MOBILE RADIO

MASTR Personal Series

PROGRESS LINE

PE 16-HOUR GREEN CODED RACK CHARGERS (FOR INTRINSICALLY SAFE BATTERY PACKS)

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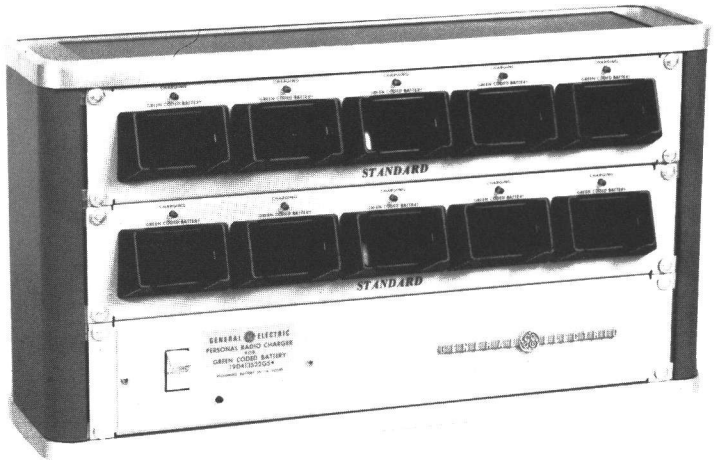


SPECIFICATIONS *

CABINETS

PL Numbers	19C321522G1	19C321522G2
Dimensions (H X W X D)	12" X 21.625" X 5.5"	26" X 21.625" X 5.5"
Capacity (charge panels) plus one power supply	2	6

CHARGE PANEL

PL Number	19D423211G2
Charge Time	16 hours
Dimensions (H X W X D)	3 1/2" X 19" X 3 1/2"
Number Inserts	5
Indicators/Insert	Amber Charging
Input Current	0.35 amperes

POWER SUPPLY

PL Number	19D423207G3
Dimensions (H X W X D)	3.5" X 19" X 4.5"
Weight	9.4 pounds
Output Current	2.3 amperes
Output Ripple	100%
Output Voltage	25 VDC

*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.

EQUIPMENT INDEX

EQUIPMENT	PART NUMBER
Cabinet	
2 Panel	19C321522G1
6 Panel	19C321522G2
Panels	
Charging Panel	19D423211G2
Blank Panel	19D417978P4
Power Supply	19D423207G3
Control Unit	19C321527G3
Cable	19B226775G1

COMBINATION NOMENCLATURE

1st Digit	2nd Digit	3rd Digit	4th Digit	5th Digit	6th Digit	7th Digit	8th & 9th Digits
Product Line	Application	Package	Input Voltage	Charge Time	Version	Type	Frequency Range
3 Charger	**8** PE (Intrinsically Safe Battery Pack)	**2** Wall (2 Panel) **3** Wall (6 Panel)	**L** 121 VAC**	**1** 16 Hour	**C** 1 Charge Panel*	**1** Standard	**X** Not Range Sensitive

*Option 4645 adds at the factory, one additional 16-Hour charge panel with five charging inserts for Intrinsically Safe battery packs and one interconnecting cable.

**Option 4650 provides 220 VAC operation.

DESCRIPTION

General Electric 16-Hour Green Coded Rack Charger combinations will recharge Intrinsically Safe battery pack 19D413522G5 used with Intrinsically Safe MASTR Personal PE Series, FM, two-way radios. A fully discharged, nickel-cadmium, 700 mAh Intrinsically Safe battery pack will recharge 100% in 16 hours at a C/10 constant current rate.

A rack charger combination consists of a cabinet with the capability of two or six charge panels. Each charge panel has five charging inserts, giving a maximum recharging capability of ten or thirty battery packs. The rack charger combination has a 2.3-amp power supply for 121 VAC operation and a power supply control unit providing AC switching and fusing.

For a complete listing of charger components, refer to the Table of Contents for the Equipment Index.

OPERATION

Temperature characteristics of nickel-cadmium batteries, prevent a full charge at temperature extremes. For a maximum charge, recharge the battery pack at room temperatures of from 65° to 85° Fahrenheit whenever possible.

WARNING

General Electric Green Coded Chargers are designed for charging Intrinsically Safe 700 mAh battery pack 19D413522G5 only. Attempting to charge any other battery pack or batteries may result in damage to equipment, leakage or explosion.

To use the rack charger, plug the power cable into the appropriate AC power source. Place the POWER, OFF, ON switch on the control unit in the ON position. LED indicator CR1, on the Control Unit, should light. Place the radio into a charging insert with the speaker facing down or place the battery pack into a charging insert with the arrow on the yellow label pointing up. The amber LED indicator, on the charging insert, labeled "CHARGING" will light. The battery pack is being charged.

To charge the battery pack to 100% capacity, let it stay in the charging insert for at least 16 hours. See Figure 1.

CIRCUIT ANALYSIS

The 16-Hour Rack Charger combination consist of charge panels and a power supply. References to symbols mentioned in the following text can be found on the applicable schematic and outline diagrams or parts list (see table of contents).

