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TM 11-5805-247-12

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

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ORGANIZATIONAL MAINTENANCE MANUAL

INCLUDING REPAIR PARTS AND SPECIAL TOOL LISTS

CONVERTER, TELEGRAPH-TELEPHONE SIGNAL TA-182/U

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HEADQUARTERS, DEPARTMENT OF THE ARMY
NOVEMBER 1965

WARNING

HIGH VOLTAGE

is used in this equipment

DEATH ON CONTACT

may result if safety precautions are not observed.

Do not touch the LOOP binding posts on the front panel while the TA–182/U is in operation; 90-volt ringing signals may be present. Do not touch internal wiring or parts when the TA–182/U is removed from its case for test or repairs; voltages as high as *355 volts ac* are present on some internal wiring and components. Turn off the power and discharge all high-voltage capacitors before making any repairs.

DON'T TAKE CHANCES!

TECHNICAL MANUAL
No. 11–5805–247–12

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., *9 November 1965*

Organizational Maintenance Manual Including Repair Parts and Special Tool Lists

CONVERTER, TELEGRAPH-TELEPHONE SIGNAL TA–182/U

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*This manual supersedes TM 11–5805–247–10, 27 June 1960, including C 4, 24 February 1965; TM 11–5805–247–20, 16 June 1960, including C 1, 1 September 1961, and C 3, 5 October 1964; TM 11–5805–247–20P, 1 April 1965.

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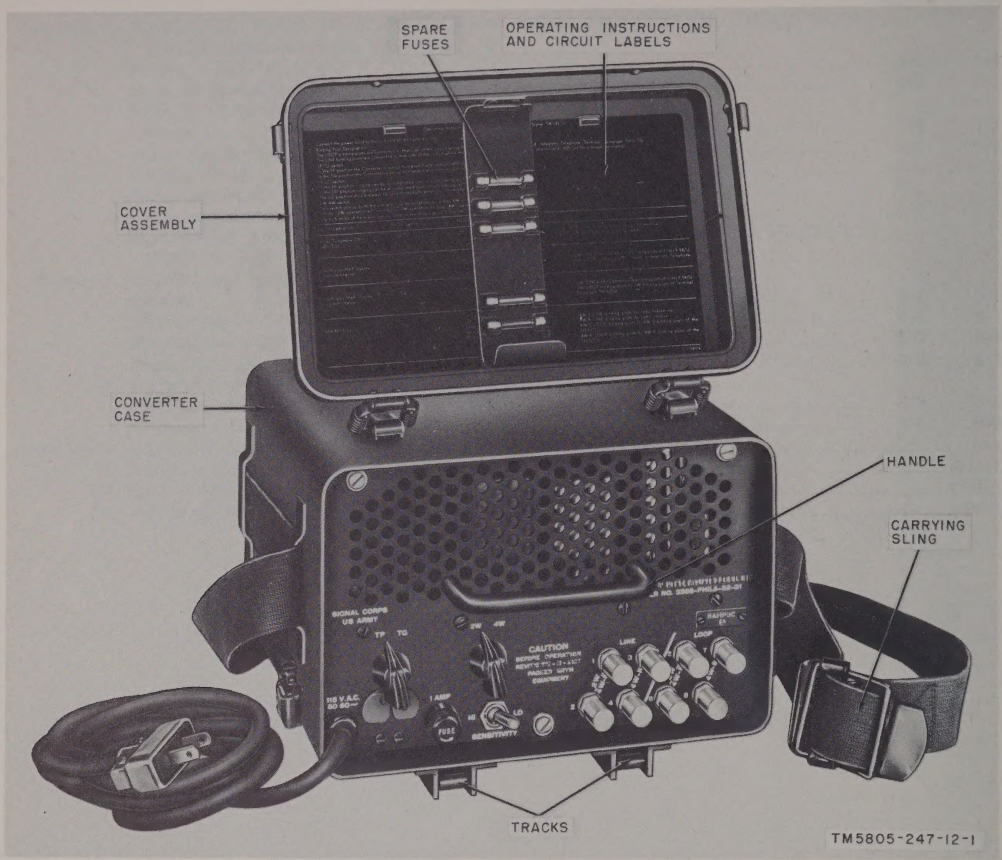


Figure 1–1. Converter, Telegraph-Telephone Signal TA–182/U, less spare electron tubes and spare lamp.

CHAPTER 1

INTRODUCTION

1–1. Scope

a. This manual describes Converter, Telegraph-Telephone Signal TA–182/U (fig. 1–1), and covers its installation, operation, and operator's and organizational maintenance.

b. A list of applicable references is contained in appendix I.

c. A list of operator's repair parts (basic issue items) is contained in appendix II.

d. The maintenance allocation chart is contained in appendix III.

e. The allocation of tools and test equipment is contained in appendix III.

f. A list of organizational maintenance repair parts and special tools is contained in appendix IV.

1–2. 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. DA Pam 310–4 is an index of current 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 available through supply channels. The index lists the individual parts (–10, –20, –35P, etc.) and the latest changes to 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 the 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. Report of Equipment Manual Improvements. The direct reporting of errors, omissions, and recommendations for improving this manual by the individual user is authorized and encouraged. DA Form 2028 (Recommended changes to DA Publications) will be used for reporting these improvements. This form will be completed using pencil, pen, or typewriter and forwarded direct to Commanding General, U.S. Army Electronics Command, ATTN: AMSEL-MR-(NMP)-MA, Fort Monmouth, N.J., 07703.

CHAPTER 2

DESCRIPTION AND DATA

2–1. Purpose and Use

The TA–182/U converts 20-cycle-per-second (cps) ringing signals to either 1,225- or 1,600-cps ringing signals. It also converts either 1,225- or 1,600-cps ringing signals to 20-cps ringing signals. It is used to provide signaling over circuits that will not pass 20-cps ringing signals because of line or equipment characteristics. A typical terminal application of a TA–182/U is shown in figure 2–1. Specific system arrangements are covered in TM 11–5805–254–15.

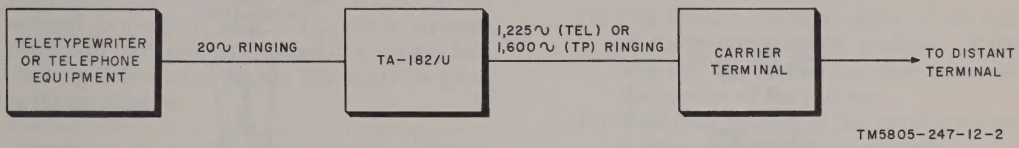


Figure 2–1. Typical terminal arrangement of Converter, Telegraph-Telephone Signal TA–182/U.

2–2. Technical Characteristics

Circuit application	Used with either 2-wire or 4-wire systems.
Line bridging impedance	5,000 ohms (approximate).
Minimum input level (sensitivity):	
Ringing signals	25 volts.
Voice frequency (vf) signals	−45 dbm.
Output signal levels:	
Loop	90±10 volts ac.
Line:	
Telegraph	0±2 dbm.
Telephone	+4 dbm to −2 dbm.
Power consumption	36 watts (approximate).
Voltage requirements	115 volts ac ±10 percent, 50 to 60 cps.
Signaling frequencies:	
Loop	20±3 cps.
Line:	
Telegraph	1,225±8 cps.
Telephone	1,600±8 cps.

2–3. Components and Running Spares

Refer to the basic issue items list (app. II).

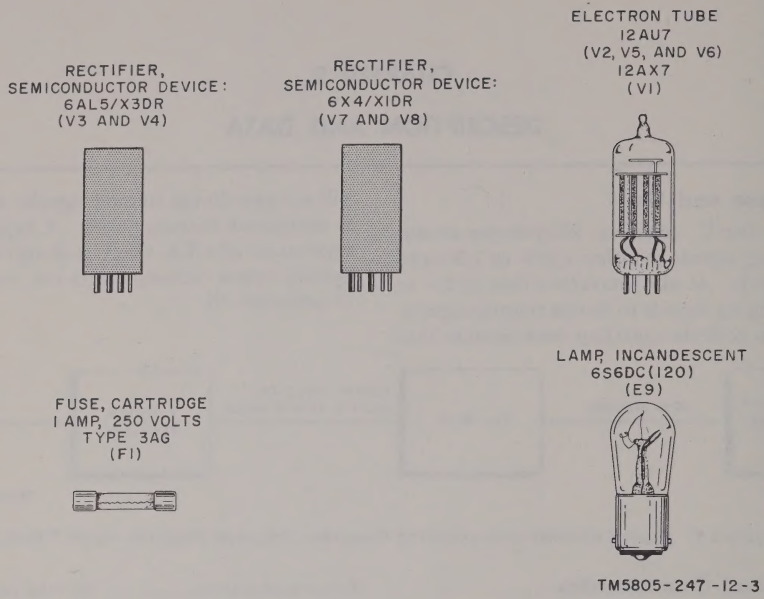


Figure 2–2. Running spares for Converter, Telegraph-Telephone Signal TA–182/U.

2–4. Description

(fig. 1–1)

Converter, Telegraph-Telephone Signal TA–182/U is 7½ inches high, 10½ inches wide, and 11 inches deep. It weighs 15 pounds. All operating controls are located on the front panel, and all connections are made on the front panel. When the cover is closed and secured, the TA–182/U is waterproof. Tracks are provided on the bottom of the TA–182/U case so that it can be mounted either in Mounting MT–791/U (para 3–4*c*) or in a suitable equipment rack.

CHAPTER 3

INSTALLATION

Section I. SERVICE UPON RECEIPT OF EQUIPMENT

3–1. Unpacking

(fig. 3–1)

a. Typical Packing and Packaging Data. When a single TA–182/U is packed for domestic or export shipment, it is placed in a water-resistant fiberboard container and sealed. When shipped in quantity, six TA–182/U's in separate fiberboard containers are packed in a wooden box. Packing information for the TA–182/U is given in the chart below.

Packed units	Outside dimensions (in.)	Volume (cu ft)	Packed weight (lb)
1	15 x 12½ x 9	0.98	20
6	30 x 26½ x 16½	7.59	180

b. Removing Contents (fig. 3–1). When equipment is received, unpack it in a sheltered area as close as possible to the site at which it will be used. Perform the procedures below that are appropriate for the type of shipment received; refer to (1) through (8) for equipment shipped in wooden boxes; refer to (4) through (9) for single unit shipment.

(1) Cut the steel straps approximately 3 inches below the top of the wooden box and fold them back.

(2) Remove the nails from the top of the wooden box with a nailpuller and remove the top.

(3) Lift each fiberboard container out of the box, in turn, and remove the technical manuals.

(4) Cut the pressure-sensitive tape around the top of each fiberboard container and open the flaps. Make certain that the cutting tool does not enter the interior of the container.

(5) Remove the flat corrugated-fiberboard pads from the top and four sides of the equipment and lift the TA–182/U out of the container.

(6) Remove the remaining package from the fiberboard container. This package contains the running spares.

(7) Cut through the three edges of one side of the running spares package. Make sure that the cutting tool does not enter the interior of the package.

(8) Fold back the side of the running spares package and remove the contents.

(9) Remove the technical manuals from the top of the TA–182/U.

