DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR AND ORGANIZATIONAL

MAINTENANCE MANUAL

CHARGER, BATTERY

PP-2926/U

This copy is a reprint which includes current pages from Changes 1 and 2.

HEADQUARTERS, DEPARTMENT OF THE ARMY

16 OCTOBER 1961

WARNING

EXTREMELY DANGEROUS VOLTAGES

(208 volts, 230 volts, or 460 volts, 3-phase alternating current)

are used in the operation of

this equipment.

SEVERE INJURY OR

DEATH ON CONTACT

may result if operating personnel

fail to observe

safety precautions.

TURN OFF THE EXTERNAL POWER DISCONNECT SWITCH before changing tap leads or terminal board connections of Charger, Battery PP-2926/U.

DON'T TAKE CHANCES!

Changes in force: C1, C2, and C4.

TM 11-6130-225-12
***C 4**

CHANGE
No. 4

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *5 June 1981*

OPERATOR'S AND ORGANIZATIONAL MAINTENANCE MANUAL
CHARGER, BATTERY PP-2926/U
(NSN 6130-00-500-0069)

TM 11-6130-225-12, 16 October 1961, is changed as follows:
The title of this manual is changed as shown above.
The following warnings are added at the front of the manual.

WARNING

Charger, Battery PP-2926/U weighs 195 pounds. BE CAREFUL when moving. 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.

*** This change supersedes Change 3, 16 October 1973.**



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 DRY WOODEN POLE OR A DRY 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**

Page 3. Paragraphs 2 and 2.1 are superseded as follows:

2. 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 Item and Packaging Discrepancies. Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-112/DLAR 4140.55/NAVSUPINST 4440.127E/AFR 400.54/MCO 4430.E.

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 7518/MCO P4610.19C and DLAR 4500.15.

2.1. 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 and Electronics Materiel Readiness Command, ATTN: DRSEL-ME-MQ, Fort Monmouth, New Jersey 07703. In either case, a reply will be furnished direct to you.

Paragraphs 2.2 and 2.3 are added after paragraph 2.1.

2.2. Reporting Equipment Improvement Recommendations (EIR)

If your equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Tell us why a procedure is hard to perform. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Communications and Electronics Materiel Readiness Command, ATTN: DRSEL-ME-MQ, Fort Monmouth, New Jersey 07703. We'll send you a reply.

2.3. Administrative Storage

Administrative storage of equipment issued to and used by Army activities will have preventive maintenance performed before storing. When removing the equipment from administrative storage, the performance test and adjustment procedure should be performed to assure operational readiness. Original packing case may be used when repacking equipment for shipment for repair.

Page 4. Paragraph 5 is superseded as follows:

5. Items Comprising an Operable Equipment

Charger, Battery PP-2926/U (NSN 6130-00-500-0069) comprises an operable equipment.

Page 5. Paragraph 8*b* is superseded as follows:

b. Removing Contents.

WARNING

Charger, Battery PP-2926/U weighs 195 pounds. BE CAREFUL when moving. Mechanical lift required. Perform all the steps outlined below when unpacking the equipment (fig. 2).

(1) Cut and fold back the metal straps.

(2) Remove the nails from the top and one side of the box with a nailpuller. Remove the top and side.

(3) Open the moisture proof barrier that covers the carton inside the box. Remove the carton.

(4) the carton and the moisture vapor proof barrier within the carton. Remove the inner carton. Open the inner carton and remove the contents.

Page 19. Paragraph 20*b* is superseded as follows:

b. Materials.

WARNING

Adequate ventilation should be provided while using TRICHLOROTRI-FLUOROETHANE. 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 TRICHLORO-TRIFLUOROETHANE 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.

(1) Cleaning compound (TRICHLOROTRI-FLUOROETHANE, NSN 6850-00-105-3084).

(2) Lint-free cleaning cloth.

Paragraph 21*c*. Delete warning at end of paragraph.

Appendix I is superseded as follows:

APPENDIX I
REFERENCES

AR 735-11-2	Reporting of Item and Packaging Discrepancies
DA Pam 310-4	Index of Technical Publications
TM 38-750	The Army Maintenance Management System (TAMMS).
TM 43-0139	Painting Instructions for Field Use.

By Order of the Secretary of the Army:

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

Official:

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

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USAERDAW (1)
Ft Gordon (10)
Ft Carson (5)
Ft Gillem (10)
Ft Richardson (CERCOM OfcX2)
Army Dep (1) except
SAAD (30)
TOAD (14)
SHAD (2)
USA Dep (1)
Sig Sec USA Dep (1)
Units org under fol TOE:
29-207 (2)
29-610 (2)
29-134 (1)
29-136 (1)

NG: State AG (3): Units-NONE
USAR: None
For explanation of abbreviations used see, AR 310-50.

☆**U.S. GOVERNMENT PRINTING OFRCE: 1981-765-16/1269**

Changes in force: C 1 and C 2

TM 11-6130-225-12
C 2

Operator and Organizational Maintenance Manual

CHARGER, BATTERY PP-2926/U

CHANGE
No. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *8 June 1964*

TM 11-6130-225-12, 16 October 1961 is changed as follows:

Note
The parenthetical reference to previous changes (example "page 1 of C 1), indicates that pertinent material was published in that change.

Page 3 (page 1 of C 1). Delete subparagraph 2*c* and substitute:

c. Reporting of Equipment Manual Improvements. The direct reporting by the individual user of errors, omissions, and recommendations for improving this manual is authorized and encouraged. DA Form 2028 (Recommended Changes to DA Technical Manual Parts Lists or Supply Manual 7, 8, or 9) will be used for reporting these improvements. This form will be completed in triplicate using pencil, pen, or typewriter. The original and one copy will be forwarded direct to Commanding Officer, U. S. Army Electronics Materiel Support Agency, ATTN: SELMS-MP, Fort Monmouth, N.J. 07703. One information copy will be furnished to the individual's immediate supervisor (officer, noncommissioned officer, supervisor, etc.).

Page 22, (page 4 of C 1). Delete appendix II and substitute:

APPENDIX II

MAINTENANCE ALLOCATION

Section I. INTRODUCTION

1. General

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

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 is 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 the 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 echelons.

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

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

(c) Inspect. To verify serviceability and to 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. 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) *1st, 2d, 3d, 4th, 5th echelons.* The symbol X indicates the echelon responsible for performing that particular maintenance operation, but does not necessarily indicate that repair parts will be stocked at that level. Echelons higher than the echelon 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 utilized 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) *1st, 2d, 3d, 4th, and 5th echelon.* The dagger (†) indicates the echelons normally allocated the facility.

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

2.6. Maintenance by Using Organizations

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

3. Stockage

No parts authorized for stockage at second echelon.

SECTION II. MAINTENANCE ALLOCATION CHART

PART OR COMPONENT	MAINTENANCE FUNCTION	ECHELON 1 •	2 •	3 •	4 •	5 •	TOOLS REQUIRED	REMARKS
CHARGER, BATTERY PP-2926/U	service	X					6	Cleans cables connectors and exterior only
	service		X					Organizational preventive maintenance
	adjust	X						Operational controls.
			X				6	Pre-operational connections.
	inspect	X						Cables, connectors, and exterior only.
	test		X				6	Pre-operational and operational.
					X		2,3,4,5,7,9	Except input current and sensitivity.
						X	1,2,3,4,5,7,8,9	All tests.
	repair				X		7	NOTE: Lamps and fuses to be replaced only.
	overhaul				X		7	

SECTION III. ALLOCATION OF TOOLS FOR MAINTENANCE FUNCTIONS

PART OR COMPONENT	ECHELON 1 •	2 •	3 •	4 •	5 •	TOOLS CODE	REMARKS
AMMETER ME-65/U					†	1	
INSULATION BREAKSOWN TEST SET AN/GSM-6				†	†	2	
LOAD BANK (0.475 OHM, 10KW)				†	†	3	Shop constructed.
MULTIMETER TS-352/U				†	†	4	
OHMMETER ZM-21A				†	†	5	
TOOL KIT, GENERAL MECHANICA FSN 5180-754-0641		†				6	
TOOL KIT TK-87/U				†	†	7	
VARIABLE TRANSFORMER 3 PHSE) TO 480V, 28 AMP SUPERIOR ELETRICAL #1256 CLT-34 OR EQUAL					†	8	
VOLTMETER TS-443/U					†	9	

Page 26. Appendix III (page 4 of C 1). Delete paragraph 2.

By Order of the Secretary of the Army:

EARLE G. WHEELER,
General, United States Army,
Chief of Staff.

Official:
J. C. LAMBERT,
Major General, United States Army,
The Adjutant General.

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USAECOM (7)
USAMICOM (4)
USASMCOM (2)
USAARMBD (2)
USASCC (4)
USAECDA (1)
USACBRCDA (1)
USACECDA (1)
USACECDA (Monmouth Ofc) (1)
USAMSCDA (1)
USAOCDA (2)
USAQMCDA (1)
USATCDA (1)
USAADCDA (1)
USAARMCDA (1)
USAAVNCDA (1)
USAARTYCDA (1)
USASWCDA (1)
Armies (2)
Corps (2)
11th Air Assault Div (3)
MDW (1)
USATC AD (2)
USATC Armor (2)
USATC Engr (2)
USATC Inf (2)
UNOINDC
USASTC (2)
Instl (2) except
  Fort Monmouth (63)
  Fort Hancock (4)
  Fort Gordon (5)
  Ft Huachuca (10)
GENDEP (OS) (2)
Sig Sec, GENDEP (5)
Big Dep (OS) (12)
Yuma PG (2)
Army Dep (2) except
  Lexington (12)
  Sacramento (28)
  Tobyhanna (12)
  Ft Worth (8)
  Letterkenny (5)
  Sharpe (3)
  Savanna (5)
  Navajo (5)
  Charleston (3)
  Utah (8)
Svc Colleges (2)
Br Svc Sch (2) except
  USAQMS (20)
  USAARMS (20)
WRAMC (1)
Army Tm 1 (1) except Oakland (5)
POE (1)
Army Pic Cen (2)
USA Mbl Equip Cen (1)
USA Elct Mat Agcy (9)
Chicago Proc Dist (1)
USATTCARC (1)
USATTCA (1)
USATTCG (1)
USATTCP (1)
1st USASA Fld Sta (5)
USARSOUTHCOM Sig Agcy (1)
USA Alameda ADMCEN (5)
USAERDL (2)
USA Cold Regions RE Lab (2)
Sig Fld Maint Shops (3)
USA Elct RD Actv (White Sands) (13)
WSMR (5)
USAREUR Spt Comd (5)
USA Corps (3)
Units org under fol TOE:-2 ea

9-87	11-157
11-16	11-500(AA-AE) (4)
11-57	11-557
11-97	11-587
11-98	11-592
11-117	11-597
11-155	

NG: State AG (3); units-same as active Army, except allowance is one (1) copy each.
USAR: None.
For explanation of abbreviations used, see AR 320-50.

