MOBILE RADIO

MAINTENANCE MANUAL

BATTERY STANDBY/CHARGER 19C328262G1

TABLE OF CONTENTS

SPECIFICATIONS

INPUT VOLTAGE	121/242 VAC
OUTPUT VOLTAGE (No load)	Adjustable from 13.0 to 14.2 VDC
OUTPUT CHARGE CURRENT	1.5 Amperes to batteries
OUTPUT CURRENT	1.0 Amperes maximum (fused)

GENERAL DESCRIPTION

The Battery Standby/Charger consists of a front cap attached to a module mounting frame which slides into a box-type cover. The frame is retained in the cover by four screws at the rear of the unit. The charger component board is mounted on the inside of the rear panel assembly. The unit may contain either one or two 4.5 Ampere -Hour Gel-Cel batteries (19A116574P1).

The Battery Standby/Charger operates from either a 121 or 242 VAC source and provides a maximum output current of 1.5 amperes at 12 VDC. It may be used as a standby Power Supply for a Monitor Receiver, Deskon II or other external device requiring less than 1.0 amperes at 12 VDC.

CAUTION

The +12 VDC output is fused at 1.0 ampere by F802 for use with the Monitor Receiver. When the Battery Standby/Charger is used with other external devices, the value of F802 should be adjusted accordingly, but not to exceed 1.5 amperes.

OPERATION

AC power is applied to the Battery Standby/Charger at all times when the unit is plugged in. The charging circuit is energized and the green LED is ON, indicating that AC power is applied. The AC voltage is not switched.

A two position switch, ON-DC-OFF, controls the application of DC power to the external device. When the DC switch is in the ON position, +12 VDC is applied to the external device and the red LED is on. When the DC switch is in the OFF position, +12 VDC output voltage of the Battery Standby/ Charger is disconnected from the external device, however, normal operating voltages are present within the Battery Standby/ Charger to maintain the proper charge on the battery.

CIRCUIT ANALYSIS

The 121/242 VAC input voltage is applied to bridge rectifier, CR801-CR804, through fuse F1 and transformer T1. As shown on the Schematic Diagram, T1 is connected for 121 VAC operation. (Refer to Schematic Diagram for required circuit modifications to operate from 242 VAC source). The AC input voltage is rectified by bridge rectifier CR801-CR804. DC filtering is provided by C801. The charging circuit consists of Q801-Q803, zener diodes VR801 and VR802, CHARGE ADJUST potentiometer R805 and related circuitry. R805 sets the reference voltage to which the battery is charged by establishing the bias voltage for Q803. VR801 maintains the emitter voltage of Q803 constant at 5.4 VDC. This causes the conduction of Q803 to vary in relation to the battery voltage. As the conduction of Q803 varies so does the conduction of Q802.

If the charge on the battery is low, the base voltage of Q803 decreases, causing it to conduct less, thereby, increasing the base voltage of Q802. Q802 increases conduction, increasing the base current of Q801. Q801 turns on harder, supplying the required increase in charge current to the battery to increase the battery voltage.

When the charge on the battery rises to the pre-set reference lever, Q803 turns on harder and Q801 decreases conduction. Q803 turns on harder, thereby reducing the base current supplied to Q802. Q802 conducts less, decreasing conduction of Q801 and limiting the charge current available to the battery.

INSTALLATION

When installing the Battery Standby/ Charger, be sure the same AC power source is used to power the Monitor Receiver or other external device.

NOTE

The Battery Standby/Charger is not designed as a stand-alone power supply and should never be used to power any device that does not have an internal power supply.

The Monitor Receiver or other external device is connected across the + and - terminals on the rear of the Battery Standby/ Charger. Refer to the Installation Diagram for battery installation.

MAINTENANCE

When servicing the Battery Standby/ Charger, disconnect the red wire(s) from the battery to prevent a high current hazard. When servicing is completed, reconnect the battery.

WARNING

Be careful when working around equipment with high voltage or current sources. DO NOT short red leads to ground. High currents can possible heat metal objects such as tools, rings, watchband, etc., enough to cause burns. KEEP AWAY FROM LIVE CIRCUITS!

To gain access to CHARGE ADJUST potentiometer, fuses and Charger Board, remove the four screws in the rear of the unit and slide the cover off. CHARGE ADJUST potentiometer R805 may be adjusted through the hole in the CAUTION shield.