3–2. Checking Unpacked Equipment

Check to see that the type and quantity of items received are the same as those described on the packing list. When no packing list accompanies the equipment, refer to appendix II to determine what the contents of the package should be.

Note. The spare fuses (app. II) are stored inside the cover assembly of the TA–182/U (fig. 1–1).

a. Loosen the carrying sling (fig. 1–1). Release the spring-lock fasteners and swing open the cover assembly.

b. Check the fuses inside the cover assembly for damage, insecure mounting, or improper size.

c. Unwind the power cord from its stored location against the front panel.

d. Remove the fuse from the front panel of the TA–182/U by depressing the fuse cap and turning one-quarter turn counterclockwise and pulling out of fuseholder.

e. Remove the fuse from the fuse cap. Check the fuse for damage, proper installation, and correct size (1 ampere, 250 volts).

f. Check the switches and binding posts for proper functioning.

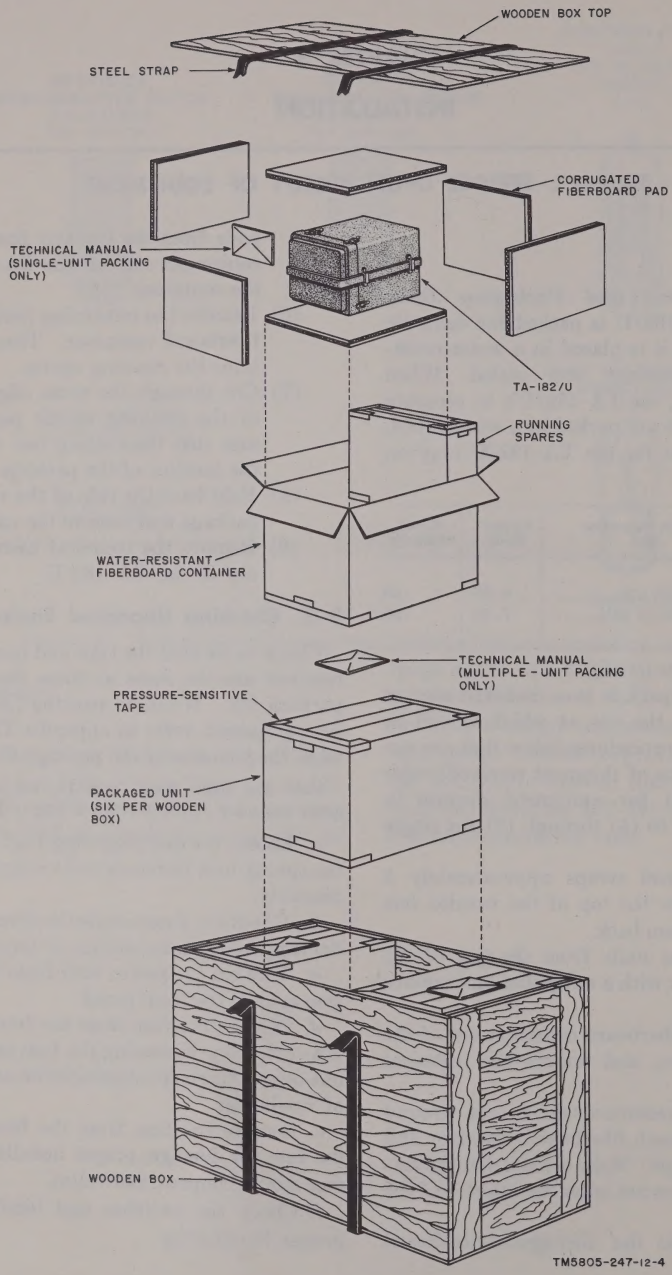


Figure 3–1. Packing diagram, Converter, Telegraph-Telephone Signal TA–182/U.

Section II. INSTALLATION

3–3. Siting and Shelter Considerations

Normally, the TA–182/U is installed near the equipment to which it is connected, such as a switchboard or a central office set. When more than one TA–182/U is used, the TA–182/U's are either mounted in fabricated racks or stacked at the equipment site. Select the installation site based on the following consderations:

Note. If necessary, the TA–182/U can be located up to 5 miles from the associated switchboard or central office equipment. Connection is made from the TA–182/U loop connectors with field wire.

a. A power source of 115-volt alternating current (ac), 50 to 60 cycles per second (cps), must be be available at the TA–182/U installation site.

b. The TA–182/U should be installed in a shelter that provides adequate protection from dirt, dust, and excessive moisture.

c. The TA-182/U may be installed in a vehicle (para. 3–4).

3–4. Installation of TA–182/U

The TA–182/U can be installed on a level working area, a fabricated rack, or in a vehicle. Refer to *a*, *b*, *c*, or *d* below for appropriate installation procedures.

a. Installation on Level Working Area. When a mounting or rack is not provided, the TA–182/U can be installed on a workbench, an equipment case, or on the ground. Position the TA–182/U either on its tracks, or on the rear of its transit case, with the front panel facing upward.

b. Installation in Prefabricated Rack. When two or more equipments are required for a particular installation, prefabricated racks are sometimes provided to accommodate the TA–182/U. These racks are usually lined with a cushioning material which may require the TA–182/U be removed from its case prior to installation. Removal of the front panel and chassis assembly from the case is to be performed by the organizational maintenance personnel.

c. Installation in Mounting MT–791/U or MT–791A/U. Either Mounting MT–791/U (fig. 6–1) or Mounting MT–791A/U (not shown) can be used when the TA–182/U is mounted in a vehicle or on a workbench. Secure the TA–182/U in *either* mounting as described in (1) through (5) below.

(1) Check to see that the mounting and its grounding strap are securely installed and connected to ground.

(2) Push in on the locking handles on the front of the mounting.

(3) Unlatch and raise the cover assembly of the TA–182/U, and place the tracks of the converter case (fig. 1–1) into the grooves in the mounting (fig. 6–1).

(4) Pull the locking handles on the mounting forward. Make sure that the TA–182/U is locked securely in place.

(5) To remove the TA–182/U from the mounting, push in on the locking handles, and lift the TA–182/U from the mounting.

d. Installation in Rack, Electrical Equipment MT–1278/U (fig. 6–2).

(1) Remove the carrying sling from the TA–182/U (fig. 1–1).

(2) Fold the carrying sling (approximately 4-inch folds) and tie it with string.

(3) Release the spring-lock fasteners and swing open the cover assembly.

(4) Remove the fuses from the spare fuseholder and store them with the other running spares.

(5) Pry open the metal tabs on the cover assembly luggage catches which are secured to the spring-lock faseners on the converter case, and separate the cover assembly from the converter case.

(6) Unbuckle the cover assembly retaining strap on the MT–1278/U (fig. 6–2).

(7) Insert the folded carrying sling into the carrying sling bracket.

(8) Place the TA–182/U cover assembly in the cover assembly bracket with the TA–182/U luggage catches toward the rear of the MT–1278/U, and tighten the retaining strap.

Note. Make sure that the cover assembly is between the extended carrying sling brackets to which each end of the cover assembly retaining strap is secured.

(9) Use a screwdriver to turn the locking screws on the MT–1278/U fully counterclockwise.

(10) Place the TA–182/U tracks in the grooves in the MT–1278/U.

(11) Push the TA–182/U toward the rear of the MT–1278/U until the tracks are firmly engaged by the clamps.

(12) Turn the locking screws clockwise until each locking clamp is snug against the front of the tracks on the TA–182/U.

Caution: **Do not overtighten the locking screws.**

(13) Connect the MT–1278/U power cord connector plug to a 115-volt ac 50- to 60-cps power source capable of supplying 160 watts of power.

(14) Connect the TA–182/U power cord connector plug to the appropriate convenience outlet on the MT–1278/U. Coil the TA–182/U power cord slack and place it on top of the converter case.

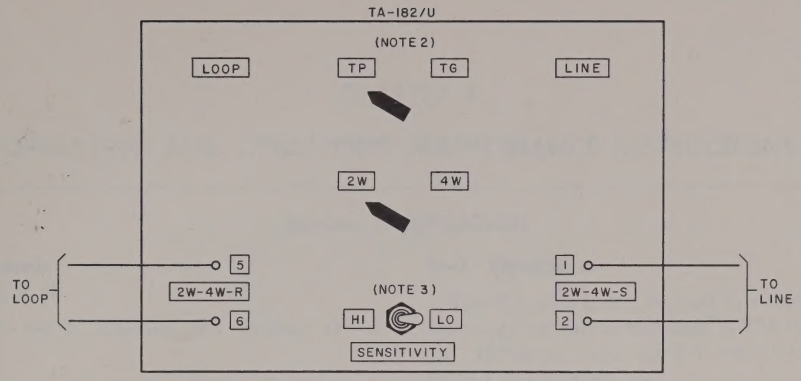
3–5. Connections and Control Settings

Caution: **Depress the appropriate stop before operating the TP–TG switch (fig. 4–1).**

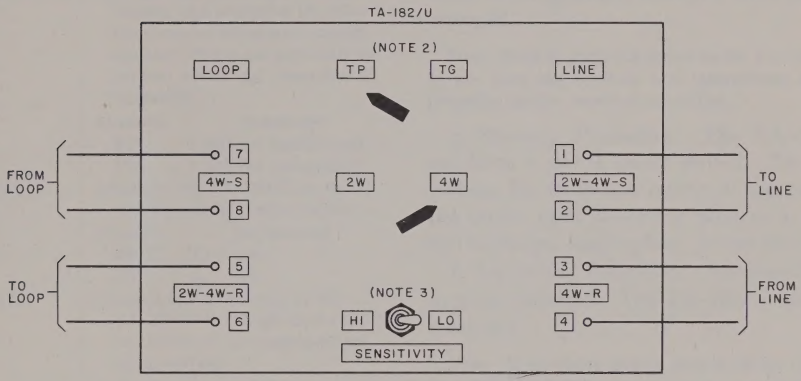
a. Two-Wire Operation. Connect the TA–182/U and operate the controls as shown on A, figure 3–2.

b. Four-Wire Operation. Connect the TA–182/U and operate the controls as shown on B, figure 3–2.

Note. The function of each control of the TA–182/U is described in paragraph 4–1.



A. TWO-WIRE OPERATION



B. FOUR-WIRE OPERATION

NOTES:

1. [ ] INDICATES PANEL MARKINGS.
2. OPERATE [TP] [TG] SWITCH TO POSITION THAT CORRESPONDS TO TYPE OF OPERATION.
3. OPERATE [SENSITIVITY] SWITCH TO:
   - [LO] IF LINE LOSS IS LESS THAN 25 DBM
   - [HI] IF LINE LOSS IS BETWEEN 25 DBM AND 45 DBM.

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Figure 3-2. Converter, Telegraph-Telephone Signal TA-182/U, connections and control settings.

