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES




| FUSE APPLICATION CHART (F801) | | |
|---|---|---|
| BAND | POWER | FUSE |
| LOW | 50 W | 15 A |
| LOW | 70 W | 20A |
| LOW | 100 W | 30A |
| HIGH | 35 W | 15 A |
| HIGH | 65 W | 20A |
| HIGH | 110 W | 30A |
| 450 | 20 W | 10A |
| 450 | 40W | 15A |
| 450 | 75W | 20A |
| 450 | 100W | 30A |

SEE APPLICABLE PRODUCTION CHANGE SHEETS IN INSTRUCTION BOOK SECTION DEALING WITH THIS UNIT, FOR DESCRIPTION OF CHANGES UNDER EACH REVISION LETTER

THIS ELEM DIAG APPLIES TO

| MODEL NO | REV LETTER |
|---|---|
| PLI9E501149G1 | A |
| PLI9E501149G2 | A |

IN ORDER TO RETAIN RATED EQUIPMENT PERFORMANCE, REPLACEMENT OF ANY SERVICE PART SHOULD BE MADE ONLY WITH A COMPONENT HAVING THE SPECIFICATIONS SHOWN ON THE PARTS LIST FOR THAT PART.

■ DENOTES GROUP 1 ONLY
▲ DENOTES GROUP 2 ONLY

POWER SUPPLY IS WIRED FOR 121 VAC, 60HZ OPERATION. FOR 242 VAC, 60HZ OPERATION REMOVE P802. 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 A801-TB1-4. ADD JUMPERS (E1 & E2) BETWEEN A801-TB1-2 AND A801-TB1-3

CHANGES TO THIS DRAWING MAY AFFECT WIRING DIAGRAM 19D417229, & 19D429778

(19D423217, Rev. 6)