TECHNICAL MANUAL
OPERATOR AND ORGANIZATIONAL MAINTENANCE MANUAL
CHARGER, BATTERY PP-2926/U

TM 11-6130-225-12
CHANGES No. 1

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON 25, D.C., *3 July 1963*

TM 11-6130-225-12, 16 October 1961, is changed as follows:

Page 3. Add paragraph 1.1 after paragraph 1.

1.1. Index of Publications

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. Department of the Army Pamphlet No. 310-4 is a current index of technical manuals, technical bulletins, supply bulletins, lubrication orders, and modification work orders that are available through publications supply channels. The index lists the individual parts (-10, -20, -35P, etc) and the latest changes and revisions of each equipment publication.

Delete paragraph 2 and substitute:

2. Forms-and Records

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

b. Report 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. Comments on Manual. Forward all comments on this publication direct to: Commanding Officer, U.S, Army Electronic Materiel Support Agency ATTN: SELMS-MP, Fort Monmouth, New Jersey. DA Form 1598 (Record of Comments on Publications), DA Form 2496 (Disposition Form), or letter may be used.

Page 16. Delete paragraphs 17 and 18 and substitute:

17. Scope of Operator's Maintenance

The maintenance duties assigned to the operator of the PP-2926/U are listed below with a reference to the paragraphs covering the specific maintenance function. The duties assigned do not require any special tools or test equipment. Cleaning Compound (FSN 7930-395-9542) and a lint-free cloth are required for these services.

a. Daily preventive maintenance checks and services (par. 18.2).

b. Weekly preventive maintenance checks and services (par. 18.3).

c. Cleaning (par. 18.4).

18. Operator's 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 18.1 through 18.4 cover routine systematic care and cleaning essential to proper upkeep and operation of equipment.

b. Preventive Maintenance Checks and Services The preventive maintenance checks and services charts (para 18.2 and 18.3) outline functions to be performed at specific intervals. These checks and services are designed 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 charts indicate what to check, how to check, and what the normal conditions are; the reference column lists the illustrations, paragraphs, or manuals that contain supplementary information. If the defect cannot be remedied by the operator, higher echelon maintenance or repair is required. Records and reports of these checks and services must be made in accordance with TM 38-750.

18.1. Preventive Maintenance Checks and Services Periods

Operator's preventive maintenance checks and services of the PP-2926 U are required on a daily and weekly basis.

a. Paragraph 18.2 specifies the checks and services that must be accomplished daily and under the special conditions listed below

(1) When the equipment is reinstalled after removal for any reason.

(2) At least once each week if the equipment is maintained in a standby condition.

b. Paragraph 18.3 specifies the checks and services that must be accomplished once each week. These checks and services are made concurrently with those made daily.

18.2. Daily Preventive Maintenance Checks and Services Chart

Sequence No.	Item	Procedure	Reference
1	Battery charger	See that equipment is complete	Paragraph 5.
2	External surface.....	See that all external surfaces are free of dust, dirt, oil, grease, moisture, fungus rust, or corrosion.	Paragraph 18.4.
3	Painted surface	Check to see that all external painted surfaces are free of rust or bare spots.	
4	Battery connector	Check the battery connector for cracks, break, and loosens remove dirt and moisture from the connector.	Paragraph 18.4.
5	Control knob and switches.	While making the operating check (item 6), observe that the mechanical action of the timer control knob and power switch is positive, smooth, and free of external or internal binding.	
6	Test charge a battery ..	Check the operation of the PP-2926/U in accordance with paragraph 14 and 15. Observe all cautions and be alert for malfunctions	

18.3. Weekly Preventive Maintenance Checks and Services Chart

Sequence No.	Item	Procedure	Reference
1	Battery cable	Check the battery cable for cuts, cracks, kinks, and break	None.
2	Meter windows and relay cover.	Clean and check the meter windows and relay cover for cracks and breaks	Paragraph 18.4.

18.4. Cleaning

Inspect the exterior of the PP-2926/U. The exterior surfaces should be clean and free from dust, dirt, grease, oil, mildew, and fungus.

a. Remove dust, loose dirt, and moisture with a soft Clean cloth or brush.

Warning:

Cleaning compound is flammable and its fumes are toxic. Do not use near flames: provide adequate ventilation.

b. Remove oil, grease, fungus, mildew, and ground-in-dirt from the cabinet; use a cloth dampened (not wet) with cleaning compound. After cleaning, wipe dry with a cloth.

c. Remove dust or dirt from the battery connector with a brush.

Caution:

Do not press on the meter faces (glass) when cleaning; the meter may be damaged.

d. Clean the front panel meters and control knob; use a soft clean cloth. If dirt is difficult to remove, dampen the cloth with water; use mild soap if necessary.

Page 17. Delete figure 7.

Page 18. Delete figure 8.

Page 19. Make the following changes:

Delete paragraph 19 and substitute:

19. Scope of Second Echelon Maintenance

Second echelon maintenance of the PP-2926/U includes the maintenance performed by the operator (par. 17) and those listed below. No repair functions are authorized.

a. Preventive maintenance (pars. 21-21.2).

b. Troubleshooting (pars. 22 and 23).

Delete paragraph 21 and substitute:

21. Second Echelon Preventive Maintenance

a. Preventive maintenance is the systematic care, inspection, and servicing of equipment to maintain it in serviceable condition, prevent breakdowns, and assure maximum operational capability. Preventive maintenance is the responsibility of all echelons concerned with the equipment and includes inspection, testing, and repair or replacement of parts (when authorized) that inspection and tests indicate would probably fail before the next scheduled periodic service. Preventive maintenance checks and services of the PP-2926/U at the second echelon level are made at monthly intervals (para 21.1) unless otherwise directed by the commanding officer. The preventive maintenance checks and services for longer intervals should be scheduled concurrently with those for shorter intervals.

b. Maintenance forms and records to be used and maintained on this equipment are specified in TM 38-750. Paragraph 2 contains additional information concerning submission of specific forms.

c. The preventive maintenance checks and services chart (par. 21.2) outlines functions to be performed at monthly intervals. To assist organizational personnel in maintaining combat serviceability, the chart indicates what to check, how to check, and what the normal conditions are; the reference column lists the illustrations, paragraphs, or manuals that contain pertinent information. If the defect cannot be remedied at the organizational level, deadline the equipment in accordance with TM 38-750 and refer the equipment to higher echelon.

d. Remove rust or corrosion, found during preventive, maintenance inspections front 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. Refer to the applicable cleaning and refinishing practices specified in TM 9-213.

21.1. Monthly Maintenance

Perform the maintenance functions indicated in the monthly preventive maintenance checks and services chart (par. 21.2) once each month. A month is defined as approximately 30 calendar days of 8-hour-per-day operation. If the equipment is operated 16 hours a day, the monthly maintenance should be performed at 15-day intervals. Adjustment of the maintenance interval must be made to compensate for any unusual operating conditions. Equipment maintained in a stand by (ready for immediate operation) condition must have monthly maintenance performed on it. Equipment in limited storage does not require monthly maintenance, but requires service before operation.

21.2. Monthly Preventive Maintenance Checks and Services Chart

Warning

Do not perform any of the internal maintenance procedures listed below without turning off the external power disconnect switch. The input voltage (208 volts, 230 volts, or 460 volts, 3-phase ac) is impressed across the terminals at the top of the fuse block. Failure to turn off the power may cause serious injury or death to maintenance personnel.

Sequence No.	Item	Procedure	Reference
1	Pilot lamp	Check to see that the pilot lamp is properly seated in its holder.	Figure 1.
2	Exterior surfaces.....	Inspect the cabinet exterior for loose screws and rust. Tighten all screws when necessary; remove rust.	Paragraph 21*d*.
3	Terminal board	Open the hinged door and check terminal board TB1 for cracks and breaks and loose terminal screws, nuts, shorting links, and other connections. Tighten as required	Figures 5 and 6
4	Relays and fuses	Check relays for loose mounting; check fuses for proper and secure seating. ***Note.*** **When other than normal indications are observed during operation of the PP-2926/U refer to paragraph 22 and 23.**	Figure 6.

Pages 22 and 26. Renumber the existing appendixes "I" and "II" to II and III. Add appendix I before appendix II.

APPENDIX I

REFERENCES

Following is a list of references available to the operator and organizational maintenance personnel of Charger, Battery PP-2926/U:

AR 700-58	Report of Damaged or Improper Shipment (Reports Control Symbol CSGLD-66 (Army), BuSanda 4600-6 (Navy), Reports Control Symbol 4600-3 (Marine Corps), Air Force Exempt under Paragraph 7(3), AFR 174-1).
AR 750-5	Organization, Policies, and Responsibilities for Maintenance Operation.
DA Pamphlet 310-4	Index of Technical Manuals, Technical Bulletins, Supply Bulletins, Lubrication Orders, and Modification Work Orders.
TM 9-213	Painting Instructions for Field Use.
TM 38-750	The Army Equipment Record System and Procedures.

By Order of the Secretary of the Army:

EARLE G. WHEELER,
General, United States Army
Chief of Staff.

