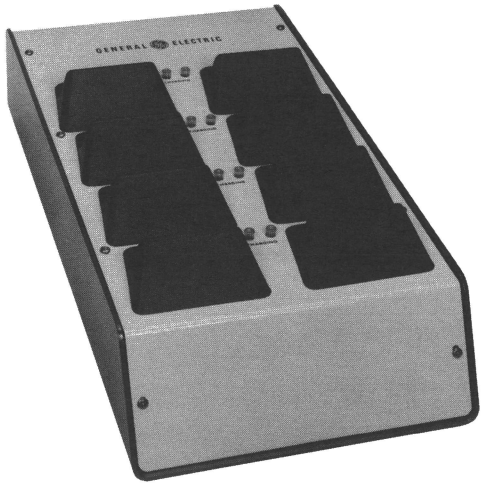
ERICSSON

Mobile Communications



MPI MULTI-CHARGER

19D900795G3 & G4

Maintenance Manual

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ERICSSON

Ericsson GE Mobile Communications Inc.
Mountain View Road • Lynchburg, Virginia 24502

SPECIFICATIONS

Input Voltage (nominal)	
351L1B1X	121 VAC, 50/60 Hz
351M1B1X	220 VAC, 50/60 Hz
Charge Time (hours)	14
Charge Current	45 milliamperes constant current

COMBINATION NOMENCLATURE

Digit 1	Digit 2	Digit 3	Digit 4	Digit 5	Digit 6	Digit 7	Digit 8
Product Line	Application	Package	Input Voltage	Charge Time	Version	Vintage	Range
3 Charger	**4** MPI	**2** Desk/Wall	**L** 121 VAC (50/60 Hz)	**1** 14 Hours	**B** Multi-Socket	**1**	**X** Not Range Sensitive
			M 240 VAC (50/60 Hz)				

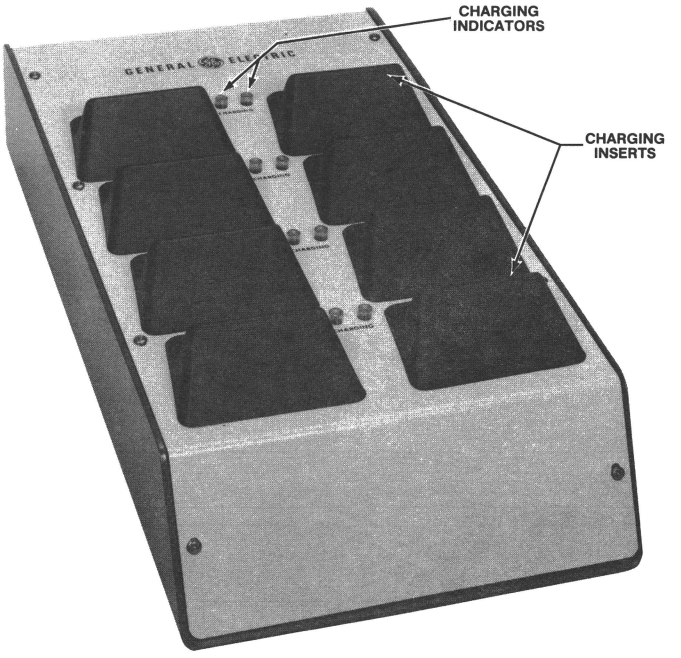


Figure 1 - Multi-Charger

DESCRIPTION

The General Electric multi-charger will recharge up to eight MPI nickel-cadmium battery packs. The charger will recharge any combination of separate battery packs or battery packs attached to the radio.

The charger provides a continuous C/10 charge rate, and will fully recharge up to eight battery packs in 14 hours. The charger can be ordered for operation from either a 120 or 240 Volt source.

The charger can also be set up to operate from a 105 VAC or 210 VAC source by connecting J3 to the appropriate Pin on the circuit board.

OPERATION

Eight amber indicators on the charger indicate when the battery pack is making contact with the charging terminals and the battery pack is charging.

NOTE

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

To use the charger, connect the power cable to a 120 or 240 Volt AC source (depending on the charger option. Then place the radio into the charging insert with the speaker facing the front of the charger, or place the battery pack in the charging insert.

