DEPARTMENT OF THE ARMY TECHNICAL MANUAL

ORGANIZATIONAL MAINTENANCE MANUAL
CHARGER, BATTERY PP-1451/G

Headquarters, Department of the Army, Washington, D. C. 20315
8 July 1965

WARNING

DANGEROUS VOLTAGES EXIST IN THIS EQUIPMENT

High voltages and currents exist in this equipment. Serious injury or death may result from contact with the input or output connection. Deenergize the equipment before connecting or disconnecting the equip ment to be powered and before performing any maintenance.

DON'T TAKE CHANCES!

This copy is a reprint which includes current pages from Changes 1 through 3.

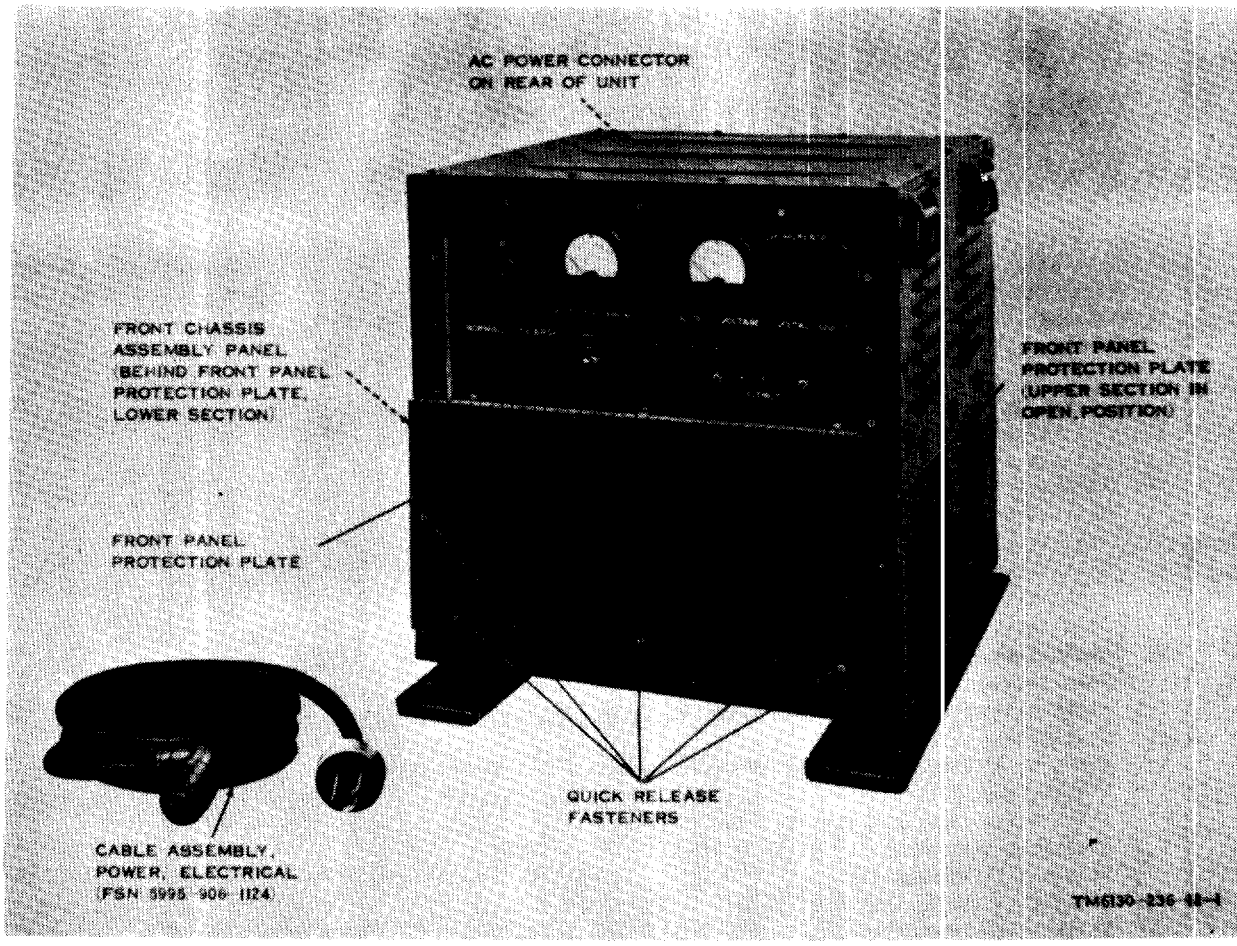

Figure 1-1. Charger, Battery PP-1451/G.

CHANGE
No. 3

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC *30 October 1981*

Operator's and Organizational Maintenance Manual
For
CHARGER BATTERY PP-1451/G
(NSN 6130-00-985-8157)

TM 11-6130-236-12, 8 July 1965, is changed as follows:

Page 1. Warning is superseded and the following warnings and first aid warnings are added.

By Order of the Secretary of the Army:

E. C. MEYER
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Bridgadier General, United States Army
The Adjutant General

Distribution:
To be distribute in accordance with special mailing list.

5 SAFETY STEPS TO FOLLOW IF SOMEONE IS THE VICTIM OF ELECTRICAL SHOCK

1. DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL
2. IF POSSIBLE , TURN OFF THE ELECTRICAL POWER
3. IF YOU CANNOT TURN OFF THE ELECTRICAL POWER, PULL, PUSH, OR LIFT THE PERSON TO SAFETY USING A WOODEN POLE OR A ROPE OR SOME OTHER INSULATING MATERIAL
4. SEND FOR HELP AS SOON AS POSSIBLE
5. AFTER THE INJURED PERSON IS FREE OF CONTACT WITH THE SOURCE OF ELECTRICAL SHOCK, MOVE THE PERSON A SHORT DISTANCE AWAY AND IMMEDIATELY START ARTIFICIAL RESUSCITATION

FIRST AID FOR CHEMICAL BURNS

1. In the event of contact with the eyes, IMMEDIATELY flush the eyes with water and continue to flush for 15 minutes. THE FIRST FEW SECONDS AFTER CONTACT are critical and IMMEDIATE FLUSHING of the eyes may prevent permanent damage. An eyewash fountain is preferred, however, an eyewash hose or any other source of water should be used in an emergency. Keep in mind that akali (base) burns are usually more serious than acid burns.

2. Strong chemicals burn the skin rapidly. There is no time to waste. Begin flushing the area with water IMMEDIATELY. Remove and discard clothing, including socks and shoes (obtain other clothes and shoes). Continue to flood the area while clothing is being removed.

3. The precautionary warning on the product label should be consulted for full first-aid information. Provide the label information to the attending physician.

4. Neutralizers and solvents (alcohol, etc.) should not be used by the firstaider. The spread of skin-absorbing corrosive poison, like phenol, can result in death. Don't depend on spilled chemicals to evaporate from your clothes; exposure to the skin can KILL you.

WARNINGS

DANGEROUS VOLTAGES (208 vac, 230 vac, or 460 vac) exist in this equipment. When equipment is operated with covers open or removed, DO NOT touch exposed connections or components. SERIOUS INJURY OR DEATH MAY RESULT. Deenergize the equipment before connecting or disconnecting the battery to be charged, and before performing any maintenance. Follow all precautions listed in TB 385-4.

Avoid personal injury. The power supply weighs 285 pounds; be careful when moving. A mechanical lift is required.

Adequate ventilation should be provided while using TRICHLOROTRIFLUOROETHANE, Prolonged breathing of vapor should be avoided. The solvent should not be used near heat or open flame; the products of decomposition are toxic and irritating. Since TRICHLOROTRIFLUOROETHANE dissolves natural oils, prolonged contact with skin should be avoided. When necessary, use gloves which the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.

WARNINGS

Compressed air shall not be used for cleaning purposes except where reduced to less than 29 pounds per square inch (psi) and then only with effective chip guarding and personnel protective equipment. Do not use compressed air to dry parts when TRICHLOROTRIFLUOROETHANE has been used. Compressed air is dangerous and can cause serious bodily harm if protective means or methods are not observed to prevent chip or particle (of whatever size) from being blown into the eyes or unbroken skin of the operator or other personnel.

Never smoke or light matches in the charging area. Don't take chances!

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) direct to Commander, US Army Communications-Electronics Command, ATTN: DRSEL-ME-MQ, Fort Monmouth, NJ 07703.

In either case, a reply will be furnished direct to you.