CHAPTER 4

OPERATING AND OPERATOR'S MAINTENANCE INSTRUCTIONS

Section I. OPERATION

4–1. Controls

(fig. 4–1)

The TA–182/U controls and settings are as follows:

Control	Function
TP-TG switch	Arranges the TA-182/U for transmission and reception of either telephone or telegraph ringing signals. Stops are provided to prevent accidental operation of the switch. *Sw position* — *Ringing signal* TP — 1,600 cps (telephone) TG — 1,225 cps (telegraph)
2W–4W switch	Arranges the TA–182/U for either two-wire or four-wire operation. *Sw position* — *External circuit* 2W — Two-wire 4W — Four-wire
SENSITIVITY switch.	Changes the sensitivity of the TA–182/U to compensate for variations of the ringing-signal input voltage. *Sw position* — *Function* HI — Increases sensitivity to weak ringing signals. LO — Reduces sensitivity to strong signals.

4–2. Operation

The TA–182/U can be used in a number of systems applications as indicated in TM 11–5805–254–15. However, once the TA–182/U has been installed (para. 3–4), and connections and controls have been arranged to satisfy the requirements of a particular system (para. 3–5), their arrangement is not normally changed until the system is changed.

Note. Prior to applying power to the TA–182/U, check it to see that the controls and connections are arranged properly for the required operation.

a. Starting Procedure. The TA–182/U does not have a power on-off switch. To apply 115-volt-ac, 50- to 60-cps power to the unit, connect the power cord connector plug to a 115-volt-ac, 50- to 60-cps, single-phase power source.

b. Operating Procedure. No operating procedures are required. The TA–182/U operates automatically.

Note. If excessive fading occurs during operation with the SENSITIVITY switch on the LO position, operate the switch to the HI position (para. 4–1).

c. Stopping Procedures. To deenergize the TA–182/U, remove the power cord connector plug from the power source.

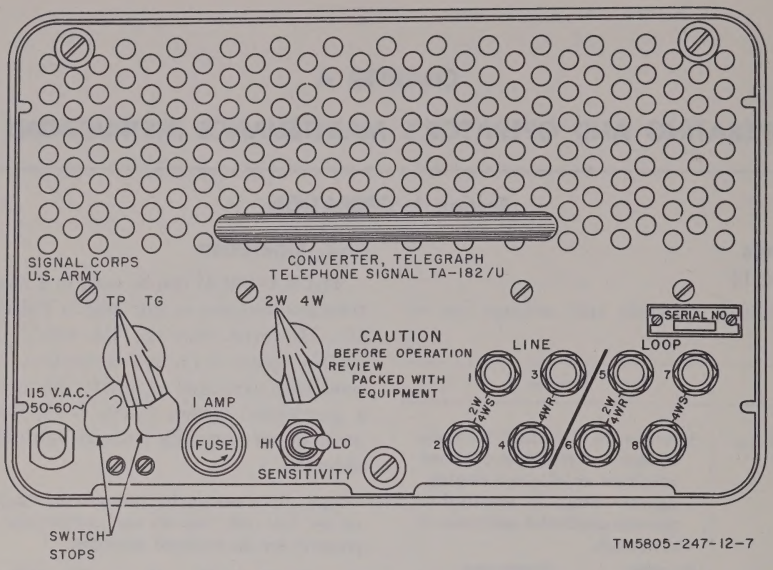


Figure 4–1. Converter, Telegraph-Telephone Signal TA–182/U, front panel.

4–3. Operation Under Unusual Conditions

a. Cold Climates.

(1) Keep the TA–182/U warm and dry. Operate the TA–182/U continuously if possible; the electron tubes will furnish some heat.

(2) When the TA–182/U has been exposed to low temperatures and then is brought into a warm room, condensation will form on the interior and exterior surfaces. Wait until all condensation has evaporated before placing the TA–182/U into operation.

b. Hot Dry Climates. Sand, dust, and the effects of strong sunlight may damage the TA–182/U.

(1) Protect the TA–182/U from sand, dust, and strong sunlight. Clean and dust the exterior surfaces frequently.

(2) Whenever the installation permits, keep the TA–182/U in its case to keep sand and dust out of the chassis components.

c. Warm Damp Climates. Excessive humidity and fungus may damage the TA–182/U. Remove moisture and fungus from the exterior surfaces with a lint-free cloth.

Section II. OPERATOR'S MAINTENANCE INSTRUCTIONS

4–4. Scope of Operator's Maintenance

The maintenance duties assigned to the operator of the TA–182/U are listed below, together with a reference to the paragraphs covering the specific maintenance functions. The required tools and materials are listed in paragraph 4–7.

a. Operator's daily preventive maintenance checks and services (para. 4–8).

b. Fuse replacement (para. 4–9).

c. Cleaning (para. 4–10).

4–5. Preventive Maintenance

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

a. Systematic Care. The procedures given in paragraphs 4–8, 4–9, and 4–10 cover routine systematic care and cleaning essential to proper upkeep and operation of the TA–182/U.

b. Preventive Maintenance Checks and Services. The operator's preventive maintenance checks and

services chart (para. 4–8) outlines functions to be performed at daily intervals. These checks and services are to maintain Army electronic equipment at 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 what the normal conditions are; the *References* column lists the illustrations or paragraphs that contain supplementary information. If the defect cannot be remedied by the operator, higher level 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.

4–6. Preventive Maintenance Checks and Services Periods

Preventive maintenance checks and services of the equipment are required on a daily basis. Paragraph 4–8 specifies the checks and services that must be accomplished daily and under the following conditions:

a. When the equipment is initially installed.

b. When the equipment is reinstalled after removal for any reason.

c. At least once each week if the equipment is maintained in a standby condition.

4–7. Materials

The following materials are required for operator's preventive maintenance:

a. Brush, paint ½ inch width (Federal stock No. 8020–262–9084).

b. Cleaning Compound (Federal stock No. 7930–395–9542).

c. Lint-free cloth.

4–8. Operator's Daily Preventive Maintenance Checks and Services Chart

Sequence No.	Item to be inspected	Procedure	References
1	End item equipment	Inspect equipment for completeness. All running spares parts must be on hand or on valid requisitions. ***Warning:* Prolonged breathing of cleaning compound is dangerous; make certain that adequate ventilation is provided. Cleaning compound is flammable; do not use near a flame. Avoid contact with the skin; wash off any that spills on your hands.**	App. II.
2	Case exterior	Inspect for cleanliness. Remove loose dirt with a clean dry cloth or soft brush. Remove other dirt with a cloth dampened (not wet) with cleaning compound. Wipe cleaned surface with a clean dry cloth.	Para. 4–10 and fig. 1–1.
3	Mounting screws, handle, and spring-lock fasteners.	Inspect for loose or broken mounting screws, handle, or spring-lock fasteners.	Fig. 1–1.
4	Control knobs	Inspect for loose or broken knobs	Fig. 1–1.
5	Carrying sling	Inspect canvas carrying sling for frays, tears, fungus, or other signs of damage or wear. Inspect buckle for damage.	Fig. 1–1.
6	Equipment installation	Inspect the TA–182/U for proper installation and connection. ***Warning:* Do not touch the LOOP binding posts on the TA–182/U when the system is in operation. Ringing signals of 90 volts may be present on these binding posts.**	Fig. 1–1 and paras. 3–3, 3–4, and 3–5.
7	Power cord and plug; loop and line connections.	Inspect power cord and plug for cracked insulation, frays, kinks, breaks, or loose connections. Inspect LOOP and LINE terminal connections for loose or broken wires.	Fig. 1–1.
8	Equipment operation	If the TA–182/U is connected into an operating communication system, observe that error-free and distortion-free communications are provided by the TA–182/U. If the TA–182/U is not connected to operating communications systems, refer to TM 11–5805–247–ESC to check operation.	
9	Publications	Check to see that all applicable publications are complete, serviceable, and current.	DA Pam 310–4.

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4–9. Fuse Replacement

(fig. 4–1)

a. Depress the fuse cap toward the front panel and turn it counterclockwise one-quarter turn, and pull the fuse cap out of the fuseholder.

b. Remove the defective fuse from the fuse cap and replace it with a new fuse.

c. Replace the fuse cap with new fuse into the fuseholder. Rotate the fuse cap one-quarter turn clockwise to lock it in place.

d. Apply power to the TA–182/U (para. 4–2). If the replacement fuse immediately burns out, request higher level maintenance.

4–10. Cleaning

Inspect exterior surfaces of the TA–182/U. The exterior should be free of dust, dirt, grease, or fungus.

a. Remove dust and loose dirt with a clean lint-free cloth or soft brush.

b. Remove grease, fungus, and ground-in dirt from the exterior surfaces with a cloth dampened (not wet) with cleaning compound.

CHAPTER 5

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. GENERAL

5–1. Scope of Organizational Maintenance

a. Paragraphs 5–2 through 5–10 contain instructions covering organizational maintenance of the TA–182/U and include instructions for performing preventive maintenance services and repair functions to be accomplished by the organizational repairman.

b. Organizational maintenance on the TA–182/U consists of the following:

(1) Preventive maintenance (paras. 5–3 and 5–4).
(2) Visual inspection (para. 5–6).
(3) Touchup painting (para. 5–5).
(4) Troubleshooting (paras. 5–7 through 5–9).
(5) Repair (para. 5–10).

5–2. Tools, Materials, and Test Equipment

a. Cleaning compound.

b. Lint-free cloth.

c. Brush, paint, ½ inch width (Federal stock No. 8020–262–9084).

d. Enamel, Lusterless, O.D., 1 gal. (Federal stock No. 8010–297–0560) if appropriate.

e. Enamel, Semigloss, O.D., 1 qt. (Federal stock No. 8010–844–8088) if appropriate.

f. Tool Equipment TE–123.

g. Multimeter AN/URM–105 (or equivalent).

h. Test Set, Electron Tube TV–7/U (or equivalent).

5–3. Organizational Preventive Maintenance

a. Preventive maintenance is the systematic care, inspection, and servicing of the equipment to maintain it in serviceable condition, prevent breakdowns, and to assure operational capability. Preventive maintenance is the responsibility of all levels concerned with the equipment and includes the inspection, testing, and repair of the equipment parts that tests indicate would probably fail before the next scheduled periodic service. Preventive maintenance checks and services of the equipment at the organizational level are made at quarterly intervals (para. 5–4) unless otherwise specified by the commanding officer. The preventive maintenance checks and services should be scheduled concurrently with the periodic services schedule of the carrying vehicle for all vehicular installations. When the equipment is a component of a major item (such as a van or shelter), the maintenance service and inspection procedures provided in the manual of the major item may be used.

b. Maintenance forms and records to be used and maintained on this equipment are specified in TM 38–750. All deficiencies or shortcomings will be recorded and those not corrected during inspection and service will be immediately reported to higher level maintenance; use forms and procedures specified in TM 38–750.