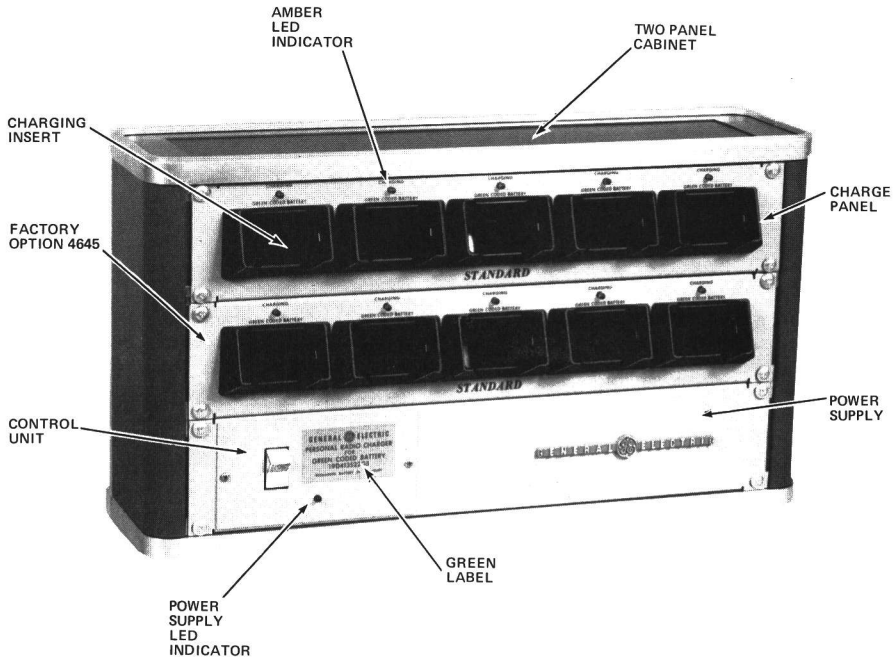


Figure 1 - Rack Charger

Charge Panel

Charge Panel 19D423211G2 has five parallel connected charging circuits. Each charging circuit has a series connected resistance to determine the C/10 constant current charge rate: 70 mA for the 700 mAh battery pack. The charging current is applied to the battery pack when the pack is in the charging insert. The amber LED indicator labeled "CHARGING" lights when positive contact has been made with the battery pack contacts. Charging current for the 700 mAh battery pack is applied through charging contacts 3 and 6 on the charging insert.

2.3-Amp Power Supply

2.3-Amp Power Supply 19D423207G3 for 121 VAC operation provides a rectified unfiltered charging voltage for standard 16-hour Green Coded rack charger combinations.

AC voltage developed across the secondary of T803 and T804 is rectified by full-wave rectifier circuit CR4 and CR5. The 16 Volt rectified output is connected to the charging panels through Molex® connector J1.

Control Unit

Control Unit 19C321527G3 provides a POWER, OFF, ON switch, and fusing for the 2.3-amp power supply. With P1 of the control unit plugged in J3 on A821 of the power supply, AC voltage is applied through POWER, OFF, ON switch S1 and Fuse F1 to the primary of transformers T803 and T804. LED indicator CR1 is connected to the output of the 2.3-amp power supply through P1-8 and monitors the supply output, remaining on as long as there is voltage.

MAINTENANCE

Access

To gain access to the circuitry of a charger panel or power supply, remove the four screws holding the defective panel or power supply in the rack. Lift the panel or power supply from the rack disconnecting any Molex® connectors. A charger panel must be removed to replace any LED indicators. To replace a fuse it is necessary only to remove the control unit from the power supply.

Troubleshooting

Should a difficult service problem arise, the following Quick Check Troubleshooting Chart should provide assistance for the service technician.

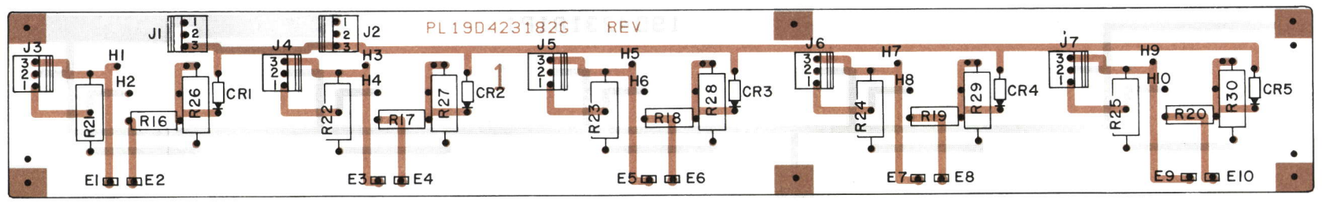
QUICK CHECKS

SYMPTOM	QUICK CHECK
1. None of the LED indicators light.	1. Insure P1 of power supply control unit is securely plugged into J3 of the power supply. 2. Check fuse F1 in the control unit.
2. A single LED indicator does not light.	1. Insure the battery pack is secure in the charging insert. 2. Check for defective LED. 3. Check connections between charging circuit and charging insert.
3. Battery pack does not recharge in 16 hours.	1. Check for a defective battery pack. 2. Check for open diodes and resistors in the defective charging circuit.
4. LED indicators of a charge panel do not light.	1. Check connectors and cabling between the defective panel and the power supply.

INSTALLATION

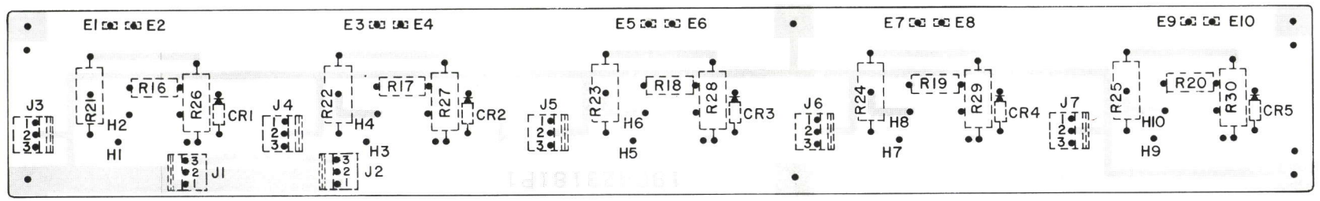
Rack chargers should be mounted on a wall close to a 121-Volt AC (50/60 Hertz) source. Care should be taken when mounting to insure proper top and bottom ventilation. A minimum air space of two inches is required between the bottom of a rack charger and other surfaces.