Page 3. Paragraph 1-3 is superseded as follows:

1-3. Maintenance Forms, Records, and Reports

a. Reports of Maintenance and Unsatisfactory Equipment. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, The Army Maintenance Management System.

b. Report of Packaging and Handling Deficiencies. Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/NAVMATINST 4355.73/AFR 400-54/MCO 4430.3E.

e. Discrepancy in Shipment Report (DISREP) (SF 361). Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38/NAVSUPINST 4610.33B/AFR 75-18/MCO 4610.19C/DLAR 4500.15.

Page 5, paragraph 2-1. Add the following warning after subparagraph *a:*

WARNING

Avoid personal injury. The power supply weighs 285 pounds; be careful when moving. A mechanical lift is required.

Page 13, paragraph 3-8. The warning after subparagraph *a* is superseded as follows:

WARNING

Adequate ventilation should be provided while using TRICHLOROTRIFLUOROETHANE. Prolonged breathing of vapor should be avoided. The solvent should not be used near heat or open flame; the products of decomposition are toxic and irritating. Since TRICHLOROTRIFLUOROETHANE dissolves natural oils, prolonged contact with skin should be avoided. When necessary, use gloves which the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.

Paragraph 3-8. Subparagraph *b* is superseded as follows:

b. Remove grease, fungus, and ground-in dirt from the case; use a cloth dampened (not wet) with Trichlorotrifluoroethane (NSN 6850-00-106-3084).

By Order of the Secretary of the Army:

E. C. MEYER
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Brigadier General, United States Army
The Adjutant General

TM 11-6130-236-12
C 2

CHANGE
NO. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC *20 March 1978*

OPERATOR AND ORGANIZATIONAL MAINTENANCE MANUAL
CHARGER, BATTERY PP-1451/G
(NSN 6130-00-985-8157)

TM 11-6130-236-12, 8 July 1965, is changed as follows:
Title changed as above.

Page 1, warning. Below the line "DON'T TAKE CHANCES", add:

REPORTING OF ERRORS
You can help improve this publication by calling attention to errors and by recommending improvements and stating your reason for the recommendations. Report such recommendations on DA Form 2028 (Recommended Changes to Publications and Blank Forms), and mail it direct to Commander, U. S. Army Electronics Command, ATTN: DRSEL-MA-Q, Fort Monmouth, NJ 07703. A reply will be furnished direct to you.

Page 3, paragraph 1-3. Subparagraphs *b* and *c* are superseded as follows:

b. Report of Packaging and Handling Deficiencies. Fill out and forward DD Form 6 (Packaging Improvement Report) as prescribed in AR 700-58/NAVSUPINST 4030.29/AFR 71-13/MCO P4030.29A and DLAR 4500.15.

c. Discrepancy in Shipment Report (DISREP) (SF 361). Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38/NAVSUPINST 4610.33B/AFR 75-18/MCO P4610.19C, and DLAR 4500.15.

Paragraph 1-3.1 is superseded as follows:

1-3.1. Reporting Equipment Improvement Recommendations (EIR)

EIR will be prepared using DA Form 2407 (Maintenance Request). Instructions for preparing EIR's are provided in TM 38-750. EIR's should be mailed direct to Commander, U. S. Army Electronics Command, ATTN: DRSEL-MA-Q, Fort Monmouth, NJ 07703. A reply will be furnished direct to you.

Paragraph 1-3.2 is added after paragraph 1-3.1.

1-3.2. Destruction of Army Materiel

Destruction of Army materiel to prevent enemy use shall be as prescribed in TM 750-244-2.

Page 10, paragraph 2-7. Under paragraph heading, add the following:

CAUTION
NEVER OPERATE THE PP-1451/G WITH AN OUTPUT IN EXCESS OF 30 AMPERES FOR MORE THAN 30 MINUTES AT A TIME.

Page 13, paragraph 3-8*a*, warning. The warning is superseded as follows:

WARNING
The fumes of TRICHLOROETHANE

are toxic. Provide thorough ventilation whenever it is used; avoid prolonged or repeated breathing of vapor. Do not use near an open flame or hot surface; trichloroethane is nonflammable but heat converts the fumes to a highly toxic phosgene gas the inhalation of which could result in serious injury or death. Prolonged or repeated skin contact with trichloroethane can cause skin inflammation. When necessary, use gloves, sleeves and aprons which the solvent cannot penetrate.

Paragraph *b*, third line. Change "Cleaning Compound (FSN 7930-395-9542)" to: "trichloroethane."

Paragraph 3-9. Delete paragraph 3-9 and substitute:

3-9. Paints and Finishes

When the battery charger requires repainting, refinishing, or touchup painting refer to Federal Standard No. 595A for a matching color. SB 11-573 lists the tools and miscellaneous supplies required for painting.

Paragraph 3-9.1 is added after paragraph 3-9.

3-9.1. Touchup Painting Instructions

a. Refer to TB 43-0118 for instructions on painting and preserving Electronics Command equipment. In touchup painting a perfect match with the exact shade of the original paint may not be possible. The prevention of corrosion and deterioration is the most important consideration in touchup painting; appearance is secondary. This should not be construed to mean that the appearance of the equipment is unimportant. Touchup painting should be accomplished neatly, and in a good workmanlike manner. Inspection personnel in the field will make allowance for slight color mismatch where minor touchup has been done, but not for neglect or poor workmanship.

b. Remove rust and corrosion from metal surfaces by lightly sanding them with fine sandpaper. Brush two thin coats of paint on the bare metal to protect it from further corrosion.

Page 14. After paragraph 3-12, add:

3-13. Replacement of Fuses

The fuses for the battery charger are located at the rear of the unit. If any one of the nine fuses is suspected of being defective, proceed as follows:

a. Remove the power from the battery charger.

b. Pull the suspected fuse free from the spring clips holding each end.

c. Check the fuse visually for a break in the fuse wire. Verify, the defect by checking for continuity using Multimeter AN/URM-105.

d. Replace the defective fuse by pressing a known good fuse into the spring clips.

Page 15, chapter 4 heading. Delete "AND DEMOLITION TO PREVENT ENEMY USE."

Section II is rescinded.

Page 16, APPENDIX I. Delete TB SIG 364 and substitute:

TB 43-0118	Field Instructions for Painting and Preserving Electronics Command Equipment Including Camouflage Pattern Painting of Electrical Equipment Shelters.

APPENDIX I. Add the following:

TM 11-6625-203-12	Operator and Organizational Maintenance: Multimeter AN/URM-105 and AN/URM-105C including Multimeter ME-77/U and ME-77C/U.

Page 19, APPENDIX III. Delete appendix III and substitute attached appendix III.

APPENDIX III
MAINTENANCE ALLOCATION

Section I. INTRODUCTION

A3-1. General

This appendix provides a summary of the maintenance operations for Charger, Battery PP-1451/G. It authorizes categories of maintenance for specific maintenance functions on repairable items and components and the tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

A3-2. Maintenance Function

Maintenance functions will be limited to and defined as follows:

a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.

b. Test. To verify serviceability and to detect incipient failure by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. Service. Operations required periodically to keep an item in proper operating condition, i.e., to clean (decontaminate), to preserve, to drain, to paint, or to replenish fuel, lubricants, hydraulic fluids, or compressed air supplies.

d. Adjust. To maintain, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to the specified parameters.

e. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test measuring and diagnostic equipments used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. Install. The act of emplacing, seating, or fixing into position an item, part, module (component or assembly) in a manner to allow the proper functioning of the equipment or system.

h. Replace. The act of substituting a serviceable like type part, subassembly, or module (component or assembly) for an unserviceable counterpart.

i. Repair. The application of maintenance services (inspect, test, service, adjust, align, calibrate, replace) or other maintenance actions (welding, grinding, riveting, straightening, facing, remachining, or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

j. Overhaul. That maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards (i.e., DMWR) in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours, miles, etc.) considered in classifying Army equipments/components.

A3-3. Column Entries

a. Column 1, Group Number. Column 1 lists group numbers, the purpose of which is to identify components, assemblies, subassemblies, and modules with the next higher assembly.

b. Column 2, Component/Assembly. Column 2 contains the noun names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. Column 3, Maintenance Functions. Column 3 lists the functions to be performed on the item listed in column 2. When items are listed without maintenance functions, it is solely for purpose of having the group numbers in the MAC and RPSTL coincide.

d. Column 4, Maintenance Category. Column 4 specifies, by the listing of a "work time" figure in the appropriate subcolumn(s), the lowest level of maintenance authorized to perform the function listed in column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate "work time" figures will be shown for each category. The number of task-hours specified by the "work time" figure represents the average time required to restore an item (assembly, subassembly, component, module, end item or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, troubleshooting time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. Subcolumns of column 4 are as follows:

C - Operator/Crew
O - Organizational
F - Direct Support
H - General Support
D - Depot

e. Column 5, Tools and Equipment. Column 5 specifies by code, those common tool sets (not individual tools) and special tools, test, and support equipment required to perform the designated function.

f. Column 6, Remarks. Column 6 contains an alphabetic code which leads to the remark in section IV, Remarks, which is pertinent to the item opposite the particular code.