DF-0072

# SCHEMATIC DIAGRAM

## BASE STATION 60 Hz POWER SUPPLY 19E501149G1 & G2

Issue 6

## PARTS LIST

LBI4892C

MASTR II STATION POWER SUPPLY
19E501149G1 30 AMP 60 Hz
19E501149G2 18 AMP 60 Hz

| SYMBOL | GE PART NO. | DESCRIPTION |
|---|---|---|
| A801 | | 60 Hz POWER SUPPLY 19C320779G1 |
| | | - - - - - - - - - - - - FUSES - - - - - - - - - - - |
| F1 and F2 | 7484390P4 | Quick blowing: 8 amp 250 v; sim to Littelfuse 314008 or Bussmann ABC-8. |
| F3 | 1R16P8 | Quick blowing: 5 amps at 250 v; sim to Littelfuse 312005 or Bussmann MTH-5. |
| | | - - - - - - - - JACKS AND RECEPTACLES - - - - - - - |
| J1 | 19B209395P1 | Receptacle, power: 3 wire grounding type, 15 amps at 125 v; sim to Circle F Mfg. 1517-2. |
| | | - - - - - - - - - - - SWITCHES - - - - - - - - - - - |
| S1 | 19B209498P1 | Push: DPST, 20 amps and 220 VRMS; sim to McGill 0811-0188. |
| | | - - - - - - - - - - TERMINAL BOARDS - - - - - - - - |
| TB1 | 19C301087P2 | Phen: 4 terminals; sim to GE CR151D. |
| | | - - - - - - - - - - - - SOCKETS - - - - - - - - - - |
| XF1 thru XF3 | 4037402P2 | Fuseholder: 15 amps at 250 v; sim to Littelfuse 342001. |
| A803 | | HEAT SINK 19C320836G1 |
| | | - - - - - - - - DIODES AND RECTIFIERS - - - - - - - |
| CR1 and CR2 | 19A116524P2 | Silicon: sim to Type N2158R, includes N210P20C6 nut. |
| | | - - - - - - - - - - - CAPACITORS - - - - - - - - - - |
| C801 | 19A134574P2 | Quick disconnect: 7 µf ±6%, 660 VDCW; sim to GE26F6624FB. (Used in G1 only). |
| C802 | 19A134033P1 | Electrolytic: 49,000 µf +50% -10%, 20 VDCW; sim to GE 92F180AMA. |
| C803 and C804 | 5496520P19 | Electrolytic: 48,000 µf +100% -10%, 40 VDCW; sim to GE Type 86F561M. |
| C805 | 19A134574P1 | Quick disconnect: 5 µf ±6%, 660 VDCW; sim to GE26F6622FB. (Used in G2 only). |
| | | - - - - - - - - DIODES AND RECTIFIERS - - - - - - - |
| CR801 and CR802 | 19A116524P2 | Silicon: sim to Type 1N2158R, includes N210P20C6 nut. |
| CR803 | 19B226282G2 | Rectifier, silicon. |
| | | - - - - - - - - - - - FUSES - - - - - - - - - - - |
| F801 | | (See Fuse Kit 19B216021). |
| | | - - - - - - - - - JACKS AND RECEPTACLES - - - - - - - |
| J801 | 19B209288P3 | Receptacle: 9 cavities; sim to Molex Products 1292R. |
| | | - - - - - - - - - - - INDUCTORS - - - - - - - - - - |
| L801 | 19B209497P1 | Reactor: 1 mh ind. min at 27 amps, 0.010 ohms DC res max. (Used in G1 only). |
| L802 | 19B226151G1 | Reactor: 10 mh ind min, 2.50 amps, 0.100 ohms DC res max. |
| L803 | 19B209496P1 | Reactor: 1 mh ind min at 15 amps, 0.010 ohms DC res max. (Used in G2 only). |
| | | - - - - - - - - - - - RESISTORS - - - - - - - - - - |
| R801 | 2R17P21 | Wirewound: 10 ohms ±5%, 50 w; sim to Ward Leonard K41389-1. |
| | | - - - - - - - - - - - TRANSFORMERS - - - - - - - - - |
| T802 | 19C320835G2 | Transformer, power: Pri input: 121/242 VRMS ±20%, 60 Hz, Sec A output: 3.0 amp, Sec B output: 12.3 VDC at 15.0 amp. (Includes P801). (Used in G2 only). |
| T803 | 19C320835G1 | Transformer, power: Pri input: 121/242 VRMS ±20%, 60 Hz, Sec A output: 3.0 amp, Sec B output: 12.3 VDC at 27.0 amp. (Includes P801). (Used in G1 only). |
| | | - - - - - - - - - - - CABLES - - - - - - - - - - |
| W801 | 5490059P6 | Cable, RF: 3 conductor, approx 10 feet long. (Includes P802). |
| | | - - - - - - - - - - - SOCKETS - - - - - - - - - - |
| XF801 | 19B216021G7 | Fuse Holder. (Includes 19D413045P1 base, (2) 19B205950P1 chips, (2) N117P15036C13 tap screws. |
| | | - - - - - - - - - - MISCELLANEOUS - - - - - - - - |
| | 19B226097G2 | Cover. (A801). |
| | 19B226005P1 | Heat sink. (Used with A803). |
| | 19A115275P2 | Insulator, disc. (Used with CR1, CR2 on A803). |
| | | FUSE KIT 19B216021G8 15 AMP 19B216021G9 20 AMP 19B216021G10 30 AMP 19B216021G11 10 AMP |
| | | - - - - - - - - - - - FUSES - - - - - - - - - - - |
| F801 | 1R11P4 | Quick blowing: 15 amps, 250 v; sim to Bussmann NON15. (Used in G8). |
| | 1R11P5 | Quick blowing: 20 amps, 250 v; sim to Bussmann NON20. (Used in G9). |
| | 1R11P7 | Quick blowing: 30 amps, 250 v; sim to Bussmann NON30. (Used in G10). |
| | 1R11P3 | Quick blowing: 10 amps, 250 v; sim to Bussmann NON10. (Used in G11). |
| | 19D413046P1 | Cover. |