A7
COMPONENT SIDE



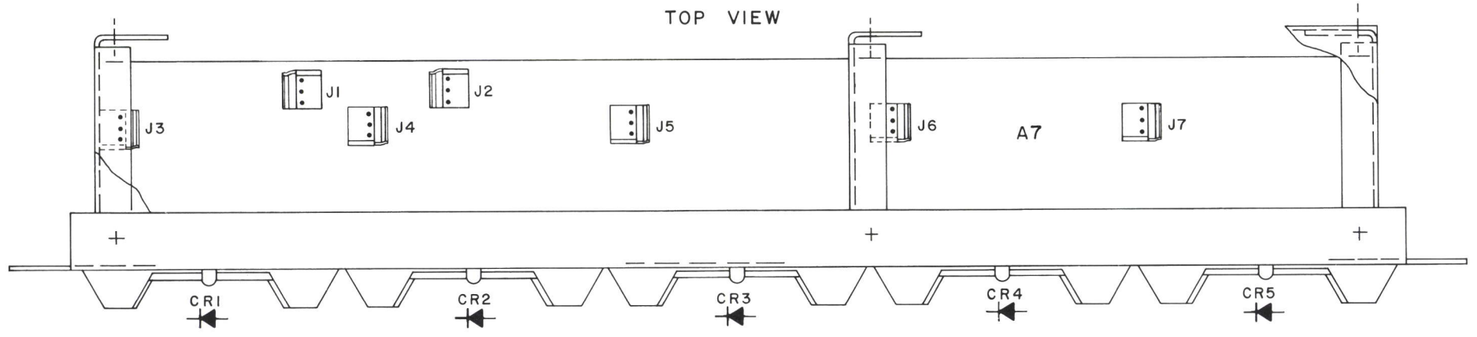
(19C321482, Sh. 1, Rev. 0)
(19C321482, Sh. 2, Rev. 0)

SOLDER SIDE

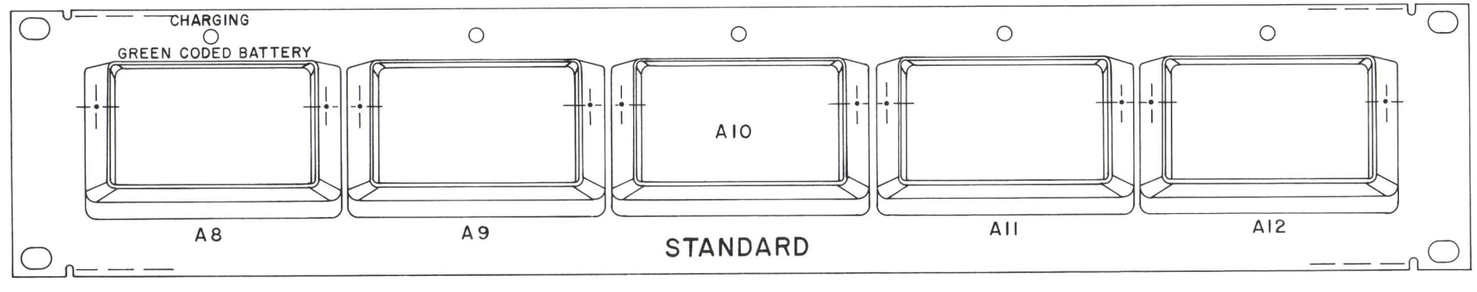


(19C321482, Sh. 2, Rev. 0)

TOP VIEW

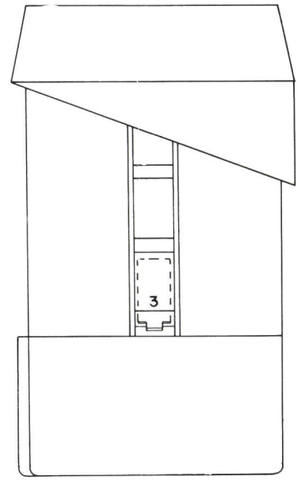


FRONT VIEW

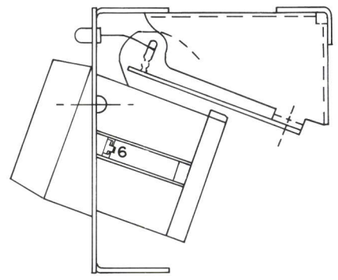


(19D423698, Rev. 0)

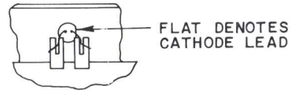
CHARGING SLEEVE
(LEFT SIDE)



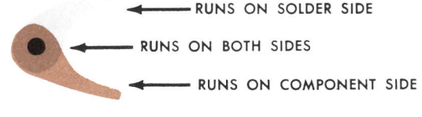
END VIEW



LEAD IDENTIFICATION
(FOR CR1 THROUGH CR5)