ADJUSTMENT PROCEDURE

CHARGE ADJUST potentiometer is set for 13.8 VDC with no load connected across the output terminals. With a 10 ohm load connected across the output terminals, the OUTPUT voltage should be greater than 11.0 VDC.

MOBILE RADIO DEPARTMENT
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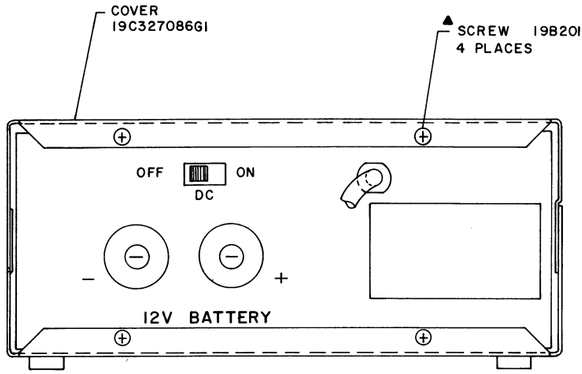
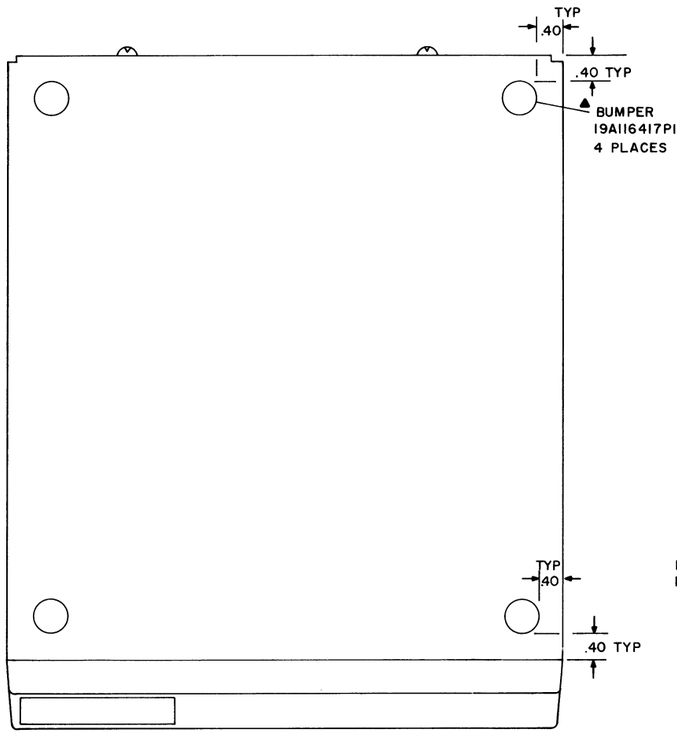
GENERAL ELECTRIC

