LBI-30867F

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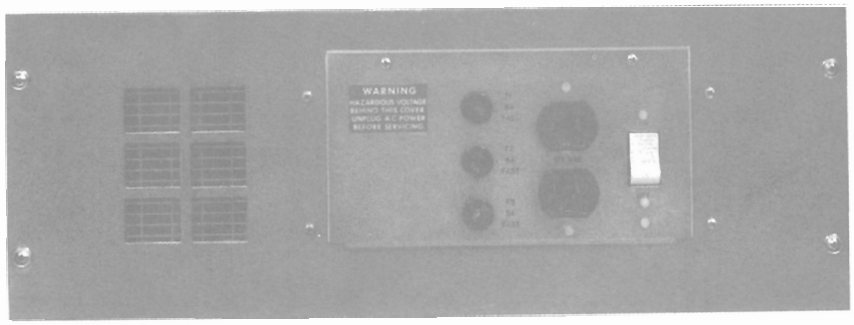
Mobile Communications



MASTR® II

BASE STATION 60 Hz POWER SUPPLY
19D430272G1, G2, G4 & G5
(HUM SUPPRESSION OPTIONS 9647-9650)

Maintenance Manual

TABLE OF CONTENTS

SPECIFICATIONS*

OUTPUT VOLTAGE	
Transmitter Supply	13.4 Vdc @ 18/27 Amperes
Receiver Supply	13.4 Vdc @ 3 Amperes
INPUT VOLTAGE	121/242 Vac, 60 Hz
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.

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

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

The 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 used for low band 100 Watt, high band 110 Watt, UHF-75 Watt and UHF-100 Watt Stations. The 18 ampere model is used for all other power levels and frequency bands.

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. 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, the input voltage is connected across the primary of power transformer T801 (T802 in 18 Ampere chassis). The power transformer is a ferroresonant type which has inherent good line regulation so that no additional high-current regulators are required. The output voltage will change a maximum of 1.6% per each percent of change in line frequency with nominal line voltage input. C801 (C805 in 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.

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 CR3, CR4 (mounted on heat sink A805).

The rectified output of the bridge is fed to the low- and high-current filters (see Figure 1). The high-current filter consists of C802, C803 and L801 (L803 in 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 13.4 Volts, 27 Amperes and 13.4 Volts, 18 Amperes in the 18 Ampere chassis.

The low-current filter is composed of C802, L802 and C804. The low-current supply is rated at 13.4 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 (A806). External connections are made at J801. Diode CR803 helps suppress high voltage transients in the high-current supply.

Relay Control Board (Hum Suppression Options 9647-9650)

When the hum suppression options are used, the Relay Control Board 19C328488G1 switches the resonating capacitor into the circuit, when the microphone is keyed, to quiet the power supply.

When the microphone is unkeyed, 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.

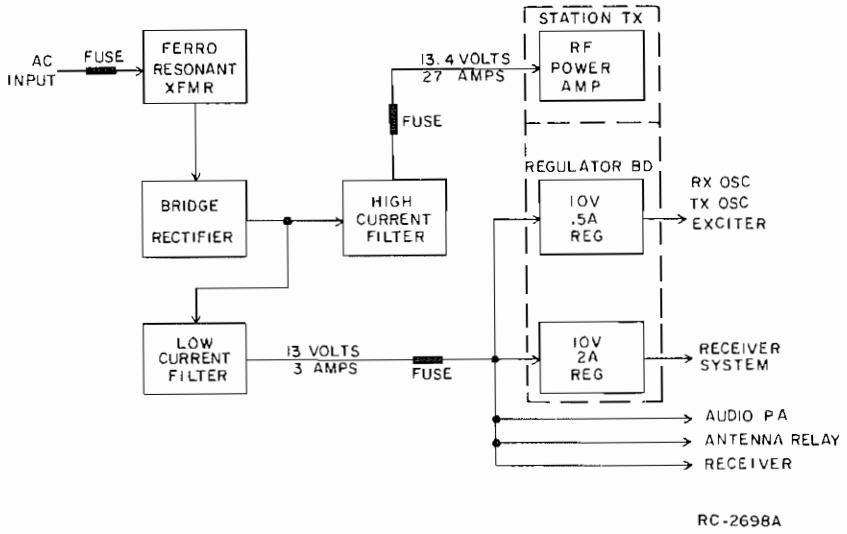


FIGURE 1 - POWER DISTRIBUTION

When the microphone is keyed, Q3 is biased on through R4, and Q4 is biased on through Q3, R6 and R7. With Q4 turned on K801 is energized and the capacitor C801 (C805) is placed across the #9 and #10 winding of the transformer.

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 capacitor C801 (C805) and delivers a fullwave 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 exceeds about 18V. 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, there-by 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 VR2 provides stable base voltage for Q3.

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.