The amber LED indicator labeled CHARGING will light, indicating the battery pack is being charged. To charge the battery pack to 100% capacity, let it stay in the charging insert for at least 14 hours.

CIRCUIT ANALYSIS

The constant current multi-charger consists of a power supply and eight identical charging circuits. References to symbol numbers mentioned in the following text can be found on the Schematic and Outline Diagram or Parts List.

When power is applied to the charger, the AC voltage is coupled through step-down transformer T1 and applied to full wave bridge rectifier D1 through D4. The rectified 12 Volts DC output is filtered by C1 and applied to the emitter of the PNP charging transistors. The DC voltage is also applied to the anode of the indicator LED's.

Placing a radio or battery pack into the charging insert completes the ground return path, turning on the charging transistor and lighting the CHARGING LED. Resistors R1, R3, R5, etc. are current-limiting resistors for the LED.

Charging current for the charging insert is applied to the battery through charging contacts E1 and E2.

DISASSEMBLY

WARNING

Always de-energize unit by unplugging power cord prior to disassembly of unit.

To gain access to the charger circuitry for servicing:

1. Remove the six phillips-head screws from the top of the charger.
2. Remove the two screws in the front and one screw in the back of the charger and lift off the top cover with the charging inserts. All circuitry is in the top cover.

To remove the circuit board, remove the 10 hex nuts with a 1/4-inch nut driver.

NOTE

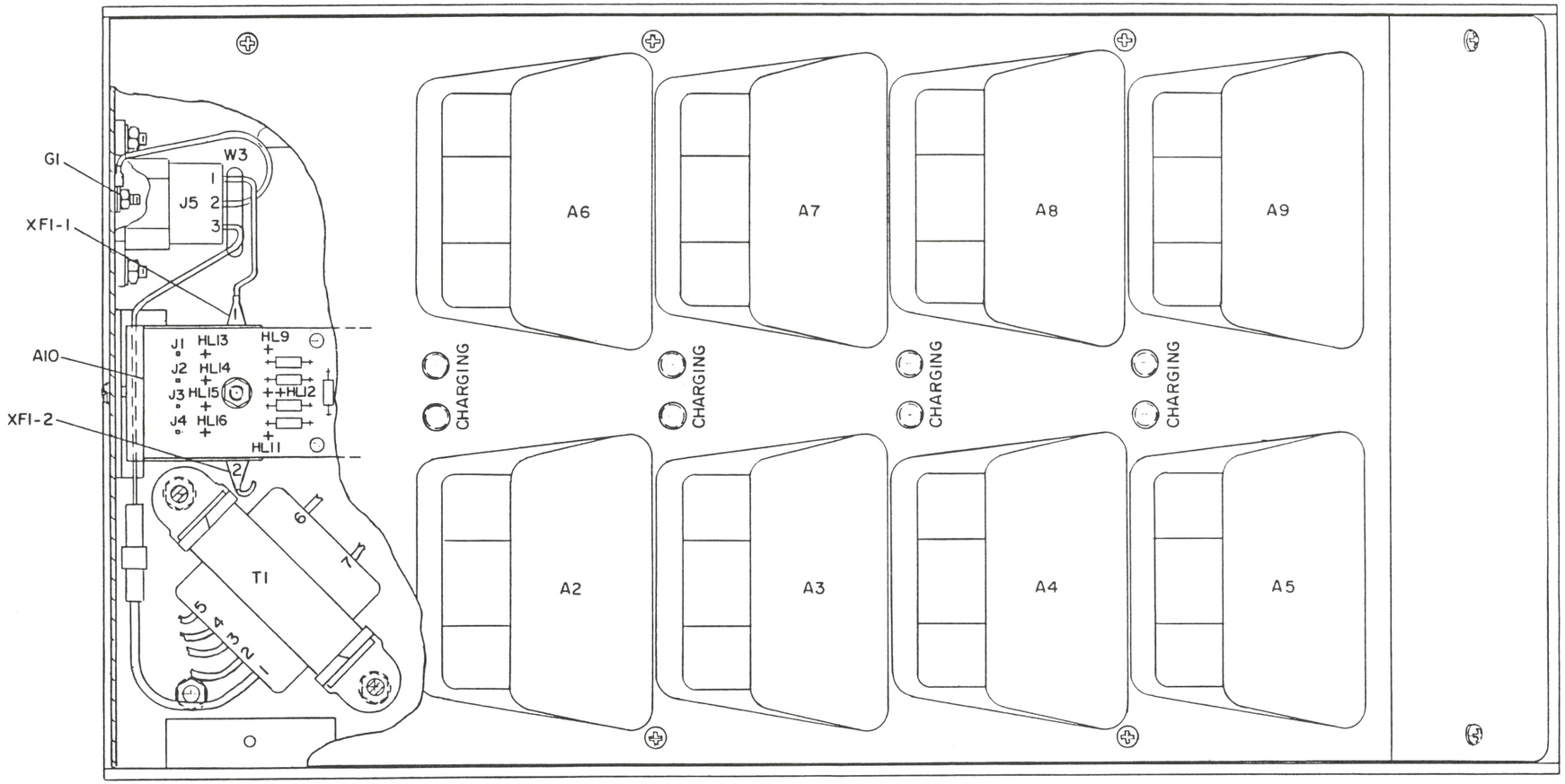
The charger fuse is located inside the unit under a fiberboard cover located at one end of the circuit board. Remove the TOP cover as described above in order to gain access for fuse replacement.