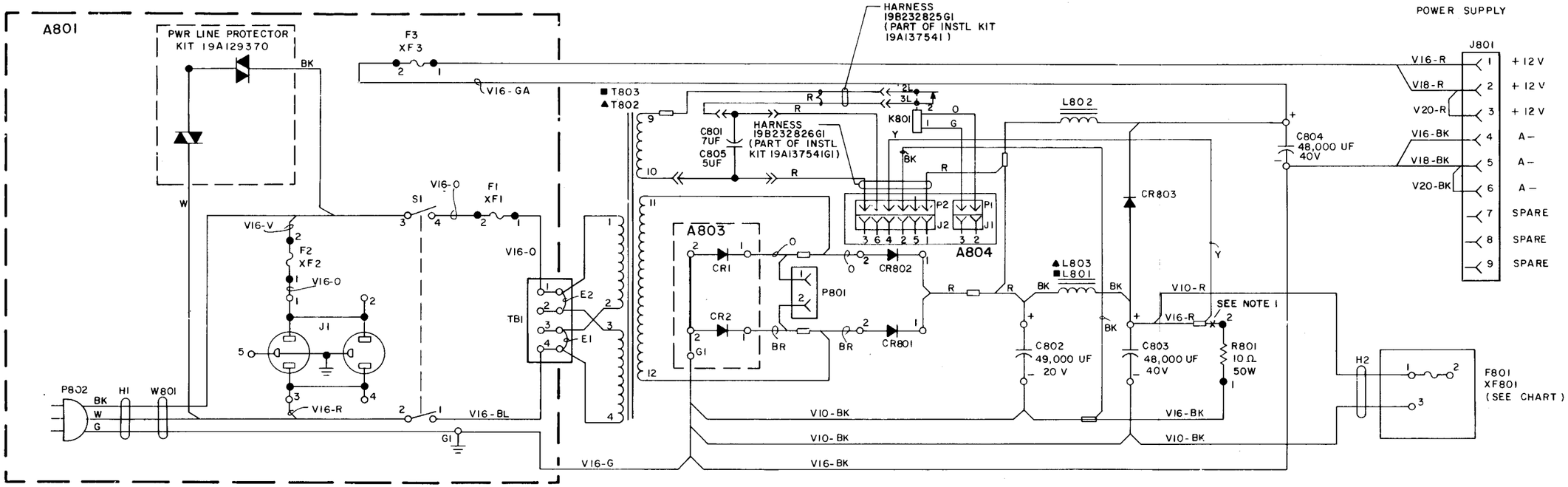
*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

## PRODUCTION CHANGES

Changes in the equipment to improve performance or to simplify circuits are identified by a "Revision Letter," which is stamped after the model number of the unit. The revision stamped on the unit includes all previous revisions. Refer to the Parts List for descriptions of parts affected by these revisions.

19E501149G1 & G2

REV. A - For hum suppression. Added Groups 4 & 5.




| FUSE APPLICATION CHART (F801) | | |
|---|---|---|
| BAND | POWER | FUSE |
| LOW | 50 W | 15 A |
| LOW | 70 W | 20A |
| LOW | 100 W | 30 A |
| HIGH | 35 W | 15 A |
| HIGH | 65 W | 20A |
| HIGH | 110 W | 30A |
| 450 | 20 W | 10A |
| 450 | 40W | 15A |
| 450 | 75W | 20A |
| 450 | 100W | 30A |

| THIS ELEM DIAG APPLIES TO | |
|---|---|
| MODEL NO | REV LETTER |
| PL19E501149G4 | |
| PL19E501149G5 | |

■ DENOTES GROUP 4 ONLY
▲ DENOTES GROUP 5 ONLY

POWER SUPPLY IS WIRED FOR 121 VAC 60HZ OPERATION. FOR 242 VAC 60HZ OPERATION: REMOVE P802. 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 A801-TB1-4. ADD JUMPERS (E1 & E2) BETWEEN A801-TB1-2 AND A801-TB1-3

CHANGES TO THIS DRAWING MAY AFFECT WIRING DIAGRAM 19D417229, 19D429778, & 19D429857

NOTES:
1. CONNECTION BROKEN IN GROUP 5 (18 AMP SUPPLY)

(19D429856, Rev. 0)

# SCHEMATIC DIAGRAM

## BASE STATION 60 Hz POWER SUPPLY 19E501149G4 & G5

Issue 1

## PARTS LIST

MASTR II STATION POWER SUPPLY
19E501149G4 30 AMP 60 Hz WITH HUM SUPPRESSION
19E501149G5 18 AMP 60 Hz WITH HUM SUPPRESSION