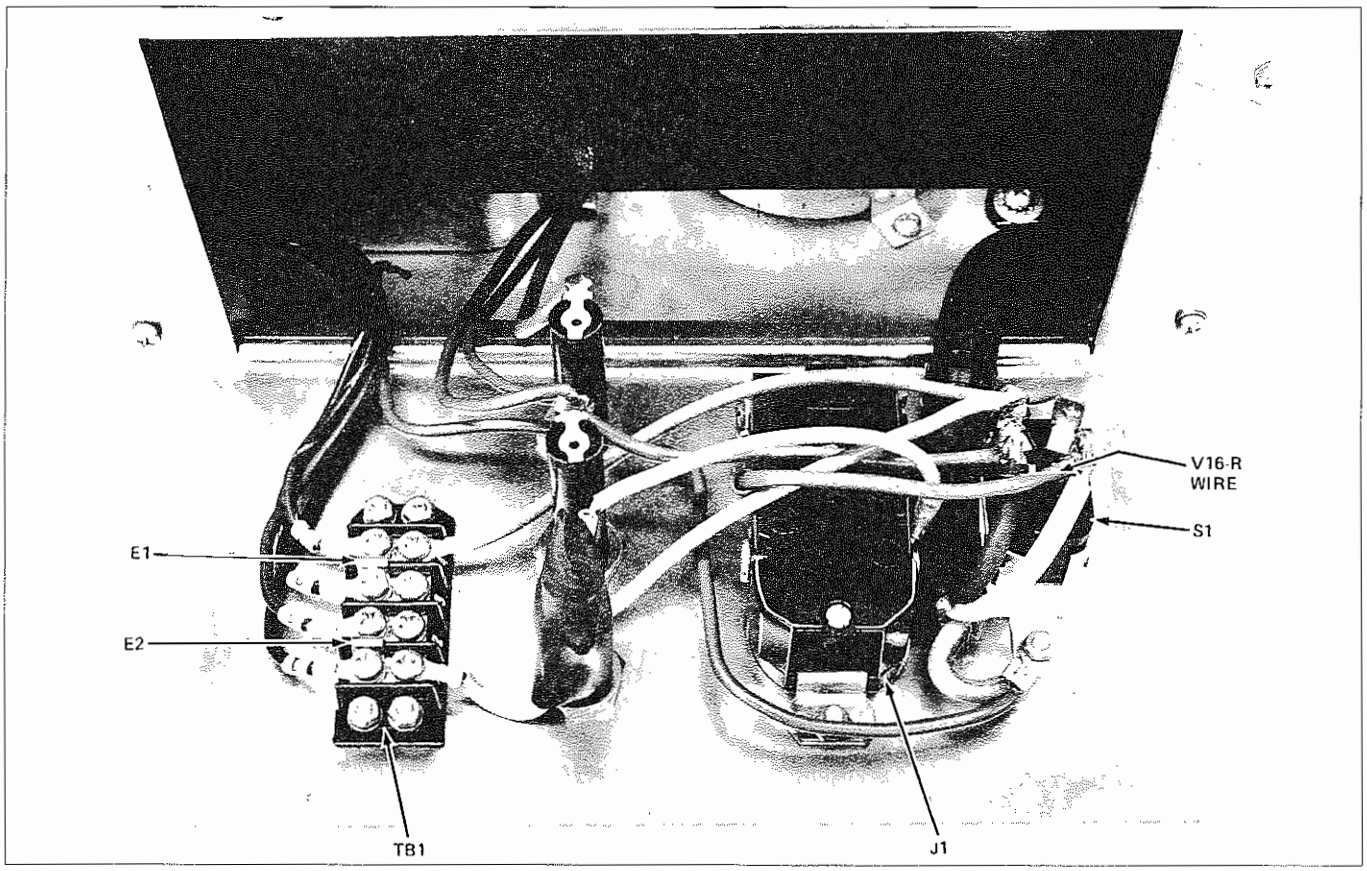


FIGURE 2 - POWER SUPPLY FRONT PANEL A801 (HINGED DOWN)

TROUBLESHOOING PROCEDURE

Symptom	Procedure
No output voltage at J801-1 and J801-5	Check the following: A1. Proper input voltage on TB1. A2. Open F1 or F3. A3. Open T801 (T802), S1, L802, CR1, CR2, CR801, CR802, L802. A4. Shorted T801 (T802), C801 through C804.
No output voltage at F801-2 and 3.	Check the following: B1. Open F1, F801, L801 (L803). B2. Shorted C802, C803.
Either output greater than 15.5 Volts	Check the following: C1. Open C801 (C805), R801. C2. Line Frequency.

HUM SUPPRESSION OPTIONS

OPTION	DESCRIPTION
9647	Deletes the 18 Amp 60 Hz supply, 19D430272G2. Adds the 18 Amp 60 Hz supply with Hum Suppression, 19D430272G5.
9648	Deletes the 30 Amp 60 Hz supply 19D430272G1. Adds the 30 Amp 60 Hz supply with Hum Suppression, 19D430272G4.
9649	Deletes the 18 Amp 60 Hz supply with Hum Suppression 19D430272G5. Adds the 18 Amp 60 Hz supply 19D430272G2.
9650	Deletes the 30 Amp 60 Hz supply with Hum Suppression 19D430272G4. Adds the 30 Amp 60 Hz supply 19D430272G1.

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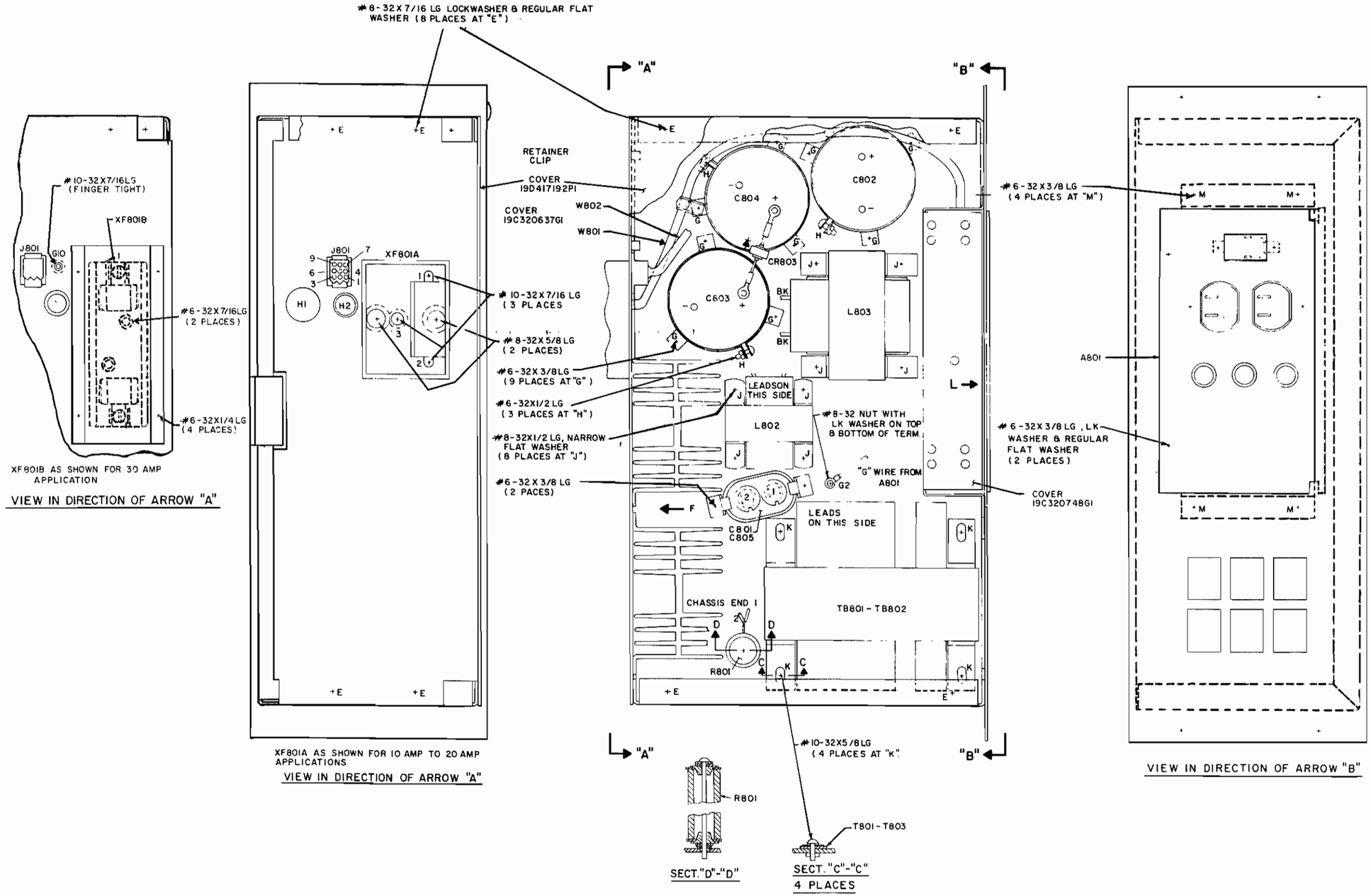
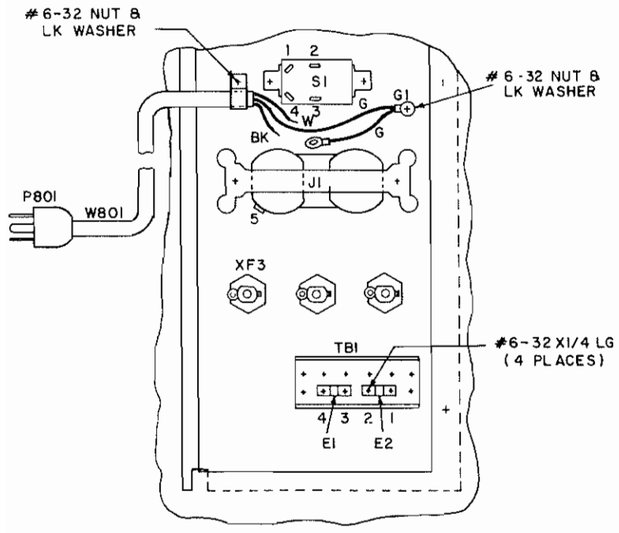