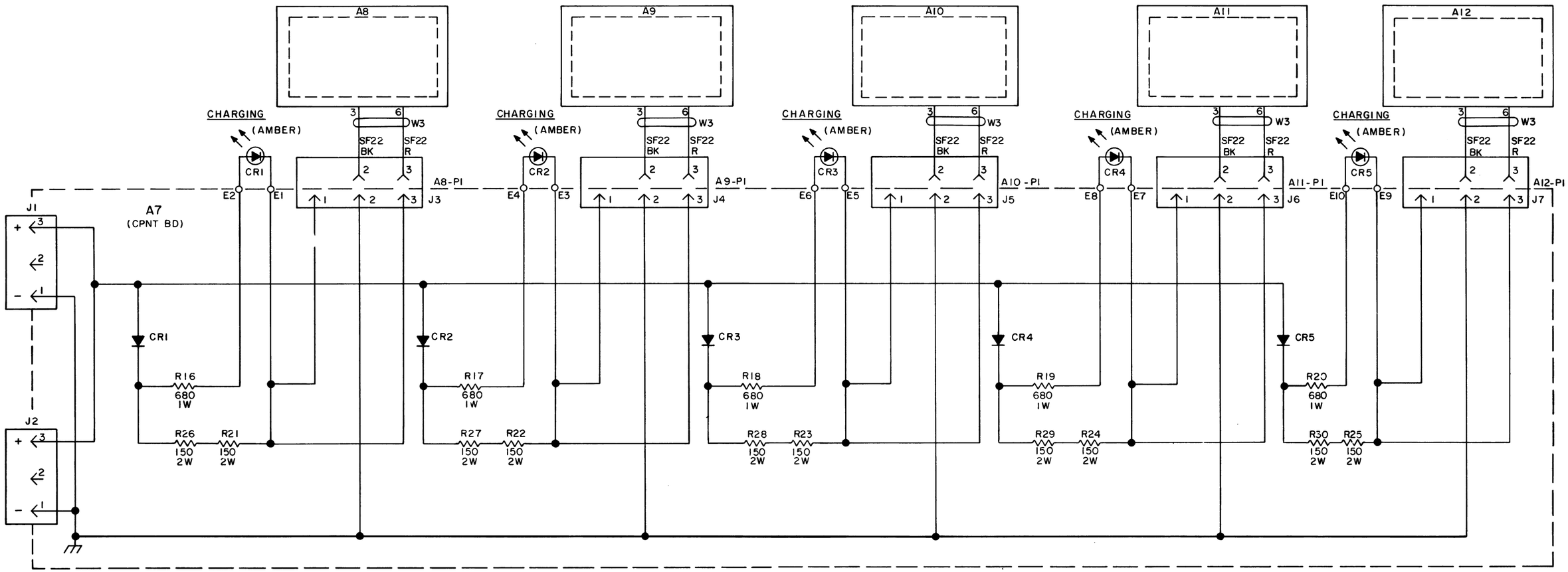


VIEW FROM LEAD END



OUTLINE DIAGRAM

16 HOUR CHARGING PANEL
19D423211G2



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
PLI9D423211G2	
PLI9D423182G2	

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.

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.

(19D423441, Rev. 1)