Official:

J. C. LAMBERT,
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USA CD Agcy (1)
USCONARC (5)
USAMC (5)
ARADCOM (2)
ARADCOM Rgn (2)
OS Maj Comd (3)
OS Base Comd (2)
LOGCOMD (2)
USAECOM (5)
USAMICOM (3)
USASCC (4)
MDW (1)
Armies (2)
Corps (2)
USATC AD (2)
USATC Engr (2)
USATC Inf (2)
USATC Armor (2)
Instl (2) except
Ft Monmouth (63)
Svc College (2)
Br Svc Sch (2)
GENDEP (OS) (2)
Sig Dep (OS) (12)
Sig Sec, GENDEP (OS) (5)
Army Dep (2) except
Ft Worth (8)
Lexington (12)
Sacramento (25)
Tobyhanna (12)
USA Elct RI Aetv, White Sands (13)
USA Elet RD Actv, Ft Huachuca (2)
USA Trans Tml Comd (1)
Army Tml (1)
POE (1)
USAOSA (1)
AMS (1)
WRAMC (1)
AFIP (1)
Army Pic Cen (2)
USA Mbl Spt Cen (1)
USA Elct Mat Agcy (12)
Chicago Proc Dist (1)
USARCARIB Sig Agcy (1)
Sig Fid Maint Shop (3)
USA Corps (3)
Units org under fol TOE's:
Two copies each unit
UNOINDC:
11-7
11-16
11-57
11-97
11-117
11-155
11-157
11-500 (AA-AC) (4)
11-557
11-587
11-592
11-597

NG: State AG (3); units-same as Active Army except allowance is one copy to each unit.
USAR: None.
For explanation of abbreviations used, see AR 320-50.

TECHNICAL MANUAL
TM 11-6130-225-12

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON 25, D.C., *16 October 1961*

OPERATOR AND ORGANIZATIONAL MAINTENANCE MANUAL
CHARGER, BATTERY PP-2926/U

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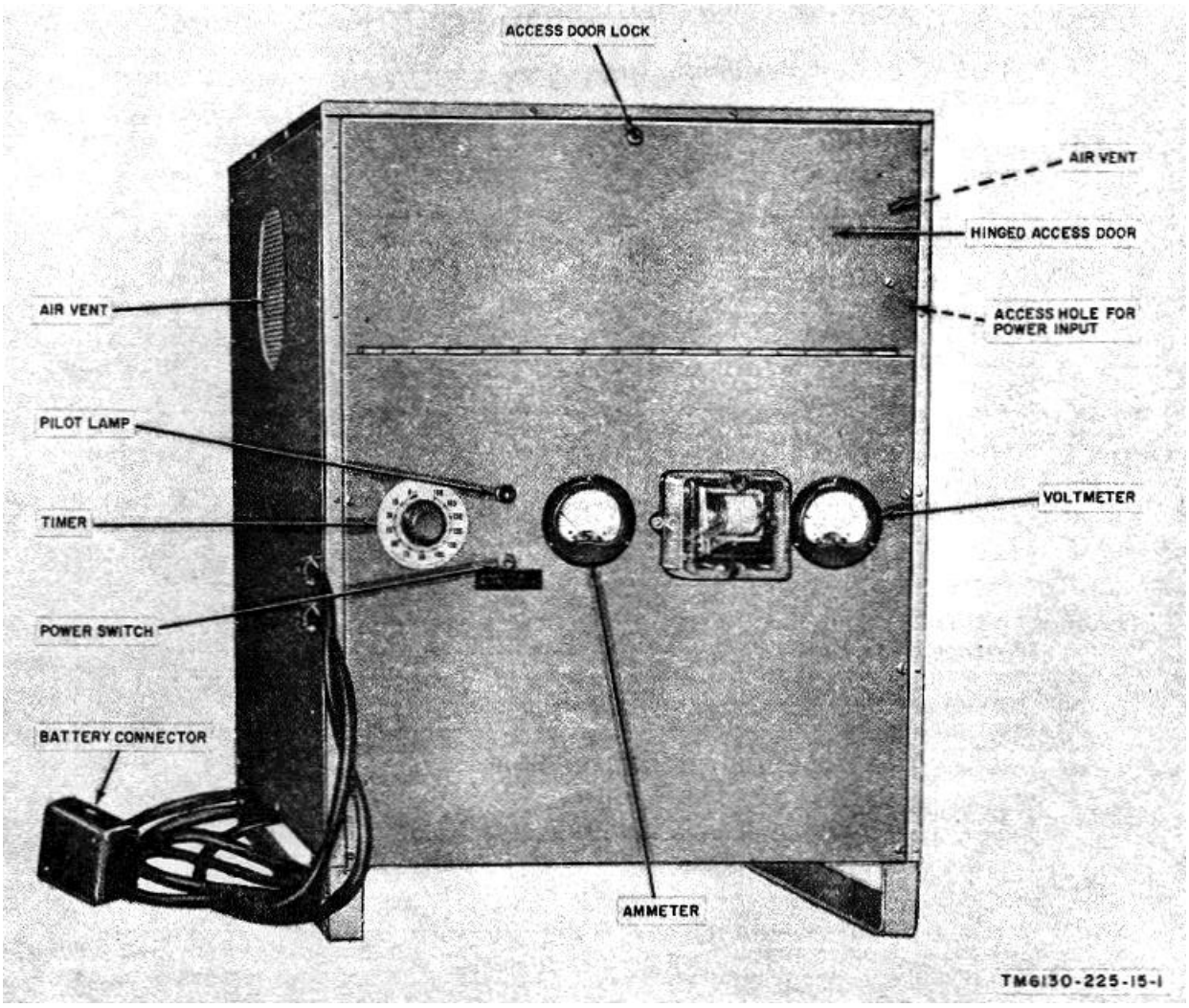


Figure 1. Charger, Battery PP-2926/U.

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1. Scope

This manual describes Charger, Battery PP-2926/U and covers the installation, operation, and the first and second echelon maintenance of this equipment. It includes instructions for cleaning and testing at the second echelon of maintenance, connecting the equipment to operate on any one of three input voltages, and setting up the equipment to charge various types and sizes of forklift truck batteries.

2. Forms and Records

a. Unsatisfactory Equipment Report. Fill out and forward DA Form 468 (Unsatisfactory Equipment Report) to the Commanding Officer, U.S. Army Signal Materiel Support Agency, ATTN: SIGMS-ML, Fort Monmouth, N.J., as prescribed in AR 700-38.

b. Report 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).

c. Preventive Maintenance Forms. Prepare DA Form 11-238 (figs. 7 and 8), Maintenance Check List for Signal Equipment (Sound Equipment, Radio, Direction Finding, Radar, Carrier, Radiosonde, and Television), in accordance with instructions on the form.

d. Parts List Form. Forward DA Form 2028, (Recommended Changes to DA Technical Manual Parts Lists or Supply Manual 7, 8, or 9) direct to the Commanding Officer, U.S. Army Signal Materiel Support Agency, ATTN: SIGMS-ML, Fort Monmouth, N.J., with comments or parts listing.

e. Comments on Manual. Forward all other comments on this publication direct to the Commanding Officer, U.S. Army Signal Materiel Support Agency, ATTN: SIGMS-PA2d, Fort Monmouth, N. J.

Section II. DESCRIPTION AND DATA

3. Purpose and Use

a. Charger, Battery PP-2926/U provides a source of dc for charging lead-acid and nickel-iron type storage batteries used in electrically operated forklift trucks.

b. This unit can be used to charge 18-cell lead-acid batteries with a range of capacities from 300 to 750 ampere-hours or 30-cell nickel-iron batteries with a range of capacities from 280 to 750 ampere-hours without removing the battery bank from the forklift truck.

4. Technical Characteristics

Power input:

Voltage	208 volts, 230 volts, or 460 volts, 60 cps, 3-phase, 4-wire.
Current per phase	28.3 amperes at 208 volts; 26 amperes at 230 volts; 13 amperes at 460 volts.

Power output:

Voltage	Variable from 30 to 60 volts dc.
Current	50 to 160 amperes.
Efficiency	70.3 percent at full load.
Timing control	Continuously adjustable for automatic trickle charge operation from 1 minute up to 3 hours.

Charging rate:

Initial	50 to 160 amperes dc.
Trickle	Approximately 30 percent of initial rate (used with lead-acid type cells only).

Charging time (Completely discharged battery)	Approximately 5-6 hours.
Weight	195 lb.

5. Table of Components

The components of the Charger, Battery PP-2926/U are listed in the following table.

Quantity	Item	Dimensions			Unit weight (lb.)
		Height (in.)	Depth (in.)	Width (in.)	
1	Charger, Battery PP-2926/U	31½	22 ¾	.23 7/8	195
2	TM 11-6130-225-12				

6. Description

Charger, Battery PP-2926/U (fig. 1) is a self-contained unit in a metal cabinet. A hinged access door is provided at the top of the front panel. There are two operating controls and three indicators located on the front panel. A relay is also mounted on the front panel. The battery connector is located on the left side of the unit.

7. Additional Equipment Required

a. A switch is used as an added safety feature to prevent injury to personnel when the operator changes tap leads on terminal board TB1 (located under the hinged door). A four wire (three phase three- or four-pole, single throw, 5 horsepower (or larger)) disconnect switch may be used with the PP-2926/U.

b. When the PP-2926/U is connected to a 208-volt or 230-volt, three phase power source, use a switch such as Square D Company catalog numbers A87412 (three-pole) or A86452 (four-pole). When the PP-2926/U is connected to a 460-volt, three-phase, alternating current (ac) power source, use a switch such as a Square D Company catalog number A87441.

CHAPTER 2

INSTALLATION

8. Unpacking

a. Packaging Data. When packed for shipment, Charger, Battery PP-2926/U is placed in a carton and packed in a wooden box 36 by 30 by 29 inches; the weight of the unit is 215 pounds and the volume is 18-15 cubic feet.

b. Removing Contents. Perform all the steps outlined below when unpacking the equipment (fig. 2).

(1) Cut and fold back the metal straps.

(2) Remove the nails from the top and one side of the box with a nailpuller. Remove the top and side.

(3) Open the moisture proof barrier that covers the carton inside the box. Remove the carton.

(4) Open the carton and the moisture vapor proof barrier within the carton. Remove the inner carton. Open the inner carton and remove the contents.