TROUBLESHOOTING

Should a difficult service problem arise, the following checks should aid the service technician in locating the difficulty.

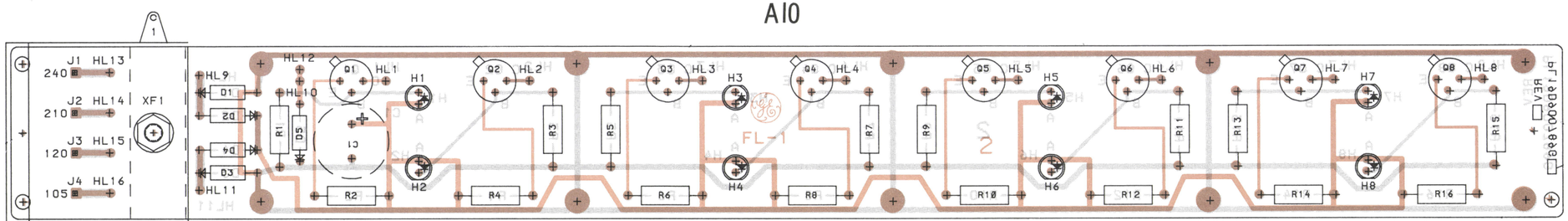
QUICK CHECKS

SYMPTOM	QUICK CHECK
1. None of the LED indicators light.	1. Insure that the power cable is securely plugged into J5 of the charger. 2. Check fuse F1/F2 (Inside).
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 14 hours.	1. Check for a defective battery pack 2. Check the charging transistors and resistors in the defective charging circuit.

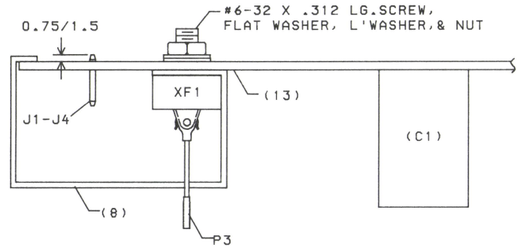


(19C851158, Rev. 0)

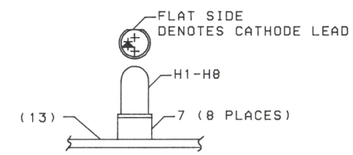
A10



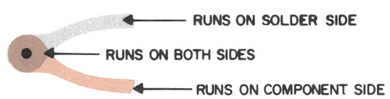
(19D900789, Sh. 2, Rev. 3)
(19A703281, Sh. 1, Rev. 2)
(19A703281, Sh. 2, Rev. 2)