SCHEMATIC DIAGRAM

16 HOUR CHARGING PANEL
19D423211G2

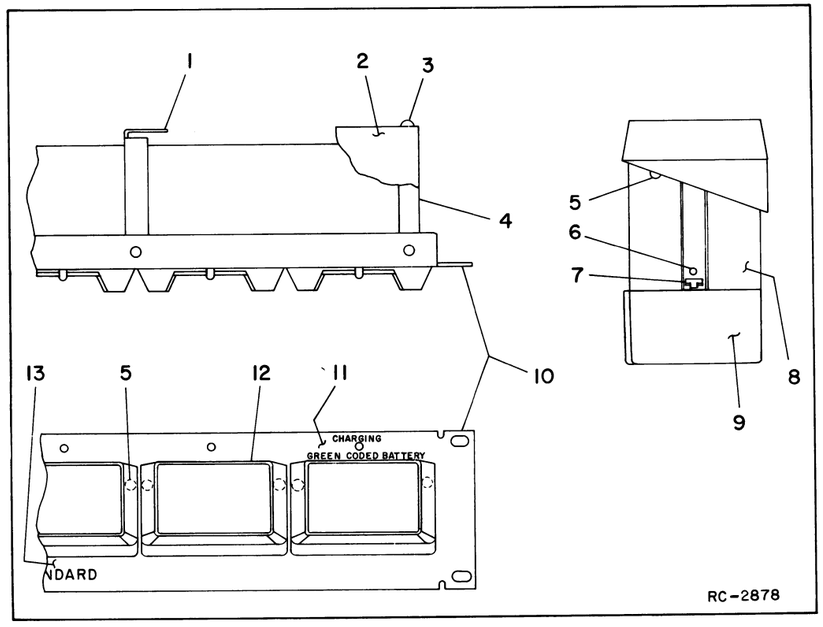
PARTS LIST

LBI-30009

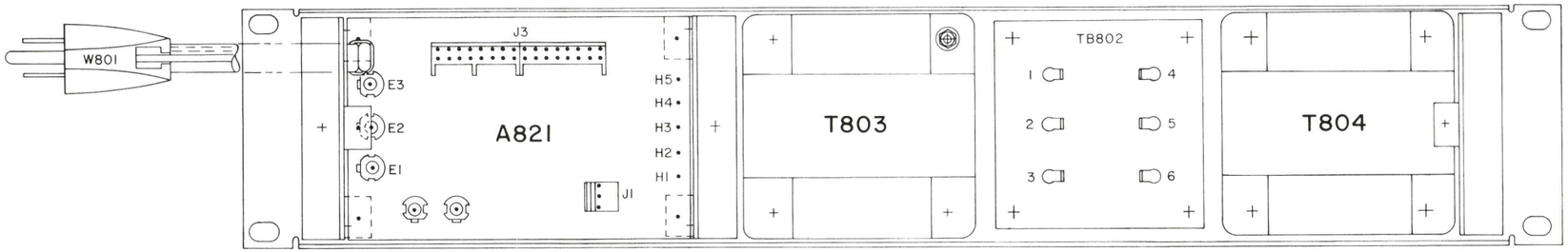
16 HOUR CHARGER PANEL
(FOR INTRINSICALLY SAFE BATTERY PACKS)
19D423211G2

SYMBOL	GE PART NO.	DESCRIPTION
A7		COMPONENT BOARD 19D423182G2
		- - - - - - - DIODES AND RECTIFIERS - - - - - - -
CR1 thru CR5	4027822P1	Silicon.
		- - - - - - - - - - TERMINALS - - - - - - - - - -
E1 thru E10	4031537P1	Terminal: sim to Alden Products 654T.
		- - - - - - - JACKS AND RECEPTACLES - - - - - - -
J1 thru J7	19A116659P55	Connector, printed wiring: 3 contacts; sim to Molex 09-65-1031.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R16 thru R20	3R78P681J	Composition: 680 ohms ±5%, 1 w.
R21 thru R30	3R79P151J	Composition: 150 ohms ±5%, 2 w.
A8 thru A12		SLEEVE ASSEMBLY 19C321506G3
		- - - - - - - - - - - PLUGS - - - - - - - - - - -
P1		(Part of W3).
		- - - - - - - - - - - CABLES - - - - - - - - - - -
W3	19B226769G3	Cable: approx 6 inches long. Includes P1 (19A116659P14).
		MECHANICAL PARTS (SEE RC-2878)
1	19C321490P1	Support.
2	19B226756P1	Cover.
3	19B201074P304	Tap screw, Phillips POZIDRIV®: No. 6-32 x 1/4.
4	19C321490P2	Support.
5	19B201074P205	Tap screw, Phillips POZIDRIV®: No. 4-40 x 5/16.
6	N330P603F22	Eyelet, metalic: 1/16 x 3/32.
7	19B216916P1	Contact.
8	19E500915P1	Sleeve.
9	19C321020P1	Cover.
10	19D417978P3	Panel.
11	NP280019P1	Nameplate, decal. (CHARGING-GREEN CODED BATTERY).
12	19C321506G3	Sleeve Assembly. (Includes items 6-9).
13	NP280019P2	Nameplate, decal. (STANDARD).

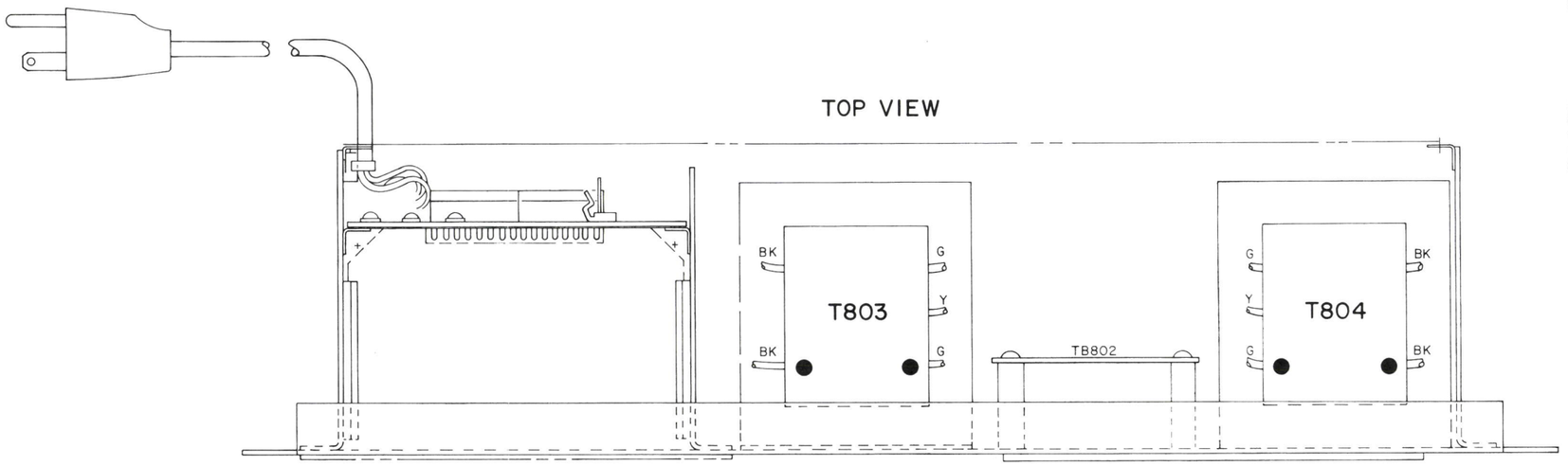
*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES.