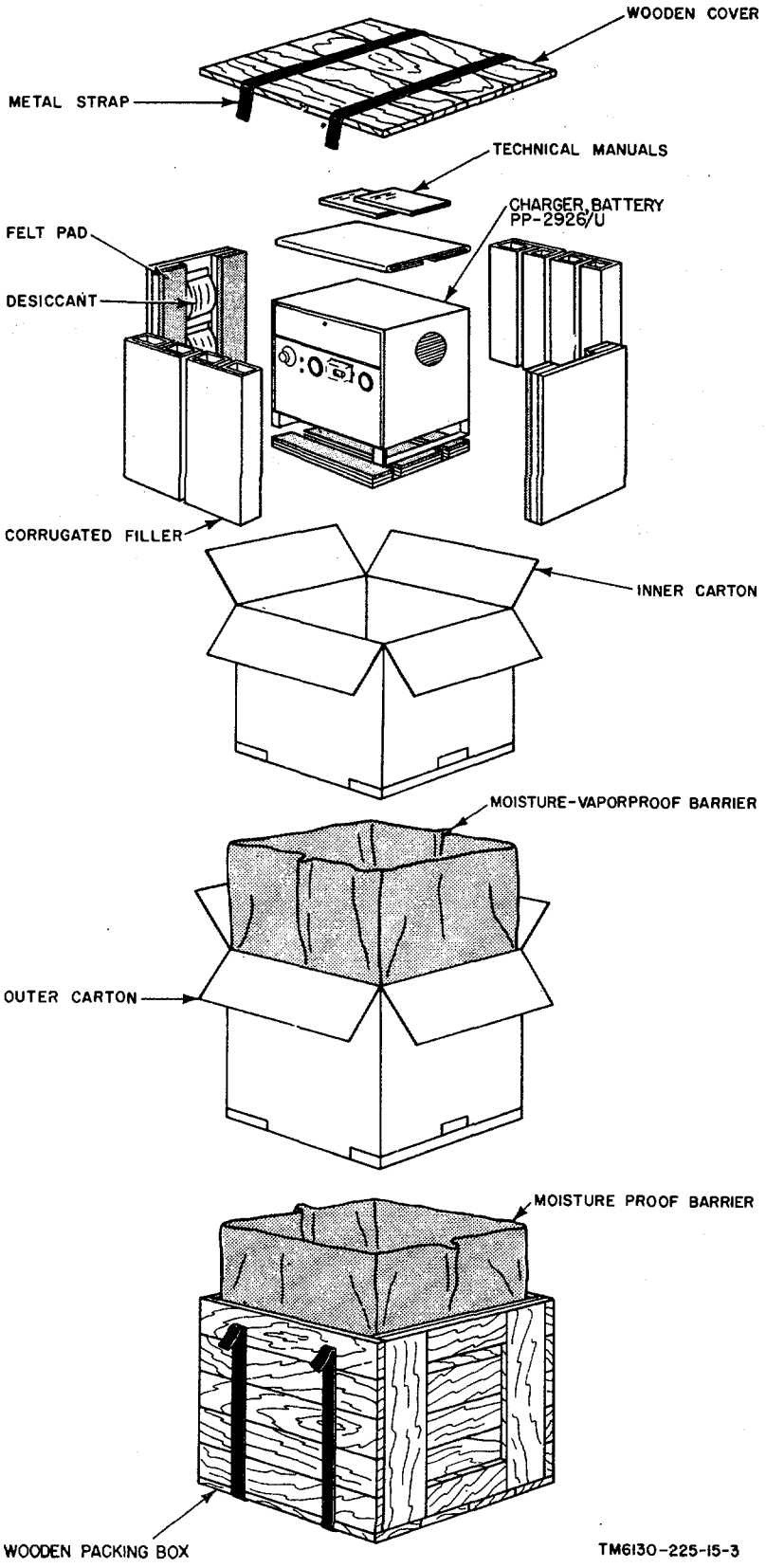


Figure 2. Typical packaging.

9. Checking Unpacked Equipment

a. Inspect the equipment for damage incurred during shipment and check for the following:

(1) Cracked or broken meter windows.

(2) Cracked or broken relay cover.

(3) Damaged timer knob or toggle switch.

(4) Damaged cabinet.

(5) Damaged or loose interlock switch.

b. If the equipment has been damaged in shipment, refer to paragraph 2.

10. Siting

a. Select a location in a building that has a 208-volt, 230-volt, or 460-volt, three-phase, ac electrical service installed.

b. Select a site that will permit the forklift trucks to drive up to the unit. The charger connector is connected to two 10-foot long output cables which limit the distance between the PP-2926/U and the forklift truck.

c. Position the PP-2926/U away from partitions or any obstructions that will obstruct the flow of air through the air vents in the cabinet. The air vents must be kept clear to allow proper air circulation.

d. The PP-2926/U may be installed side by side with additional units, but must have a minimum clearance of 6 inches on each side.

11. Connections

(fig. 3)

Note

These instructions are for use of installation personnel only.

a. Power must be connected from a three phase four-wire source. The voltage rating may be 208 volts, 230 volts, or 460 volts.

b. Mount a three-pole, single throw disconnect switch (par. 6) on a wall as close as practicable to the PP-2926/U. Wire the switch with No. 8 wire (FSN 6145-548-2985) or equal.

c. Loosen the three wing nuts that hold the fuse cover in place and remove the fuse cover.

d. Be sure that power is turned off at the source before connecting the four input leads to the PP-2926/U.

(1) Loosen the clamp of the elbow connector in the top right side panel.

(2) Pass all four leads through this connector.

(3) Connect the ground lead for the power source to LO (terminal 12 of TB1).

(4) Connect the remaining power source leads to the screw terminals at the top of each fuse holder.

(5) Tighten the connector clamp to secure the power leads.

(6) Connect the leads from the bottom of relays K1 and K2 (fig. 6) to terminals or terminal board TB1 as indicated in (7) below. The lead from K1 terminal 2 is identified as L1; the lead from K1 terminal 4 is L2; and the lead from K2 terminal 3 is L3.

(7)

	Terminal board connections		
Input voltage	L1	L2	L3
460 (B, fig. 4)	1	7	13
230 (C, fig. 4)	1	7	13
208 (D, fig. 4)	2	9	14

(8) Arrange the shorting links as listed below

Input voltage	Shorting link connections to terminals					
460 (B, fig. 4)	3-4	9-10	15-16			
230 (C, fig. 4)	1-4	7-10	13-16	3-6	9-12	15-18
208 (D, fig. 4)	2-5	8-11	14-17	3-6	9-12	15-18

Note

For 460-volt connections, store the extra links until such time as they may be needed to provide for 230-volt or 208-volt input connections.

e. Display the following warning notice in a prominent place next to the external disconnect switch and on the hinged door of the PP-2926/U.

WARNING

Severe injury or death on contact. Extremely dangerous voltages exist in the PP-2926/U. Turn off power disconnect switch before changing tap leads or terminal board connections.

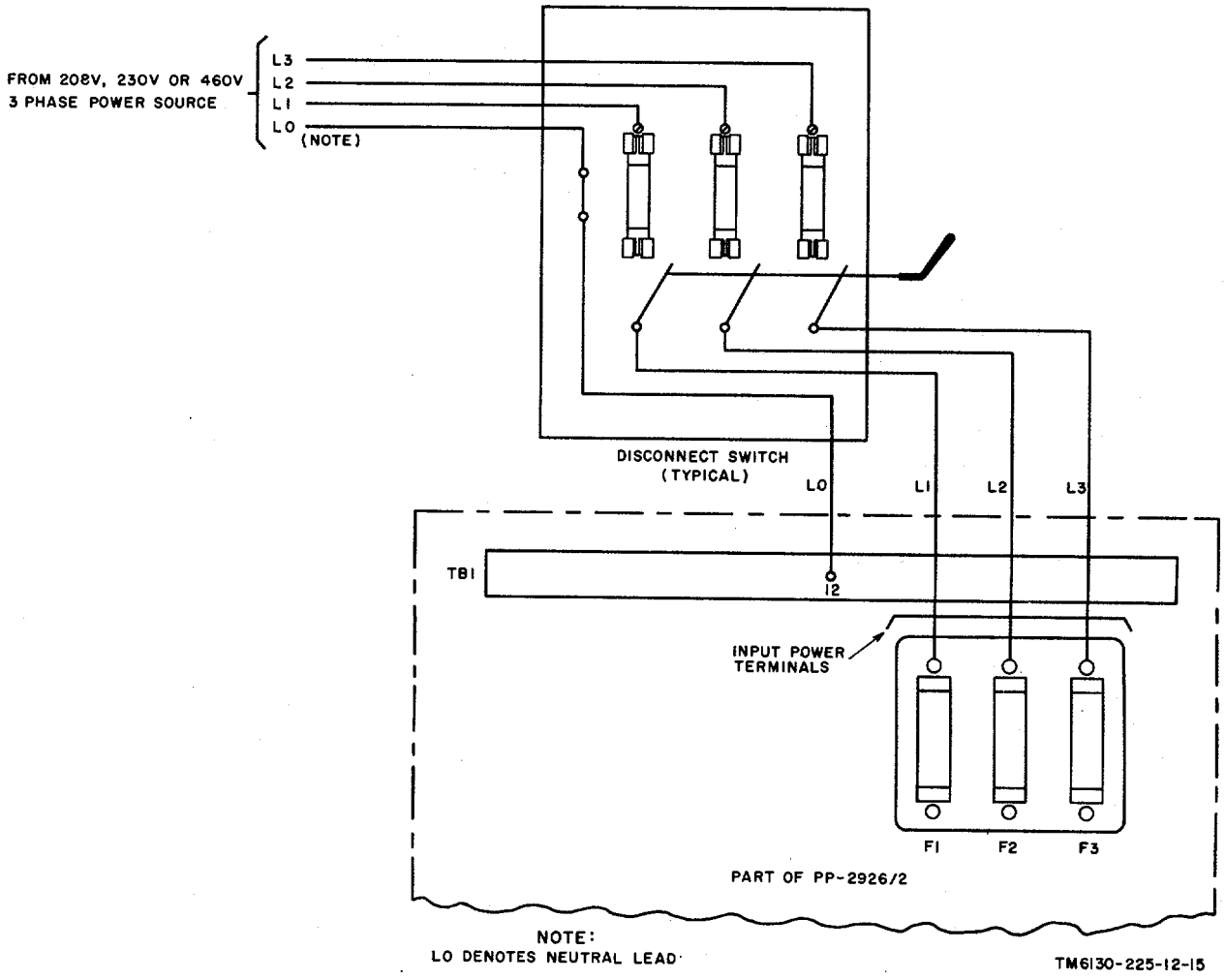


Figure 3. Power disconnect switch wiring.