A3-4. Tool and Test Equipment Requirements (Sect. III)

a. Tool or Test Equipment Reference Code. The numbers in this column coincide with the numbers used in the tools and equipment column of the MAC. The numbers indicate the applicable tool or test equipment for the maintenance functions.

b. Maintenance Category. The codes in this column indicate the maintenance category allocated the tool or test equipment.

c. Nomenclature. This column lists the noun name and nomenclature of the tools and test equipment required to perform the maintenance functions.

d. National/NATO Stock Number. This column lists the National/NATO stock number of the specific tool or test equipment.

e. Tool Number. This column lists the manufacturer's part number of the tool followed by the Federal Supply Code for manufacturers (5-digit) in parentheses.

A3-5. Remarks (Sect. IV)

a. Reference Code. This code refers to the appropriate item in section II, column 6.

b. Remarks. This column provides the required explanatory information necessary to clarify items appearing in section II.

SECTION II MAINTENANCE ALLOCATION CHART FOR

CHARGER, BATTERY PP-1451/G

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT.	(6) REMARKS
			C	O	F	H	D		
00	CHARGER, BATTERY PP-1451/G	Service	0.1						
		Adjust	0.1						A
		Replace	0.1						B
		Inspect		0.1					
		Adjust		0.1				1	C
		Test		0.1				2	D
		Replace		0.1				1	E
		Test			1.0			4 thru 6	F
		Repair			1.5			8	G
		Test				1.5		8 thru 11	
		Repair				2.0		8	
		Overhaul					38	8 thru 12	

SECTION III TOOL AND TEST EQUIPMENT REQUIREMENTS
FOR

CHARGER, BATTERY PP-1451/G

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	O	TOOL KIT, ELECTRONIC EQUIPMENT TK-101/G	5180-00-064-5178	
2	O	MULTIMETER, AN/URM-105( )	6625-00-581-2036	
3	F, H, D	TOOL KIT, ELECTRONIC EQUIPMENT TK-100/G	5180-00-605-0079	
4	F, H, D	MULTIMETER, AN/USM-223/U (Rs TS-352B/U)	6625-00-999-7465	
5	F, H, D	MULTIMETER, ME-452/U (Rs ME87/U)	6625-00-519-2493	
6	F, H, D	TEST SET, CAPACITOR ZM-3( )/U	6625-00-229-1060	
7	H, D	MULTIMETER, AN/USM-33	6625-00-648-9172	
8	H, D	MULTIMETER, AN/USM-265	6625-00-054-3487	
9	H, D	OHMMETER, ZM-21A/U	6625-00-581-2466	
10	H, D	TRANSFORMER, VARIABLE TF-171A/U	5950-00-503-0632	
11	H, D	DUMMY LOAD, ELECTRICAL DA-638/U	6625-00-422-2111	
12	D	WATTMETER, TS-430( )/U	6625-00-498-3630	

SECTION IV. REMARKS

REFERENCE CODE	REMARKS
A	OPERATIONAL CONTROLS
B	SPARE FUSES & LAMPS
C	LINKAGE & VOLTAGE REGULATION
D	OPERATIONAL, CONTINUITY
E	KNOBS, INDICATOR LENS
F	DIODES, METER, SHUNT, SWITCHES, RESISTORS, LAMPHOLDER, RELAY, BLOWER ASSEMBLY
G	DIODES, METERS, SHUNT, SWITCHES, RESISTORS, PAPER CAPACITORS, LAMPHOLDER, RELAY, BLOWER ASSY, CONNECTORS AND CABLE ASSYS

By Order of the Secretary of the Army:

BERNARD W. ROGERS
General, United States Army
Chief of Staff

Official:

J. C. PENNINGTON
Brigadier General, United States Army
The Adjutant General

Distribution:

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	Units org under fol TOE: - 1 ea. UNOINDC		
USASA (2)	1-165	29-36	55-407
COE (1)	1-166	29-37	57
TSG (1)	1-167	29-41	57-100
USAARENBD (1)	1-207	29-51	67
USARADBD (1)	5-52	29-55	77-100
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TECOM (2)	6-616	29-57	
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USMA (2)	11-205	29-610 (2)	
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USAARMS (2)	11-358	32-56	
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SAAD (30)	29-1	44-236	
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TOAD (14)	29-15	44-546	
SHAD (3)	29-16	47	
USA Dep (1)	29-17	55-89	
Sig Sec USA Dep (1)	29-21	55-99	
MAAG (1)	29-25	55-225	
USARMIS (1)	29-26	55-227	
USAERDAA (1)	29-27	55-405	
USAERDAW (1)	29-35	55-406	
USAJFKCENMA (2)			

ARNG: State AG (3); Units - Same as Active Army.
USAR: None
For explanation of abbreviations used, see AR 310-50.

CHANGE
NO. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *2 July 1974*

Organizational Maintenance Manual
CHARGER, BATTERY PP-1451/G

TM 11-6130-236-12, 8 July 1965, is changed as follows:

Page 3, paragraph 1-2. Delete paragraph 1-2 and substitute:

1-2. Indexes of Publications

a. DA Pam 310-4. Refer to the latest issue of DA Pam 310-4 to determine whether there are new editions, changes, or additional publications pertaining to the equipment.

b. DA Pam 310-7. Refer to DA Pam 310-7 to determine whether there are modification work orders (MWO's) pertaining to the equipment.

Page 3, paragraph 1-3. Delete paragraph 1-3 and substitute:

1-3. Forms and Records

a. Reports of Maintenance and Unsatisfactory Equipment. Maintenance forms, records, and reports which are to be used by maintenance personnel at all maintenance levels are listed in and prescribed by TM 38-750.

b. Report of Packaging and Handling Deficiencies. Fill out and forward DD Form 6 (Report of Packaging and Handling Deficiencies) as prescribed in AR 700-58/NAVSUP PUB 378/AFR 71-4/MCO P4030.29, and DSAR 4145.8.

c. Discrepancy in Shipment Report (DISREP) (SF 361). Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38/NAVSUPINST 4610.33 AFM 75-18/MCO P4610.19A, and DSAR 4500.15.

Page 3. Paragraph 1-3.1 is added after paragraph 1-3.

1-3.1 Reporting of Equipment Publication Improvements

The reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications and Blank Forms) and forwarded direct to Commander, US Army Electronics Command, ATTN: AMSEL-MA-C, Fort Monmouth, NJ 07703.

Page 4. Paragraph 1-7 is added after paragraph 1-6.

1-7. Items Comprising an Operable Equipment

FSN	QTY	Nomenclature, part No., and mfr code	Fig No
		NOTE The part number is followed by the applicable 5-digit Federal supply code for manufacturers (FSCM) identified in SB 708-42 and used to identify manufacturer, distributor, or Government agency, etc.	
6130-985-8157	1	Charger, Battery PP-1451/G which includes:	1
5995-906-1124	1	Cable Assembly, Power Electrical, Sig Dwg SM-D-379645	1

Page 5. Paragraph 2-2*b*, delete the second sentence.

Page 11. Paragraph 3-4, sequence 1, delete "(app II)" in procedure.

Page 13. Paragraph 3-7, sequence 3, delete "App II" in references.