60 Hz POWER SUPPLY
19D430272G1, G2, G4 and G5

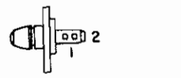
(19D432022, Sh. 1, Rev. 0)



VIEW "L"

PART OF PANEL A801

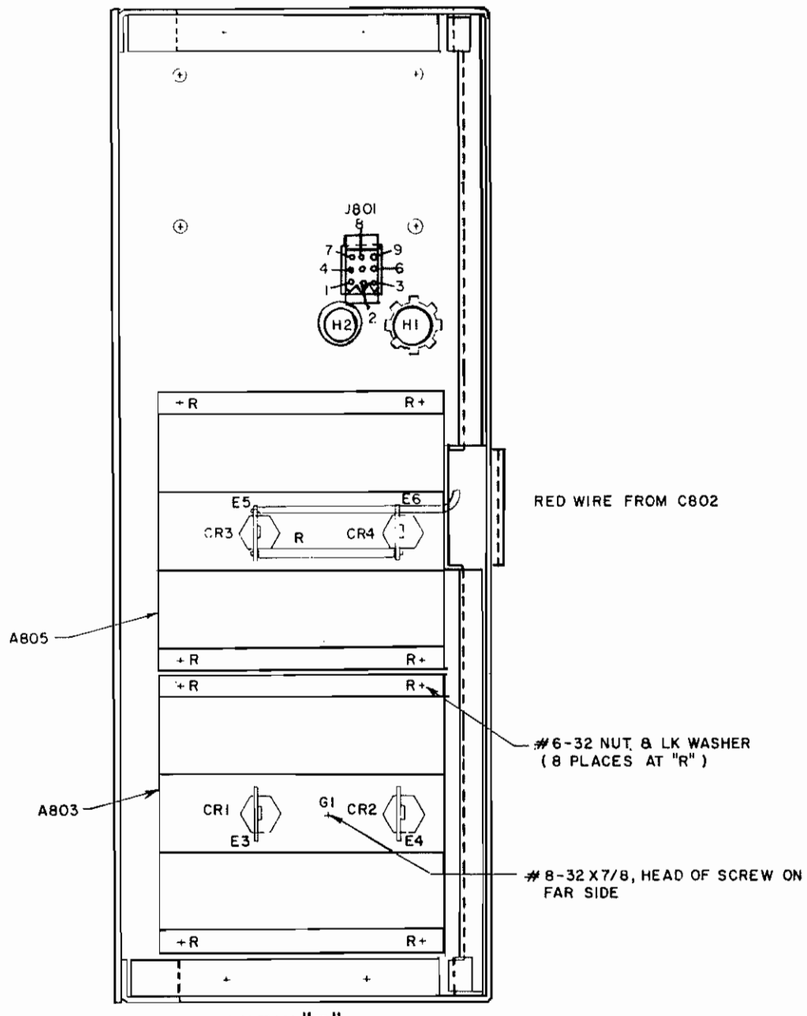
VIEW IN DIRECTION OF ARROW "L"



VIEW-"N"