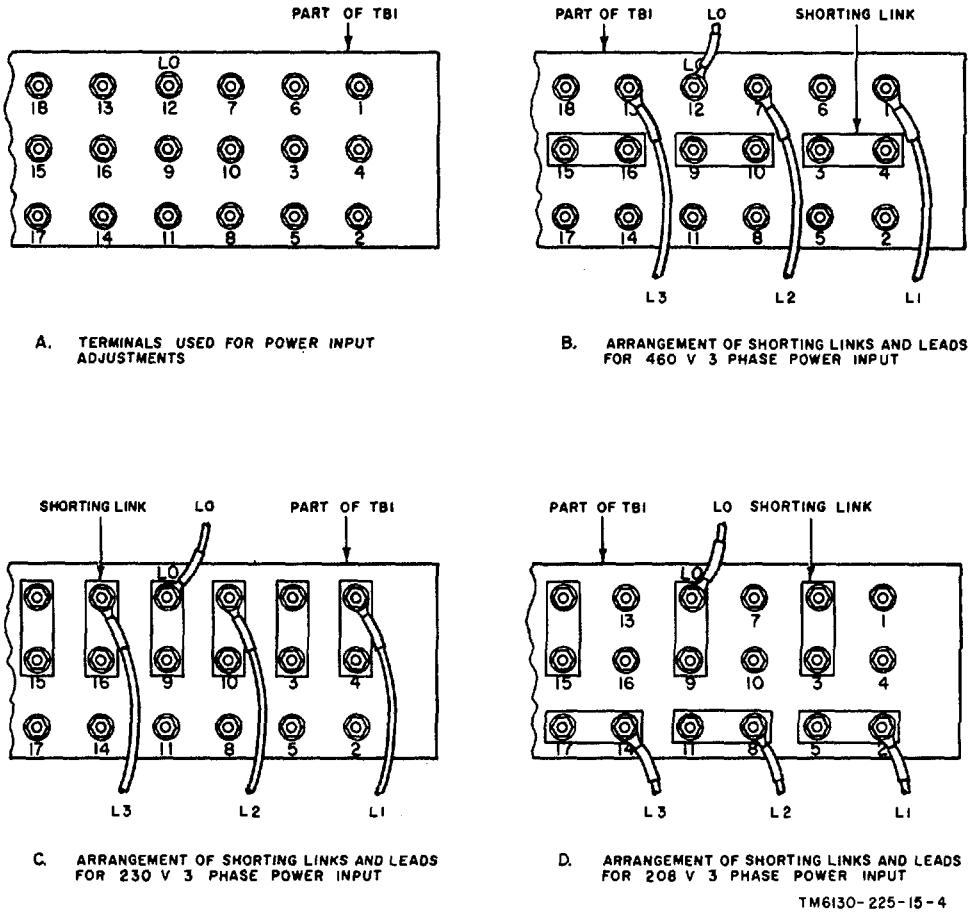


Figure 4. Terminal board connections and shorting link arrangements.

12. Preoperational Tests

Perform the preliminary operation listed below before starting the equipment as described in paragraph 15.

a. Check the seating of all fuses on the PP-2926/U.

b. Follow the procedures given in paragraph 14 and paragraph 15 and test charge a battery.

CHAPTER 3

OPERATION

WARNING:
Extremely dangerous voltages exist in the PP-2926/U. Severe injury or death on contact may result if operating personnel fail to observe safety precautions. Turn off the POWER DISCONNECT SWITCH changing tap leads or terminal board connections.

13. Controls and Indicators
(figs. 5 and 6)

Control or indicators	Function
Power-switch (3-position toggle switch)	Turns on and sets up the PP-2926/U for charging nickel-iron or lead-acid batteries. *Position* — *Action* OFF — Turns off the PP-2926/U. LEAD-ACID ON — Turns on and sets up the PP-2926/U for charging lead-acid (lead antimony or lead calcium) type batteries. NICKEL-IRON ON — Turns on and sets up the PP-2926/U for charging nickel-iron type batteries
Timer	Controls trickle charge time from 0 to 180 minutes after fast charge for lead-acid type batteries and automatically turns off the PP-2926/U when batteries are charged.
Power indicator lamp.....	Lights when power is turned on
Voltmeter	Indicates voltage applied through output terminals.
Ammeter.....	Indicates direct-current delivered through output terminals.
Interlock.....	Opens circuit to battery charger when hinged access door is opened. Closes circuit when manually pulled out with hinged access door open.

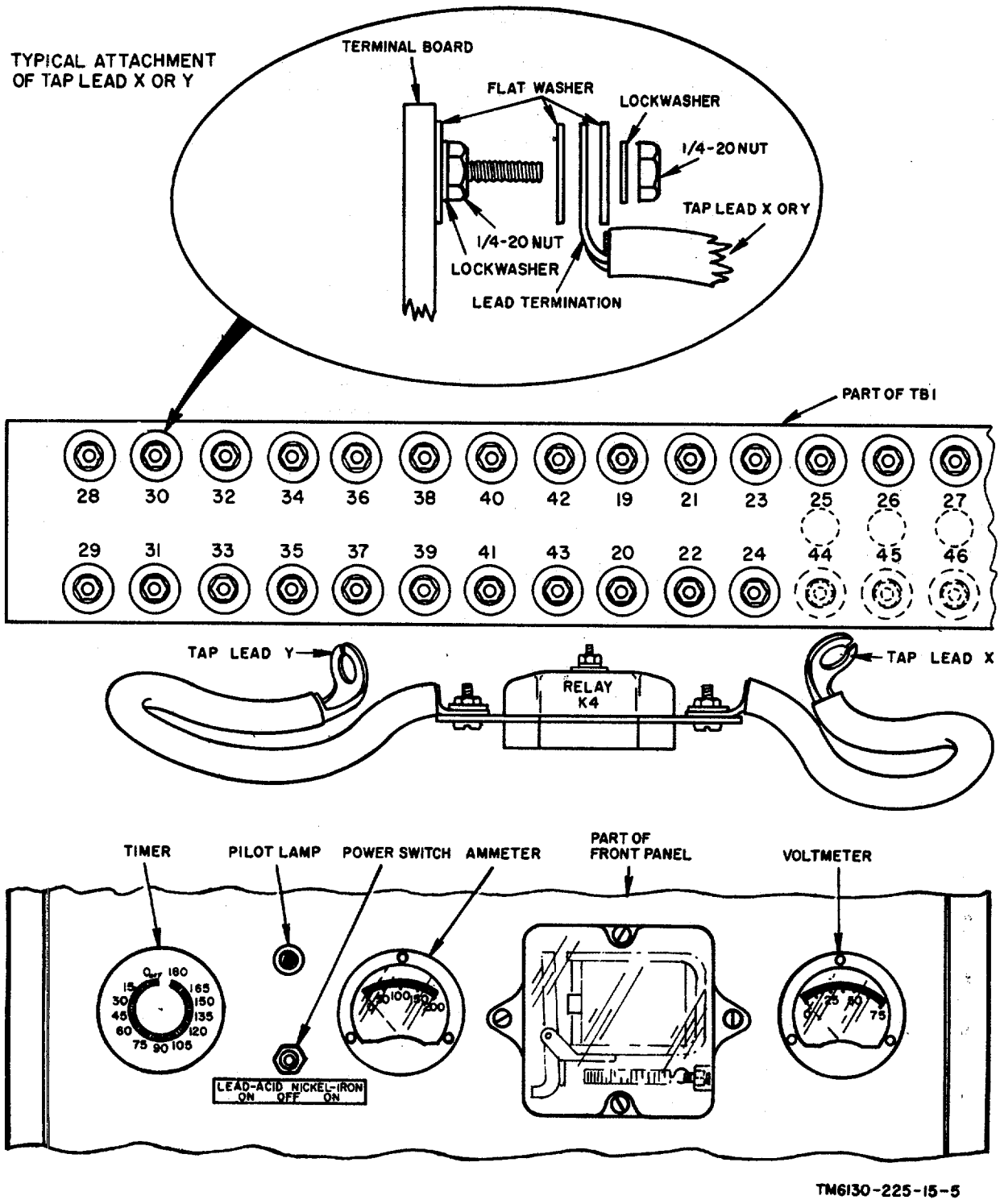


Figure 5. Terminal board tap lead connections and front panel controls and indicators.

14. Preliminary Starting Procedures

Before attempting to start the PP-2926/U, perform the following procedures in the order given below:

a. Determine the ampere-hour rating and type (lead-acid or nickel-iron) of the discharged storage battery in the forklift truck. Obtain this information from the nameplate on one of the batteries in the battery bank or from commercial literature which usually accompanies the batteries.

CAUTION

This information is important in determining the correct method of operation. If the wrong information (a above) is used to determine the operating procedure, damage to the storage batteries may result.

b. Uncap the storage batteries to be charged.

c. Add water to the storage batteries until they are at the correct level.

d. Turn off the power to the PP-2926/U at the external power disconnect switch.

e. Operate the power switch (fig. 5) on the PP-2926/U to OFF.

f. Operate the timer control to the OFF position.

g. Open the hinged door (fig. 6) on the PP-2926/U and locate terminal board TB1.

h. The following charts ((1) and (2)) show the X and Y terminal connections for nickel-iron and lead-acid batteries and the approximate ammeter readings. Refer to figure 5 for terminal board tap lead connections.

(1) *Nickel-iron type batteries.*

Battery ampere-hour rating	TB1 terminal connection for X and Y tap leads	Approximate ammeter readings (amperes)
280	19	56
330	20	66
380	21	76
430	22	86
500	23	100
550	24	100.
600	25	120
650	26	130
750	27	150

(2) *Lead-acid type batteries.*

Battery ampere-hour rating	TB1 terminal connections		Approximate ammeter readings (amperes)
	X tap lead	Y tap lead	
300	28	29	50.0
350	30	31	58.3
400	32	33	66.6
500	34	35	83.3
550	36	37	91.6
600	38	39	100.0
650	40	41	108.3
750	42	43	125.0

Note

When the required connections are completed, close and lock the hinged door.