By Order of the Secretary of the Army:

CREIGHTON W. ABRAMS
General, United States Army
Chief of Staff

Official:
VERNE L. BOWERS
Major General, United States Army
The Adjutant General

Distribution:

Active Army:

USASA (2)	USATSCH (2)	7-100	29-35
CNGB (1)	USAAVNS (2)	11-15	29-36
OS Maj Comd (4)	MFSS (2)	11-16	29-37
USASCR (2)	Fort Gordon (10)	11-17	29-41
Dir of Trans (1)	Fort Huachuca (10)	11-19	29-51
COE (1)	WSMR (1)	11-35	29-55
TSG (1)	Fort Carson (5)	11-37	29-57
USAARENBD (1)	Fort Ricardson (ECOM Ofc) (2)	11-39	29-75
USAMB (10)	Army Dep (1) except	11-75	29-245
AMC (1)	LBAD (14)	11-85	29-247
TRADOC (2)	SAAD (30)	11-97	29-427
ARADCOM (2)	TOAD (14)	11-99	29-500(AA-AD)
ARADCOM Rgn (2)	ATAD (10)	11-117	30-25
LOGCOMDS (3)	USA Dep (2)	11-205	30-29
MICOM (2)	Sig Sec USA Dep (2)	11-206	30-34
TECOM (2)	Sig Dep (2)	11-225	31-105
USARADBD (1)	Sig FLDMS (1)	11-226	32-56
USAJFKCENMA (2)	USAERDAA (1)	11-302	32-57
USAAVNTBD (1)	USAERDAW (1)	11-358	32-500
USACC (4)	MAAG (1)	11-367	37
MDW (1)	USARMIS (1)	11-368	37-100
Armies (1)	USAATC (2)	11-500(AA-AC)	44-8
Corps (2)	Units org under fol TOE:	17	44-236
HISA (Ft Monmouth) (18)	(1 copy each unit)	17-100	44-545
Svc Colleges (1)	1-55	19-217	44-546
USASESS (10)	1-58	20-500	47
USAADS (2)	1-167	29-1	55-89
USAFAS (2)	1-166	29-11	55-99
USAARMS (2)	1-207	29-15	
USAIS (2)	1-307	29-16	
USAES (2)	5-52	29-17	
USAINTCS (3)	5-402	29-21	
WRAMC (1)	6-615	29-25	
ATS (1)	6-616	29-26	
USMA (2)	7	29-27	

NG: State AG (3); Units-Same as Active Army.

USAR: None

For explanation of abbreviations used, see AR 310-50.

GPO 907-899

CHAPTER 1
INTRODUCTION

Section I. GENERAL

1-1. Scope

This manual describes Charger, Battery PP-1451/G (fig. 1-1) and provides instruction for installation, operation and operator and organizational maintenance. It includes instructions for cleaning and inspection of the equipment and replacement of parts available to the operator and organizational repairman. Charger, Battery PP-1451/G is referred to as *battery charger* in this manual.

1-2. Index of Equipment Publications

Refer to the latest issue of DA Pam 810-4 to determine whether there are new editions, changes, or additional publication pertaining to your equipment. Department of the Army Pamphlet No. 810-4 is a current index of technical manuals, technical bulletins, supply manuals, supply catalogs, supply bulletins, lubrication orders, and modification work orders available through publication supply channels. The index lists the individual parts (-10, -20, -35P, etc) and the latest changes and revisions of each equipment publication.

1-3. Forms and Records

a. Reports of Maintenance and Unsatisfactory Equipment. Use equipment forms and records in accordance with instructions in TM 38-750.

b. Reporting of Damaged or Improper Shipment. Fill out and forward DD Form 6 (Report of Damaged or Improper Shipment) as prescribed in AR 700-58 (Army), NAVSANDA Publication 378 (Navy), and AFR 71-4 (Air Force).

c. Reporting of Equipment Manual Improvements. The direct reporting of errors, omissions, and recommendations for improving this equipment manual by the individual user, is authorized and encouraged. DA Form 2028 will be used for reporting these improvements. This form may be completed using pencil, pen, or typewriter. DA Form 2028 will be completed by the individual using the manual and forwarded direct to Commanding General, U. S. Army Electronic Command, ATTN: AMSEL-MR-(NMP)-MA, Fort Monmouth, New Jersey 07703.

Section II. DESCRIPTION AND DATA

14 Purpose and Use

Charger, Battery PP-1451/G converts 115 or 230 volts alternating current (ac) to direct current (dc) at a selected regulated voltage. The battery charger provides a source of dc to power communication equipment or to charge lead acid and nickel cadmium storage batteries.

1-5. Technical Characteristics

Power input:

Voltage . . . . . .115 volts or 230 volts, at 50, 60, or 400 cycles per second.

Phase . . . . . Single.

Current (full load) . . . . . 50 amperes for 115-volt ac input power or 25 amperes for 230-volt ac input.

Power output:

Voltage . . . . . Variable from 26 to 30 volts dc (28-volt operation) or variable from 52 to 60 volts dc (56-volt operation).

Maximum current (NORMAL CHARGE switch in CHARGE position)	80 amperes for 28-volt operation or 40 amperes for 56-volt operation.
Maximum current (NORMAL CHARGE switch in NORMAL position)	50 amperes for 28-volt operation or 25 amperes for 56-volt operation.
Ripple voltage	1.5 percent (root mean square).
Voltage regulation (NORMAL-CHARGE switch in NORMAL position)	1.5 percent.
Ambient operating temperature range	-40° F (-40° C) to +132° F (+56° C).

1-6. Description of Charger, Battery PP-1451/G

(fig. 1-1)

The battery charger is a self-contained unit in a metal cabinet, 23 inches high, 22 inches wide, and 22 inches deep. Operating controls and indicators are mounted on the front panel that is recessed. A hinged front panel protection plate secured with quick-release fasteners is provided to completely cover the recessed front panel. Two carrying handles are mounted on each side of the battery charger. The base of the battery charger is shock mounted on two skids. Directly behind the front panel plate that is secured with quick-release fasteners is the front chassis assembly panel (fig. 2-2). The front chassis assembly panel contains the links, fuses, connectors, terminals, and a switch. An ac power connector is provided on the rear panel of the battery charger. Venting is provided by air louvers on both sides, rear, and on top of the equipment. A small grommeted hole below the ac power connector is provided for a cable (not supplied) to connect the dc output of the battery charger to the equipment being powered. The battery charger weighs 285 pounds and includes one cable assembly (FSN 5995-906-1124) to connect the battery charger to the ac source, five spare 30-ampere fuses (FSN 5920-050-4962), five spare ¼-ampere fuses (FSN 5920-043-2641), one spare indicator lamp (FSN 6240-155-8706), and two technical manuals.

CHAPTER 2

INSTALLATION AND OPERATING INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF EQUIPMENT

2-1. Unpacking

a. Packaging Data. When packed for shipment, Charger, Battery PP-1451/G is packed in a 33- by 32- by 32-inch wooden box. A typical wooden box and its contents are shown in figure 2-1. The volume is 19.55 cubic feet and the total weight is 327 pounds.

b. Removing Contents.

(1) Remove the nails from the top and one side of the wooden box with a nail-puller. Remove the top and side.

(2) Remove the four bolts that fasten the battery charger to the bottom of the wooden box.

(3) Tilt the wooden box toward the open side and slide the wooden box free from the battery charger.

(4) Remove the wrapping paper from the battery charger.

2-2. Checking Unpacked Equipment

a. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on DD Form 6 (para 1-3).

b. See that the equipment is complete as listed on the packing slip. If a packing slip is not available, check the equipment against the basic issue items list (appx II). Report all discrepancies in accordance with TM 38-750. Shortage of a minor assembly or part that does not affect proper functioning of the equipment should not prevent use of the equipment.

c. If the equipment has been used or reconditioned, see whether it has been changed by a modification work order (MWO). If the equipment has been modified, the MWO number will appear on the front panel near the nomenclature plate. If modified, see that any operational instruction changes resulting from the modification have been entered in the equipment manual.

Note: Current MWO's applicable to the equipment are listed in DA Pam 310-4.