TERMINAL DENTIFICATION

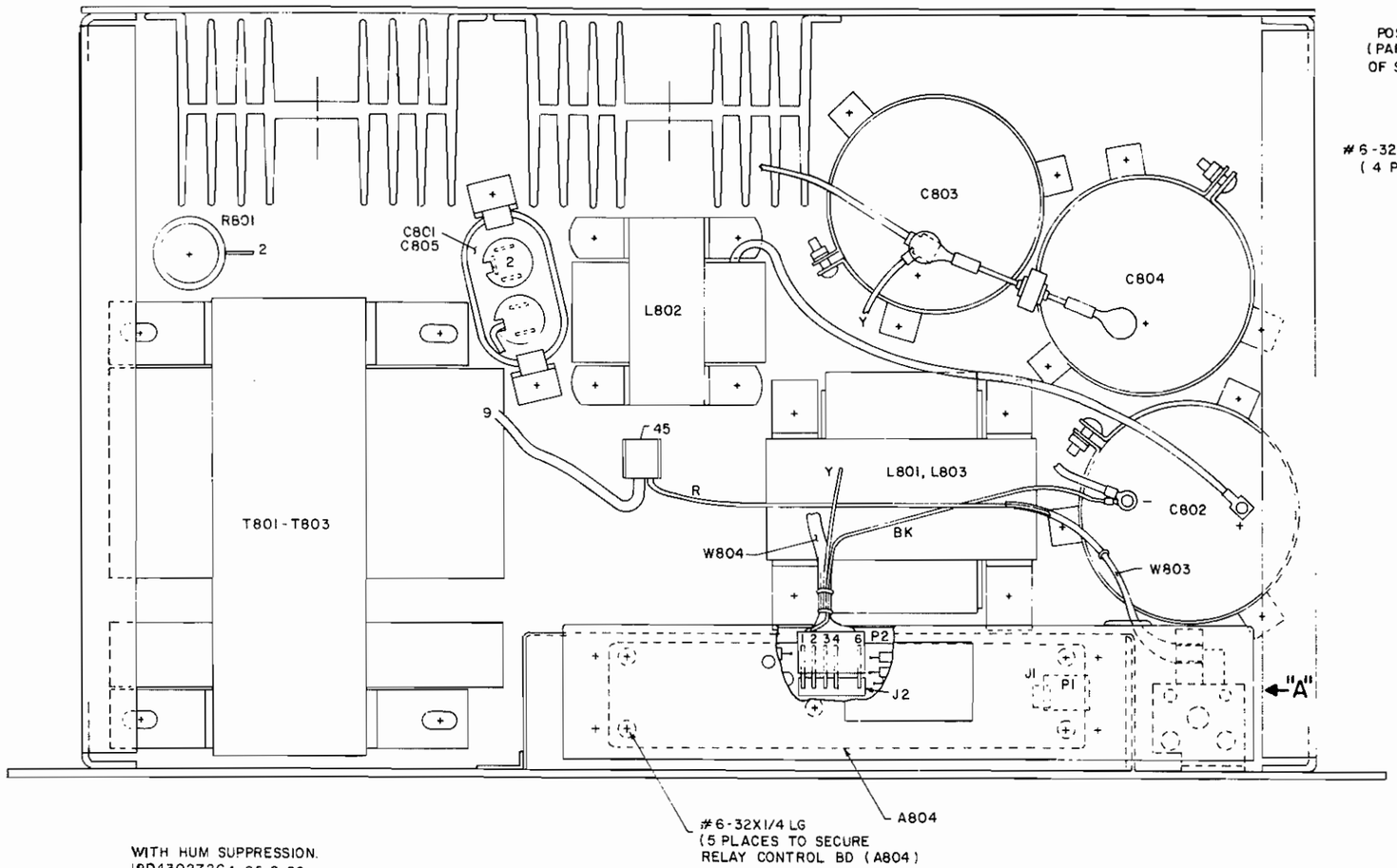
XF3 ON A801 & A802



VIEW-"F"

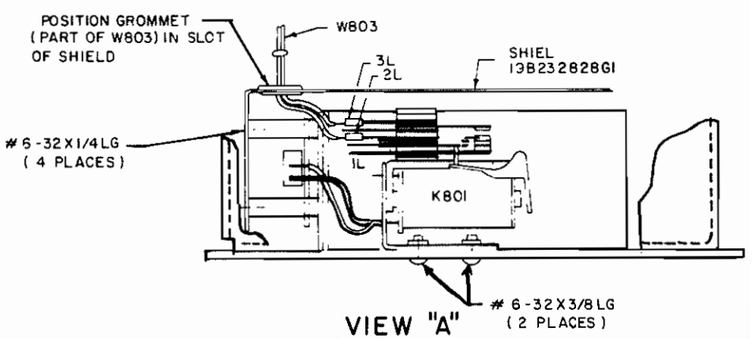
VIEW IN DIRECTION OF ARROW "F"

(19D432022, Sh. 2, Rev. 1)



WITH HUM SUPPRESSION.
19D430272G4, G5 & G6

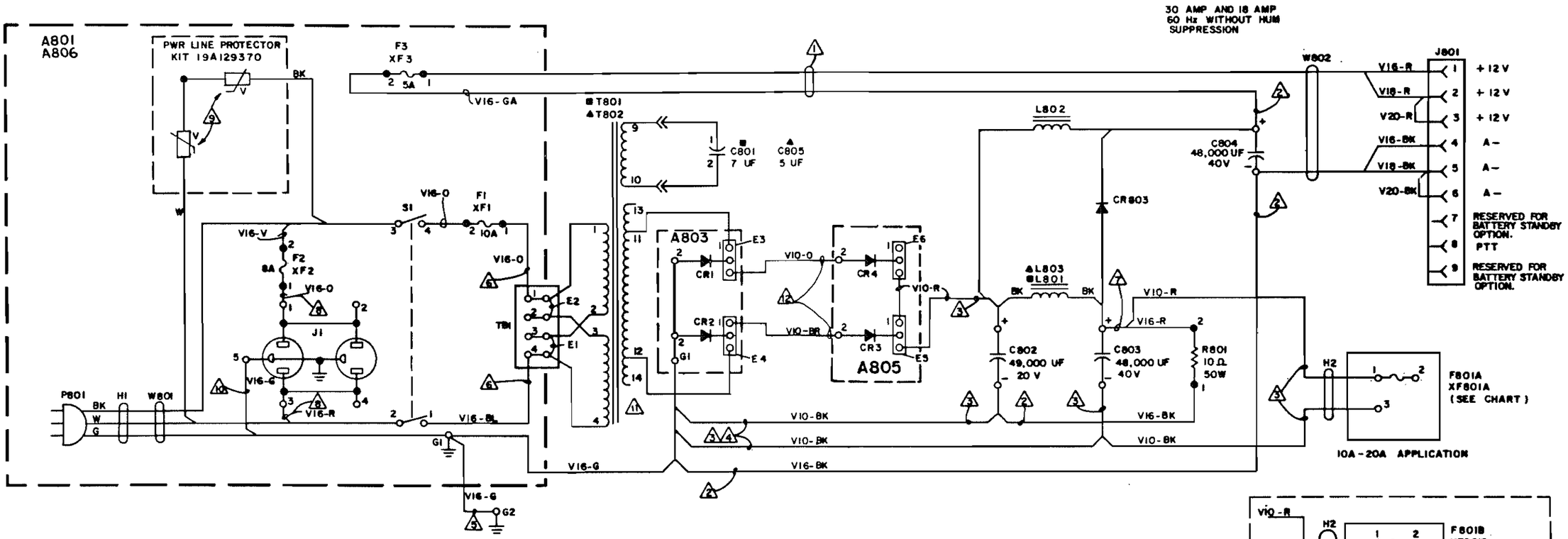
VIEW WITH TOP COVER REMOVED



VIEW "A"

60 Hz POWER SUPPLY
19D430272G1, G2, G4 and G5

(19D432022, Sh. 3, Rev. 0)



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

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
PLI9D430272G1	A
PLI9D430272G2	A
PLI9D430272G9	

■ DENOTES GROUP 1 ONLY
▲ DENOTES GROUP 2 ONLY

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

CHANGES TO THIS DRAWING MAY AFFECT WIRING DIAGRAMS 19D430303 — 19D430305.