| SYMBOL | GE PART NO. | DESCRIPTION |
|---|---|---|
| A801 | | 60 Hz POWER SUPPLY 19C320779G1 |
| | | - - - - - - - - - - - FUSES - - - - - - - - - - |
| F1 and F2 | 7484390P4 | Quick blowing: 8 amp 250 v; sim to Littelfuse 314008 or Bussmann ABC-8. |
| F3 | 1R16P8 | Quick blowing: 5 amps at 250 v; sim to Littelfuse 312005 or Bussmann MTH-5. |
| | | - - - - - - - JACKS AND RECEPTACLES - - - - - - |
| J1 | 19B209395P1 | Receptacle, power: 3 wire grounding type, 15 amps at 125 v; sim to Circle F Mfg. 1517 or GE 5242-1. |
| | | - - - - - - - - - - SWITCHES - - - - - - - - - - |
| S1 | 19B209498P1 | Push: DPST, 20 amps and 220 VRMS; sim to McGill 0811-0188. |
| | | - - - - - - - - - TERMINAL BOARDS - - - - - - - |
| TB1 | 19C301087P2 | Phen: 4 terminals; sim to GE CR151D. |
| | | - - - - - - - - - - - SOCKETS - - - - - - - - - |
| XF1 thru XF3 | 4037402P2 | Fuseholder: 15 amps at 250 v; sim to Littelfuse 342001. |
| A803 | | HEAT SINK 19C320836G1 |
| | | - - - - - - - DIODES AND RECTIFIERS - - - - - - |
| CR1 and CR2 | 19A116524P2 | Silicon: sim to Type N2158R, includes N210P20C6 nut. |
| A804 | 19C328488G1 | Control Board. (Refer to Parts List 19C328488G1). |
| | | - - - - - - - - - - CAPACITORS - - - - - - - - - |
| C801 | 19A134574P2 | Quick disconnect: 7 µf ±6%, 660 VDCW; sim to GE26F6624FB. (Used in G4 only). |
| C802 | 19A134033P1 | Electrolytic: 49,000 µf +50% -10%, 20 VDCW; sim to GE 92F180AMA. |
| C803 and C804 | 5496520P19 | Electrolytic: 48,000 µf +100% -10%, 40 VDCW; sim to GE Type 86F561M. |
| C805 | 19A134574P1 | Quick disconnect: 5 µf ±6%, 660 VDCW; sim to GE26F6622FB. (Used in G5 only). |
| | | - - - - - - - DIODES AND RECTIFIERS - - - - - - |
| CR801 and CR802 | 19A116524P2 | Silicon: sim to Type 1N2158R, includes N210P20C6 nut. |
| CR803 | 19B226282G2 | Rectifier, silicon. |
| | | - - - - - - - - - - - FUSES - - - - - - - - - - |
| F801 | | (See Fuse Kit 19B216021). |
| | | - - - - - - - - JACKS AND RECEPTACLES - - - - - - |
| J801 | 19B209288P3 | Receptacle: 9 cavities; sim to Molex Products 1292R. |
| | | - - - - - - - - - - RELAYS - - - - - - - - - - - |
| K801 | 19B232626G1 | Relay, open: 80 ohms ±10% coil res, 12.6 VDC nominal, 1 form A, 1 form C, 15 amps at 28 VDC; sim to Magnecraft 22RX134A. |
| | | - - - - - - - - - - INDUCTORS - - - - - - - - - |
| L801 | 19B209497P1 | Reactor: 1 mh ind. min at 27 amps, 0.010 ohms DC res max. (Used in G4 only). |
| L802 | 19B226151G1 | Reactor: 10 mh ind min, 2.50 amps, 0.100 ohms DC res max. |
| L803 | 19B209496P1 | Reactor: 1 mh ind min at 15 amps, 0.010 ohms DC res max. (Used in G5 only). |
| | | - - - - - - - - - - RESISTORS - - - - - - - - - |
| R801 | 2R17P21 | Wirewound: 10 ohms ±5%, 50 w; sim to Ward Leonard K41389-1. |
| | | - - - - - - - - - - TRANSFORMERS - - - - - - - - |
| T802 | 19C320835G2 | Transformer, power: Pri input: 121/242 VRMS ±20%, 60 Hz, Sec A output: 3.0 amp, Sec B output: 12.3 VDC at 15.0 amp. (Includes P801). (Used in G5 only). |
| T803 | 19C320835G1 | Transformer, power: Pri input: 121/242 VRMS ±20%, 60 Hz, Sec A output: 3.0 amp, Sec B output: 12.3 VDC at 27.0 amp. (Includes P801). (Used in G4 only). |
| | | - - - - - - - - - - CABLES - - - - - - - - - |
| W801 | 5490059P6 | Cable, RF: 3 conductor, approx 10 feet long. (Includes P802). |
| | | - - - - - - - - - - SOCKETS - - - - - - - - - |
| XF801 | 19B216021G7 | Fuse Holder. (Includes 19D413045P1 base, (2) 19B205950P1 chips, (2) N117P15006C13 tap screws. |
| | | - - - - - - - - - - MISCELLANEOUS - - - - - - - |
| | 19B226097G2 | Cover. (A801). |
| | 19B226005P1 | Heat sink. (Used with A803). |
| | 19A115275P2 | Insulator, disc. (Used with CR1, CR2 on A803). |
| | | FUSE KIT 19B216021G8 15 AMP 19B216021G9 20 AMP 19B216021G10 30 AMP 19B216021G11 10 AMP |
| | | - - - - - - - - - - - FUSES - - - - - - - - - - |
| F801 | 1R11P4 | Quick blowing: 15 amps, 250 v; sim to Bussmann NON15. (Used in G8). |
| | 1R11P5 | Quick blowing: 20 amps, 250 v; sim to Bussmann NON20. (Used in G9). |
| | 1R11P7 | Quick blowing: 30 amps, 250 v; sim to Bussmann NON30. (Used in G10). |
| | 1R11P3 | Quick blowing: 10 amps, 250 v; sim to Bussmann NON10. (Used in G11). |
| | 19D413046P1 | Cover. |