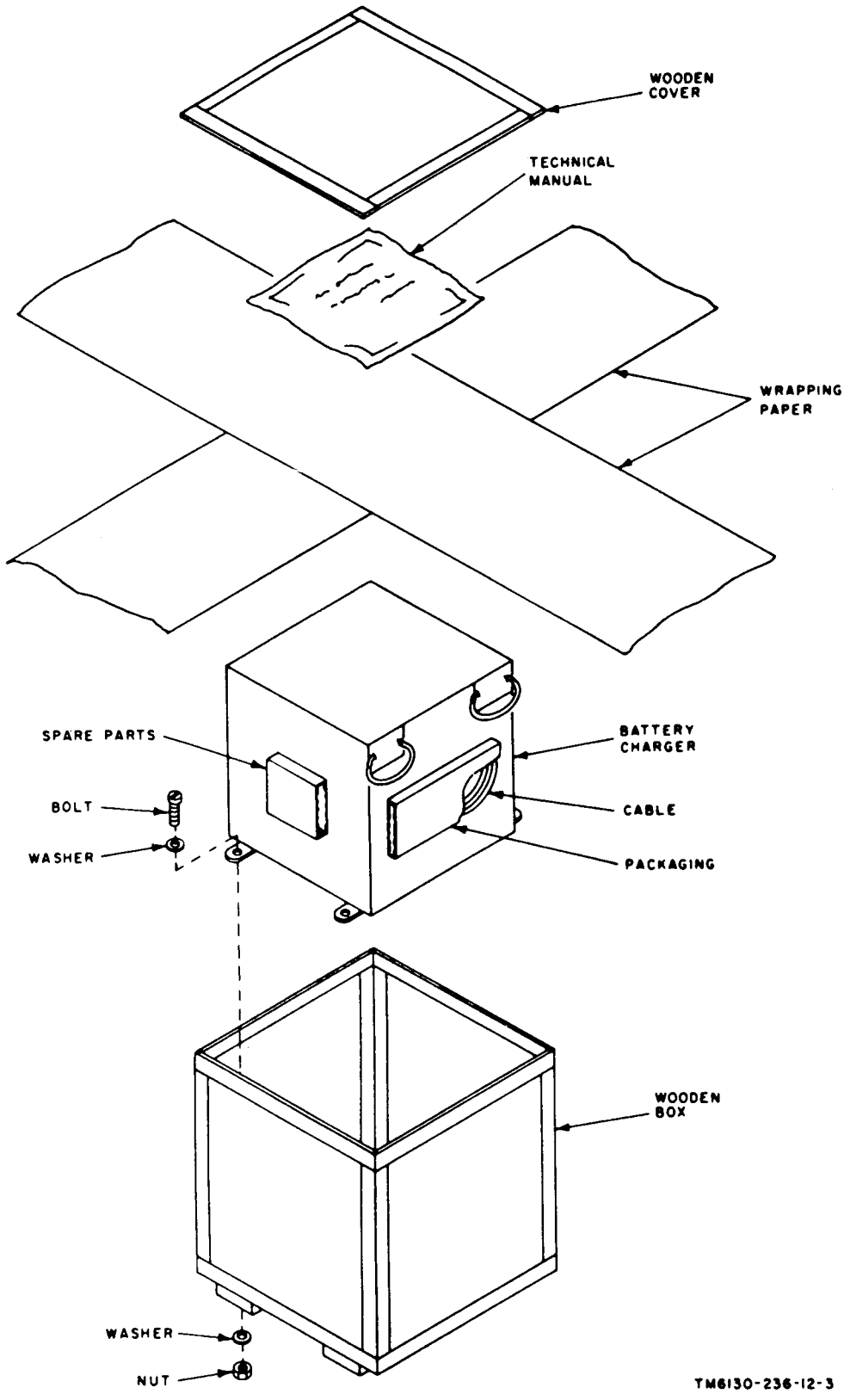

Figure 2-1. Charger, Battery PP-1451/G, packaging.

Section II. INSTALLATION PROCEDURE

2-3. Connections

(fig. 2-2)

Note: The required polarized ac power source wiring connections are made by authorized installation personnel and should be protected with a 60-ampere fuse for 115-volt ac input or a 30-ampere fuse for 230-volt ac input. These connections should be controlled by an external switch for convenient removal of power from the battery charger during maintenance.

a. Loosen all quick-release fasteners (fig. 1-1) that secure the front panel protection plate to the battery charger frame and allow the front panel to open to maximum travel. (The front chassis assembly panel is now accessible.)

Caution: **Be sure that the FREQ and AC links on the front chassis assembly panel are connected properly and correspond to the input power to prevent damage to the battery charger.**

b. Prepare the battery charger for 115-volt ac 50- or 60-cycle per second (cps) input power as follows:

(1) Connect the 50/60 FREQ 400 links to 50/60.

(2) Connect the 115 AC 230 links to 115.

(3) For 28-volt operation, connect the 28 DC OUTPUT 56 links to 28 and set the 28V-S2-56V switch to 28V.

(4) For 56-volt operation, connect the 28 DC OUTPUT 56 links to 56 and set the 28V-S2-56V switch to 56.

(5) Push the front panel protection plate against the battery charger frame and secure with the quick-release fasteners.

c. Prepare the battery charger for 115-volt ac 400-cps input power as follows:

(1) Connect the 50/60 FREQ 400 links to 400.

(2) Connect the 115 AC 230 links to 115.

(3) For 28-volt operation, connect the 28 DC OUTPUT 56 links to 28 and set the 28V-S2-56V switch to 28.

(4) For 56-volt operation, connect the 28 DC OUTPUT 56 links to 56 and set the 28V-S2-56B switch to 56.

(5) Push the front panel protection plate against the battery charger frame and secure with the quick-release fasteners.

d. Prepare the battery charger for 230-volt ac 50- or 60-cps input power as follows:

(1) Connect the 50/60 FREQ 400 links to 50/60.

(2) Connect the 115 AC 230 links to 230.

(3) For 28-volt operation, connect the 28 DC OUTPUT 56 links to 28 and set the 28V-S2-56V switch to 28V.

(4) For 56-volt operation, connect the 28 DC OUTPUT 56 links to 56 and set the 28V-S2-56V switch to 56V.

(5) Push the front panel protection plate against the battery charger frame and secure with the quick-release fasteners.

e. Prepare the battery charger for 230-volt ac 400-cps input power as follows:

(1) Connect the 50/60 FREQ 400 links to 400.

(2) Connect the 115 AC 230 links to 230.

(3) For 28-volt operation, connect the 28 DC OUTPUT 56 links to 28 and set the 28V-S2-56V switch to 28V.

(4) For 56-volt operation, connect the 28 DC OUTPUT 56 links to 56 and set the 28V-S2-56V switch to 56V.

(5) Push the front panel protection plate against the battery charger frame and secure with the quick-release fasteners.

2-4 Front Chassis Assembly Panel Fuses

Fuses F1, F2, F3, F4, F6, F7, F8, and F9 on the front chassis assembly panel (fig. 2-2) are 30-ampere types (FSN 5920-050-4962). Fuse F5 on the front chassis assembly panel is ¼-ampere slo-blo type (FSN 5920-043-2641).

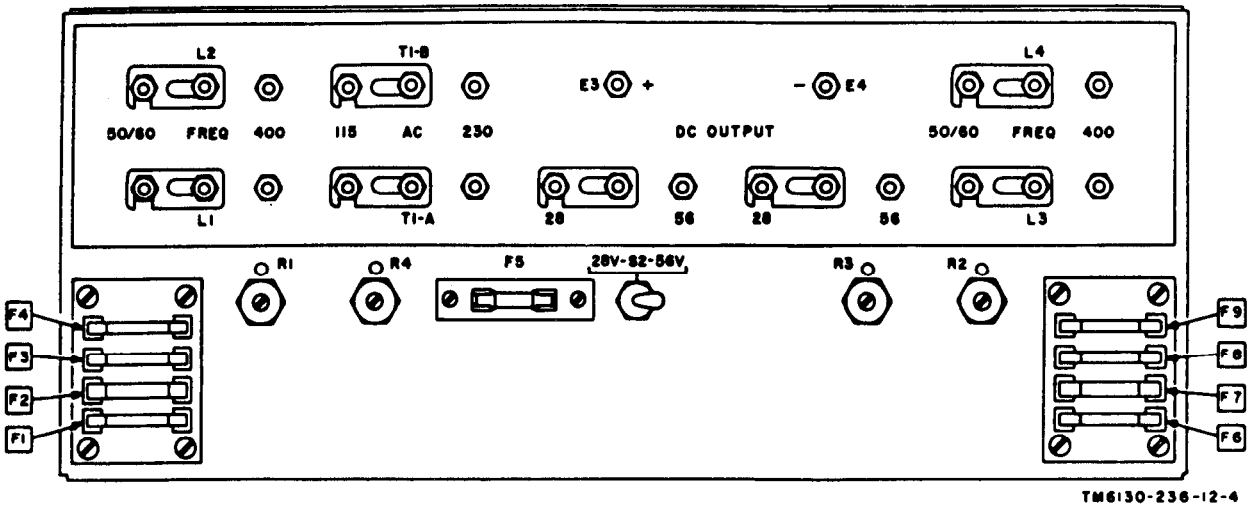

Figure 2-2. Charger, Battery PP-1451/G, front chassis assembly panel.

Section III. OPERATION

2-5. Charger, Battery PP-1451/G Operating Controls, Indicators, Terminals, Links, and Fuses

(fig. 2-2 and 2-3)

a. Front Panel (fig. 2-3).