NOTES:

1. THESE WIRES MUST BE ROUTED SEPARATELY 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 A801-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. TRANSFORMER WINDINGS #13 & #14 ARE ONLY USED IN POWER SUPPLIES WITH OPTIONS 9669 & 9670 (STANDBY BATTERY CHARGER).
12. TERMINATE WITH TERMINAL 19B209268P107.

(19D430302, Rev. 4)

60 Hz POWER SUPPLY
WITHOUT HUM SUPPRESSION
19D430272G1 and G2

PARTS LIST

MASTR II 60 HZ POWER SUPPLY
19D430272G1 30 AMP
19D430272G2 18 AMP
ISSUE 3

SYMBOL	GE PART NO.	DESCRIPTION
A801		60 HZ POWER 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.
		- - - - - - - - - - - PLUGS - - - - - - - - - - -
P1		Part of W1.
		- - - - - - - - - - - SWITCHES - - - - - - - - -
S1	19B209498P1	Push: DPST, 20 amps at 220 VRMS; sim. to McGill 0811-0188.
		- - - - - - - - - TERMINAL BOARDS - - - - - - - - -
TB1	19C301087P2	Phen: 4 terminals; sim to GE CR151D.
		- - - - - - - - - - FUSE SOCKETS - - - - - - - - -
XF1 thru XF3	4037402P2	Fuseholder: 15 amps at 250 v; sim to Littelfuse 342001.
A803		HEAT SINK 19C320836G1
		- - - - - - - - - - RECTIFIERS - - - - - - - - - -
CR1 thru CR4	19A116524P2	Silicon: sim to Type N2158R, includes N210P20C6 nut.
A805	19C320836G2	Heat sink.
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C801	19A134574P2	Quick disconnect: 7 uf + or - 5%, 660 VRMS; sim. to GE 26F664FB.
C802	19A134033P1	Electrolytic: 49,000 uf + 50% - 10%, 20 VDCW; sim. to GE 92F180ANB.
C803 and C804	5496520P19	Electrolytic: 48000 uF -10 +100%, 40 VDCW, 86F561M.
C805	19A134574P1	Quick disconnect: 5 uf + 6%, 660 VRMS; sim. to GE 26F662FB.
C806		Part of Hardware Kit 19A138358G1.
		- - - - - - - - - - RECTIFIERS - - - - - - - - - -
CR801 and CR802	19A116524P2	Silicon: sim to Type 1N2158R.
CR803	19B226282G2	Rectifier, silicon.
		- - - - - - - - - - TERMINALS - - - - - - - - - -
E5 and E6	19A142689P1	Terminal.
		- - - - - - - - - - FUSES - - - - - - - - - -
		NOTE: To select the correct fuse for F801, refer to the chart on the schematic diagram.
F801	1R11P3	Quick blowing: 10 amps, 250 V; sim to Bussman NON10.
	1R11P4	Quick blowing: 15 amps, 250 V; sim to Bussman NON15.
	1R11P5	Quick blowing: 20 amps, 250 V; sim to Bussman NON20.
	1R11P6	Quick blowing: 25 amps, 250 V; sim to Bussman NON25.
	1R11P7	Quick blowing: 30 amps, 250 V; sim to Bussman NON30.
	1R11P8	Quick blowing: 35 amps, 250 V; sim to Bussman NON35.
		- - - - - - - - - - JACKS - - - - - - - - - -
J801	19B209288P3	Shell.
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L801	19B209497P1	Reactor: 1 mh ind. min at 27 amps, 0.010 ohms DC res max. (Used in G1).
L802	19B226151G1	Reactor: 10 mh ind. min, 2.5 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).
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R801	2R17P21	Wirewound: 10 ohms + or - 5%, 50 w, sim to Ward Leonard K41389-1.
		- - - - - - - - - - TRANSFORMERS - - - - - - - -
T801	19C330340G2	Transformer, power. (Used in G1).
T802	19C330340G1	Transformer, power. (Used in G2).
		- - - - - - - - - - CABLES - - - - - - - - - -
W801	19B233188G1	Cable, RF: 3 conductor. (Includes P801).
W802	19B233189G1	Cable assembly. (Includes J801).
		- - - - - - - - - - FUSE SOCKETS - - - - - - - - -
XF801A	19B216021G7	Fuseholder. (Includes 19D413045P1 base, (2) 19B205950P1 clips, (2) N117P1500B6 tap screws).
XF801B	19A134675P1	Fuseholder: rated 31 to 60 amps at 250 v; sim to Bussmann 1B0013.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19C320748G1	Cover. (A801).
	19C320637G1	Cover, rear. (Mounts XF801 & J801).
	19D417192P1	Cover, side.
	7479571P19	Retainer, strap: sim to Sprague 4586-2. (C802-C804).
	7776855P37	Retainer, strap: sim to G.E. Hudson Falls 302C920P211. (Secures C801).
	7776855P6	Retainer, strap: sim to G.E. Hudson Falls 302C920P119. (Secures C805).
	19A134022P1	Protective cap. (Used with C801 & C805).
	19B233114P1	Cover, fuse. (XF801B).
	4034225P1	Flat washer: approx 1/2 inch dia. (Secures R801)
	7476888P5	Washer, non-metallic, outer. (Secures R801).
	7476888P6	Washer, non-metallic, inner. (Secures R801).
	19A134024P1	Machine screw: No. 8-32. (Secures R801).
	19B226005G1	Heat sink. (Used with A803).
	19A115275P5	Insulator, disc. (Used with CR801 & CR802).
	N210P20B6	Hex nut: No. 1/4-28. (Secures CR801 & CR802).
	N81P13006B6	Machine screw, phillips head: No. 6-32 x 3/8. (Secures E5 & E6 to CR801 & CR802).
	N207P13B6	Hex nut: No. 6-32. (Secures E5 & E6 to CR801 & CR802).
	19A115276P4	Insulator, washer. (Used with CR801 & CR802).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