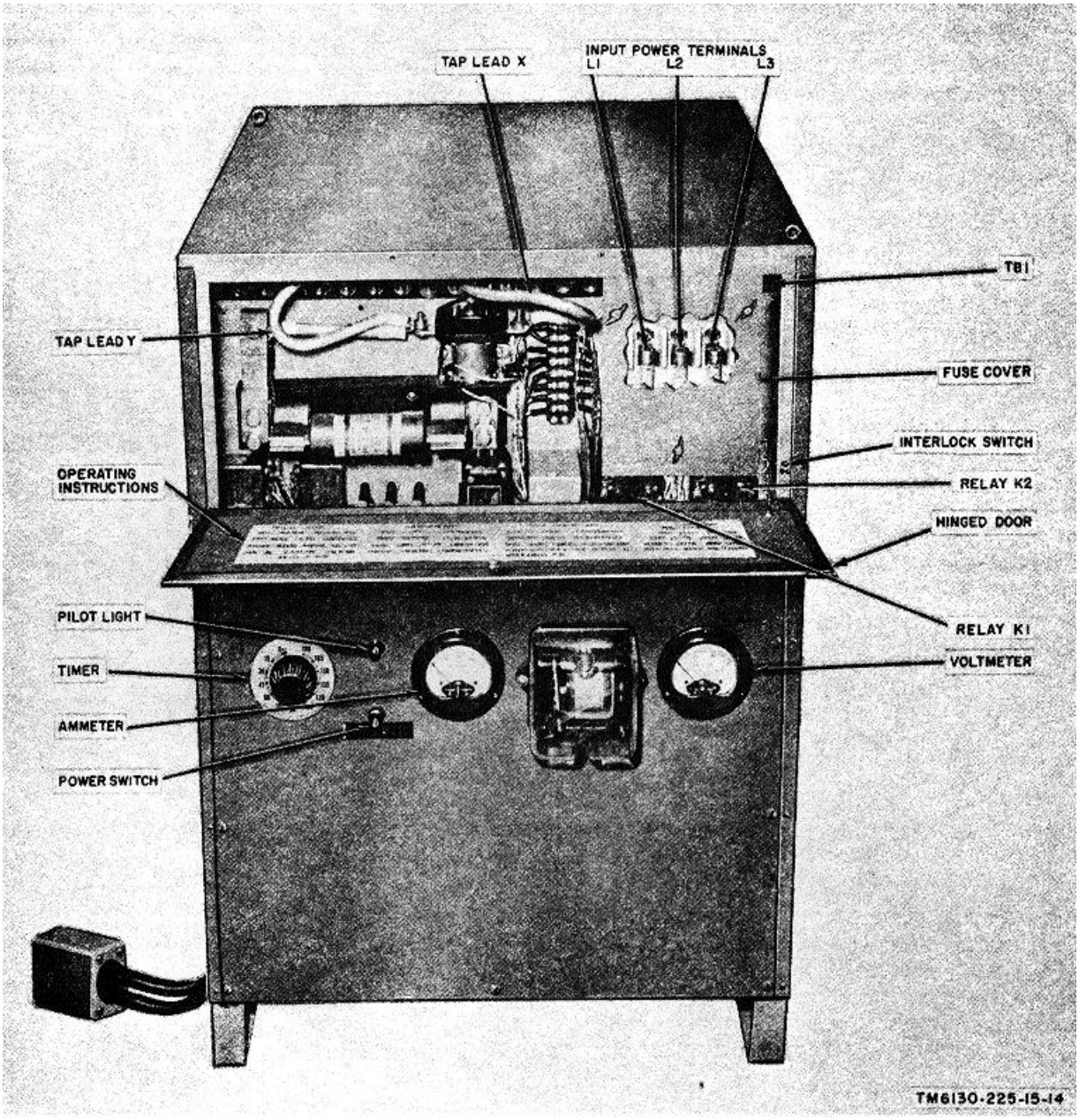


Figure 6. Operator's controls and indicators.

15. Operating Procedure

a. Close the hinged access door.

b. Connect the PP-2926/U connector to the forklift truck.

c. Turn on the external power disconnect switch.

d. Set the timer for 1 hour by turning it to 60 on the dial.

Note

The recommended setting of the timer knob to 60 (*d* above) to provide 60 minutes of trickle charge may be varied by the operator according to his equipment needs and his experience. No strict regulations exist regarding precise finishing time (trickle charge) duration, but one hour is generally accerted as satisfactory.

e. Set the power switch of the PP-2926/U to LEAD-ACID ON or NICKEL-IRON ON, corresponding to the type of battery to be charged. Power is turned on for the PP-2926/U only when the timer switch is set, the power switch is turned on and the hinged access door is closed.

f. Observe the ammeter on the front panel of the PP-2926/U. Check the ammeter read ing against the amount shown in the Approximate Ammeter Reading (amperes) column in the charts above (par. 14g(1) or (2). It should be equal to, or less than, the values shown in the charts.

CAUTION:

If the reading is 25 percent or more greater than the approximate ammeter reading, turn the power switch to OFF and recheck to see that all adjustments are correct for the type and size of the battery being charged. If the adjustments are correct, according to directions, reduce the current by moving the X and Y tap leads to the adjacent lower numbered terminals on TB1.

16. Stopping Procedure

The PP-2926/U will be turned off automatically when the timer knob returns to zero. If required, the unit may be turned off before the knob returns to zero by setting the power switch to OFF or turning the timer knob back to zero. Disconnect the output power cable from battery and close the caps of the storage batteries.

CHAPTER 4
FIRST AND SECOND ECHELON MAINTENANCE

Section I. OPERATOR'S MAINTENANCE

17. Scope of First Echelon Maintenance

First echelon Maintenance consists of performing preventive maintenance of the PP-2926/U and it is normally performed by the operator. This procedure does not require any tools or test equipment.

18. First Echelon Preventive Maintenance

a. DA Form 11-238. DA Form 11-238 (figs. 7 and 8) is a preventive maintenance checklist to be used by the operator. Items not applicable to the PP-2926/U are. lined out in figures 7 and 8. References in the ITEM block in the figures are to paragraphs that contain additional maintenance information pertinent to the particular item. Instructions for the use of the form appear on the form.

ADDITIONAL ITEMS FOR 2D AND 3D ECHELON INSPECTIONS	CONDITION
26. ~~INSPECT ANTENNA FOR ECCENTRICITIES, CORROSION, LOOSE FIT, DAMAGED INSULATORS AND REFLECTORS.~~	
27. CHECK FOR NORMAL OPERATION. PARA 23	✓
28. ~~BEFORE SHIPPING OR STORING, REMOVE BATTERIES.~~	

IF DEFICIENCIES NOTED ARE NOT CORRECTED DURING THE INSPECTION, INDICATE ACTION TAKEN FOR CORRECTION.

MAINTENANCE CHECK LIST FOR SIGNAL EQUIPMENT
SOUND EQUIPMENT, RADIO, DIRECTION FINDING
RADAR, CARRIER, RADIOSONDE AND TELEVISION
(AR 750-625)

EQUIPMENT NOMENCLATURE: CHARGER, BATTERY PP-2926/U

EQUIPMENT SERIAL NUMBER: 14

INSTRUCTIONS

This form may be used for a period of one month by using the correct dates and weeks of the month. It is to be used as a Preventive Maintenance check list for Signal equipment in actual use, or for a check on equipment prior to issue.

1. For detailed Preventive Maintenance instructions see:
   a. The Technical Manual *(in TM 11 series)* for the equipment. *(See DA Pamphlet Number 310-4)*
   b. The Supply Bulletin *(SB 11-100 series)* for the equipment. *(See DA Pamphlet Number 310-4)*
   c. The Department of the Army Lubrication Order. *(See DA Pamphlet Number 310-4)*

2. The following action will be taken by either the Communications Officer/ Chief for 1st echelon, or the Inspector for higher echelon:
   a. Enter Equipment Nomenclature and Serial Number.
   b. Strike out items that do not apply to the equipment.

3. Operator/Inspector will enter in the columns entitled CONDITION, on the proper line, a notation regarding the condition, using symbols specified under LEGEND.

4. After operator completes each daily inspection he will initial over the appropriate dates under "Daily Condition for Month", then return form to his supervisor.

FOLD

TYPE OF INSPECTION

OPERATOR	2/3 ECHELON	DATE	SIGNATURE
✓		7 MAR 1961	John Jones
	✓	6 MAR 1961	Albert Williams