VIEW IN DIRECTION OF ARROW "A"

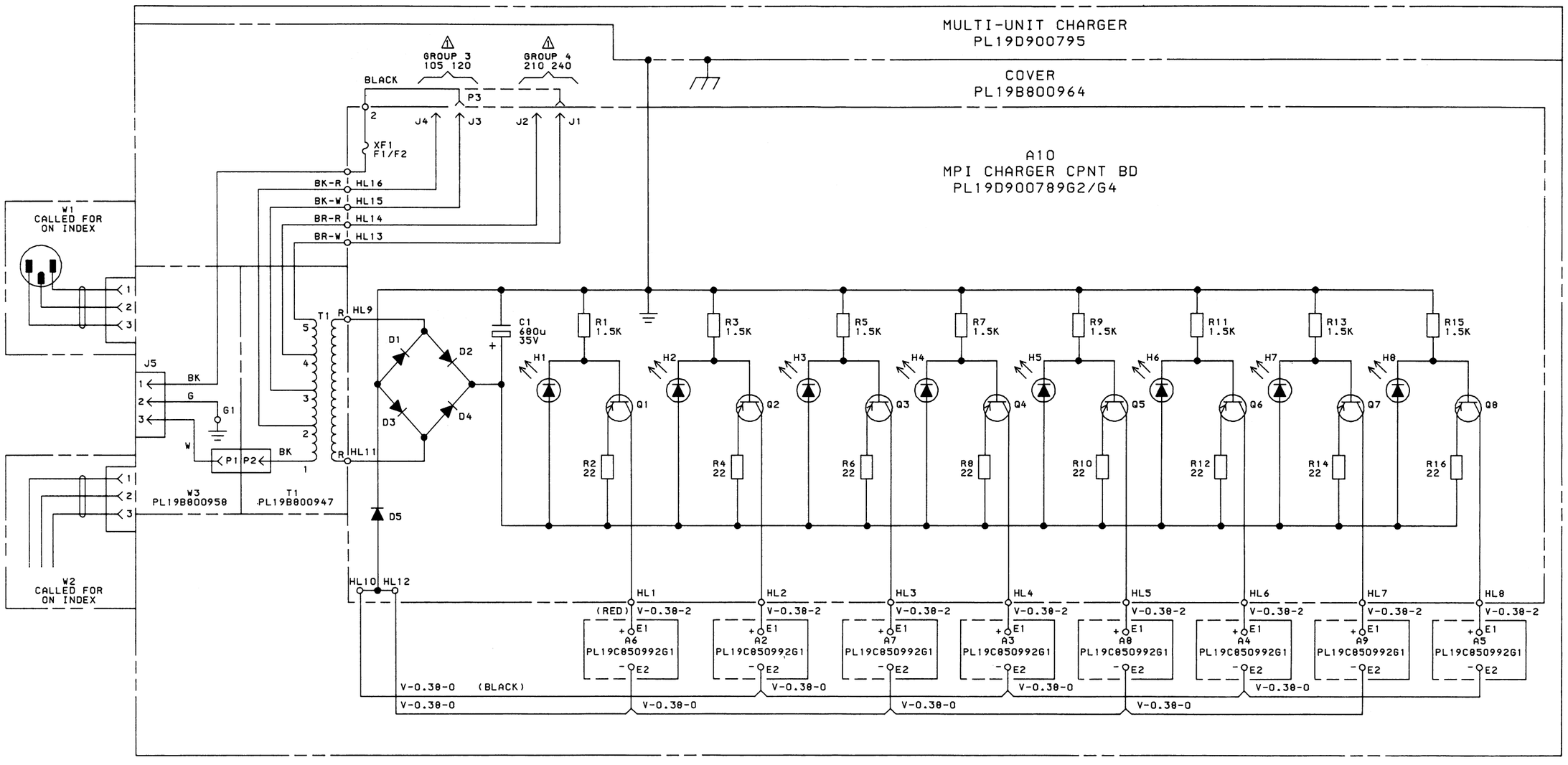


VIEW IN DIRECTION OF ARROW "B"



OUTLINE DIAGRAM

MULTI-CHARGER



NOTES:

⚠ PLUG A10-P3 TO A10-J3 FOR 120 VOLTS AC OPERATION.
PLUG A10-P3 TO A10-J1 FOR 240 VOLTS AC OPERATION.