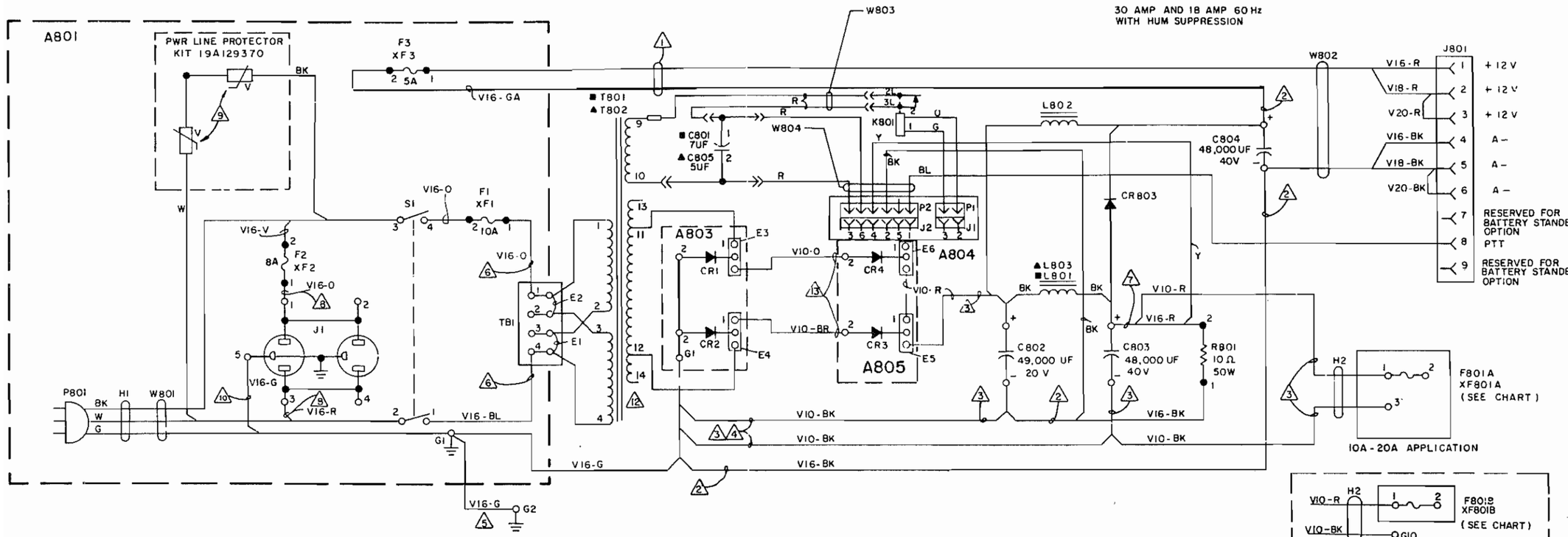
PRODUCTION CHANGES

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.

REV. A - To prevent F1 from blowing at a higher than nominal line voltage. Changed F1 from 8 amp fuse to 10 amp fule.

Deleted CR801 & CR802 (19A116524P2) rectifiers, 19B226005G1 Heat Sink, 19A115275P2 insulator, 19A115276P2 insulator, N210P20C6 No. 1/4-28 hex nut, N81P13006C6 machine screw, and N207P13C6 hex nut.

Added A805 which includes CR3 and CR4 (19A116524P2) roctifiers.



■ DENOTES GROUP 4 ONLY
▲ DENOTES GROUP 5 ONLY

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

CHANGES TO THIS DRAWING MAY AFFECT WIRING DIAGRAM 19D430302, 19D430303, & 19D430305

NOTES:

1. THESE WIRES MUST BE ROUTED SEPARATELY 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 A801-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.
12. TRANSFORMER WINDING #13 & #14 ARE USED ONLY IN POWER SUPPLIES WITH OPTIONS 9669 & 9670 (STANDBY BATTERY CHARGER).
13. TERMINATE WITH TERMINAL 19B209268P107.

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

THIS ELEM DIAG APPLIES TO	
MODEL NO	REV LETTER
PL19D430272G4	A
PL19D430272G5	A

(19D430304, Rev. 3)