Control, indicator, or terminal	Function	
	Sw pos	*Action*
Power switch and circuit breaker (2-position toggle).	ON	Energizes battery charger. (Circuit breaker connected internally to power switch deenergizes battery charger automatically when current is excessive.)
	OFF	Deenergizes battery charger.
NORMAL-CHARGE switch (2-position rotary).	NORMAL	Internal circuits of battery charger are connected for use as a power source for communication equipment.
	CHARGE	Internal circuits of battery charger a re connected for use as a battery charger.
	Caution: When in —28-volt charge operation, do not depress the PRESS TO TEST s witch if the OUTPUT VOLTAGE meter indicates less than 15 volts.	
PRESS TO READ switch (2-position spring loaded).	When depressed, OUTPUT CURRENT meter indicates battery charger output current.	
OUTPUT CURRENT meter	Indicates battery charger output current from 0 to 75 amperes when the PRESS TO READ switch is depressed.	
OUTPUT VOLTAGE meter	Indicates battery charger output voltage from 0 to 75 volts. When storage battery is connected to the + and — OUTPUT terminals and the battery charger is not energized (power switch in OFF position) indicates the voltage of the storage battery.	
VOLTAGE ADJUST control	When battery charger is used for 28-volt operation, varies the output voltage from 26 to 30 volts. When battery charger is used for 56-volt operation, varies the output voltage from 52 to 60 volts.	
+ and — OUTPUT terminals	Provide connection between the output of the battery charger and the using equipment.	

b. Front Chassis Assembly Panel (fig. 2-2).

Control, terminal, link, or fuse	Function
50/60 FREQ 400 links (4 individual links).	When in 50/60 position, connects internal circuitry for a 50- or 60-cps input voltage. When in 400 position, connects internal circuitry for a 400-cps input voltage.
115 AC 230 links (2 individual links).	When in 115 position, connects internal circuitry for a 115-volt ac input voltage. When in 230 position, connects internal circuitry for a 230-volt ac input voltage.
28 DC OUTPUT 56 links (2 individual links).	When in 28 position a nd 28V-S2-56V switch in 28V position, connects internal circuitry for 28-volt dc output operation. When in 56 position and 28V-S2-56V switch in 56V position, connects internal circuitry for 56-volt dc output operation.
Fuses F1-F4 and F6-F9 (30-ampere). Fuse F5 (¼-ampere, slo-blo).	Protect the equipment from damage caused by excessive current due to a short circuit of a filter capacitor. Protects the equipment from damage caused by excessive current due to an overload in the voltage regulation circuit.
28V-S2-56V switch (2-position toggle).	*Sw pos* / *Action* 28V — With 28 DC OUTPUT 56 links in 28 position, connects internal circuitry for 28-volt dc output operation. 56V — With 28 DC OUTPUT 56 links in 56 position, connects internal circuitry for 56-volt dc output operation.
E3 + and E4 — terminals	Provide connection between the output of the battery charger and the using equipment.

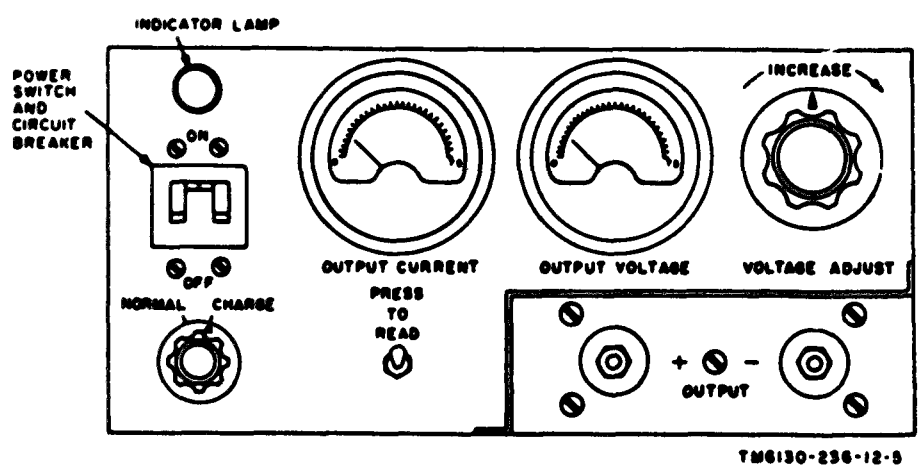

Figure 2-3. Charger, Battery PP-1451/G, front panel controls and indicators.

2-6. Preparation for Operation

After connections are made on the front chassis assembly panel (para 2-3), prepare the battery charger for operation as follows:

a. Loosen the quick-release fasteners on the front panel protection plate (fig. 1-1) and allow the front panel protection plate to open until it rests on the front panel plate. (The front panel is now accessible.)

b. Rotate the VOLTAGE ADJUST control fully counterclockwise (minimum position).

c. Connect the equipment to be powered to the - and + OUTPUT terminals on the front panel of the battery charger. Be sure to observe correct polarity.

2-7. Operating Procedure

After performing the procedures given in paragraph 2-6, proceed as follows:

a. If the equipment is to be used as a battery charger, set the NORMAL-CHARGE switch to CHARGE.

b. If the equipment is to be used as a dc source for communication equipment, set the NORMAL-CHARGE switch to NORMAL.

Caution: **A continuous flow of air through the battery charger is necessary during operation to prevent damage due to overheating. Do not obstruct the louvers on each side of the battery charger. If the fan should fail to operate, do not continue operation of the battery charger.**

c. Set the power switch to ON. (The power indicator lamp should glow.)

d. Observe the OUTPUT VOLTAGE meter indication and rotate the VOLTAGE ADJUST control clockwise until the desired output voltage is obtained. Check the output voltage at intervals during operation of the battery charger. When necessary, adjust the VOLTAGE ADJUST control to maintain the desired output voltage.

Caution: **When in 28-volt-CHARGE operation, do not depress the PRESS TO TEST switch if the OUTPUT VOLTAGE meter indicates less than 15 volts.**

e. Depress the PRESS TO READ switch to read the OUTPUT CURRENT meter indication.

2-8. Stopping Procedure

a. Set the power switch to OFF. (The indicator lamp should extinguish.)

b. Disconnect the equipment that was powered from the + and - OUTPUT terminals.

c. Push the front panel protection plate against the front panel plate and secure with the quick-release fasteners.

CHAPTER 3
MAINTENANCE INSTRUCTIONS

3-1. Scope of Maintenance

The maintenance duties assigned to the operator and organizational repairman of the equipment are listed below together with a reference to the paragraphs covering the specific maintenance functions.

a. Daily preventive maintenance checks and services (para 3-4).

b. Weekly preventive maintenance checks and services (para 3-5).

c. Monthly preventive maintenance checks and services (para 3-6).

d. Quarterly preventive maintenance checks and services (para 3-7).

e. Cleaning (para 3-8).

f. Touchup painting (para 3-9).

g. Troubleshooting (para 3-10 and 3-11).

h. Replacement of indicator lamp (para 3-12).

3-2. Preventive Maintenance

Preventive maintenance is the systematic care, servicing, and inspection of equipment to prevent the occurrence of trouble, to reduce downtime, and to assure that the equipment is serviceable.

a. Systematic Care. The procedures given in paragraphs 3-4 through 3-8 cover routine systematic care and cleaning essential to proper upkeep and operation of the equipment.

b. Preventive Maintenance Checks and Services. The preventive maintenance checks and services charts (para 3-4 through 3-7) outline functions to be performed at specific intervals. These checks and services are to maintain Army electronic equipment in a combat serviceable condition; that is in good general (physical) condition and in good operating condition. To assist operators in maintaining combat serviceability, the chart indicates what to check, how to check, and the normal indications. The *References* column lists the paragraphs or manuals that contain detailed repair or replacement procedures. If the defect cannot be remedied by performing the corrective actions listed, higher category of maintenance or repair is required. Records and reports of these checks and services must be made in accordance with the requirements set forth in TM 38-750.

3-3. Preventive Maintenance Checks and Services Periods

Preventive maintenance checks and services of the equipment are required daily, weekly, monthly, and quarterly.

a. Paragraph 3-4 specifies checks and services that must be accomplished daily (or at least once each week if the equipment is maintained in standby condition).

b. Paragraphs 3-5, 3-6, and 3-7 specify *additional* checks and services that must be performed on a weekly, monthly, and quarterly basis, respectively.

3-4. Daily Preventive Maintenance Checks and Services Chart

Sequence No.	Item	Procedure	References
1	Completeness	See that the equipment is complete (appx II).	
2	Exterior surfaces	Clean the exterior surfaces, including the panel and meter glasses (para 3-8). Check all meter glasses and indicator lenses for cracks.	
3	Connectors	Check the tightness of all connectors	

Sequence No.	Item	Procedure	References
4	Controls and indicators	While making the operating checks (items 5 through 9), observe that the mechanical action of each knob and switch is smooth and free of external or internal binding, and that there is no excessive looseness. Also, check the meters for sticking or bent pointers.	
5	Connections	See that the proper connections are made on the front chassis assembly panel.	Paragraph 2-3.
6	Preoperation	Prepare the equipment for operation.	Paragraph 2-6.
7	Operation	*Caution:* When in 28-volt CHARGE operation, do not depress the PRESS TO TEST switch if the OUTPUT VOLTAGE meter indicates less than 15 volts. Operate the equipment. The indicator lamp should glow. The OUTPUT VOLTAGE and OUTPUT CURRENT meters (PRESS TO READ switch depressed) should indicate output voltage and current, respectively.	Paragraph 2-7.
8	VOLTAGE ADJUST control.	Adjust VOLTAGE ADJUST control as necessary. Note that voltage indication on OUTPUT VOLTAGE meter increases as control is adjusted clockwise.	
9	Power switch	Set to OFF. Note that indicator lamp extinguishes.	