ALL RESISTORS ARE 1/2 WATT UNLESS OTHERWISE SPECIFIED.
RESISTOR VALUES IN Ω UNLESS FOLLOWED BY MULTIPLIER k OR M.
CAPACITOR VALUES IN F UNLESS FOLLOWED BY MULTIPLIER μ, n OR p.

MODEL NO	REV LETTER
PL19D900789G2	C
PL19D900795G3	C
PL19D900795G4	C

(19D900994, Sh. 1, Rev. 6)

SCHEMATIC DIAGRAM

MULTI-CHARGER

PARTS LIST

MPI MULTI CHARGER
19D900795G3 120 VAC
19D900795G4 240 VAC
ISSUE 3

SYMBOL	GE PART NO.	DESCRIPTION
A2 thru A9	19C850992G1	Sleeve assembly.
A10		CHARGER BOARD 19D900789G2
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1	19A701225P5	Electrolytic: 680 uF, -10+50%, 35 VDCW.
		- - - - - - - - - - DIODES - - - - - - - - - -
D1 thru D5	T324ADP1041	Silicon: General Purpose Rectifier; sim to 1N4004.
		- - - - - - - - - - LEDS - - - - - - - - - -
H1 thru H8	19A134354P2	Diode, optoelectronic: yellow; sim to Hew. Packard 5082-4555.
		- - - - - - - - - - JACKS - - - - - - - - - -
J1 thru J4	19A701785P5	Contact, electrical.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P3	19A127042P2	Solderless terminal: 20-24 AWG; sim to Malco 120-93-10.
		- - - - - - - - - - TRANSISTORS - - - - - - - - - -
Q1 thru Q8	19A115562P2	Silicon, PNP; sim to Type 2N2904A.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1	19A700113P67	Composition: 1.5K ohms + or - 5%, 1/2 w.
R2	19A700113P23	Composition: 22 ohms + or - 5%, 1/2 w.
R3	19A700113P67	Composition: 1.5K ohms + or - 5%, 1/2 w.
R4	19A700113P23	Composition: 22 ohms + or - 5%, 1/2 w.
R5	19A700113P67	Composition: 1.5K ohms + or - 5%, 1/2 w.
R6	19A700113P23	Composition: 22 ohms + or - 5%, 1/2 w.
R7	19A700113P67	Composition: 1.5K ohms + or - 5%, 1/2 w.
R8	19A700113P23	Composition: 22 ohms + or - 5%, 1/2 w.
R9	19A700113P67	Composition: 1.5K ohms + or - 5%, 1/2 w.
R10	19A700113P23	Composition: 22 ohms + or - 5%, 1/2 w.
R11	19A700113P67	Composition: 1.5K ohms + or - 5%, 1/2 w.
R12	19A700113P23	Composition: 22 ohms + or - 5%, 1/2 w.
R13	19A700113P67	Composition: 1.5K ohms + or - 5%, 1/2 w.
R14	19A700113P23	Composition: 22 ohms + or - 5%, 1/2 w.
R15	19A700113P67	Composition: 1.5K ohms + or - 5%, 1/2 w.
R16	19A700113P23	Composition: 22 ohms + or - 5%, 1/2 w.
		- - - - - - - - - - FUSE SOCKETS - - - - - - - - - -
XF1	19A702763P2	Fuse holder: 30 Amps at 125 V; sim to Littlefuse 350221.
		- - - - - - - - - - FUSES - - - - - - - - - -
F1	19B800912P10	Cartridge, dual element, slow blow: 1/4 amp @ 250 volts; sim to Bussman MDL 1/4. (Used in G3).
F2	19B800912P5	Cartridge, dual element, slow blow: 1/8 amp @ 250 Volts; sim to Bussman MDL 1/8. (Used in G4).
T1	19B800947G1	- - - - - - - - - - TRANSFORMERS - - - - - - - - - - Power, step-down. Includes:
	19B209505P101	Shell.
	19B209505P20	Contact, electrical.
W3		CABLE ASSEMBLY 19B800958G1
		- - - - - - - - - - JACKS - - - - - - - - - -
J5		Connector. Includes:
	19B800914P1	Power receptacle housing; sim to Molex 15-04-0703. (Used in G1).
	19B800914P2	Contact: rated 15 amps @ 125 VAC; sim to Molex 16-02-1103. (Used in G1).
		- - - - - - - - - - PLUGS - - - - - - - - - -
P1		Connector. Includes:
	19B209505P201	Shell.
	19B209505P21	Contact.
		- - - - - - - - - - MISCELLANEOUS - - - - - - - - - -
	19A121461P3	Phenolic tube. (Used with H1-H8).
	19B800928G1	Fuse cover.
	19A701332P4	Insulator, washer: nylon. (Used with H1-H8).
	19D900792G1	Base assembly.
	19B800964G1	Cover.
	19A134521P3	Lens: amber. (Used with H1-H8).
	19A149460G9	Sleeve spacer. (Quantity 10).
	4037559P9	Rubber bumper. (Quantity 4).
	19A702381P508	Screw, thd. form: No. 3.5-0.6 x 8. (Secures cover).
	19J706152P5	Retainer strap: sim to Panduit Corp. SST-1.
		ASSOCIATED PARTS
		- - - - - - - - - - CABLES - - - - - - - - - -
W1	19A134713P1	Power: 3 wire, rated 10 amps @ 125 volts, 7 1/2 foot long; sim to Beldon 17250. (120 Volt).
W2	19A134713P2	Power: 3 wire, rated 10 amps @ 125 volts, 6 1/2 foot long. (240 Volt).