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

SAME AS PART I AND CHANGE MARKING
FROM: 19E501149G1 TO: 19E501149G4 WITH CORRECT REV LETTER

SAME AS PART I AND CHANGE MARKING
FROM: 19E501149G2 TO: 19E501149G5 WITH CORRECT REV LETTER

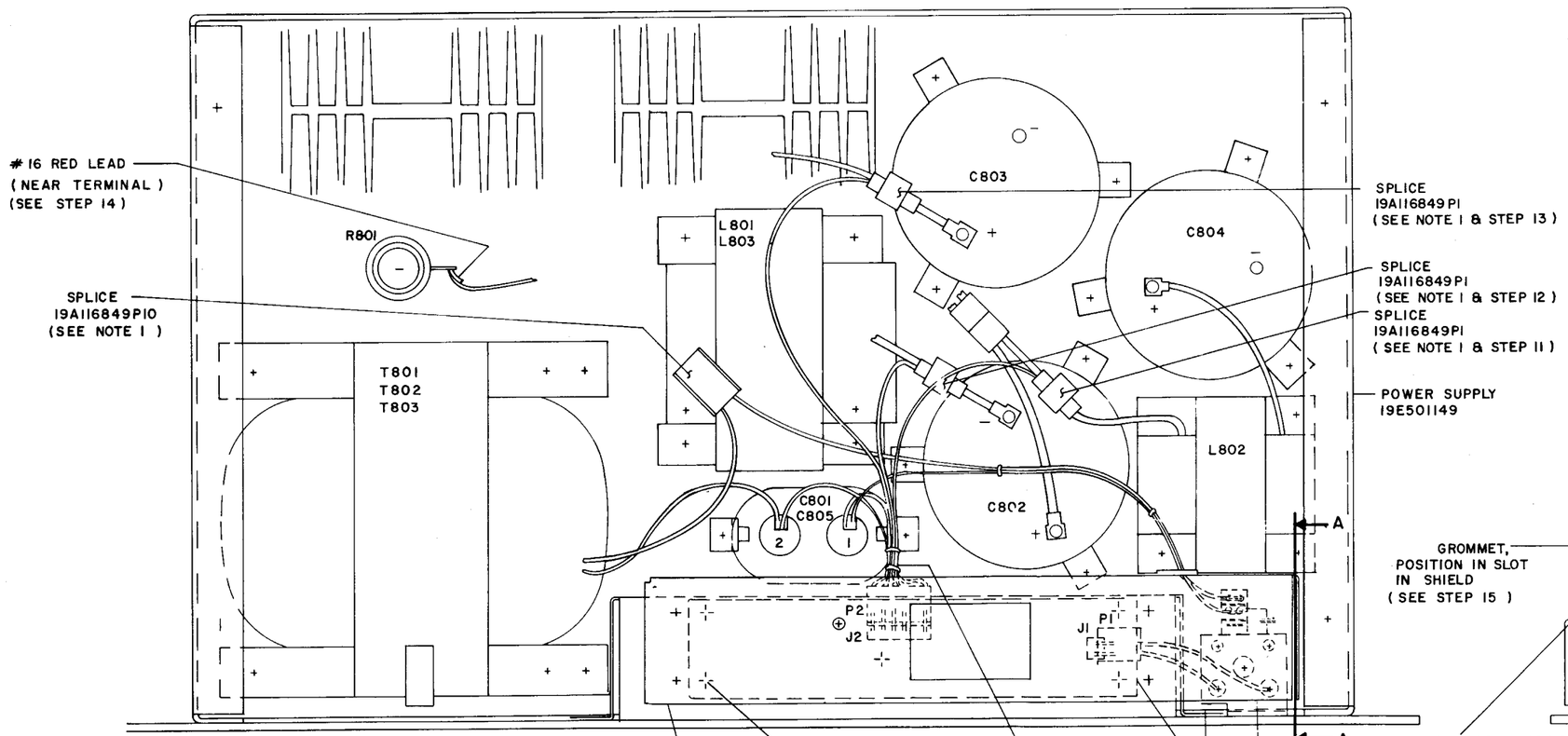
SAME AS PART I AND CHANGE MARKING
FROM: 19E501149G3 TO: 19E501149G6 WITH CORRECT REV LETTER