5–4. Organizational Quarterly Preventive Maintenance Checks and Services Chart

Sequence No.	Item to be inspected	Procedure	References
1	End item equipment	Inspect equipment for completeness. All running spare parts must be on hand or on valid requisitions. ***Warning:*** **Prolonged breathing of cleaning compound is dangerous; make certain that adequate ventilation is provided. Cleaning compound is flammable; do not use near a flame. Avoid contact with the skin; wash off any that spills on your hands.**	App. II.
2	Case exterior	Inspect for cleanliness. Remove loose dirt with a clean dry cloth or soft brush. Remove other dirt with a cloth dampened (not wet) with cleaning compound. Wipe cleaned surface with a clean dry cloth.	Para. 4–10 and fig. 1–1.
3	Mounting screws, handle, and spring-lock fasteners.	Inspect for loose or broken mounting screws, handle, or spring-lock fasteners.	Fig. 1–1.
4	Control knobs	Inspect for loose or broken knobs	Fig. 1–1.
5	Controls and switches	Operate controls and switches to all positions *only* when the equipment is not being used in an operating system. Inspect for positive action.	Fig. 1–1.
6	Carrying sling	Inspect canvas carrying sling for frays, tears, fungus, or other signs of damage or wear. Inspect buckle for damage.	Fig. 1–1.
7	Equipment installation	Inspect the TA–182/U for proper installation and connection. **Warning: Do not touch the LOOP binding posts on the TA–182/U when the system is in operation. Ringing signals of 90 volts may be present on these binding posts.**	Fig. 1–1 and paras. 3–3, 3–4, and 3–5.
8	Power cord and plug; loop and line connections.	Inspect power cord and plug for cracked insulation, frays, kinks, breaks, or loose connections. Inspect LOOP and LINE terminal connections for loose or broken wires.	Fig. 1–1.
9	Gasket and cover assembly.	Check gasket and cover assembly for tight fit and evidence of damage.	Fig. 1–1.
10	Case interior	Inspect for cleanliness. Remove loose dust and dirt with a clean dry cloth or soft brush. Remove other dirt with a cloth dampened (not wet) with cleaning compound. Wipe cleaned surface with a clean dry cloth.	Fig. 1–1.
11	Chassis parts: tubes, capacitors, resistors, transformers, terminal boards, wiring, etc.	Inspect wiring, wiring harnesses, and parts, for looseness, burns, blistering, swelling, or other signs of deterioration or overheating.	None.
12	Publications	Check to see that all applicable publications are complete, serviceable, and current.	DA Pam 310–4.
13	Modification work orders	Determine whether MWO's are required. Check equipment to see if applicable MWO's have been applied and the MWO number is stamped as required.	DA Pam 310–4.
14	Equipment operation	If the TA–182/U is connected into an operating communication system and no trouble has been reported, an operational check is not required. If the TA–182/U is not connected to an operating communications system, refer to TM 11–5805–247–ESC to check operation. Note that ringing signals are received by equipment connected in loop and line equipment.	Para. 5–7, Items 14.1 through 14.7.

5-5. Touchup Painting

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. Refer to the applicable cleaning and refinishing practices specified in TB SIG 364. Refer to paragraph 5-2 and SB 11-573 for applicable Federal stock numbers.

Section II. TROUBLESHOOTING AND REPAIR

5-6. Visual Inspection

Before attempting to operate the A-182/U which has been reported defective, inspect it. This action will save repair time and may also avoid further damage to the unit. Replace defective parts (para. 5-10) or request higher level maintenance, as required. If equipment repairs are made as a result of visual inspection, request an operational test by the system control officer before placing the TA-182/U back into service.

5-7. Troubleshooting

a. General. Troubleshooting of the TA-182/U is based on the operational check contained in the quarterly checks and services chart. To troubleshoot the equipment, perform the operational check (item 14) in the organizational quarterly preventive maintenance checks and services chart (para. 5-4). If normal operation is not obtained, refer to the troubleshooting chart (*b* below). Perform the corrective measures in the troubleshooting chart. If the suggested corrective measure does not restore normal equipment operation, higher level maintenance is required. Note on the repair tag which corrective measures were taken.

b. Troubleshooting Chart. When using the troubleshooting chart, refer to figure 5-1 for parts locations. To remove the TA-182/U front panel and chassis assembly from the converter case, refer to paragraph 5-10.

Symptom	Probable trouble	Corrective measure
a. None of the electron tubes light when power is applied to the TA-182/U.	(1) Defective power cord or power cord connector plug.	(1) Perform the following checks in sequence. Use the AN/URM-105 for continuity checks. (*a*) Inspect the connector plug for evidence of a short or open circuit at the terminal screw connections of the power cable conductors; required. (*b*) Check fuse. *Note.* A blown fuse in the ac power source indicates a shorted circuit. (*c*) Remove fuse F1 and check for continuity between the prongs of the ac power connector plug of the TA-182/U. Continuity should not exist (infinite resistance). Request higher level maintenance if continuity does exist. (*d*) Check for continuity from each prong of the ac power cord connector plug to chassis ground; continuity should not exist (infinite resistance). If continuity exists, refer the TA-182/U to higher level maintenance.
	(2) Defective filament ac voltage supply wiring or connection.	(2) Inspect the wiring and connections at pins 4, 5, and 9 of tube V5 and at terminals 8 and 9 of transformer T6. Resolder loose connections. Request higher level maintenance if wiring is defective.
	(3) Defective transformer T6.	(3) Measure the voltage and resistance at pins 4, 5, and 9 of tube V5 (para. 5-9); record abnormal readings and request higher level maintenance.
b. Some electron tube filaments light but others do not.	(1) Defective wiring or connections, or electron tubes.	(1) Perform the following: (*a*) Inspect wiring and connections at unlighted tube sockets. Resolder loose connections. Request higher level maintenance if wiring is defective.

Symptom	Probable trouble	Corrective measure
		(*b*) Check suspected electron tubes (para. 5–8); replace as required. (*c*) Measure the voltage and resistance at unlighted tubes (para. 5–9); record abnormal reading and refer to higher level maintenance.
c. No vf ringing signal output when 20-cps ringing signal is applied. *Note.* Vf output tone can be heard by connecting Headset TS–190A/U to appropriate LINE binding posts.	(1) Improper switch settings or binding post connections.	(1) Check switch settings and binding post connections for proper arrangement according to installation requirements (para. 3–4).
	(2) 20-cps ringing signal input is too low to activate the TA–182/U (below 25-volt ac minimum input level).	(2) Measure the 20-cps input ringing signal on the appropriate LOOP binding posts with the AN/URM–105; it should indicate between 25 and 90 volts ac. If the correct indication is not obtained, refer TA–182/U to higher level maintenance.
	(3) Defective electron tube V6.	(3) Check V6 (para. 5–8); replace it if defective.
	(4) Defective sending circuit.	(4) Make voltage and resistance measurements at V6 tube socket (para. 5–9); record abnormal reading and request higher level maintenance.
	(5) Dirty or defective 2W–4W switch S1 contacts.	(5) Inspect 2W–4W switch S1 and check its operation; clean contacts if dirty; request higher level maintenance if defective.
d. No. 20-cps ringing signal output when vf ringing signal is received. *Note.* Vf input tone can be heard by connecting Headset TS–190A/U to appropriate LINE binding posts.	(1) Improper switch settings or binding post connections.	(1) Check switch settings and binding post connections for proper arrangement according to installation requirements (para. 3–4).
	(2) Incorrect input vf ringing signal frequency.	(2) Request that switch settings of TA–182/U at distant terminal be checked for proper arrangement.
	(3) Defective incandescent lamp E9.	(3) Replace lamp E9.
	(4) Defective electron tube V1, V2, V5, or semiconductor diodes V3, V4, V7, V8.	(4) Check electron tubes V1, V2, and V5 (para. 5–8) and semiconductor diodes (para. 5–8); replace as required.
	(5) Defective receiving circuit.	(5) Make voltage and resistance measurements at tube and semiconductor sockets (V1 through V5, and V7, V8 (para. 5–9). Record abnormal readings and request higher level maintenance.
	(6) Relay K3 or static ringing generator E10 defective.	(6) Request higher level maintenance.
e. 20-cps ringing signal output is less than 90 volts ac $\pm 10\%$, when measured across appropriate LOOP binding posts.	(1) Defective semiconductor diode V8.	(1) Check semiconductor diode V8 (para. 5–9); replace if defective.
	(2) Incorrective supply voltage to static ringing generator E10.	(2) Make voltage and resistance measurements at semiconductor V8 socket (para. 5–9); record abnormal readings and request higher level maintenance.
	(3) Defective static ringing generator E10.	(3) Request higher level maintenance.
f. Vf ringing signal output when TP-TG switch is in one position but no output when switch is in other position.	Dirty or defective TP-TG switch contacts.	Inspect TP-TG switch and check its operation. Clean switch contacts if dirty; request higher level maintenance if defective.
g. TA–182/U produces false ringing signals.	(1) Defective semiconductor diode V4.	(1) Check semiconductor diode V4 (para. 5–9); replace if defective.
	(2) Defective guard detector circuit.	(2) Make voltage and resistance measurements at V4 socket (para. 5–9); record abnormal readings and request higher level maintenance.

5–8. Tube Testing and Replacement

Caution: **Never rock or rotate an electron tube when removing it from a socket; pull it straight out with a tube puller.**

Warning: **Electron tubes and tube shields become hot after several minutes of operation. Wait until they become cool before removing.**

a. Using TV–7/U. Remove and test one tube at a time; use the TV–7/U. Discard a tube only if its defect is obvious or if the TV–7/U shows it to be defective. Before testing the next tube, replace the original tube, or install a new tube if required.

b. Tube Substitution Method. Replace a suspected tube with a new one. If this does not correct the trouble, remove the new tube and replace the original tube. Repeat this procedure with each suspected tube until the defective tube is located.

5–9. Voltage and Resistance Measurements

a. Use Tube Socket Adapter Kit MX–1258/U (*c* below) and Multimeter AN/URM–105 to make tube-socket voltage and resistance measurements (fig. 5–2).

Caution: **To protect the ohmmeter, disconnect the TA–182/U power and LINE and LOOP connections and discharge capacitors C5, C26, and C33 before making resistance measurements.**

b. When abnormal measurements are obtained, record the pertinent facts (tube designation, pin numbers, measurement obtained, etc.) on a trouble ticket and refer the equipment to higher level maintenance personnel for repair.

c. To use Tube Socket Adapter Kit MX–1258/U, proceed as follows:

(1) Press the tube shield down, twist it counterclockwise, and remove it from the socket.

(2) Use a tube puller and pull the tube or semiconductor diode (as applicable) straight out of the socket on which measurements are to be made.

(3) Select the test adapter from the MX–1258/U which corresponds to the size and number of pins of the tube or semiconductor diode removed. Insert this adapter into the tube or semiconductor diode socket.

(4) Insert the removed tube or semiconductor diode into the test adapter.

(5) Make the desired measurement by connecting the meter probe to the terminal on the test adapter which corresponds to the pin number of the tube or semiconductor diode.

(6) When the tests are completed, remove the test adapter and replace the tube or semiconductor diode (as applicable), and the shield.

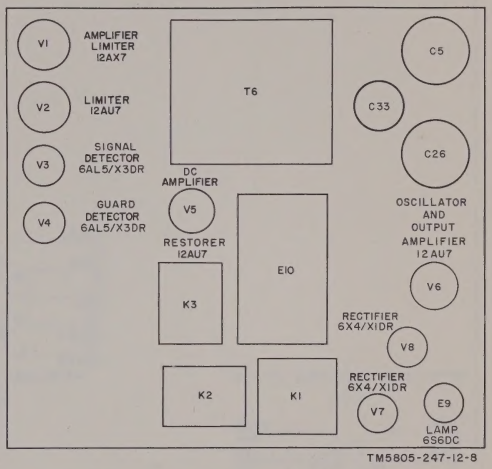


Figure 5–1. Parts location diagram.