60 Hz POWER SUPPLY
WITH HUM SUPPRESSION
19D430272G4 and G5

PARTS LIST

MASTR II 60 HZ POWER SUPPLY W/RUM SUPPRESSION
19D430272G4 30 AMP
19D430272G5 18 AMP
ISSUE 3

SYMBOL	GE PART NO.	DESCRIPTION
A801		60 HZ POWER 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.
		- - - - - - - - - - - PLUGS - - - - - - - - - - -
P1		Part of W1.
		- - - - - - - - - - - SWITCHES - - - - - - - - -
S1	19B209498P1	Push: DPST, 20 amps at 220 VRMS; sim. to McGill 0811-0188.
		- - - - - - - - - TERMINAL BOARDS - - - - - - - -
TB1	19C301087P2	Phen: 4 terminals; sim to GE CR151D.
		- - - - - - - - - - FUSE SOCKETS - - - - - - - -
XF1 thru XF3	4037402P2	Fuseholder: 15 amps at 250 v; sim to Littelfuse 342001.
A803		HEAT SINK 19C320836G1
		- - - - - - - - - - RECTIFIERS - - - - - - - - -
CR1 thru CR4	19A116524P2	Silicon, sim to N2158R.
A804	19C328408G1	(Listed separately- Refer to relay control board)
A805	19C320836G2	Heat sink.
		- - - - - - - - - - CAPACITORS - - - - - - - - -
C801	19A134574P2	Quick disconnect: 7 uf + or - 5%, 660 VRMS; sim. to GE 26F664PB.
C802	19A134033P1	Electrolytic: 49,000 uf + 50% - 10%, 20 VDCW; sim. to GE 92F180ANB.
C803 and C804	5496520P19	Electrolytic: 48000 uF -10 +100%, 40 VDCW, 86F561M.
C805	19A134574P1	Quick disconnect: 5 uf + 6%, 660 VRMS; sim. to GE 26F662PB.
C806		Part of Hardware Kit 19A138358G1.
		- - - - - - - - - - RECTIFIERS - - - - - - - - -
CR801 and CR802	19A116524P2	Silicon; sim to 1N2158R.
CR803	19B226282G2	Rectifier, silicon.
		- - - - - - - - - - TERMINALS - - - - - - - - - -
E5 and E6	19A142689P1	Terminal.
		- - - - - - - - - - FUSES - - - - - - - - - -
		NOTE: To select the correct fuse for F801, refer to the chart on the schematic diagram.
FB01	1R11P3	Quick blowing: 10 amps, 250 V; sim to Bussman NON10.
	1R11P4	Quick blowing: 15 amps, 250 V; sim to Bussman NON15.
	1R11P5	Quick blowing: 20 amps, 250 V; sim to Bussman NON20.
	1R11P6	Quick blowing: 25 amps, 250 V; sim to Bussman NON25.
	1R11P7	Quick blowing: 30 amps, 250 V; sim to Bussman NON30.
	1R11P8	Quick blowing: 35 amps, 250 V; sim to Bussman NON35.
		- - - - - - - - - - JACKS - - - - - - - - - -
J801	19B209288P3	Shell.
K801		RELAY ASSEMBLY 19B232626G1
		- - - - - - - - - - RELAYS - - - - - - - - - -
K1	19B209492P1	Open: 12.6 VDC, 80 amps + or - 10%, coil res, 1 form C contact, 15 amps @ 28 VDC; sim to Magnecraft 22RX134A.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P1	19A116659P16	Connector, printed wire.
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L801	19B209497P1	Reactor: 1 mh ind. min at 27 amps, 0.010 ohms DC res max. (Used in G4).
L802	19B226151G1	Reactor: 10 mh ind. min, 2.5 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).
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R801	2R17P21	Wirewound: 10 ohms + or - 5%, 50 w, sim to Ward Leonard K41389-1.
		- - - - - - - - - - TRANSFORMERS - - - - - - - - -
T801	19C330340G2	Transformer, power. (Used in G4).
T802	19C330340G1	Transformer, power. (Used in G5).
		- - - - - - - - - - CABLES - - - - - - - - - -
W801	19B233188G1	Cable, RF: 3 conductor. (Includes P801).
W802	19B233189G1	Cable assembly. (Includes J801).
W803	19B232825G2	Cable assembly.
W804	19B233191G1	Cable assembly. (Includes P2).
		- - - - - - - - - - FUSE SOCKETS - - - - - - - - -
XF801A	19B216021G7	Fuseholder. (Includes 19D413045P1 base, (2) 19B205950P1 clips, (2) N117P15006B6 tap screws).
XF801B	19A134675P1	Fuseholder: rated 31 to 60 amps at 250 v; sim to Bussmann 1B0013.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19C320748G1	Cover. (A801).
	19C320637G1	Cover, rear. (Mounts XF801 & J801).
	19D417192P1	Cover, side.
	7479571P19	Retainer, strap: sim to Sprague 4586-2. (C802-C804).
	7776855P37	Retainer, strap: sim to G.E. Hudson Falls 302C920P211. (Secures C801).
	7776855P6	Retainer, strap: sim to G.E. Hudson Falls 302C920P119. (Secures C805).
	19A134022P1	Protective cap. (Used with C801 & C805).
	19B233114P1	Cover, fuse. (XF801B).
	4034225P1	Flat washer: approx 1/2 inch dia. (Secures R801)
	7476888P5	Washer, non-metallic, outer. (Secures R801).
	7476888P6	Washer, non-metallic, inner. (Secures R801).
	19A134024P1	Machine screw: No. 8-32. (Secures R801).
	19B226005G1	Heat sink. (Used with A803).
	19A115275P5	Insulator, disc. (Used with CR801 & CR802).
	N210P2086	Hex nut: No. 1/4-28. (Secures CR801 & CR802).
	N81P13006B6	Machine screw, phillips head: No. 6-32 x 3/8. (Secures E5 & E6 to CR801 & CR802).
	N207P13B6	Hex nut: No. 6-32. (Secures E5 & E6 to CR801 & CR802).
	19A115276P4	Insulator, washer. (Used with CR801 & CR802).

*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.

REV. A - To prevent F1 from blowing at higher than nominal line voltage. Changed F1 from 8 amp fuse to 10 amp fuse.

Deleted CR801 & CR802 (19A116524P2) rectifiers, 19B226005G1 Heat Sink, 19A115275P2 insulator, 19A115276P2 insulator, N210P20C6 No. 1/4-28 hex nut, N81P13006C6 machine screw, and N207P13C6 hex nut.

Added A805 which includes CR3 and CR4 (19A116524P2) rectifiers.

PARTS LIST

RELAY CONTROL BOARD A804
19C328488G1
ISSUE 5

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1	19A115680P3	Electrolytic: 20 uF +150-10%, 25 VDCW; sim to Mallory Type TTX.
C2	19A115680P24	Electrolytic: 400 uF +150% -10%, 18 VDCW; sim to Mallory Type TTX.
C4	19A115680P3	Electrolytic: 20 uF +150-10%, 25 VDCW; sim to Mallory Type TTX.
C6	19A115680P24	Electrolytic: 400 uF +150% -10%, 18 VDCW; sim to Mallory Type TTX.
C7	19A701534P7	Tantalum: 10 uF ±20%, 16 VDCW.
		- - - - - - - - - - RECTIFIERS - - - - - - - - - -
CR1 thru CR4	T324ADP1061	Silicon; 800 PRV, 1000 mA max; sim to 1N4006.
CR5	T324ADP1051	Silicon; 600 PRV, 1000 mA max; sim to 1N4005.
		- - - - - - - - - - - JACKS - - - - - - - - - - -
J1	19A137733G2	Connector: 2 terminals.
J2	19A137733G1	Connector: 6 terminals.
	19A116659P30	Connector: printed wiring: 8 contacts rated at 5 amps; sim to Molex 09-66-1081.
		- - - - - - - - - - TRANSISTORS - - - - - - - - - -
Q3	19A115562P2	Silicon, PNP; sim to Type 2N2904A.
Q4	19A116375P1	Silicon, PNP.
Q5	19A700022P1	Silicon, PNP; sim to Type 2N3906.
Q6	19A700023P1	Silicon, NPN; sim to Type 2N3904.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R4	19A700113P87	Composition: 10K ohms ±5%, 1/2 w.
R5	19A700113P71	Composition: 2.2K ohms ±5%, 1/2 w.
R6	19A700113P63	Composition: 1K ohms ±5%, 1/2 w.
R7	19A700113P55	Composition: 470 ohms ±5%, 1/2 w.
R8	19A700113P63	Composition: 1K ohms ±5%, 1/2 w.
R9 and R10	19A700113P87	Composition: 10K ohms ±5%, 1/2 w.
R12	3R77P154J	Composition: 150K ohms ±5%, 1/2 w.
R13	19A700113P103	Composition: 47K ohms ±5%, 1/2 w.
R14	3R77P474J	Composition: 470K ohms ±5%, 1/2 w.
R15	19A700113P71	Composition: 2.2K ohms ±5%, 1/2 w.
		- - - - - - - - VOLTAGE REGULATORS - - - - - - - -
VR2	19A116325P4	Zener: 5 w, 12 v; sim to Type 1N5349.
VR3	4036B87P16	Zener: 500 mW, 19 v. nominal.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19A701332P4	Insulator, washer: nylon. (Used with Q3).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