BACK VIEW

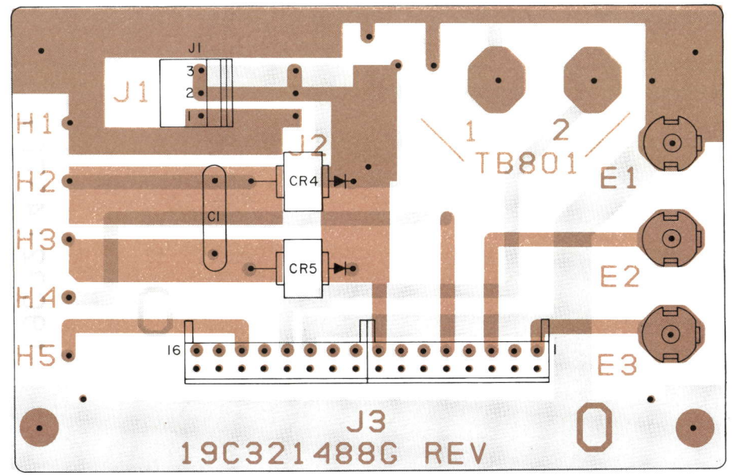


TOP VIEW



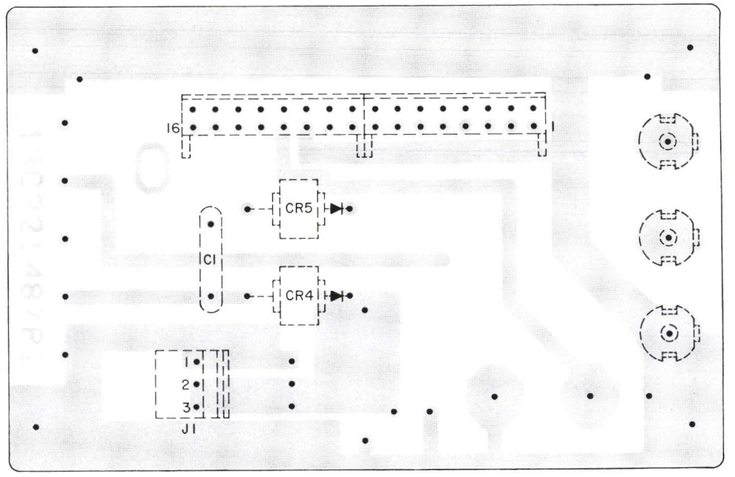
(19D423688, Rev. 0)

A821
COMPONENT SIDE

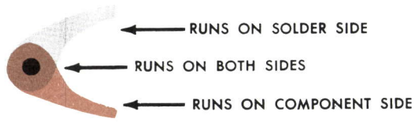


(19B226762, Sh. 1, Rev. 0)
(19B226762, Sh. 2, Rev. 0)

SOLDER SIDE



(19B226762, Sh. 2, Rev. 0)



OUTLINE DIAGRAM

2.3 AMP POWER SUPPLY

8 Issue 1

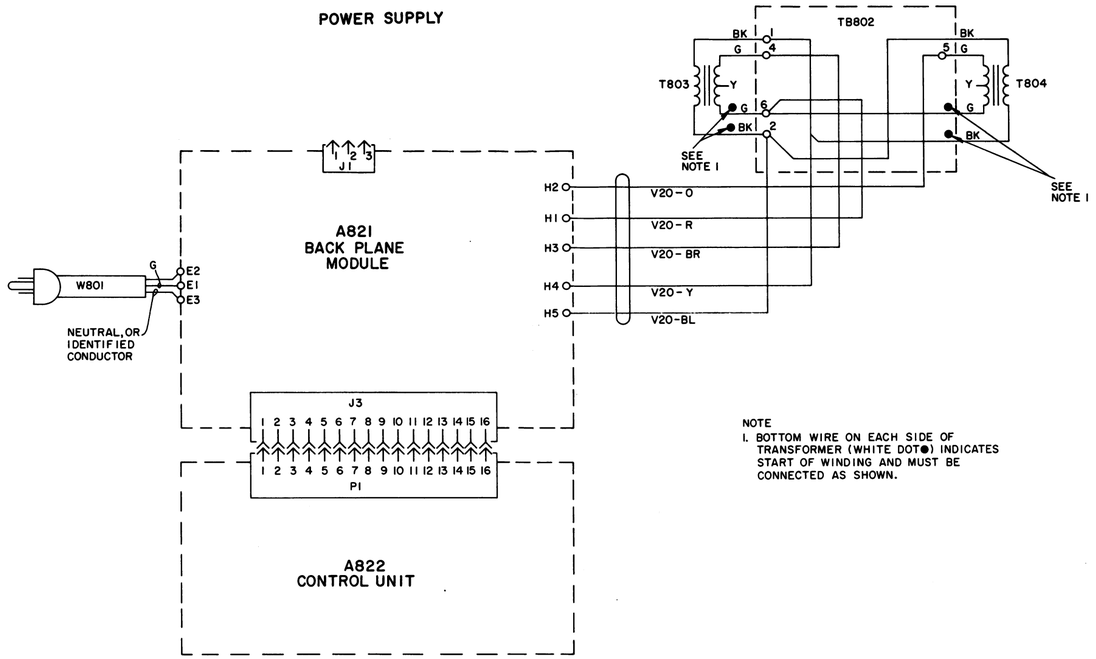
PARTS LIST

LBI-30005

2.3 AMP POWER SUPPLY 19D423207G3
(FOR INTRINSICALLY SAFE BATTERY PACKS)

SYMBOL	GE PART NO.	DESCRIPTION
A821		BACK PLANE BOARD 19C321488G2
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1	7774750P13	Ceramic disc: .01 µf +100% -0%, 500 VDCW.
		- - - - - - - - DIODES AND RECTIFIERS - - - - - - - -
CR4 and CR5	19A116783P2	Silicon.
		- - - - - - - - - - TERMINALS - - - - - - - - - -
E1 thru E3	19A116667P3	Plate nut.
		- - - - - - - - JACKS AND RECEPTACLES - - - - - - -
J1	19A116659P55	Connector, printed wiring: 3 contacts; sim to Molex 09-65-1031.
J3	19A116659P3	Connector, printed wiring: 8 contacts; sim to Molex 09-52-3082.
		- - - - - - - - - - TRANSFORMERS - - - - - - - - -
T803 and T804	19A116218P1	Power, step-down: Pri: 117 VRMS, 50/60 Hz, Sec: 15.25 VRMS each side of CT (no load).
		- - - - - - - - - - CABLES - - - - - - - - - -
W801	19A130534G1	Power: 3 wire.
		- - - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19C321399P1	Cover.
	19B226804P1	Insulator. (Used with cover).
	4035449P4	Rubber bumper. (Located on cover).
	19B209572P2	Identification plate.
	19C307038P7	Nut, push-on: sim to Palnut PS094032. (Used with identification plate).
	19A115185P4	Retainer block, cable. (Used with retainer strap).
	19A115185P5	Retainer strap, cable. (Used with retainer block).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES



NOTE
1. BOTTOM WIRE ON EACH SIDE OF TRANSFORMER (WHITE DOT●) INDICATES START OF WINDING AND MUST BE CONNECTED AS SHOWN.