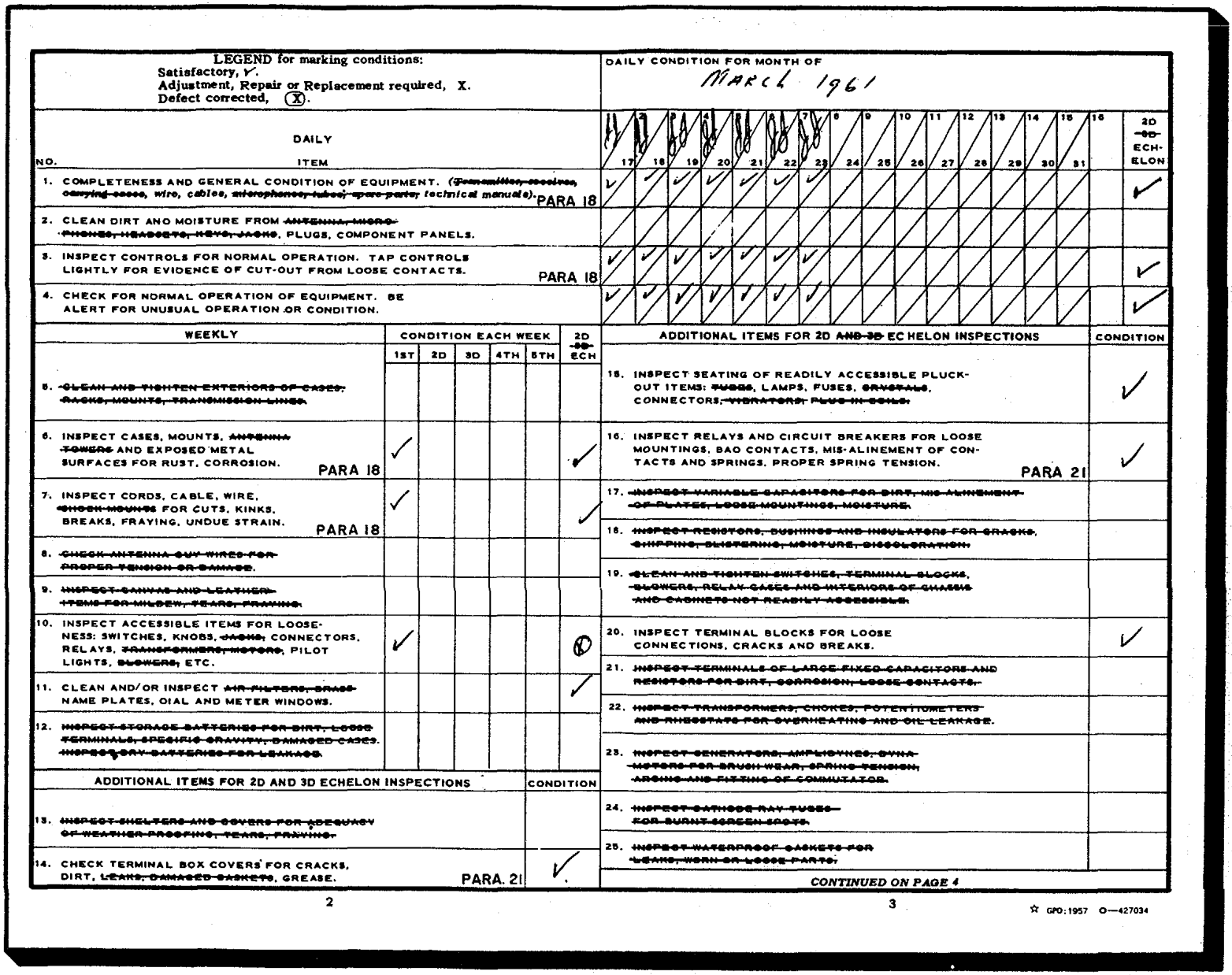
4

DA FORM 1 MAY 57 11-238

REPLACES DA FORMS 11-238, 1 NOV 55; 11-239, 11-244, 11-245, 11-246, 11-249, 11-250, AND 11-251; WHICH ARE OBSOLETE.

TM6130-225-15-7

Figure 7. DA Form 11-238, pages 1 and 4.



LEGEND for marking conditions:
Satisfactory, ✓.
Adjustment, Repair or Replacement required, X.
Defect corrected, (X).

DAILY CONDITION FOR MONTH OF MARCH 1961

NO.	DAILY ITEM	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		2D ~~3D~~ ECHELON
1.	COMPLETENESS AND GENERAL CONDITION OF EQUIPMENT. (~~Transmitter, receiver, carrying cases~~, wire, cables, ~~microphones, tubes, spare parts~~, technical manuals). PARA 18	✓	✓	✓	✓	✓	✓	✓										✓
2.	CLEAN DIRT AND MOISTURE FROM ~~ANTENNA, MICRO-PHONES, HEADSETS, KEYS, JACKS~~, PLUGS, COMPONENT PANELS.																	
3.	INSPECT CONTROLS FOR NORMAL OPERATION. TAP CONTROLS LIGHTLY FOR EVIDENCE OF CUT-OUT FROM LOOSE CONTACTS. PARA 18	✓	✓	✓	✓	✓	✓	✓										✓
4.	CHECK FOR NORMAL OPERATION OF EQUIPMENT. BE ALERT FOR UNUSUAL OPERATION OR CONDITION.	✓	✓	✓	✓	✓	✓	✓										✓

WEEKLY	CONDITION EACH WEEK 1ST	2D	3D	4TH	5TH	2D ~~3D~~ ECH
5. ~~CLEAN AND TIGHTEN EXTERIORS OF CASES, RACKS, MOUNTS, TRANSMISSION LINES.~~						
6. INSPECT CASES, MOUNTS, ~~ANTENNA TOWERS~~ AND EXPOSED METAL SURFACES FOR RUST, CORROSION. PARA 18	✓					✓
7. INSPECT CORDS, CABLE, WIRE, ~~CHOCK MOUNTS~~ FOR CUTS, KINKS, BREAKS, FRAYING, UNDUE STRAIN. PARA 18	✓					✓
8. ~~CHECK ANTENNA GUY WIRES FOR PROPER TENSION OR DAMAGE.~~						
9. ~~INSPECT CANVAS AND LEATHER ITEMS FOR MILDEW, TEARS, FRAYING.~~						
10. INSPECT ACCESSIBLE ITEMS FOR LOOSENESS: SWITCHES, KNOBS, ~~DIALS~~, CONNECTORS, RELAYS, ~~TRANSFORMERS, MOTORS~~, PILOT LIGHTS, ~~BLOWERS~~, ETC.	✓					(X)
11. CLEAN AND/OR INSPECT ~~AIR FILTERS, BRASS~~ NAME PLATES, DIAL AND METER WINDOWS.						✓
12. ~~INSPECT STORAGE BATTERIES FOR DIRT, LOOSE TERMINALS, SPECIFIC GRAVITY, DAMAGED CASES. INSPECT DRY BATTERIES FOR LEAKAGE.~~						

ADDITIONAL ITEMS FOR 2D AND 3D ECHELON INSPECTIONS	CONDITION
13. ~~INSPECT SHELTERS AND COVERS FOR ADEQUACY OF WEATHER PROOFING, TEARS, FRAYING.~~	
14. CHECK TERMINAL BOX COVERS FOR CRACKS, DIRT, ~~LEAKS, DAMAGED GASKETS~~, GREASE. PARA. 21	✓

ADDITIONAL ITEMS FOR 2D ~~AND 3D~~ ECHELON INSPECTIONS	CONDITION
15. INSPECT SEATING OF READILY ACCESSIBLE PLUCK-OUT ITEMS: ~~FUSES~~, LAMPS, FUSES, ~~CRYSTALS~~, CONNECTORS; ~~VIBRATORS; PLUG-IN COILS.~~	✓
16. INSPECT RELAYS AND CIRCUIT BREAKERS FOR LOOSE MOUNTINGS, BAD CONTACTS, MIS-ALINEMENT OF CONTACTS AND SPRINGS, PROPER SPRING TENSION. PARA 21	✓
17. ~~INSPECT VARIABLE CAPACITORS FOR DIRT, MIS-ALINEMENT OF PLATES, LOOSE MOUNTINGS, MOISTURE.~~	
18. ~~INSPECT RESISTORS, BUSHINGS AND INSULATORS FOR CRACKS, CHIPPING, BLISTERING, MOISTURE, DISCOLORATION.~~	
19. ~~CLEAN AND TIGHTEN SWITCHES, TERMINAL BLOCKS, BLOWERS, RELAY CASES AND INTERIORS OF CHASSIS AND CABINETS NOT READILY ACCESSIBLE.~~	
20. INSPECT TERMINAL BLOCKS FOR LOOSE CONNECTIONS, CRACKS AND BREAKS.	✓
21. ~~INSPECT TERMINALS OF LARGE FIXED CAPACITORS AND RESISTORS FOR DIRT, CORROSION, LOOSE CONTACTS.~~	
22. ~~INSPECT TRANSFORMERS, CHOKES, POTENTIOMETERS AND RHEOSTATS FOR OVERHEATING AND OIL LEAKAGE.~~	
23. ~~INSPECT GENERATORS, AMPLIDYNES, DYNA-MOTORS FOR BRUSH WEAR, SPRING TENSION, ARCING AND PITTING OF COMMUTATOR.~~	
24. ~~INSPECT CATHODE RAY TUBES FOR BURNT SCREEN SPOTS.~~	
25. ~~INSPECT WATERPROOF GASKETS FOR LEAKS, WORN OR LOOSE PARTS.~~	

CONTINUED ON PAGE 4

2 3

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TM6130-225-15-6

Figure 8. DA Form 11-238, pages 2 and 3.

b. Maintenance Conditions. Turn off the external power disconnect switch before performing preventive maintenance of the PP-2926/U.

c. Items. The information shown in the chart below is supplementary to DA Form 11-238. The item numbers correspond to the ITEM numbers on the form.

Item	*Maintenance procedure*
3	Check the timer control knob power switch for looseness and positive action.
4	When charging the batteries in a forklift truck, be alert for any malfunction of the PP-2926/U. If the equipment does not operate properly, turn it OFF and refer the trouble to a higher echelon.

Section II. SECOND ECHELON MAINTENANCE

19. Scope of Second Echelon Maintenance

Preventive maintenance (par. 21) and visual inspection (par. 22) are the only functions of second echelon maintenance personnel. No repair functions are authorized.

20. Tool and Materials Required

The tool and materials required for second echelon maintenance of the equipment are listed below. No test equipment is required.

a. Tool. The following tools are required for second echelon maintenance: Socket, wrench 7/16 in. opening, 3/8 in. square drive, (FSN 5120-227-6703) Handle, socket wrench, square drive (FSN 5120-240-5396).

b. Materials.

(1) Cleaning Compound (Federal stock No. 7930-395-9542).

(2) Lint-free cleaning cloth.

21. Second Echelon Preventive Maintenance

a. DA Form 11-238. DA Form 11-238 (figs. 7 and 8) is a preventive maintenance checklist to be used by the unit repairman. Items not applicable to the equipment are lined out in the figures. References to the ITEM block in the figures are to paragraphs that contain additional maintenance information. Items 3 and 4 will be found in paragraph 18*c*. Instructions for the use of the form appear on the form.

b. Maintenance Conditions. Turn off the external power disconnect switch before performing second echelon preventive maintenance on the PP-2926/U.

c. Items. The information shown in the chart below is supplementary to the DA Form 11-238. The item numbers correspond to the ITEM numbers on the form.

WARNING

Do not perform any of the maintenance procedures listed below without turning off the external power disconnect switch. The input voltage (208 volts, 230 volts, or 460 volts, 3-phase ac) is impressed across the terminals at the top of the fuse block. Failure to turn off the power may cause serious injury or death to maintenance personnel.

Item	*Maintenance procedure*
5	Clean cabinet exterior and tighten all loose screws. If necessary, clean the cabinet with cleaning compound and wipe dry with a clean cloth.
10	Open the hinged door and check terminal board TBI for loose terminal screws, shorting links, and other connections. Check fuses for proper seating.
14	Check the inner and outer surfaces of the battery connector for evidence of dirt, grease, or deterioration. Clean as necessary; use cleaning compound, and wipe the surfaces with a clean dry cloth.

Warning

Cleaning compound is flammable and its fumes are toxic. Do not use near a flame; provide adequate ventilation.

22. Visual Inspection

a. When the equipment fails to perform properly, turn off the external power disconnect switch and check all the items listed below. *Do not check any item with the power turned on.*

(1) Check for the wrong setting of the power switch or tap leads.