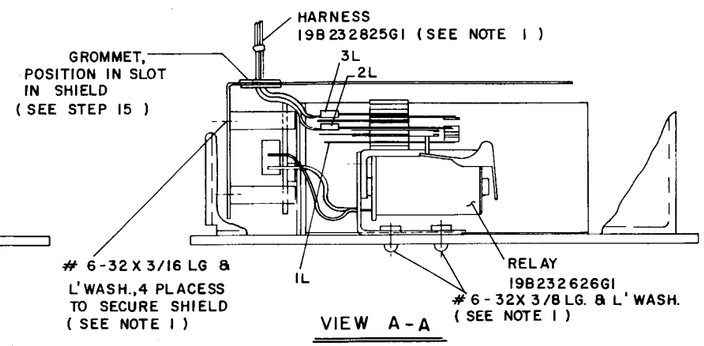
THESE INSTRUCTIONS COVER THE INSTALLATION OF THE HUM SUPPRESSION MODIFICATION IN THE 19E501149 POWER SUPPLY. THE FOLLOWING ITEMS ARE USED:

19C328488G1 RELAY CONTROL BD
19B232828G1 SHIELD
19B232626G1 RELAY
19A137541G1 INSTALLATION KIT

INSTRUCTIONS:

1. DISCONNECT POWER & DISCHARGE C801/C805 BY REMOVING INSULATING CAPS & SHORTING TERMINALS TOGETHER.
2. CONNECT ONE RED WIRE OF HARNESS 19B232825G1 TO TERMINAL 3L OF RELAY 19B232626G1. CONNECT THE OTHER RED WIRE TO TERMINAL 2L OF THE RELAY (SEE VIEW A-A).
3. MOUNT RELAY TO POWER SUPPLY FRONT PANEL USING 2 #6-32 X 3/8 SCREWS & L'WASHERS AS SHOWN.
4. MOUNT RELAY CONTROL BOARD IN POWER SUPPLY USING 5 #6-32 X 3/16 SCREWS AS SHOWN.
5. CONNECT P1 FROM RELAY TO J1 ON RELAY CONTROL BOARD.
6. DISCONNECT LEAD FROM T801/T802/T803 AT C801/C805 TERMINAL 1. CUT TERMINAL OFF TRANSFORMER LEAD LEAVING MAXIMUM LEAD LENGTH. REMOVE INSULATING CAP FROM LEAD AND SPLICE THIS LEAD TO UNTERMINATED LEAD OF 19B232825G1 HARNESS USING 19A116849P10 SPLICE.
7. FEED REMAINING LEAD OF 19B232825G1 HARNESS THRU INSULATING CAP REMOVED IN STEP 6 & CONNECT TO C801/C805 TERMINAL 1.
8. CONNECT P2 OF 19B232826G1 HARNESS TO J2 ON RELAY CONTROL BOARD.
9. FEED ONE TERMINATED RED LEAD OF 19B232826G1 HARNESS THRU INSULATING CAP & CONNECT TO C801/C805 TERMINAL 1. REPLACE INSULATING CAP.
10. FEED THE OTHER TERMINATED RED LEAD OF 19B232826G1 HARNESS THRU THE OTHER INSULATING CAP & CONNECT TO C801/C805 TERMINAL 2. REPLACE INSULATING CAP.
11. CONNECT THE UNTERMINATED RED LEAD OF 19B232826G1 HARNESS TO THE L802 LEAD GOING TO C802 +. USE 19A116849P1, SPLICE & LOCATE AS SHOWN.
12. CONNECT THE UNTERMINATED BLACK LEAD OF 19B232826G1 HARNESS TO THE #16 BLACK WIRE ON C802 -. USE 19A116849P1, SPLICE & LOCATE AS SHOWN.
13. CONNECT THE UNTERMINATED YELLOW LEAD OF 19B232826G1 HARNESS TO THE #16 RED WIRE ON C803 +. USE 19A116849P1, SPLICE & LOCATE AS SHOWN.
14. ON 19E501149G2 SUPPLIES, CLIP THE #16 RED WIRE AT R801 & TAPE THE END.
15. INSTALL THE 19B232828G1 SHIELD USING 4 #6-32 X 3/16 SCREWS & L'WASHER. DRESS 19B232825G1 HARNESS SO THAT GROMMET ON HARNESS IS POSITIONED IN SLOT OF SHIELD.