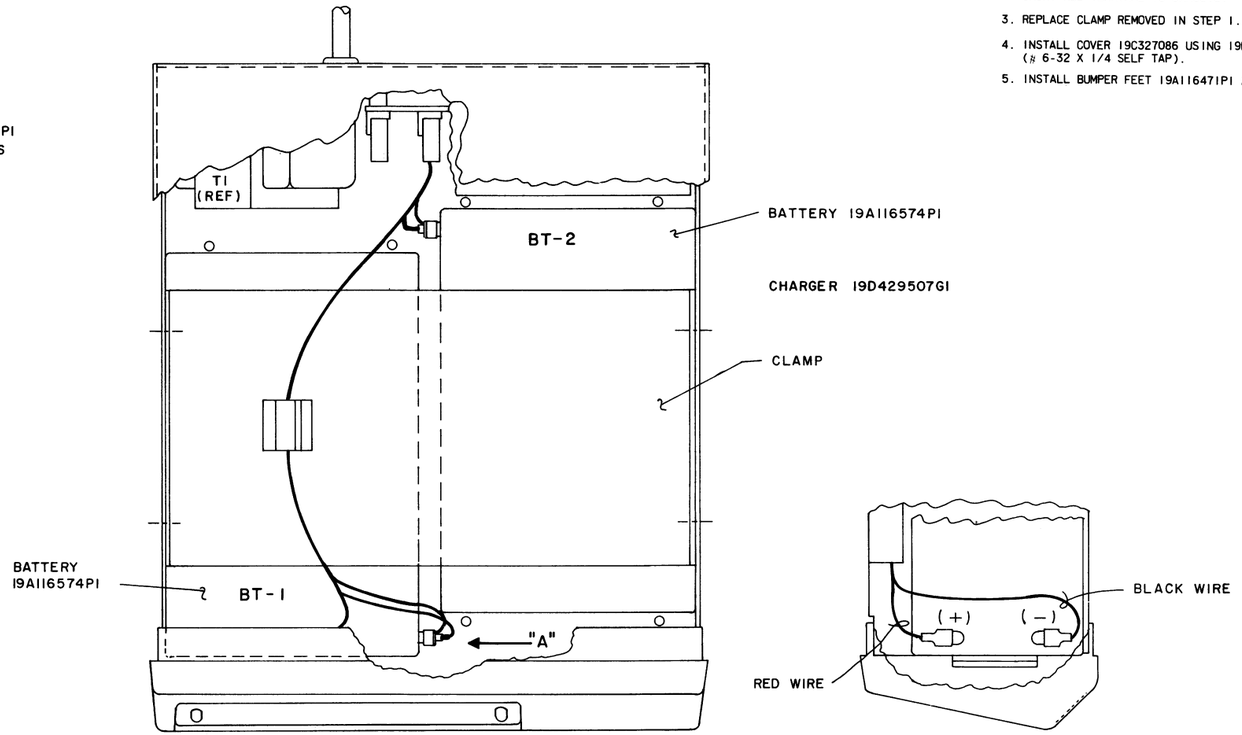


REAR VIEW

NOTE:
▲ PART OF HARDWARE LIST PL19A136613G7



BOTTOM VIEW



TOP VIEW

VIEW "A"

BATTERY CHARGER WITHOUT BATTERIES

1. INSTALL COVER 19C327086 USING 19B201074P304 SCREWS. (# 6-32 X 1/4 SELF TAP).
2. INSTALL BUMPER FEET 19A116471P1 AS SHOWN.

BATTERY CHARGER WITH 1 BATTERY

1. REMOVE 4 SCREWS (# 6-32 SELF TAP) AND CLAMP.
2. INSTALL BT1 BATTERY (19A116574P1) AS SHOWN. CONNECT #18 BK WIRE TO (-) BATTERY TERMINAL, RED #18 WIRE TO (+) POSITION. CAUTION - DO NOT SHORT RED TERMINAL TO CHASSIS.
3. REPLACE CLAMP REMOVED IN STEP 1.
4. TAPE UNUSED RED & BLACK #18 WIRES TO CABLE TO PREVENT POSSIBLE SHORT TO GROUND.
5. INSTALL COVER 19C327086 USING 19B201074P304 SCREWS (# 6-32 X 1/4 SELF TAP).
6. INSTALL BUMPER FEET 19A116471P1 AS SHOWN.