(2) Check for a disconnected battery connector.

(3) Check the fuses for proper seating.

b. If the above checks do not locate the trouble, follow the procedures in the checklist below (par. 23).

23. Performance Checklist

a. General. The performance checklist will help to locate a trouble quickly. If the corrective measures suggested do not restore normal equipment performance or if no corrective measure is listed, troubleshooting is required by fourth or fifth echelon maintenance personnel. Note on the repair tag what corrective. measures were taken and how the equipment performed at the time of failure.

b. Procedure. Perform the preliminary starting procedures (par. 14) and follow the procedures given in c below, in the order given. Observe the equipment operation and perform any corrective measures necessary.

c. Checklist.

Action	Normal indication	Corrective measures
1. Set the timer control at 60	None	
2. Close the hinged access door and set the power switch at either LEAD-ACID ON or NICKEL-IRON ON, corresponding to type of battery to be charged.	*a*. Pilot lamp glows *b*. Blowers operate *c*. Ammeter indicates ap*proximate ammeter reading (amperes)* as shown in 14*g*(1) or (2) above for battery being charged. *d*. Voltmeter indicates the same or slightly more than rated voltage of battery being charged.	Check setting of power switch. Check connections of tap leads X and Y
3. Permit charging to continue through a normal charging period (5 to 6 hours) until the timer begins to operate.	Ammeter shows gradual decrease in rate of current flow.	
4. Permit the PP-2926/U to trickle charge (lead-acid type batteries only).	Ammeter indicates approximately 30% of the current for battery being charged (par. 14*g*(1) or (2)), and voltmeter indicates approximately the rated battery voltage.	

CHAPTER 5
SHIPMENT AND LIMITED STORAGE AND DEMOLITION TO PREVENT ENEMY USE

24. Disassembly of Equipment

Dissembly procedures for Charger, Battery PP-2926/U consist of the following steps:

a. Turn off the external power disconnect switch.

b. Disconnect the four ac power leads which enter through the right side panel of the PP-2926/U from fuses F1, F2, and F3 and from terminal 12 on TB1.

25. Repacking 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 procedures outlined below whenever possible. The information containing the original packaging will also be helpful.

a. Material Requirements. The following materials are required for packaging Charger, Battery PP-2926/U. For stock numbers of materials, consult SB 38-100.

Material	Quantity (ft)
Waterproof paper.....	44
Paperboard	40
Tape, pressure-sensitive adhesive, waterproof 3 in.	25
Tape paper gummed sealing and securing	22
Wooden shipping box, 36 by 30 by 29 inches.	1 ea
Lumber, board-feet	40

b. Packaging.

(1) Package each technical manual within a close-fitting bag fabricated of waterproof wrapping paper. Seal the bag with waterproof, pressure-sensitive tape..

(2) Wrap the cables with paperboard wrapping cushioning. Secure the cushioning with gummed paper tape.

(3) Place the items packaged as specified in ((1) and (2) above) with the unit, and wrap them with paperboard wrapping and cushioning. Enclose the entire unit in a waterproof paper wrapping and secure the edges with water - resistant pressure - sensitive tape.

c. Packing.

(1) Pack Charger, Battery PP-2926/U within a nailed, wooden box.

(2) Strap each nailed wooden box only for intertheater shipment.

26. Authority for Demolition

Demolition of the equipment will be accomplished only upon the order of the commander. The destruction procedures outlined in paragraph 27 will be used to prevent further use of the equipment.

27. Methods of Destruction

Use any of the following methods to destroy the equipment:

a. Smash. Smash the controls, switches, resistors, capacitors, relays, transformers, fans, and meters; use sledges, axe, handaxe, pick-axe, hammers, or crowbars.

b. Cut. Cut the output cable; use axes, hand-axes, or machetes.

c. Burn. Burn cords and technical manuals; use gasoline, kerosene, oil, flamethrowers, or incendiary grenades.

d. Bend. Bend panels and cabinet.

WARNNG

Be extremely careful with explosives and incendiary devices. Use these items only when the need is urgent.

e. Explode. If explosives are necessary, use firearms, grenades, or TNT.

f. Dispose. Bury or scatter the destroyed parts in slit trenches, foxholes, or throw them into streams.

APPENDIX I
MAINTENANCE ALLOCATION

1. General

a. This appendix assigns maintenance functions and repair operations to be performed by the lowest appropriate maintenance echelon.

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

(1) *Part of component.* This column shows only the nomenclature or standard item name. Additional descriptive data are included only where clarification is necessary to identify the part. Components and parts comprising a major end item are listed alphabetically. Assemblies and subassemblies are in alphabetical sequence with their components listed alphabetically immediately below the assembly listing.

(2) *Maintenance function*. This column indicates the various maintenance functions allocated to the echelon capable of performing the operations.

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

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

(c) Inspect. To verify serviceability and to 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 service assemblies, subassemblies, and parts for unserviceable components.

(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, inspecting, cleaning, preserving, adjusting, replacing, welding, riveting, and straightening.

(g) Aline. 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) 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.

(j) 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.

(3) *1st, 2d, 3d, 4th, 5th echelon.* The symbol X indicates the echelon responsible for performing that particular maintenance operation, but does not necessarily indicate that repair parts will be stocked at that level. Echelons higher than the echelon marked by X are authorized to perform the indicated operation.

(4) *Tool 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 utilized 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) *1st, 2d, 3d, 4th, 5th echelon.* The dagger (†) symbol indicates the echelons allocated the facility.

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

2. Mounting Hardware

The basic entries of the maintenance allocation chart do not include mounting hardware such as screws, nuts, bolts, washers, brackets, clamps, etc.

3. 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 fourth echelon are authorized to the organization operating this equipment.

4. Stockage

No parts authorized for stockage at first and second echelon.

MAINTENANCE ALLOCATION CHART

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
PART OR COMPONENT	**MAINTENANCE FUNCTION**	**1ST ECH.**	**2ND ECH.**	**3RD ECH.**	**4TH ECH.**	**5TH ECH.**	**TOOLS REQUIRED**	**REMARKS**
CHARGER, BATTERY PP-2926/U								
	service		X					Cleans cables, connectors, exterior
	adjust	X						Adjusts manual controls and output voltage
	inspect		X					Visual
	test		X					Use meters on the equipment
	repair				X		6	
	test				X		1,2,3,4,5,6	Performs all test requirements. Test components for open short and grounds
	rebuild					X	6	

ALLOCATION OF TOOLS FOR MAINTENANCE FNCTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Tools Required For Maintenance Functions	**1st ech.**	**2nd ech.**	**3rd ech.**	**4th ech.**	**5th ech.**	**Tool Code**	**Remarks**
PP-2926/U (continued)							
AMMETER ME-65/U				†	†	1	
AMMTER AN/USM-69				†	†	2	
MULTIMETER TS-352/U				†	†	3	
OHMETER ZM-21/U				†	†	4	
VOLTMETER TS-443/U				†	†	5	
TOOL KIT TK-87/U				†	†	6	

APPENDIX II
BASIC ISSUE ITEMS LIST

Section I. INTRODUCTION

1. General

a. This appendix lists items supplied for initial operation and for running spares. The list includes tools, accessories, 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.

b. The columns are as follows:

(1) *Source, maintenance, and recoverability code.* Not used.

(2) *Federal stock number.* This column lists the 11-digit Federal stock number.

(3) *Designation by model.* Not used.

(4) *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 on the requisition.

(5) *Unit of issue.* The unit of issue is the supply term by which the individual item is counted for procurement, storage, requisitioning, allowances, and issue purposes.

(6) *Expendability*. Expendable items are indicated by the letter X; nonexpendable items are indicated by NX.

(7) *Quantity authorized.* Not used.

(8) *Illustrations*. Not used.

2. Critical Items

A zero slash (ø) in the "Description" column indicates items that are expected to fail during the first year or items that will make the equipment inoperative if they fail.

SECTION II. FUNCTIONAL PARTS LIST

(1) SOURCE MAINTENANCE AND RECOVERABILTY CODE	(2) FEDERAL STOCK NUMBER	(3) DESIGNATION BY MODEL	(4) DESCRIPTION	(5) UNIT OF ISSUE	(6) EXPENDABLILITY	(7) QUANTITY AUTHORIZED	(8) ILLUSTRATIONS FIGURE NO.	(9) ILLUSTRATIONS ITEM NO.
			CHARGER, BATTERY PP-2926/U					
			ITEMS COMPRISING AN OPERABLE EQUIPMENT					
	6130-500-0069		CHARGER, BATTERY PP-2926/U: metallic rectifier type, 36 to 60v dc charging, 50 to 160 amp controlled charging without recycling device; standard rack mtg cabinet on feet; 10 ft battery leads; 22 in lg x 24 in w x 37 in h Fed Spec: W-C-260	ea	NX			
			RUNNING SPARES AND ACCESSORY ITEMS					
			CHARGER, BATTERY PP-2926/U					
			NO PARTS AUTHORIZED FOR STOCKAGE AT FIRST ECHELON					

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OS Base Comd (2)
LOGCOMD (2)
MDW (1)
Armies (2)
Corps (2)
Instl (2)
Ft Monmouth (63)
USATC AD (2)
USATC Armor (2)
USATC Engr (2)
USATC FA (2)
USATC Inf (2)
USAOMC (3)
Svc Colleges (2)
Br Svc Sch (2)
GENDEP (2) except
Atlanta GENDEP (None)
Sig Sec, GENDEP (5)
Sig Dep (12)
WRAMC (1)
USA Trans Tml Comd (1)
Army Tml (1)
POE (1)
OSA (1)
USAEPG (2)
AFIP (1)
AMS (1)
Army Pictoral Cen (2)
EMC (1)
Yuma Test Sta (2)
USACA (3)
USASSA (20)
USASSAMRO (1)
USASEA (1)
USA Caribbean Sig Agcy (1)
USA Sig Msl Spt Agcy (13)
Sig Fld Maint Shops (3)
USA Corps (3)
JBUSMC (2)
AFSSC (1)

Units org under fol TOE: (2 each UNOINDC)

11-7	11-155
11-16	11-500 AA-AE (4)
11-57	11-557
11-97	11-587
11-98	11-592
11-117	11-597

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USAR: None.
For explanation of abbreviations used, see AR 320-50.

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The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 decagram = 10 grams = .35 ounce
1 hectogram = 10 decagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

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