3-5. Weekly Preventive Maintenance Checks and Services Chart

Sequence No.	Item	Procedure	References
1	Cable	Inspect cable for chafed, cracked, or frayed insulation. Replace connector that is broken, arced, stripped, or worn excessively.	
2	Metal surfaces	Inspect exposed metal surfaces for rust and corrosion. Clean and touchup paint as required.	Para 3-9.

3-6. Monthly Preventive Maintenance Checks and Services Chart

Sequence No.	Item	Procedure	References
1	Transformer terminals	Inspect terminals on power transformer. All nuts must be tight. There should be no evidence of dirt or corrosion.	
2	Terminal blocks	Inspect terminal blocks for loose connections and cracked or broken insulation.	
3	Resistors and capacitors.	Inspect resistors and capacitors for cracks, blistering, or other detrimental defects.	
4	Gaskets and insulators	Inspect gaskets, insulators, bushings, and sleeves for cracks, chipping, and excessive wear.	
5	Interior	Clean interior of chassis and cabinets.	

3-7. Quarterely Preventive Maintenance Checks and Services Chart

Sequence No.	Item	Procedure	References
1	Publications	See that all publications are complete, serviceable, and current.	DA Pam 310-4.
2	Modifications	Check DA Pam 310-4 to determine if new applicable MWO's have been published. All URGENT MWO's must be applied immediately. All NORMAL MWO's must be scheduled.	TM 38-750 and DA Pam 310-4.
3	Spare parts	Check spare parts for general condition and method of storage. No overstock should be evident and all shortages must be on valid requisitions.	Appx II.

3-8. Cleaning

Inspect the exterior of the equipment. The exterior surfaces should be free of dust, dirt, grease, and fungus.

a. Remove dust and lose dirt with a clean soft cloth.

Warning: **Cleaning compound is flammable and its fumes are toxic. Provide adequate ventilation. *Do not* use near a flame.**

b. Remove grease, fungus, and ground-in dirt from the case; use a cloth dampened (not wet) with Cleaning Compound (FSN 7930-395-9542).

c. Remove dust or dirt from OUTPUT terminals with a brush.

Caution: **Do not press on the meter faces (glasses) when cleaning; the meters may become damaged.**

d. Clean the front panel, meters, and control knobs; use a soft clean cloth. If necessary, dampen the cloth with water; mild soap may be used for more effective cleaning.

3-9. Touchup Painting Instructions

Remove rust and corrosion from metal surfaces by lightly sanding them with fine sandpaper. Brush two thin coats of paint (Enamel, Semigloss, Olive Drab FSN 8010-844-8088) on the bare metal to protect it from further corrosion. Refer to the applicable cleaning and refinishing practices specified in TB SIG 364.

3-10. General Troubleshooting Information

Troubleshooting the battery charger is based on the operational check contained in the daily preventive maintenance checks and services chart (para 3-4). To troubleshoot the battery charger, perform all functions starting with item No. 5 in the daily preventive maintenance checks and services chart (para 3-4) and proceed through the items until an abnormal indication or result is observed; note the item number and turn to the corresponding item number in the troubleshooting chart (para 3-11). If the corrective measures indicated do not result in correction of the trouble, higher level maintenance is required.

3-11. Troubleshooting Chart

Item No.	Trouble symptom	Probable cause	Checks and corrective measures
7	*a.* Indicator lamp does not light. *b.* OUTPUT VOLTAGE meter does not indicate dc output.	*a.* Defective indicator lamp. *b.* Defective OUTPUT VOLTAGE meter.	*a.* Replace indicator lamp (para 3–12). *b.* Higher level maintenance required.
8	OUTPUT VOLTAGE meter does not vary in accordance with the settings of VOLTAGE ADJUST control.	VOLTAGE ADJUST control is shorted.	Higher level maintenance required.
9	OUTPUT VOLTAGE meter does not indicate zero, and indicator lamp does not extinguish.	Short circuit across power switch.	Higher level maintenance required.

3-12. Replacement of Indicator Lamp

a. Turn the glass indicator jewel counterclockwise and pull it out to expose the defective lamp.

b. Press in on the indicator lamp and turn it counterclockwise to unlock it.

c. Pull the defective indicator lamp out and replace it with a new one. Push the indicator lamp in and twist it clockwise to lock it.

CHAPTER 4

SHIPMENT AND LIMITED STORAGE AND DEMOLITION TO PREVENT ENEMY USE

Section I. SHIPMENT AND LIMITED STORAGE

4-1. Repackaging for Shipment or Limited Storage

The exact procedure for repackaging depends on the material available and the conditions under which the equipment is to be shipped or stored. Adapt the procedure outlined below whenever circumstance permit. The information concerning the original packaging (para 2-1) will also be helpful.

a. Material Requirements. The following materials are required for packaging the battery charger. For stock numbers of materials, refer to SB 38-100.

Material	Quantity
Wrapping paper	75 sq ft
Gummed paper tape	30 ft
Pressure-sensitive tape	25 ft
Wooden packing case (33 x 32 x 32 in.).	1

b. Packaging (fig. 2-1). Package the items of the battery charger as outlined below.

(1) *Main unit.* Wrap the main unit on all sides with wrapping paper. Secure the wrapping paper with gummed paper tape.

(2) *Spare indicator lamp and technical manuals.* Wrap the indicator lamp in wrapping paper and secure with gummed paper tape. Wrap the technical manuals in wrapping paper and seal the package with pressure-sensitive tape. Fasten the package containing the technical manuals to the top of the battery charger with pressure-sensitive tape. Fasten the spare indicator lamp package to the rear panel of the main unit with pressure-sensitive tape.

4-2. Packing

Pack the equipment as follows:

a. Place the equipment into the open side of the wooden box.

b. Fasten the battery charger to the bottom of the wooden box with four bolts, nuts, and washers.

c. Nail the top and side to the wooden pack ing case.

Section II. DEMOLITION OF MATERIEL TO PREVENT ENEMY USE

4-3. Authority for Demolition

The demolition procedures given in paragraph 4-4 will be used to prevent the enemy from using or salvaging this equipment. Demolition of the equipment will be accomplished only upon the order of the commander.

4-4. Methods of Destruction

The tactical situation and time available will determine the method to be used when destruction of equipment is ordered. In most cases, it is preferable to demolish completely some portions of the equipment rather than partially destroy all the equipment components.

a. Smash. Smash the cabinet, meters, and controls.

b. Cut. Cut the wiring of the battery charger.

Warning: **Be extremely careful with explosivea and incendiary devices. Use these items only when the need is urgent.**

c. Burn. Burn as much of the equipment as is flammable.

d. Dispose. Bury or scatter destroyed parts.

APPENDIX I

REFERENCES

Following is a list of references available to the operator and organizational repairman of the equipment:

DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (Types 4, 6, 7, 8, and 9), Supply Catalogs (Type CL), Supply Bulletins, Lubrication Orders, and Modification Work Orders.
[redacted] 11-573	Painting and Preservation Supplies Available for Field Use for Electronics Command Equipment.
SB 38-100	Preservation, Packaging, and Packing Materials, Supplies, and Equipment Used by the Army.
TB SIG 364	Field Instructions for Painting and Preserving Electronics Command Equipment.
TM 38-750	Army Equipment Record Procedures.

APPENDIX II
BASIC ISSUE ITEMS LIST

Section I. INTRODUCTION

A2-1. General

This appendix lists items supplied for initial operation and for running spares. The list includes tools, parts, and material issued as part of the major end item. The list includes all items authorized for basic operator maintenance of the equipment. End items of equipment are issued on the basis of allowances prescribed in equipment authorization tables and other documents that are a basis for requisitioning.