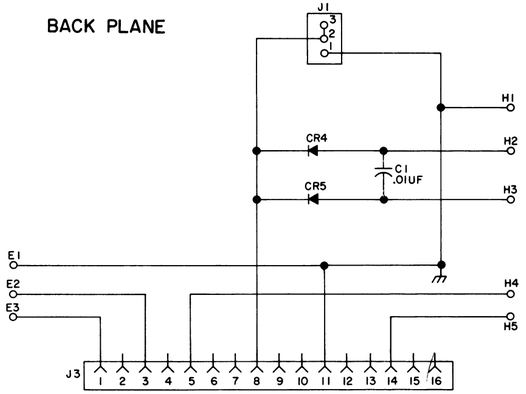
SEE APPLICABLE PRODUCTION CHANGE SHEETS IN INSTRUCTION BOOK SECTION DEALING WITH THIS UNIT, FOR DESCRIPTION OF CHANGES UNDER EACH REVISION LETTER.

THIS ELEM DIAG APPLIES TO

MODEL NO — REV LETTER
PL19D42320763
121 VAC

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.

(19C321775, Rev. 2)



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
PL19C321488G2

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.

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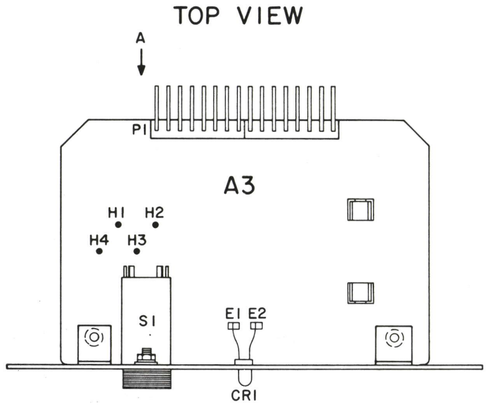
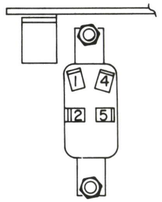
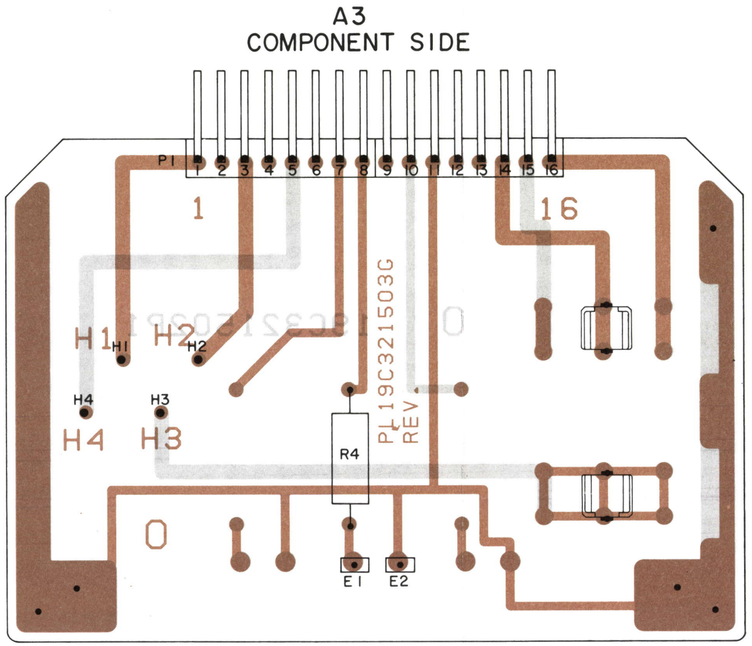
(19B227040, Rev. 1)

SCHEMATIC DIAGRAM

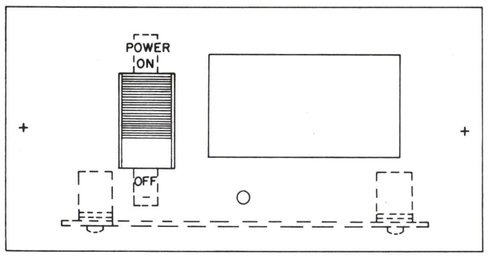
2.3 AMP POWER SUPPLY & BACK PLANE

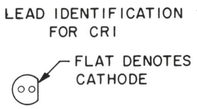






(19B226770, Sh. 1, Rev. 0)
(19B226770, Sh. 2, Rev. 0)





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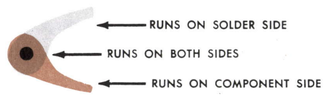