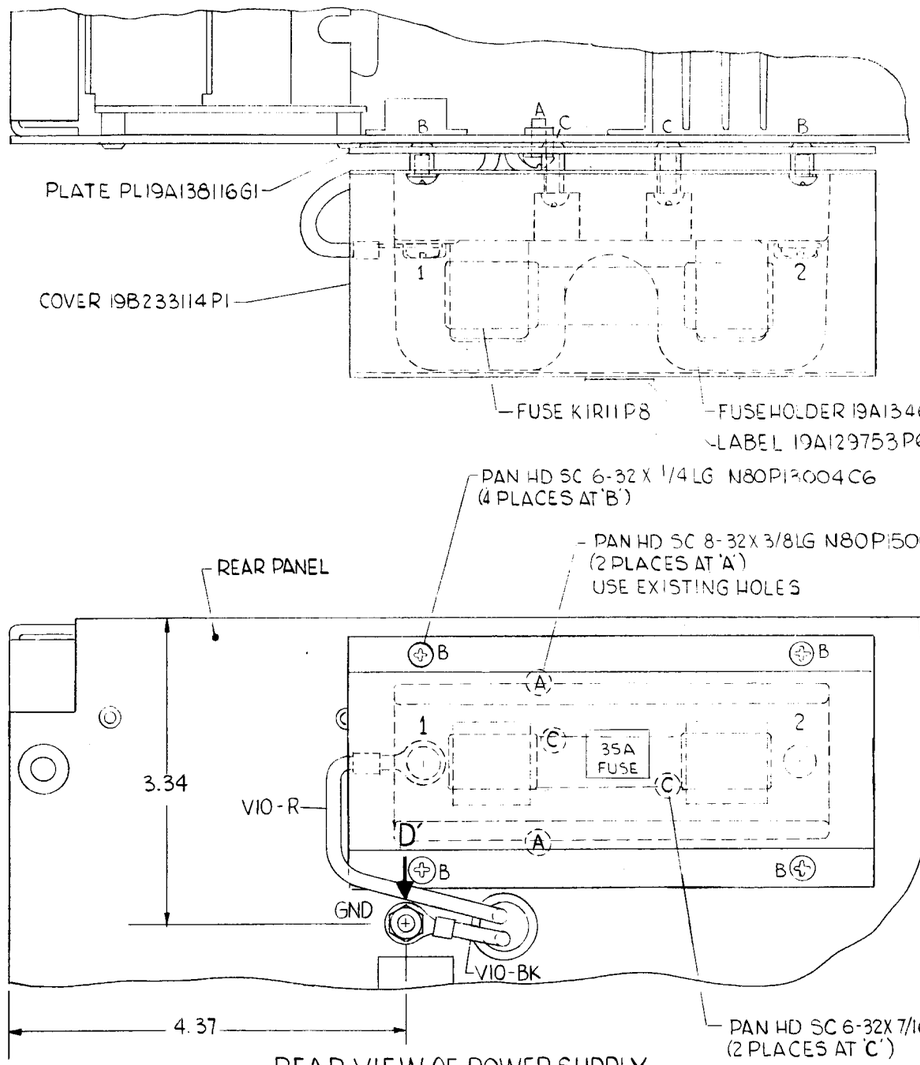




NOTES:
1. PART OF INSTALLATION KIT 19A137541G1

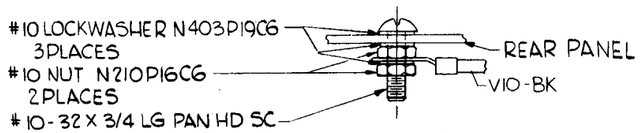
(19D429724, Rev. 1)

# INSTALLATION INSTRUCTIONS

## FOR HUM SUPPRESSION OF 19E501149 POWER SUPPLIES




REAR VIEW OF POWER SUPPLY




VIEW 'D'

GROUND CONNECTION

THESE INSTRUCTIONS COVER THE INSTALLATION OF MODIFICATION KIT PL19A138144G1 FOR THE MODIFICATION OF THE POWER SUPPLY PL19E501149G1 & G4 TO REPLACE POWER FUSE AND FUSEHOLDER.

INSTRUCTIONS:

1. REMOVE EXISTING FUSE AND FUSEHOLDER AND DISCARD.
2. DRILL A .204 DIA. HOLE IN REAR PANEL TO APPROXIMATE DIMENSIONS AS SHOWN. ASSEMBLE SCREW, LOCKWASHERS & NUT AS SHOWN IN VIEW-D.
3. ASSEMBLE PLATE TO EXISTING MOUNTING HOLES AT 'A' LOCATIONS USING (2) 8-32 X 3/8 LONG SCREWS AND LOCKWASHERS.
4. ASSEMBLE FUSEHOLDER TO PLATE USING (2) 6-32 X 7/16 LONG SCREWS AT 'C' LOCATIONS.
5. CONNECT THE RED LEAD FROM THE TRANSMITTER P.A. TO TERMINAL 1 ON THE FUSE BLOCK. CONNECT THE BLACK LEAD FROM THE TRANSMITTER P.A. TO THE GND STUD ON THE BACK PANEL AS SHOWN IN VIEW-D.
6. MOUNT COVER TO PLATE WITH (4) 6-32 X 1/4 LONG SCREWS AT 'B' LOCATIONS.