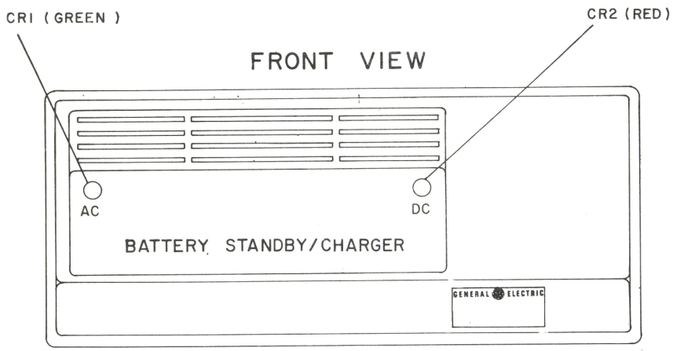
BATTERY CHARGER WITH 2 BATTERIES

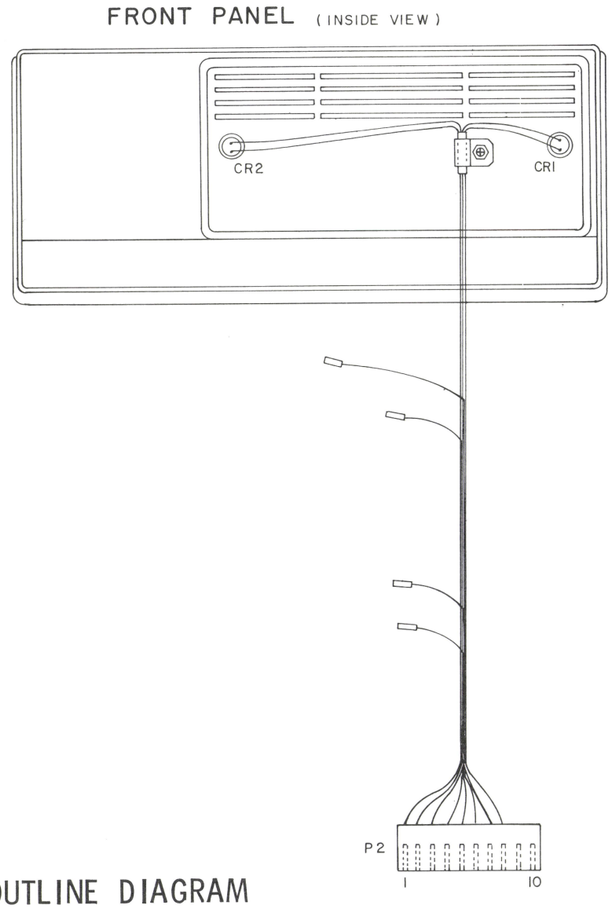
1. REMOVE 4 SCREWS (# 6-32 SELF TAP) & CLAMP.
2. INSTALL BT1 & BT2 BATTERIES (19A116574P1) AS SHOWN. CONNECT #18 BK WIRES TO (-) BATTERY TERMINALS. CONNECT #18 RED WIRES TO (+) BATTERY TERMINALS. CAUTION - DO NOT SHORT RED TERMINAL TO CHASSIS.
3. REPLACE CLAMP REMOVED IN STEP 1.
4. INSTALL COVER 19C327086 USING 19B201074P304 SCREWS (# 6-32 X 1/4 SELF TAP).
5. INSTALL BUMPER FEET 19A116471P1 AS SHOWN.

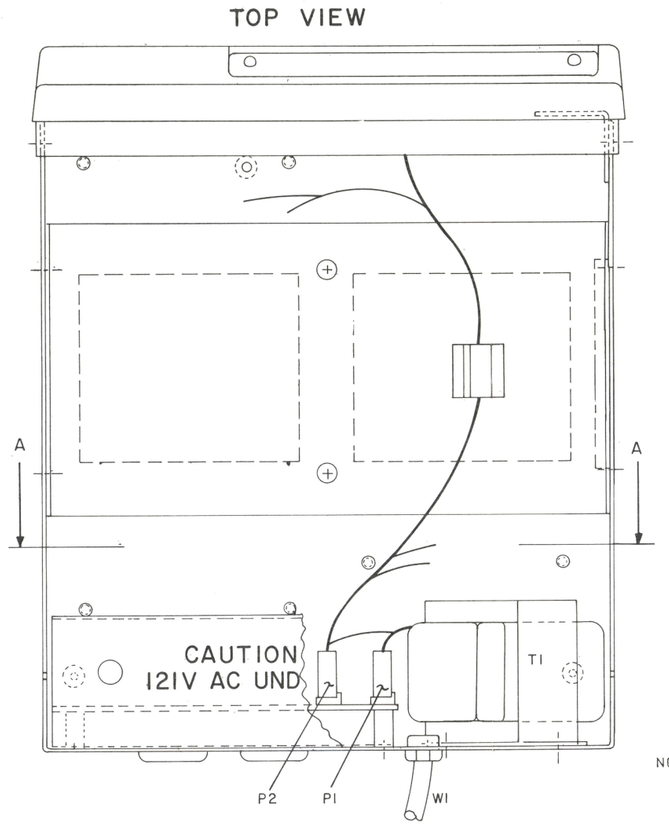
(19D429522, Rev. 1)