OUTLINE DIAGRAM

CONTROL UNIT
19C321527G3

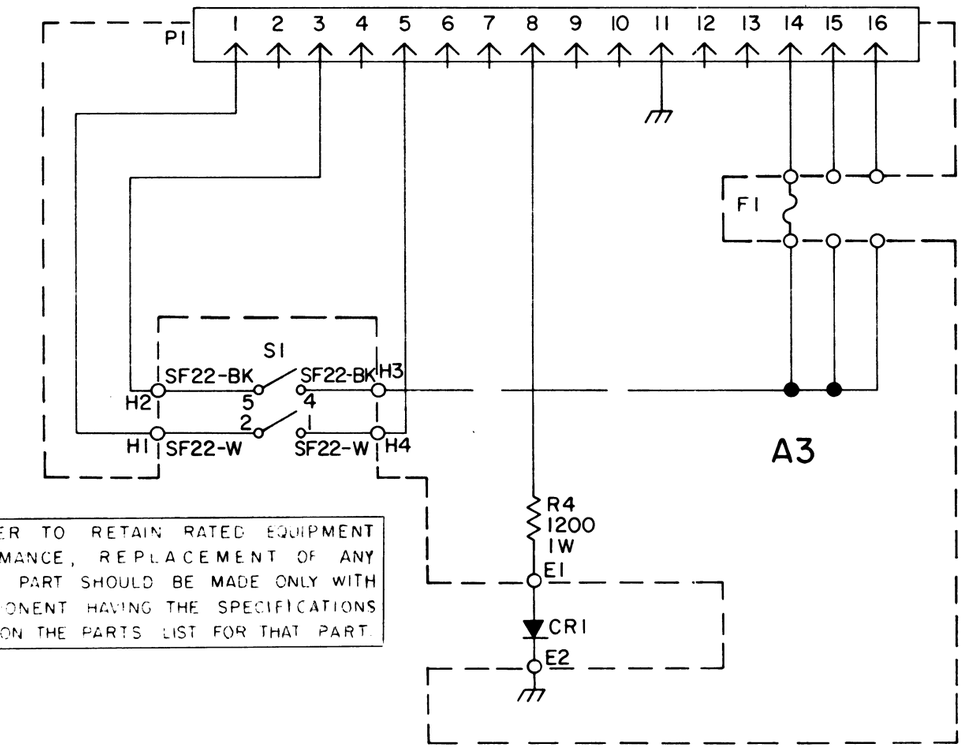
PARTS LIST

LBI-30039

CONTROL UNIT
19C321527G3

SYMBOL	GE PART NO.	DESCRIPTION
A3		COMPONENT BOARD 19C321503G3
		- - - - - - - - - - TERMINALS - - - - - - - - - -
E1 and E2	4031537P1	Terminal: sim to Alden Products 654T.
		- - - - - - - - - - - - FUSES - - - - - - - - - - -
F1	7487942P27	Slow blowing: 2 amp at 125 v; sim to Bussmann MDL-2.
		- - - - - - - - - - - - PLUGS - - - - - - - - - - -
P1	19A116659P30	Connector, printed wiring: 8 contacts; sim to Molex 2373-8A.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R4	3R78P122J	Composition: 1200 ohms ±5%, 1 w.
		- - - - - - - - DIODES AND RECTIFIERS - - - - - - -
CR1	19A134146P5	Diode, optoelectronic: green; sim to Opcoa LSM-16L.
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S1	19B209498P2	Push: DPST, 20 amps and 220 VRMS; sim to McGill 0811-0188 with black knob.
		- - - - - - - - - - MISCELLANEOUS - - - - - - - - - -
	19A116688P1	Clip, electrical. (Quantity 2- makes socket for F1).
	19B226677G2	Cover.
	19B201074P304	Tap screw, Phillips POZIDRIV®: No. 6-32 x 1/4. (Secures A3 to cover).
	NP279976	Nameplate. (POWER ON-OFF).
	NP280024	Nameplate, aluminum foil. (General Electric Personal Radio Charger for green coded battery-recharges battery in 16 hours).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES



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.

(19B227041, Rev. 1)

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
PLI9C321527G3	

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.

SCHEMATIC DIAGRAM

CONTROL UNIT
19C321527G3

PARTS LIST

LBI-30007

3 AND 7 PANEL CABINETS
19C321522G1 3 PANEL
19C321522G2 7 PANEL

SYMBOL	GE PART NO.	DESCRIPTION
	19B226790G1	Support, cabinet siding. (3 Panel).
	19B226790G2	Support, cabinet siding. (7 Panel).
	19C321521G1	Cover. (Top and bottom).
	19B209008P29	Bushing, electrical conduit: sim to Heyman Mfg. SB-1500-18. (AC power entry).
	7160861P33	Nut, sheet spring: sim to Tinnerman C19640-104B-600. (Used to secure panels).
	4037460P16	Stud, self-clinching: No. 10-32; sim to Penn FH-032-6CL.
	N210P16C6	Hex nut: No. 10-32. (Used to secure cabinet covers).
	N403P19C6	Lockwasher, external tooth: No. 10. (Used to secure cabinet covers).
	N402P9C6	Flatwasher, narrow: No. 10. (Used to secure cabinet covers).
	19D417978P4	Blank panel.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

ORDERING SERVICE PARTS

Each component appearing on the schematic diagram is identified by a symbol number, to simplify locating it in the parts list. Each component is listed by symbol number, followed by its description and GE Part Number.

Service parts may be obtained from Authorized GE Communication Equipment Service Stations or through any GE Radio Communication Equipment Sales Office. When ordering a part, be sure to give:

1. GE Part Number for component
2. Description of part
3. Model number of equipment
4. Revision letter stamped on unit

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance.

Should further information be desired, or should particular problems arise which are not covered sufficiently for the purchaser's purposes, contact the nearest Radio Communication Equipment Sales Office of the General Electric Company.

MAINTENANCE MANUAL

LBI-30006

DF-0069

MOBILE RADIO DEPARTMENT
GENERAL ELECTRIC COMPANY • LYNCHBURG, VIRGINIA 24502

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