5–10. Repair Procedures

a. Extent of Repairs. Organizational repair of the TA–182/U consists of the replacement of running spares (app. II), as required, converter case and cover assembly, control knobs, power control connector plug, and electron tube shields. To replace an electron tube, semiconductor diode, tube shield, incandescent lamp (bayonet type), or converter case and cover assembly, remove the front panel and chassis assembly from the converter case (*b* below). Refer to figures 1–1 and 5–1 for location of parts.

b. Removal and Replacement of Front Panel and Chassis Assembly.

(1) Disconnect the power cord connector plug from the alternating current source.

(2) Disconnect the external circuit wires from the LOOP and LINE binding posts. Tag or otherwise identify the external circuit wires.

Warning: **Be careful not to contact the LOOP binding posts when the TA-182/U is connected into an operating system. Ringing signals of 90 volts ac may exist on these binding posts.**

(3) Loosen the three quick-release screws on the front panel and pull the front panel and chassis assembly out of the case.

(4) After repairs are completed, install the front panel and chassis assembly in the case, tighten the three quick-release screws on the front panel, and reconnect the TA-182/U for normal operation ((1) above).

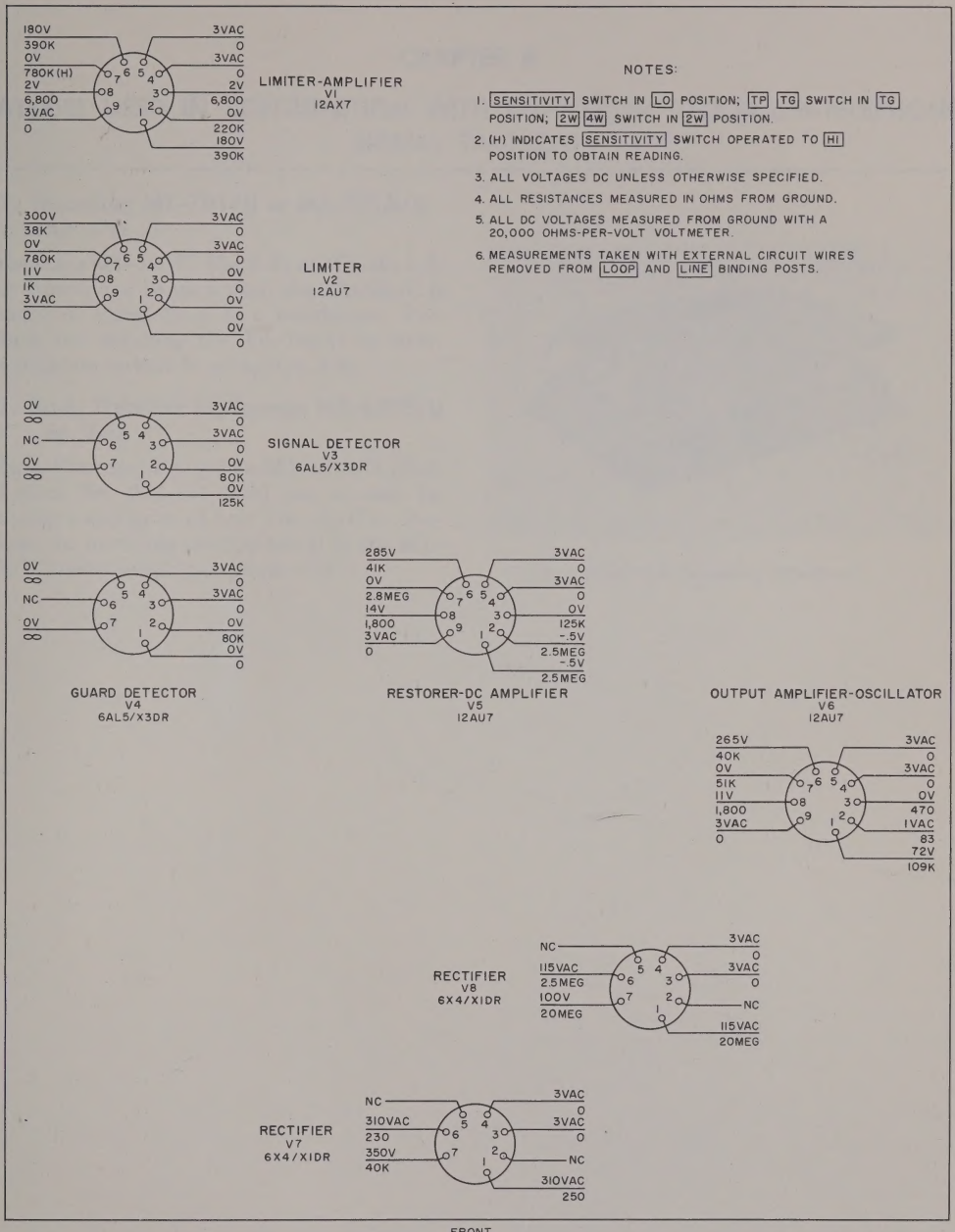


Figure 5-2. Tube and semiconductor diode socket voltage and resistance diagram for TA-182/U.

CHAPTER 6

MATERIEL USED IN CONJUNCTION WITH CONVERTER, TELEGRAPH-TELEPHONE SIGNAL TA–182/U

6–1. Mounting MT–791/U or MT–791A/U (fig. 6–1)

Mounting MT–791/U (fig. 6–1) or MT–791A/U (not shown) can be used when the TA–182/U is mounted in a vehicle or on a workbench. Procedures for installing the TA–182/U in *either* mounting are covered in paragraph 3–4*c*.

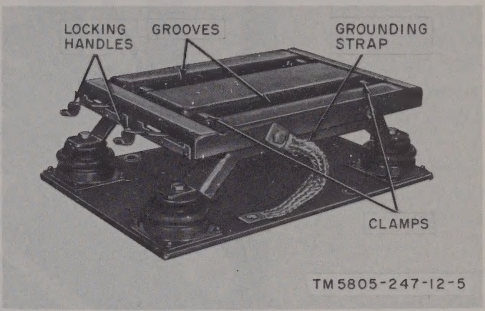


Figure 6–1. Mounting MT–791/U.

6–2. Rack, Electrical Equipment MT–1278/U (fig. 6–2)

Rack, Electrical Equipment MT–1278/U (Federal stock No. 5805–333–9459) can be used for mounting a maximum of four TA–182/U's. Procedures for installing the TA–182/U in the MT–1278/U are covered in paragraph 3–4*d*.

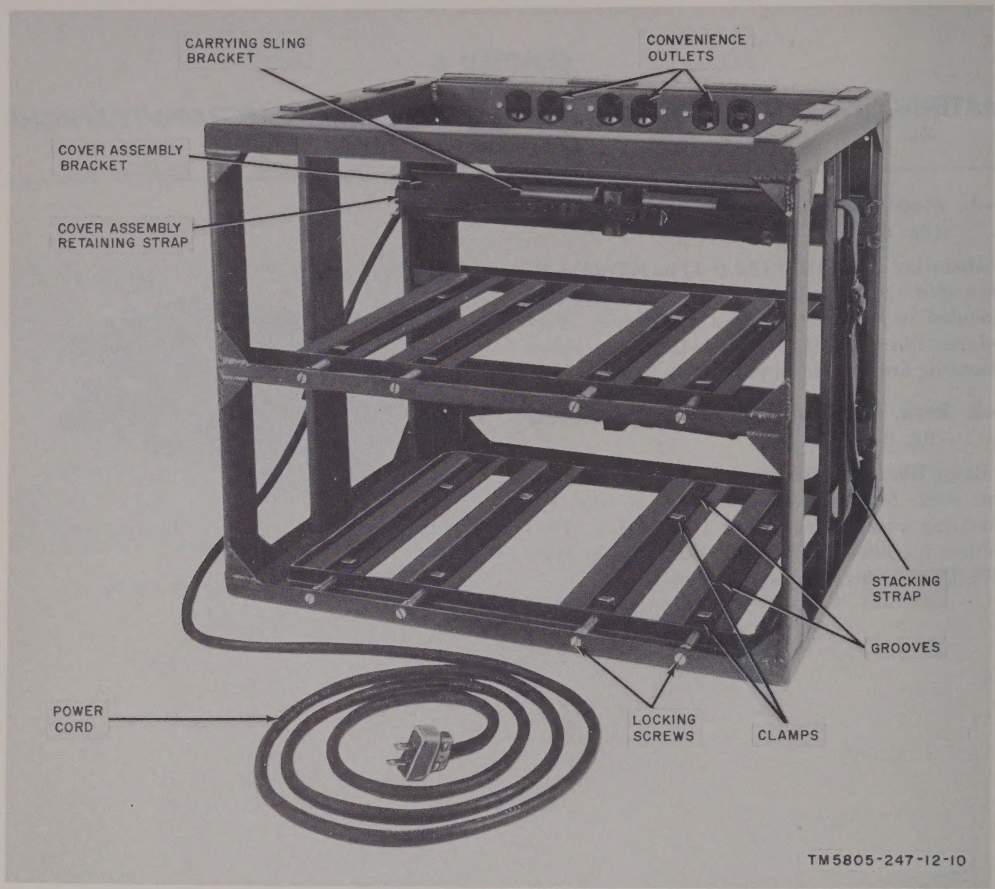


Figure 6–2. Rack, Electrical Equipment MT–1278/U.

CHAPTER 7

BLOCK DIAGRAM ANALYSIS

7–1. General

(fig. 8–1)

Converter, Telegraph-Telephone Signal TA–182/U is connected in two-wire and four-wire telephone and voice-frequency teletypewriter circuits (para. 3–5 and TM 11–5805–254–15) that will not pass 20-cps ringing signals. The TA–182/U converts 20-cps ringing signals received from the loop to vf ringing signals for transmission over the line. The TA–182/U also converts vf ringing signals received from the line to 20-cps ringing signals for transmission over the loop.

a. The input-output circuit (para. 7–2) provides through-connections for transmission and reception of telephone (speech) and vf teletypewriter signals.

b. The sending circuit (para. 7–3) converts the 20-cps ringing signals into either a 1,225- or 1,600-cps vf ringing signal.

c. The receiving circuit (para. 7–4) converts either a 1,225- or 1,600-cps vf ringing signal into a 20-cps ringing signal.

d. The power supply circuit (para. 7–5) provides the operating voltages for the sending and receiving circuits.

7–2. Input-Output Circuit

(fig. 8–1)

a. Line Operating. The input-output circuit of the TA–182/U can be arranged for two-wire or four-wire operation.

(1) *Two-wire operation.* When 2W–4W switch S1 is operated to the 2W position, the TA–182/U is arranged for two-wire operation. The loop transmitting and receiving circuits are connected to the LOOP 2W–4W–R binding posts and the line receiving and transmitting circuits are connected to the LINE 2W–4W–S binding posts.