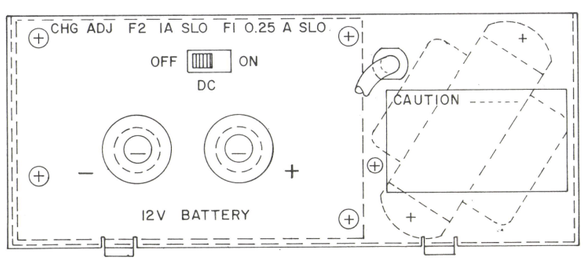
INSTALLATION DIAGRAM

BATTERY STANDBY/CHARGER

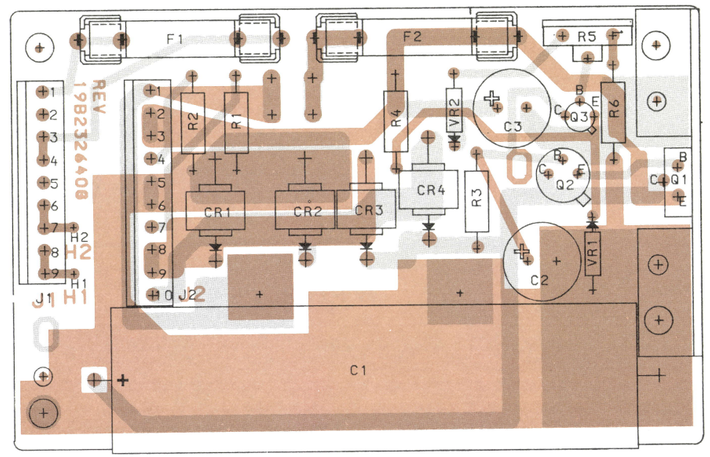








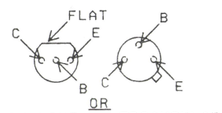
(19D430246, Rev. 0)



(19C328710, Rev. 0)
(19B232539, Sh. 1, Rev. 0)
(19B232539, Sh. 2, Rev. 0)

PARTIAL REFERENCE DESIGNATIONS ARE SHOWN, FOR COMPLETE DESIGNATION, PREFIX WITH 800 SERIES: EXAMPLE: C1-C801, R1-R801, ETC.

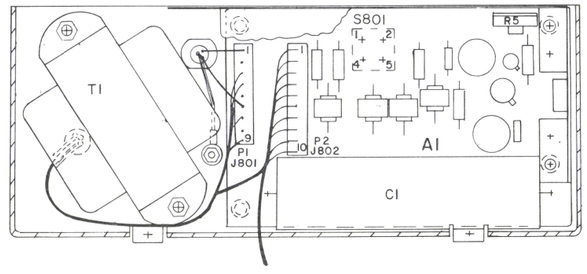
LEAD IDENTIFICATION FOR Q2 AND Q3

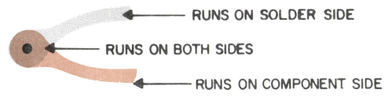


NOTE: LEAD ARRANGEMENT, AND NOT CASE SHAPE, IS DETERMINING FACTOR FOR LEAD IDENTIFICATION.