7. ATTACH LABEL TO COVER AS SHOWN.

## PARTS LIST

FIELD FUSE MODIFICATION KIT
19A138144G1

| SYMBOL | GE PART NO. | DESCRIPTION |
|---|---|---|
| | 19A134675P1 | Fuseholder: sim to Bussman 1B0013. |
| | 1R11P8 | Fuse, quick blowing: sim to Bussman NON35. |
| | 19A129753P6 | Label. (35A FUSE). |
| | 19B233114P1 | Fuse cover. |
| | 19A138116G1 | Plate. (Mounts fuseholder assembly). |
| | N80P13004C6 | Pan head screw: No. 6-32 x 1/4. (Secures fuse cover to plate). |
| | N80P15006C6 | Pan head screw: No. 8-32 x 3/8. (Secures plate to mounting surface). |
| | N403P16C6 | Lockwasher, external tooth: No. 8. (Secures plate to mounting surface). |
| | N80P13007C6 | Pan head screw: No. 6-32 x 7/16. (Secures fuseholder to plate). |
| | N404P13C6 | Lockwasher, internal tooth: No. 6. (Secures fuseholder to plate). |
| | N80P16012C6 | Pan head screw: No. 10-32 x 3/4. (Part of ground connection). |
| | N210P16C6 | Hex nut: No. 10-32. (Part of ground connection-Quantity 2). |
| | N403P19C6 | Lockwasher: No. 10. (Part of ground connection-Quantity 3). |

(19C328871, Rev. 0)

# FIELD MODIFICATION

**FUSE & FUSEHOLDER 19A138144G1**