*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 the descriptions of parts affected by these revisions.

REV. A - MULTI-CHARGER 19D900795G3,4
To prevent fuses F1 and F2 from blowing on unit start-up. Changed fuses from quick-blow to slow-blow.

F1 was 19A701881P13 - Cartridge, quick blow: 1/4 amp; sim to Littlefuse 312.250.

F2 was 19A701881P8 - Cartridge, quick blow: 1/8 amp @ 250 volts; sim to Littlefuse 312.125.

REV. A - CHARGER BOARD 19D900789G2
REV. B - MULTI-CHARGER 19D900795G3,4
To incorporate new transformer on multi-charger assembly, and to improve life of charging circuit components on charger board. Incorporated a Rev. 1 transformer (T1), and changed R10, R12, R14, and R16 on charger board.

R10 was 19A700113P27 - Composition: 33 ohms ±5%, 1/2 w.
R12 was 19A700113P27 - Composition: 33 ohms ±5%, 1/2 w.
R14 was 19A700113P27 - Composition: 33 ohms ±5%, 1/2 w.
R16 was 19A700113P27 - Composition: 33 ohms ±5%, 1/2 w.

REV. B - CHARGER BOARD 19D900789G2
REV. C - MULTI-CHARGER 19D900795G3,4
To improve operation. Changed XF1.

XF1 was 19A702763P1 - Fuseholder: rated 30 amps @ 125 volts; sim to Bussmann 3998.

REV. C - CHARGER BOARD 19D900789G2
To increase charge current, changed R2, R4, R6, R8, R10, R12, R14, and R16.

R2 was 19A700113P25 - Composition: 27 ohms ±5%, 1/2 w.
R4 was 19A700113P25 - Composition: 27 ohms ±5%, 1/2 w.
R6 was 19A700113P25 - Composition: 27 ohms ±5%, 1/2 w.
R8 was 19A700113P25 - Composition: 27 ohms ±5%, 1/2 w.
R10 was 19A700113P25 - Composition: 27 ohms ±5%, 1/2 w.
R12 was 19A700113P25 - Composition: 27 ohms ±5%, 1/2 w.
R14 was 19A700113P25 - Composition: 27 ohms ±5%, 1/2 w.
R16 was 19A700113P25 - Composition: 27 ohms ±5%, 1/2 w.