(2) *Four-wire operation.* When 2W–4W switch S1 is operated to the 4W position, the TA–182/U is arranged for four-wire operation. The loop transmitting circuit is connected to the LOOP 4W–S binding posts, and the loop receiving circuit is connected to the LOOP 2W–4W–R binding posts. The line transmitting circuit is connected to the LINE 2W–4W–S binding posts, and the line receiving circuit is connected to the LINE 4W–R binding posts.

b. Vf Signal Path. Vf signals between zero and approximately 3,000 cps (other than 20 cps and 1,225 or 1,600 cps) are routed through the input-output circuit of the TA–182/U as follows:

(1) *Two-wire operation.* Vf signals applied from the loop and line circuits (*a*(1) above) are routed between the LOOP and LINE binding posts through the contacts of 2W–4W switch S1 and contacts 1 and 2 of relay K2.

(2) *Four-wire operation.* Vf signals applied from the loop transmitting circuit (*a*(2) above) are routed between the LOOP 4W–S binding posts and the LINE 2W–4W–S binding posts through the contacts of 2W–4W switch S1 and contacts 1 and 2 of relay K2. Vf signals applied from the line receiving circuit (*a*(2) above) are routed between the LINE 4W–R binding posts and the LOOP 2W–4W binding posts through the contacts of 2W–4W switch S1.

c. 20-Cps Signal Path. Ringing signals of 20-cps applied from the loop transmitting circuit are routed through the contacts of 2W–4W switch S1 to relay K1. Relay K1 operates and permits the direct current (dc) voltage from rectifier V7 to operate relay K2. Contacts 1 and 2 of relay K2 open the transmitting path from the LOOP binding posts to the LINE binding posts and contacts 3 and 2 of relay K2 close and permit the output of the sending circuit (para. 7–3) to be applied to the LINE 2W–4W–S binding posts.

d. Vf Ringing Signal Path. Vf ringing signals (1,600 or 1,225 cps) applied to the LINE binding

posts (*a* above) are routed through the contacts of 2W–4W switch S1 to the receiving circuit (para. 7–4). The receiving circuit responds to the signal and transmits a 20-cps ringing signal to the LOOP 2W–4W–R binding posts.

7–3. Sending Circuit

(fig. 8–1)

When TP-TG switch S2 is operated to TP, oscillator V6A generates a 1,600-cps telephone ringing signal. When TP-TG switch S2 is operated to TG, oscillator V6A generates a 1,225-cps teletypewriter ringing signal. The vf ringing signal from oscillator V6A is applied to output amplifier V6B. When a 20-cps ringing signal, from the LOOP, operates relay K2 (para. 7–2*c*), the vf ringing signal from output amplifier V6B is applied to the line through contacts 3 and 2 of relay K2 and the LINE 2W–4S binding posts.

7–4. Receiving Circuit

(fig. 8–1)

Vf ringing signals (1,225 or 1,600 cps) are applied from the receiving line circuit (para. 7–2*d*) through limiter-amplifiers V1A and V1B, and limiter V2 to the discriminator circuit. When SENSITIVITY switch S3 is operated to HI, the limiter-amplifier V1B circuit responds (is sensitive) to signals between zero and approximately −50 decibels, referred to 1 milliwatt in 600 ohms (dbm). When SENSITIVITY switch S3 is operated to LO, the circuit responds to signals between 0 and −30 dbm. When TP-TG switch S2 is operated to TP, limiter-amplifier V1A filters all frequencies but 1,600-cps vf ringing signals; transformer T2 in the discriminator detects the 1,600-cps vf ringing signals. When TP-TG switch S2 is operated to TG, the circuit responds to 1,225-cps ringing signals. The output of transformer T2 and signal detector-doubler V3 is applied through the time delay network and restorer V5A to dc amplifier V5B. Dc amplifier V5B conducts and causes relay K3 to operate. Contacts 5 and 6 of relay K3 close and apply dc from rectifier V8 to static ringing generator E10. Static ringing generator E10 operates and applies a 20-cps ringing signal to the loop through ballast lamp E9, contacts 3 and 2 of relay K3, and the LOOP 2W–4W–R binding posts. The time delay network is provided at the output of the discriminator to prevent 1,225 or 1,600-cps ringing signals that are less than one-half second in duration from operating relay K3. A guard circuit consisting of limiter-amplifier V1B limiter V2, transformer T3, and guard detector-doubler V4, prevents relay K3 from operating when signals other than 1,225 or 1,600 cps are applied to the receiving circuit.

7–5. Power Supply Circuit

(fig. 8–1)

Input supply voltage of 115 volts ac 50 to 60 cps is applied through fuse F1 (1 ampere) to transformer T6 which provides proper operating voltages for rectifiers V7 and V8 and provides 6.2-volt ac filament voltages for all tubes. Rectifier V7 provides B+ supply dc voltage for tubes V1, V2, V5, and V6; it also supplies dc voltage to operate relay K2 when relay K1 is operated (para. 7–2*c*). Rectifier V8 supplies dc voltage to static ringing generator E10 when relay K3 is operated (para. 7–4).

CHAPTER 8

SHIPMENT AND LIMITED STORAGE AND DEMOLITION TO PREVENT ENEMY USE

Section I. SHIPMENT AND LIMITED STORAGE

8–1. General

The exact procedure for repacking depends on the conditions under which the TA–182/U is to be shipped or stored. Use the original shipping containers, if available, for repacking the equipment. Use the procedures given in paragraph 8–4 as a guide when repacking and repackaging the TA–182/U. Refer to paragraph 3–1 for information concerning the original packaging of the equipment.

8–2. Disassembly for Shipment or Limited Storage

a. Disassembly. Use the procedures in (1) through (4) below to prepare a TA–182/U for shipment or limited storage.

(1) Disconnect the TA–182/U power and signal connections and remove the TA–182/U from its installed position.

(2) Wind and store the power cord against the front panel.

(3) Secure the cover assembly into place with the spring-lock fasteners.

(4) Assemble the running spares and technical manuals for each TA–182/U to be packed.

Note. If the TA–182/U is being moved from one site for immediate reinstallation at another site by organizational personnel, the running spares ((4) above) may be left in the components or containers in which they are normally stored. Make sure that they are properly protected from breakage or loss during transit.

b. Repacking. The repacking of a TA–182/U for shipment or limited storage is performed by organizational maintenance personnel. Use the materials specified in paragraph 8–3 and follow the procedures given in paragraph 8–4.

8–3. Materials Required for Repacking

The following materials are required for repacking Converter, Telegraph-Telephone Signal TA–182/U. For applicable Federal stock numbers, refer to SB 38–100.

Material	Quantity (approx)
Waterproof wrapping paper	10 sq ft.
Corrugated single-face fiberboard	8 sq ft.
Pressure-sensitive waterproof tape, 3 in. width.	10 ft length.
Gummed paper tape, 3 in. width	15 ft length.
Filler material (paper or fiberboard)	As required.

8–4. Repacking Instructions

a. Packaging.

(1) *Technical manuals.* Package the technical manuals within a bag fabricated from waterproof paper. Seal the seams of the bag with pressure-sensitive tape.

(2) *Running spares.*

(*a*) *Fuses.* Place the spare fuses in the clips provided inside the cover assembly (fig. 1–1).

(*b*) *Tubes and lamps.* Wrap each tube and lamp securely within two layers of corrugated fiberboard; secure the fiberboard wrapping with gummed paper tape.

(3) *Power cord and carrying sling.* Wind the power cord into a coil that can be stored against the front panel; wrap the coil in corrugated fiberboard and secure it with gummed paper tape. Close and secure the cover assembly and tighten the carrying sling; fold the slack end of the carrying sling and secure with cord or heavy string.

b. Packing.

(1) *Running spares package.* Wrap the spare tube and lamp packages with waterproof wrapping paper. Seal the seams of the package with pressure-sensitive tape and secure the package to one side of the TA–182/U with pressure-sensitive tape.

(2) *Wrapping.* Wrap the TA–182/U within

corrugated fiberboard and secure it with gummed paper tape. Secure the packaged technical manuals (*a*(1) above) to the top of the package with pressure-sensitive tape. Place the wrapped equipment within a close-fitting bag fabricated of waterproof wrapping paper and seal the seams of the bag with pressure-sensitive tape.

(3) *Shipping boxes.* When shipped in multiples of six units, pack the equipment in a wooden box. Refer to paragraph 3–1 and figure 3–1 to determine dimensions of the required box.

(4) *Strapping.* When packed for intertheater shipment, apply steel straps girthwise to reinforce the wooden box.

(5) *Markings.* Mark each single unit or wooden box as prescribed in AR 220–10 and pertinent instructions in the shipment directive.

Section II. DEMOLITION OF MATERIEL TO PREVENT ENEMY USE

8–5. Authority for Demolition

Demolition of the TA–182/U to prevent enemy use will be accomplished only upon order of the commanding officer. The destruction procedures outlined in paragraph 8–6 will be used to prevent further use of the equipment.

8–6. Methods of Destruction

Use any of the following methods to destroy the equipment:

a. Smash. Smash the controls, tubes, tube sockets, relays, switches, capacitors, resistors, transformers.

b. Cut. Cut the power cord, chassis, and external wiring.

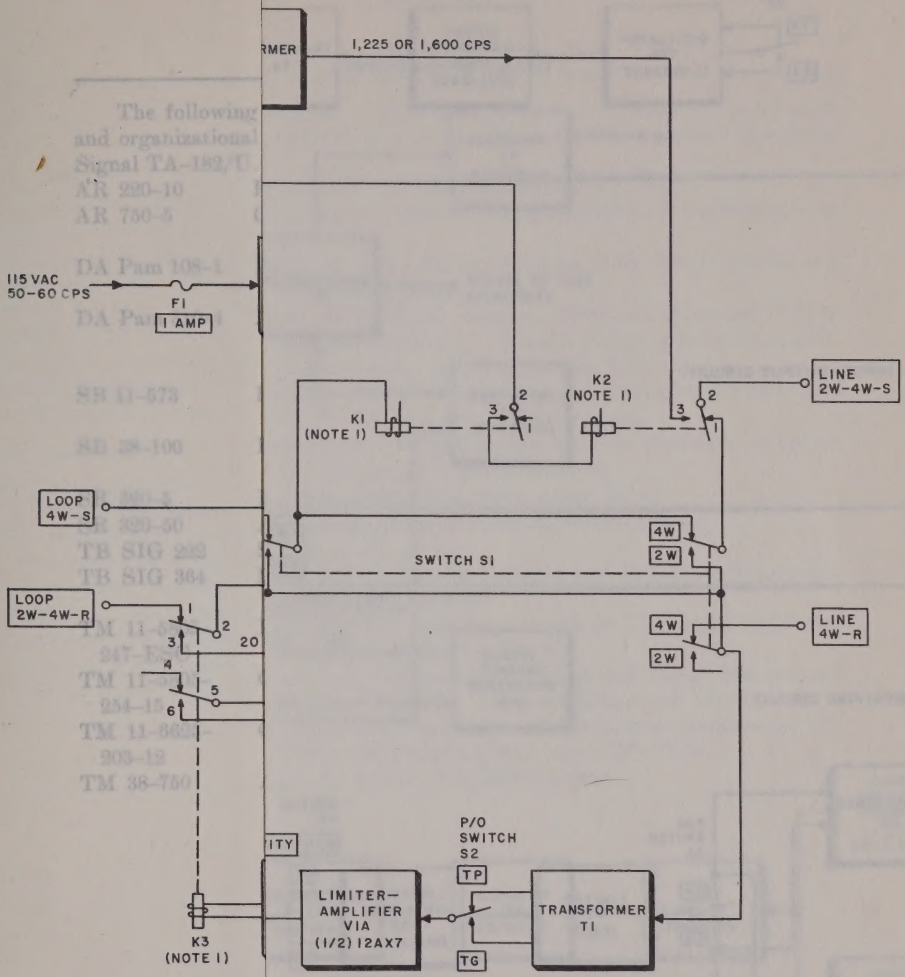
c. Burn. Burn the equipment and technical manuals.