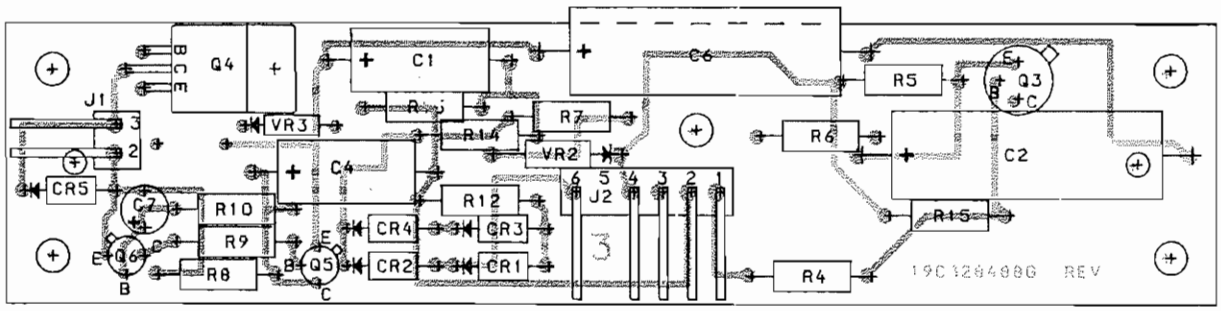
PRODUCTION CHANGES

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.

REV. A - To improve operation of the power supply with Hum Suppression. Removed Q1, Q2, R1, R2 & R3 and added R15.

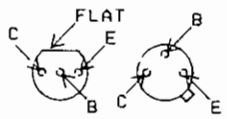
REV. B - To reduce switching sensitivity on the PTT line, values of R4 and R15 were reversed.

REV. C - To slow the response time of the over-voltage protection circuit in the Hum Suppression Kit. Added C7.



(19C328490, Rev. 2)
(19B232763, Sh. 1, Rev. 3)
(19B232763, Sh. 2, Rev. 3)

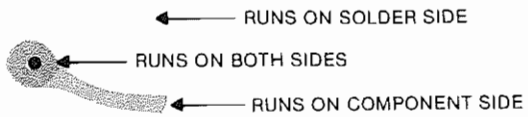
LEAD IDENTIFICATION
FOR Q1-Q6



IN-LINE OR TRIANGULAR

TOP VIEW

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



RELAY CONTROL BOARD
19C328488G1
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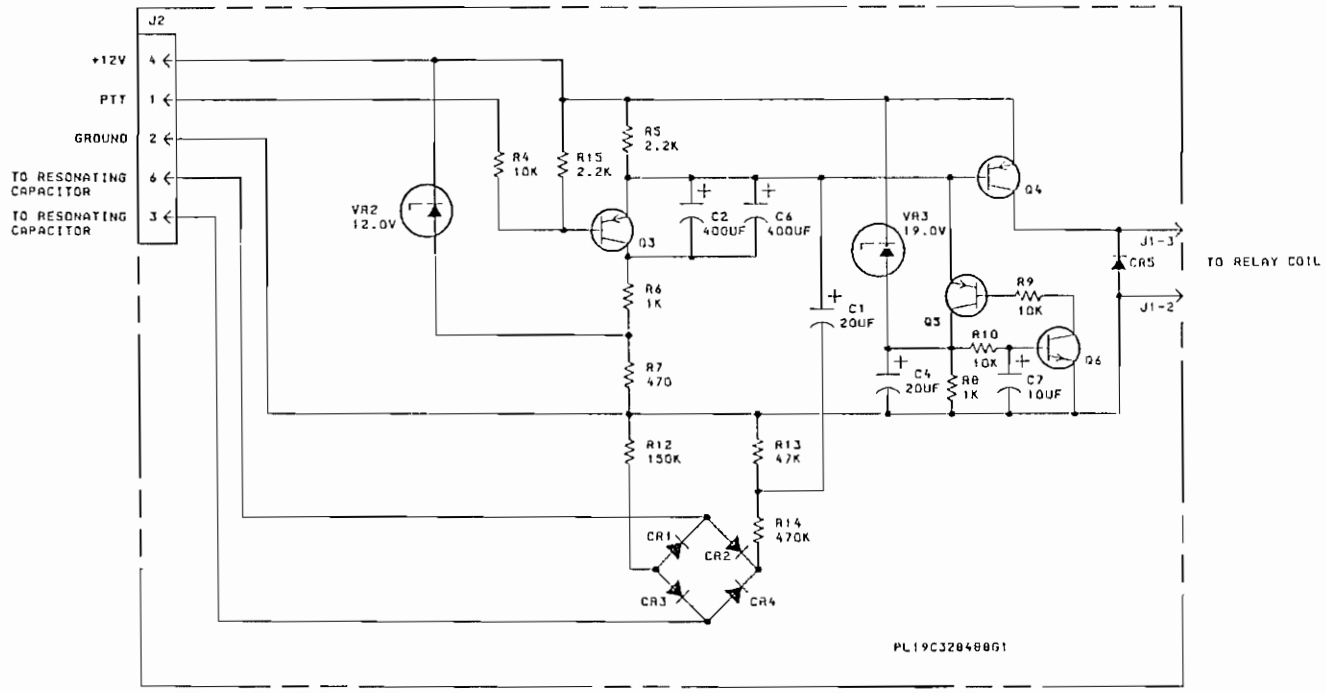

ALL RESISTORS ARE 1/2 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K-1000 OHMS OR MEG-1,000,000 OHMS. CAPACITOR VALUES IN PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY UF-MICROFARADS. INDUCTANCE VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH-MILLIHENRYS OR H-HENRYS.

MODEL NO	REV LETTER
PL19C328488G1	C

(19C328489, Sh. 1, Rev. 5)

RELAY CONTROL BOARD
19C328488G1
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