A2-2. Columns

Columns are as follows:

a. Federal Stock Number. This column lists the 11-digit Federal stock number.

b. Designation by Model. Not used.

c. Description. Nomenclature or the standard item name and brief identifying data for each item are listed in this column. When requisitioning, enter the nomenclature and description.

d. Unit of Issue. The unit of issue is each unless otherwise indicated and is the supply term by which the individual item is counted for procurement, storage, requisitioning, allowances, and issue purposes.

e. Expendability. Nonexpendable items are indicated by NX. Expendable items are not annotated.

f. Quantity Authorized. Under "Items Comprising an Operable Equipment", the column lists the quantity of items supplied for the initial operation of the equipment. Under "Running Spare Items" the quantities listed are those issued initially with the equipment as spare parts. The quantities are authorized to be kept on hand by the operator for maintenance of the equipment.

g. Illustration. The "Item No." column lists the reference symbols used for identification of the items in the illustration or text of the manual.

SECTION II. FUNCTIONAL PARTS LIST

FEDERAL STOCK NUMBER	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY AUTH	ILLUSTRATION	
						FIGURE NO.	ITEM NO.
		CHARGER BATTERY PP-1451/G:					
6130-985-8157		CHARGER, BATTERY PP-1451/G: Silicon rectifier type; 28 v or 56 v charging 80 amp max taper charging 22 in lg x 22 in w x 23 in h:	ea	NX			
		ITEMS COMPRISING AN OPERABLE EQUIPMENT					
5995-906-1124		CABLE ASSEMBLY, POWER ELECTRICAL: 12 ft lg o/a Sig Dwg SM-D-373645					
		RUNNING SPARE ITEMS					
5920-043-2641		FUSE, CARTRIDGE: 1/4 amp, 250 v; 1-1/4" lg x 1/4 " d'a MIL type F02QR250A			5		
5920-050-4962		FUSE, CARTRIDGE: 30 amp, 32 v max; ac, dc; 1.500 in lg x 0.397 in d'a MIL Spec MS9008315			5		
6240-155-8706		LAMP, INCANDESCENT: 6 to 8 v; 0.1 amp; T 3-1/4 bulb; MIL type MS15571-2			1		

APPENDIX III
MAINTENANCE ALLOCATION

SECTION I. INTRODUCTION

A3-1. General

a. This appendix assigns maintenance functions to be performed on components, assemblies, and subassemblies by the lowest appropriate maintenance category.

b. Columns in the maintenance allocation chart are as follows:

(1) *Part or component.* This column shows only the nomenclature or standard item name. Additional descriptive data are included only where clarification is necessary to identify the component. Components, assemblies, and subassemblies are listed in top-down order. That is, the assemblies which are part of a component are listed immediately below that component, and subassemblies which are part of an assembly are listed immediately below that assembly. Each generation breakdown (components, assemblies, or subassemblies) is listed in disassembly order or alphabetical order.

(2) *Maintenance function.* This column indicates the various maintenance functions allocated to the categories.

(a) Service. To clean, to preserve, and to replenish lubricants.

(b) Adjust. To regulate periodically to prevent malfunction.

(c) Inspect. To verify serviceability and detect incipient electrical or mechanical failure by scrutiny.

(d) Test. To verify serviceability and to detect incipient electrical or mechanical failure by use of special equipment such as gages, meters, etc.

(e) Replace. To substitute serviceable components, assemblies, or subassemblies, for unserviceable components, assemblies, or subassemblies.

(f) Repair. To restore an item to serviceable condition through correction of a specific failure or unserviceable condition. This function includes but is not limited to welding, grinding, riveting, straightening, and replacement of parts other than the trial and error replacement of running spare type items such as fuses, lamps, or electron tubes.

(g) Align. To adjust two or more components of an electrical system so that their functions are properly synchronized.

(h) Calibrate. To determine, check, or rectify the graduation of an instrument, weapon, or weapons system, or components of a weapons system.

(i) Overhaul. To restore an item to *completely serviceable* condition as prescribed by serviceability standards developed and published by heads of technical services. This is accomplished through employment of the technique of "Inspect and Repair Only as Necessary" (IROAN). Maximum utilization of diagnostic and test equipment is combined with minimum disassembly of the item during the overhaul process.

(j) Rebuild. To restore an item to a standard as near as possible to original or new condition in appearance, performance, and life expectancy. This is accomplished through

the maintenance technique of complete disassembly of the item, inspection of all parts or components, repair or replacement of worn or unserviceable elements using original manufacturing tolerances and/or specifications and subsequent reassembly of the item.

(3) *Operator, organization, direct support, general support, and depot.* The symbol X indicates the categories responsible for performing that particular maintenance operation, but does not necessarily indicate that repair parts will be stocked at that level. Categories higher than those marked by X are authorized to perform the indicated operation.

(4) *Tools required.* This column indicates codes assigned to each individual tool equipment, test equipment, and maintenance equipment referenced. The grouping of codes in this column of the maintenance allocation chart indicates the tool, test, and maintenance equipment required to perform the maintenance function.

(5) *Remarks.* Entries in this column will be utilised when necessary to clarify any of the data cited in the preceding columns.

c. Columns in the allocation of tools for maintenance functions are as follows:

(1) *Tools required for maintenance functions.* This column lists tools, test, and maintenance equipment required to perform the maintenance functions.

(2) *Operator, organization, direct support, general support, and depot.* The dagger (†) indicates the categories normally allocated the facility.

(3) *Tool code.* This column lists the tool code assigned.

A3-2. Maintenance by Using Organizations

When this equipment is used by signal services organizations organic to theater headquarters or communication zones to provide theater communications, those maintenance functions allocated up to and including general support are authorized to the organization operating this equipment.

SECTION II. MAINTENANCE ALLOCATION CHART

PART OR COMPONENT	MAINTENANCE FUNCTION	ECHELON O/C	O	DS	GS	D	TOOLS REQUIRED	REMARKS
CHARGER, BATTERY PP-1451/G	service	X						
	adjust	X						Operational
			X				8	Linkage and voltage regulation
	inspect		X				8	
	test		X				4	Operational, continuity of circuitry
				X			5	Diodes, meters, shunt, switches, resistors, lampholder, relay, blower assy etc.
					X		1, 2, 3, 5, 8, 9, 10	All tests
	repair	X						Replace running shaves
			X				8	Replace knobs, indicator lens
				X			7	Replace diodes, meters, shunt, switches, resistors, paper capacitors, lampholder, relay, blower assy, connectors and cable assys
					X		7	All repairs
	overhaul					X	1, 2, 3, 5, 6, 7, 8, 9, 10	

By Order of the Secretary of the Army:

HAROLD K. JOHNSON,
General, United States Army,
Chief of Staff.

Official:

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USACDCCBRA (1)
USACDCOA (1)
USACDCQMA (1)
USACDCTA (1)
USACDCADA (1)
USACDCARMA (1)
USACDCAVNA (1)
USACDCARTYA (1)
USACDCSWA (1)
USACDCCEA (1)
USACDCCEA (Ft Huachuca Ofc) (1)
MDW (1)
Armies (2)
Corps (2)
USAC (3)
11th Air Aslt Div (3)
USMA (5)
Svc Colleges (2)
Br Svc Sch (2) except
  USAIS, USAAMS (20)
  USAARMS, USAADS (20)
  USASESCS (30), USASCS (20)
USASA Tng Cen & Sch (5)
USACDCEC (5)
Instl (2) except
  Ft Monmouth (70)
  Ft Hancock (4)
  Ft Gordon (10)
  Ft Huachuca (10)
  Ft Carson (23)
  Ft Ritchie (5)
GENDEP (2)
Sig Sec. GENDEP (5)
Sig Dep (12)
Army Dep (2) except SAAD (30)
  TOAD (14), FTWOAD (10)
  LEAD (7), SHAD (3) , NAAD (5)
  SVAD (5), CHAD (3), ATAD (10)
  SEAD 5), Lexington Blue Grass (14)
USASCC (4)
USATC AD (2)
USATC Armor (2)
USATC Engr (2)
USATC Inf (2)
USASTC (2)
WRAMC (1)
Army Pic Cen (2)
WSMR (5)
Sig. Fld Maint Shops (2)
AMS (1)
USAERDAA (2)
USAERDAW (13)
USA Rsch Spt Gp (5)
Units org under fol TOE: (2 copies each except as indicated)
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  1-76
  1-207
  1-307
  6-615
  6-616
  7
  11-16
  11-35
  11-56
  11-57
  11-97
  11-98
  11-117
  11-155
  11-157
  11-500 (AA-AE) (4)
  11-587
  11-592
  11-597
  17
  19-217

29-1	29-56
29-11	29-75
29-15	30-25
29-16	31-105
29-17	32-500
29-21	37
29-25	55-56
29-27	55-89
29-35	55-140
29-36	57
29-37	57-100
29-51	

NG: State AG (3).

USAR: None.

For explanation of abbreviations used, see AR 320-50.

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