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

d. Bend. Bend the front panel, chassis, case and cover assembly.

e. Explode. If necessary, use explosives.

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



NOTES:

NTACT NUMBERS ARE ARBITRARILY ASSIGNED FOR
FERENCE PURPOSES.

INDICATES EQUIPMENT MARKING.

TM5805-247-12-11

corrugated fiberboard and secure it with gummed paper tape. Secure the packaged technical manuals (*a*(1) above) to the top of the package with pressure-sensitive tape. Place the wrapped equipment within a close-fitting bag fabricated of waterproof wrapping paper and seal the seams of the bag with pressure-sensitive tape.

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e. Explode. If necessary, use explosives.

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

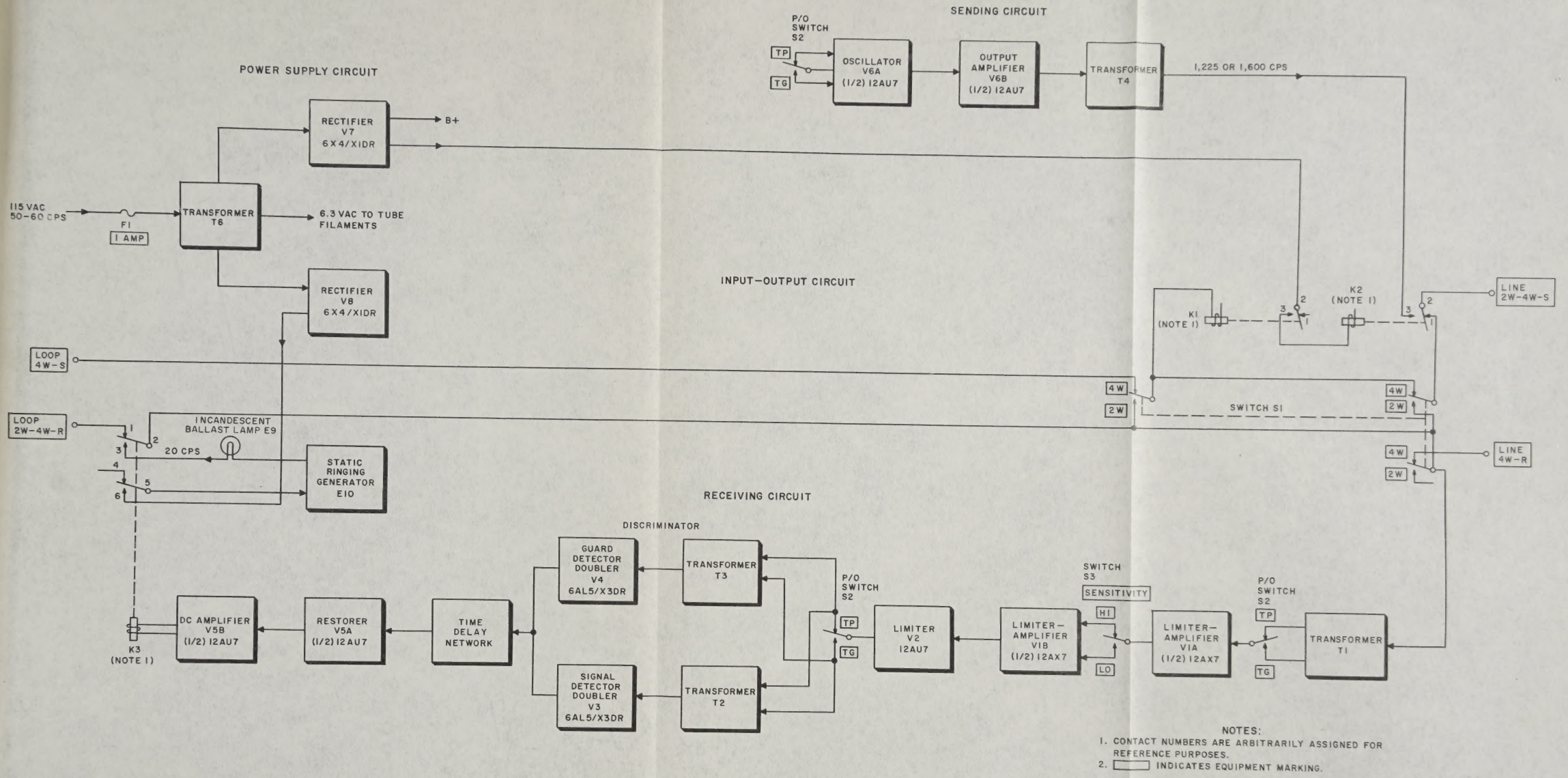
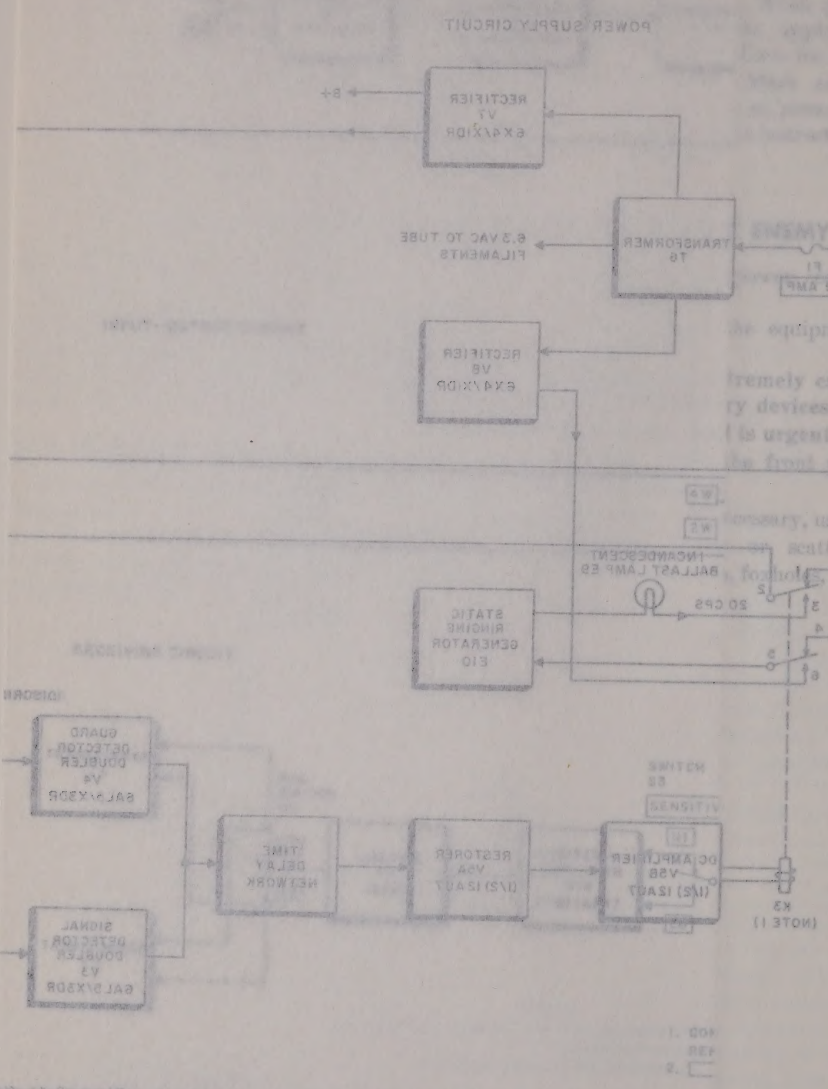


Figure 8-1. Converter, Telegraph-Telephone Signal TA-182/U, block diagram.



APPENDIX I

REFERENCES

The following is a list of applicable references available to the operator and organizational maintenance personnel of Converter, Telegraph-Telephone Signal TA–182/U.

AR 220–10	Preparation for Oversea Movement of Units.
AR 750–5	Organization, Policies, and Responsibilities for Maintenance Operation.
DA Pam 108–1	Index of Army Motion Pictures, Film Strips, Slides, and Phono-Recordings.
DA Pam 310–4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 4, 6, 7, 8, and 9), Supply Bulletins, Lubrication Orders, and Modification Work Orders.
SB 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.
SR 320–5	Dictionary of United States Army Terms.
SR 320–50	Authorized Abbreviations and Brevity Codes.
TB SIG 222	Solder and Soldering.
TB SIG 364	Field Instructions for Painting and Preserving Electronics Command Equipment.
TM 11–5805–247–ESC	Equipment Serviceability Criteria for Converter, Telegraph-Telephone Signal TA–182/U.
TM 11–5805–254–15	Operator's, Organizational, Field and Depot Maintenance Manual: Terminal, Telegraph-Telephone AN/TCC–14.
TM 11–6625–203–12	Operator and Organizational Maintenance: Multimeter AN/URM–105, Including Multimeter ME–77/U.
TM 38–750	Army Equipment Record Procedures.

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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 designations that appear on the part in the equipment. These same designations are also used on any illustrations of the equipment. The numbers in the "Figure No." column refer to the illustrations where the part is shown.