WIRE CHART		
FROM	TO	WIRE
H1	H2	DA

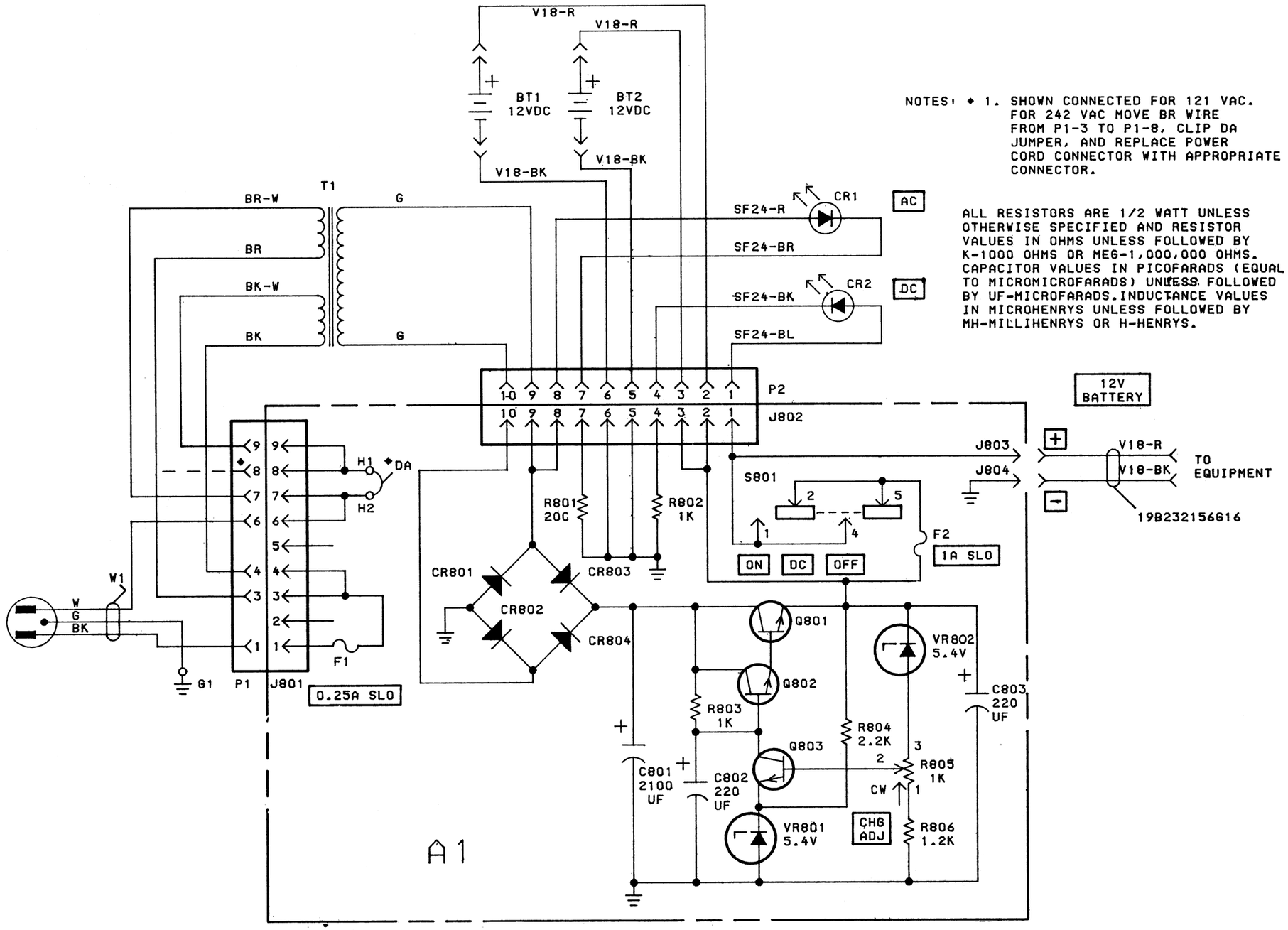
REAR PANEL (INSIDE VIEW)





OUTLINE DIAGRAM

BATTERY STANDBY/CHARGER



NOTES: ◆ 1. SHOWN CONNECTED FOR 121 VAC. FOR 242 VAC MOVE BR WIRE FROM P1-3 TO P1-8, CLIP DA JUMPER, AND REPLACE POWER CORD CONNECTOR WITH APPROPRIATE CONNECTOR.

ALL RESISTORS ARE 1/2 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K-1000 OHMS OR ME6-1,000,000 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.

(19C328366, Rev. 3)