SECTION II. OPERATOR'S FUNCTIONAL PARTS LIST

FEDERAL STOCK NUMBER	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY AUTH	ILLUSTRATION	
						FIGURE NO.	ITEM NO.
5805-263-3326		CONVERTER, TELEGRAPH-TELEPHONE SIGNAL TA-182/U: ring down signal; signal sb side sc received and transmitted, 20 cyc received and transmitted; oper power requirements 115v ac, 50/60 cyc, single ph; 11 in. lg x 10-1/2 in wd x 7-1/2 in h o/a		NX			
		ITEMS COMPRISING AN OPERABLE EQUIPMENT					
Ord thru AGC		TECHNICAL MANUAL TM 11-5805-247-12			2		
5340-356-4895		SLING, CARRYING, BAG AND CASE: Sig dwg No. SC-B-98316			1	1-1	
5805-615-6503		CASE, ELECTRICAL EQUIPMENT CABINET: case less cover and strap Sig C dwg #SC-D-98317 (Installed in equip)		NX	1	1-1	
5805-625-5418		COVER ASSEMBLY: p/o case electrical equip Cabinet Sig C dwg #SC-C-98314 (Installed in equip)			1	1-1	
		RUNNING SPARE ITEMS					
5960-166-7664		ELECTRON TUBE: MIL type 12AX7			1	2-2	V1
5960-166-7663		ELECTRON TUBE: MIL type 12AU7			2	2-2	V2,V5,V6
5920-280-4465		FUSE, CARTRIDGE: 1 amp, 250v; MIL type FO2G1R00A			5	2-2	F1
6240-143-3060		LAMP, INCANDESCENT: GE type 6S6DC-120			1	2-2	E9
6130-076-3545		RECTIFIER, SEMICONDUCTOR DEVICE: 6AL5/X3DR, Sig dwg SC-C-141342			1	2-2	V3,V4
6130-076-3546		RECTIFIER, SEMICONDUCTOR DEVICE: 6X4/X1DR, Sig dwg SC-C-141343			1	2-2	V7,V8

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 runninng 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. 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 indi-

cate 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 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) *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	ECHELON O	ECHELON DS	ECHELON GS	ECHELON D	TOOLS REQUIRED	REMARKS
CONVERTER, TELEGRAPH-TELEPHONE SIGNAL, TA-182/U	service	X						Exterior
			X				10	Exterior and interior
	adjust	X						Initial adjustment of controls
				X			1,8,10	All adjustments
	inspect	X						Exterior
			X				10	Exterior and interior
	test		X				3,7,10,11	Voltage, resistance, tubes
				X			1,4,7,8,9,10,11,12,13	Power levels, frequency, solid state devices
					X		1,2,4,5,6,7,8,9, 10,11,12,13	All tests (tool code G for 5th Ech only)
	replace		X					Semi-conductor devices, tubes
	repair		X				10	Connector only
			X				10	All other repairs
	align				X		1,2,4,5,8,10	All alignments
	overhaul					X	10	

SECTION III. ALLOCATION OF TOOLS FOR MAINTENANCE FUNCTIONS

TOOLS REQUIRED FOR MAINTENANCE FUNCTIONS	MAINTENANCE CATEGORY O/C	O	DS	GS	D	TOOL CODE	REMARKS
TA-182/U (continued)							
Frequency Meter, AN/TSM-16			/	/	/	1	
Impedance Bridge, TS-460/U				/	/	2	
Multimeter, AN/URM-105		/				3	
Multimeter, TS-352/U			/	/	/	4	
Ringer, TA-48/PT				/	/	5	
Test Set, Electron Tube, TV-2/U					/	6	
Test Set, Electron Tube, TV-7/U		/	/	/		7	
Test Set, TS-140/PCM			/	/	/	8	
Test Set, TS-190/U			/	/	/	9	
Tool Equipment, TE-123		/	/	/	/	10	
Tube Socket Adapter Kit, MX-1258/U		/	/	/	/	11	
Test Set, Transistor, TS-1836/U			/	/	/	12	
Telephone Set, TA-312/PT			/	/	/	13	Shop support.

APPENDIX IV

ORGANIZATIONAL REPAIR PARTS LIST

Section I. INTRODUCTION

A4-1. General

a. This manual lists the quantities of repair parts authorized for organizational maintenance and constitutes a basis of requisitioning when the major item of equipment is authorized to the organization. These equipments are issued on the basis of allowances prescribed in equipment authorization tables and other documents which are a basis of requisitioning.

b. Columns are as follows:

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

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

(3) *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.

(4) *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.

(5) *Expendability.* Nonexpendable items are indicated by NX. Expendable items are not annotated.

(6) *Quantity incorporated in unit.* This column lists the quantity of each part found in a given assembly, component, or equipment.

(7) *Organizational.* The quantities indicated in this column are maximum levels of repair parts authorized to be kept on hand by units performing organizational maintenance. The quantities are based on 100 equipments to be maintained for a 15-day period.

(8) *Illustration.* The "Item No." column lists the reference designations that appear on the part in the equipment. These same designations are also used on any illustrations of the equipment. The numbers in the "Figure No." column refer to the illustrations where the part is shown.

A4-2. Parts for Maintenance

When this equipment is used by signal service organizations organic to theater headquarters or communication zones to provide theater communications, these repair parts authorized up to and including general support are authorized for stockage by the organization operating this equipment.

A4-3. Additional Repair Parts Authorization

An asterisk (*) indicates that an item is not authorized for stockage but if required, may be requisitioned for immediate use only.

A4-4. Electron Tubes

The consumption rates given for tubes are conservative theoretical estimates and are provided for use only when more complete information, such as data based on operating experience, is not available. These figures are based on levels and requirements for equipment actually in use, not on authorizations or equipment stored in depots.

A4-5. Requisitioning Information

a. The allowance factors are based on 100 equipments. In order to determine the number of parts authorized for the specific number of equipments supported, the following formula will be used and carried out to two decimal places.

$$\text{Specific number of equipments supported} \times \frac{\text{allowance factor}}{100} = \text{Number of parts authorized.}$$

b. Fractional values obtained from above computation will be rounded to whole numbers as follows:

(1) When the total number of parts authorized is less than one, the quantity authorized will be one.

(2) For all values above one, fractional values below 0.5 will revert to the next lower number, fractional values of 0.5 or larger will advance to the next higher whole number.

c. The number of parts authorized, determined after application of *a* and *b* above, represent one prescribed load for a 15-day period. The items and computed quantities thereof must be on hand or on order at all times.

d. Major commanders will determine the number of prescribed loads organizational units will carry. Units and organizations authorized additional prescribed loads will utilize the formula explained in *a* above but will multiply the number of equipments supported by the number of authorized prescribed loads before completing the formula. Fractional values will be rounded to whole numbers as described above.

FEDERAL STOCK NUMBER	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY IN UNIT	ORGANIZATIONAL	ILLUSTRATION	
							FIGURE NO.	ITEM NO.
		CONVERTER, TELEGRAPH-TELEPHONE SIGNAL TA-182/U						
5805-263-3326		CONVERTER, TELEGRAPH SIGNAL TA-182/U: ring down signal; sb side ac received and transmitted, 20 cyc received and transmitted; oper power requirements 115v ac, 50/60 cyc, single ph; 11 in. lg x 10-1/2 in. wd x 7-1/2 in h o/a		NX			1-1	
5920-244-5150		CAP, ELECTRICAL			1	*	1-1	6
5940-254-2244		CAP, ELECTRICAL: black; Sig dwg SC-C-76202-1			8	*		
5805-615-6503		CASE, ELECTRICAL EQUIPMENT CABINET: case F/TA-182/U; Sig dwg SC-D-98317			1	*	1-1	1
5935-518-9653		CONNECTOR, PLUG, ELECTRICAL: MIL type UP120M			1	1.0	1-1	P1
5805-625-5418		COVER, ASSEMBLY: p/o Case Converter; Sig dwg No. SC-C-98314			1	*	1-1	2
5960-166-7663		ELECTRON TUBE: MIL type 12AU7			3	52.5	2-2	V2,V5,V6
5960-166-7664		ELECTRON TUBE: MIL type 12AX7			1	17.5	2-2	V1
5920-280-4465		FUSE, CARTRIDGE: 1 amp, 250v; MIL type F02G1R00A			1	7.8	2-2	F1
5355-160-6850		KNOB: bar; for 1/4 in. dia shaft; 1-1/4 in. lg x 3/4 in. w x 5/8 in. h; Sig dwg No. SC-B-93352			2	*	1-1	5
6240-143-3060		LAMP, INCANDESCENT: GE type No. 6S6DC-120			1	6.0	2-2	DS1
6130-076-3545		RECTIFIER, SEMICONDUCTOR DEVICE: Sig dwg SC-C-141342 6AL5/X3DR			2	1.5	2-2	V3,V4
6130-076-3546		RECTIFIER, SEMICONDUCTOR DEVICE: Sig dwg SC-C-141343 6X4/X1DR			2	1.5	2-2	V7,V8
5960-264-3004		SHIELD, ELECTRON TUBE: MIL type TS-103U02			4	*		3
5340-356-4895		SLING, CARRYING, BAG AND CASE: Sig dwg No. SC-B-98316			1	*	1-1	1

By Order of the Secretary of the Army:

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

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

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USACDCCBRA (1)
USACDCOA (1)
USACDCQMA (1)
USACDCTA (1)
USACDCADA (1)
USACDCARMA (1)
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USASMC (2)
USASCC (4)
MDW (1)
Armies (2) except
  Seventh (5)
  EUSA (5)
Corps (2)
USAC (3)
11th Air Aslt Div (3)
507th USASA Gp (5)
508th USASA Gp (5)
318th USASA Bn (5)
319th USASA Bn (5)
320th USASA Bn (5)
177th USASA Co (5)
182nd USASA Co (5)
183rd USASA Co (5)
184th USASA Co (5)
226th USASA Co (5)
251st USASA Co (5)
600th USASA Co (5)
MAAG:
  Taiwan (5)
  Vietnam (5)
4th USASA Fld Sta (5)
12th USASA Fld Sta (5)
13th USASA Fld Sta (5)
14th USASA Fld Sta (5)
15th USASA Fld Sta (5)
Svc Colleges (2)
Br Svc Sch (2) except
  USASESCS (90)
  USAES (5)
  USAQMS (5)
  USAIS (5)
  USASCS (5)
  USAARMS (5)
  USAAMS (5)
  USATSCH (5)
USMA (5)
GENDEP (2)
Sig Sec GENDEP (5)
Sig Dep (12)
A Dep (2) except
  SAAD (30)
  TOAD (14)
  FTWOAD (10)
  LEAD (7)
  SHAD (3)
  NAAD (5)
  SVAD (5)
  CHAD (3)
  ATAD (10)
  LBAD (14)
USASTC (2)
USATC AD (2)
USATC Armor (2)
USATC Engr (2)
USATC Inf (2)
Army Pic Cen (2)
WRAMC (2)
Instl (2) except
  Ft Monmouth (70)
  Ft Hancock (4)
  Ft Gordon (10)
  Ft Huachuca (10)
  Ft Carson (25)
  Ft Knox (12)
  Ft Devens (5)
  JCA, Ft Ritchie (5)
WSMR (5)
Sig Fld Maint Shops (2)
AMS (1)
USAERDAA (2)
USAERDAW (13)
KMAG (5)
Units organized under following TOE's (2 copies each):

1-127	8-36
1-137	8-122
1-207	8-126
3-32	8-137
5-25	8-187
5-26	8-551
5-35	8-581
5-36	8-590
5-52	8-667
5-112	9-12
5-145	9-17
5-146	9-22
5-155	9-47
5-156	9-75
5-237	9-76
5-267	9-86
5-279	9-87
5-500 (AA-AD)	9-227
	9-377
5-600	10-17
5-605	10-22
6-501	10-77
6-555	10-105
6-556	10-106
6-557	10-107
6-615	10-127
6-616	10-201
6-617	10-202
6-635	10-206
6-636	10-349
7	10-377
7-4	10-407
7-11	10-417
7-12	10-445
7-42	10-446
8-35	10-447

10–448
10–467
10–500 (AA–AD)
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11–217
11–218
11–237
11–247
11–303
11–337
11–500 (AA–AC)
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11–608
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19–256
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29–56
29–65
29–311
30–5
30–6
30–7
30–25
30–26
30–27
30–28
30–29
30–500 (AA–AE)
32–52
32–56
32–57
32–67
32–68
32–78
32–500
33–56
37
37–4
37–42
39–51
44–2
44–12
44–235
44–236
44–436
44–536
54–2
54–102
54–202
55–11
55–12
55–16
55–46
55–56
55–89
55–116
55–126
55–131
55–158
55–225
55–227
55–260
55–458
55–500 (AA–AE)
57
57–42

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

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