SCHEMATIC DIAGRAM

BATTERY STANDBY/CHARGER

PARTS LIST

BATTERY STANDBY CHARGER
19D429507G1
ISSUE 1

SYMBOL	GE PART NO.	DESCRIPTION
A1		CHARGER BOARD ASSEMBLY 19B232640G1
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C801	19A126770P106	Electrolytic: 2100 µf +75 -10%, 35 VDCW; sim to Sprague 34D218G035JT0.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R805	19B209358P103	Variable, carbon film: approx 50 to 1000 ohms ±10%, 0.2 w; sim to CTS Type X-201.
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S801	19B209261P9	Slide: DPST, 2 poles, 2 positions, .5 amp VDC or 3 amp VAC at 125 v; sim to Switchcraft 11A1244A.
		CHARGER BOARD 19C328262G1
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C802 and C803	19A134319P1	Electrolytic: 220 µf +75 -10%, 25 VDCW; sim to Sprague 502D182.
		- - - - - - - - DIODES AND RECTIFIERS - - - - - -
CR801 thru CR804	19A116783P1	Silicon.
		- - - - - - - - - - - FUSES - - - - - - - - - - -
F1	7487942P1	Slow blowing: 1/4 amp at 250 v; sim to Bussmann MDL-1/4.
F2	7487942P5	Slow blowing: 1 amp at 250 v; sim to Bussmann MDL-1.
		- - - - - - - - JACKS AND RECEPTACLES - - - - - - - -
J801	19A116659P108	Connector, printed wiring: 9 contacts; sim to Molex 09-60-1091.
J802	19A116659P109	Connector, printed wiring: 10 contacts; sim to Molex 09-60-1101.
		- - - - - - - - - TRANSISTORS - - - - - - - - -
Q801	19A116742P1	Silicon, NPN.
Q802	19A115300P4	Silicon, NPN.
Q803	19A116755P1	Silicon, NPN; sim to Type 2N3947.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R801	3R77P201J	Composition: 200 ohms ±5%, 1/2 w.
R802 and R803	3R77P102J	Composition: 1K ohms ±5%, 1/2 w.
R804	3R77P222J	Composition: 2.2K ohms ±5%, 1/2 w.
R806	3R77P122K	Composition: 1.2K ohms ±10%, 1/2 w.
		- - - - - - - - VOLTAGE REGULATORS - - - - - - - -
VR801 and VR802	4036887P5	Zener: 500 mW, 5.4 v. nominal.
		FRONT PANEL ASSEMBLY 19D429506G1
		- - - - - - - - DIODES AND RECEPTACLES - - - - - -
CR1	19B219800G9	Diode, green light emitting.
CR2	19B219800G10	Diode, red light emitting.
		- - - - - - - - - - - PLUGS - - - - - - - - - - -
P2	19A116659P81	Connector, printed wiring: 10 contacts; sim to Molex 09-50-7101.
		- - - - - - - - - - TRANSFORMERS - - - - - - - - -
T1	19A137133G2	Transformer Assembly. Includes:
P1	19A116659P95	Connector, printed wiring: 9 contacts; sim to Molex 09-50-7091.
	19A116781P3	Contact, electrical: sim to Molex 08-50-0416. (Quantity 6).
		- - - - - - - - - - - CABLES - - - - - - - - - - -
W1	19A136500G2	Power: 3 conductor, approx 6 feet long.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	5490407P8	Rubber grommet. (Located on back of chassis).
	19A116768P9	Strain relief: sim to Heyco SR-6P3-4. (Used with W1).
	19B232648G1	Shield. (CAUTION).
	19D429506G1	Front panel frame.
	4035267P2	Plug button.
	19B232635G1	Clip cover.
	19B209209P304	Tap screw, Phillips POZIDRIV®: No. 6-32 x 1/4. (Secures front panel frame and Clip cover).
	4029851P3	Clip, loop. (Secures P2 cable).
	19A116677P1	Bushing, sleeving. (Used with CR1 & CR2).
	NP280425P1	Nameplate, aluminum, faceplate. (BATTERY STANDBY/ CHARGER).
	NP280158C	Nameplate, aluminum. (Specification).
	19B232156G12	Cable: approx 4-1/2 inches long.
	19B232156G13	Cable: approx 13 inches long.
	19B232156G14	Cable: approx 15 inches long.
	19B232156G15	Cable: approx 4 inches long.
	19A116023P1	Insulator, plate. (Used with Q801).
	19A134016P1	Insulator, bushing. (Used with Q801).
	19A137438P1	Heat sink. (Used with Q801).
	4036555P1	Insulator, washer: nylon. (Used with (Q802).
	19A116688P1	Clip. (Sockets for F1 & F2).
	19A116417P1	Bumper, plastic. (Contacts with desk or other resting surface).
	19B201074P304	Tap screw, Phillips POZIDRIV®: No. 6-32 x 1/4. (Secures 19C327086G1 cover).
	19C327086G1	Cover.

PARTS LIST

4.5 AMPERE HOUR
GEL-CEL BATTERY
19A116574P1
ISSUE 1

SYMBOL	GE PART NO.	DESCRIPTION
		Battery, storage, lead acid: 12 VDC, 4.5 ampere hour, 40 milliohms internal resistance (charged battery), resealable vents, 750 milliamp max charge current; sim to GLOBE No. GC1245-1.

PARTS LIST

BATTERY STANDBY/CHARGER
CABLE KIT
19B232156G16
ISSUE 1

SYMBOL	GE PART NO.	DESCRIPTION
	19B209268P1	Terminal, solderless: sim to AMP 40956.
	4029840P1	Contact, electrical: sim to AMP 41854.
	4029484P1	Terminal, quick disconnect: sim to AMP 41772. (These contacts to be sleeved).
	7162441P19	Insulated sleeving (Specify length).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES.