TM 11-6625-366-10

TECHNICAL MANUAL

OPERATIONS MANUAL
FOR
MULTIMETER TS-352B/U
(NSN 6625-00-553-0142)

HEADQUARTERS, DEPARTMENT OF THE ARMY
NOVEMBER 1976

WARNING

Be extremely careful when making high voltage and current measurements. Serious injury or death may result if safety precautions are not observed.

DON'T TAKE CHANCES !

DANGEROUS VOLTAGES EXIST AT THE 50V TO 5000V JACKS AND DC CURRENT JACKS

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HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON, DC *12 November 1976*

OPERATOR'S MANUAL FOR MULTIMETER TS-352B/U (NSN 6625-00-553-0142)

REPORTING OF ERRORS

You can help improve this manual by calling attention to errors and by recommending improvements and stating your reasons for the recommendations. Your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) should be mailed direct to Commander, US Army Electronics Command, ATTN: DRSEL-MA-Q, Fort Monmouth, NJ 07703.

A reply will be furnished direct to you.

*** This manual supersedes so much of TM 11-6625-366-15, 5 January 1967, including all changes, as pertains to oporation and operator's maintenance.**

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CHAPTER 1
INTRODUCTION

Section I. GENERAL

1-1. Scope

a. General. This manual contains operating instructions for Multimeter TS-352B/U. Complete operator maintenance instructions are also provided.

b. Purpose. This manual is for use when operating and maintaining Multimeter TS-352B/U.

1-2. Indexes of Publications

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

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

1-3. Forms and Records

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

b. Report of Packaging and Handling Deficien - cies. Fill out and forward DD Form 6 (Packaging Improvement Report) as prescribed in AR 700-58/NAVSUPINST 4030.29/AFR 71-13/MCO P4030.29A, and DSAR 4145.8.

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

1-4. Administrative Storage

Administrative storage of equipment issued to and used by Army activities shall be in accordance with TM 740-90-1.

1-5. Destruction of Army Electronics Materiel

Destruction of Army electronics materiel to prevent enemy use shall be in accordance with TM 750-244-2.

Section II. DESCRIPTION AND DATA

1-6. Purpose and Use

The TS-352B/U is a portable, self-contained unit that provides maintenance personnel with a means of on-the-spot troubleshooting. The unit allows voltage, resistance, and current measurements. The versatility and limitations of the TS-352B/U are defined in paragraph 1-8.

1-7. Description

(fig. 1-1)

The TS-352B/U is a volt-ohm-ampere meter that uses self-contained batteries and is contained in a metal, immersionproof carrying case. The technical characteristics of the TS-352B/U are provided in paragraph 1-8, and paragraph 1-9 lists the components that comprise the TS-352B/U.

1-8. Tabulated Data.

Tabulated data for the test set are listed in table 1-1.

Table 1-1. TS-352B/U Tabulated Data

Type	Multirange instrument using a 50-microampere dc, D'Arsonval-type meter. Rectification is used for ac voltage measurements.
Frequency range	25 Hertz to 5 kiloHertz; useful to 20 kiloHertz with a reduction in sensitivity.
Frequency error	±3 percent at 10 kiloHertz; ±7 percent at 20 kiloHertz.
Usable temperature range	−40°F to +131°F.
Meter sensitivity	1,000 ohms per volt for ac ranges; 1,000 or 20,000 ohms per volt for dc ranges.
Accuracy*	
Dc range:	
0 to 1,000 volts and dc current (1,000 ohms per volt)	±6 percent at −40°F; ±3 percent at 77°F; ±5 percent at 131°F.

* Percentages are of full scale readings.

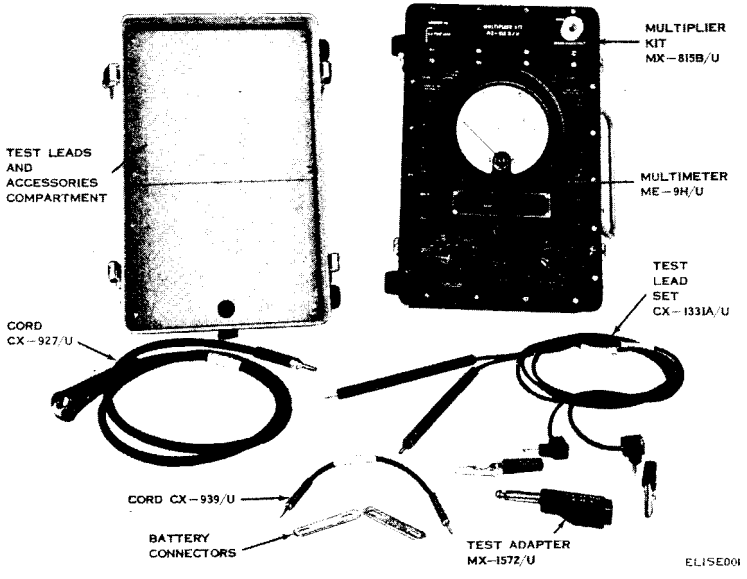

Figure 1-1. Multimeter TS-352B/U.

0 to 1,000 volts (20,000 ohms per volt)	±8 percent at −40°F; ±4 percent at 77°F; ±6 percent at 131°F.
0 to 5,000 volts (20,000 ohms per volt)	±9 percent at −40°F; ±6 percent at 77°F; ±8 percent at 131°F.
AC range:	
0 to 500 volts (1,000 ohms per volt)	±7 percent at −40°F; ±4 percent at 77°F; ±5 percent at 131°F.
0 to 1,000 volts (1,000 ohms per volt)	±8 percent at −40°F; ±5 percent at 77°F; ±6 percent at 131°F.
Resistance ranges	±6 percent at −40°F; ±3 percent at 77°F; ±5 percent at 131 °F. (Percent values are in terms of meter scale, not of ohms indicated by meter pointer.)
Meter ranges:	
Dc voltmeter	0 to 2.5, 10, 50, 250, 500, and 1,000 volts at 1,000 or 20,000 ohms per volt, 0 to 5,000 volts at 20,000 ohms only.
Ac voltmeter	0 to 2.5, 10, 50, 250, 500, and 1,000 volts at 1,000 ohms per volt only.
Resistance	0 to 1,000, 10,000, 100,000, 1,000,000 and 10,000,000 ohms.
Direct current	0 to 250 microamperes; 2.5, 10, 50, 100, and 500 milliamperes; 2.5 and 10 amperes.

Table 1-1. *TS-352B/U Tabulated Data – Continued*

Power supply	Supplied by batteries for ohmmeter operation (1.5 and 13.5 volts).

1-9. Items Comprising an Operable Multimeter TS-352B/U

The items comprising an operable TS-352B/U are listed on the following page.

1-10. Additional Equipment Required

Three Dry Batteries BA-31 and one Dry Battery BA-30 are required, but not furnished. To supply power to Multimeter TS-352B/U, the operator is required to install the batteries in the battery compartment. For battery installation instructions, refer to paragraph 2-3.

1-9. Items Comprising an Operable Multimeter TS-352B/U—Continued.

NSN	Qty		Fig. No.	Dimensions (in.) Height	Width	Length	Weight (lb)
6625-00-553-0142		Multimeter TS-352B/U; consisting of:	1-1				
6625 00 649 250	1	Multiplier Kit MX-815B/U		2 1/4	7	5 1/2	0.5
	1	Multimeter ME-9H/U		9	7	5 1/2	4.69
6625-00-500-4508	1	Adapter Test MX-1572/U	1-1	2 1/2			
5940-00-518-9280	2	Battery connectors	1-1		3/8	2 1/2	
6135-00-120-1020	1	Battery, Dry BA-30*	2-1				
6135-00-120-1019	3	Battery, Dry BA-31*	2-1				
6625-00-668-6887	1	Cable Assembly, Special Purpose, Electrical CX-939/U	1-1			8 1/2	
6625-00-892-5524	1	Cable Assembly, Special Purpose, Electrical CX-927/U	1-1			48	
6625-00-395-9313	1	Test Lead Set CX-1331A/U	1-1			49 1/2	

* Not part of TS-352B/U.

CHAPTER 2
OPERATING INSTRUCTIONS

Section I. CONTROLS, METER, AND CONNECTORS

2-1. Damage From Improper Settings

Haphazard operation or improper setting of the controls can damage the TS-352B/U; therefore, knowledge of the functions of the meter, controls, and connectors before operating the TS-352B/U is important. Refer to paragraph 2-2.

2-2. Controls, Meter, and connectors, Functions

(fig. 2-1)
The following chart lists the controls, meter, and connectors of the TS-352B/U and indicates their functions.

Item	Function
FUNCTION switch	Used to select type of operation desired.
Range switch	Used to select appropriate dc or resistance ranges.
OHMS ZERO ADJ knob	Used to adjust meter pointer to zero on ohms scale.
Meter	Indicates value of voltage, resistance, or current being measured.

Item	Function
OHMS-DC±AC jack	Common jack for all functions.
OHMS jack	Test lead connection for measuring resistance.
+DC CURRENT jack	Red test lead connection for measuring direct current to 2.5 amperes.
+10 AMPS ONLY jack	Red test lead connection for measuring direct current to 10 amperes.
20000 OHMS PER VOLT DC jacks	Red test lead connections for measuring dc voltages (20,000 ohms-per-volt function only).
1000 OHMS PER VOLT AC DC jacks	Red test lead connection for measuring dc or ac voltages (1,000 ohms-per-volt function only).
CONNECT TO 2.5 VOLT JACK	Patch cord connection between multiplier and 2.5V jack.
5000 VOLTS DC 20000 OHMS/VOLT jack	High voltage test lead connection to multiplier.
Mechanical zero adjust screw	Used to mechanically adjust meter pointer to zero.
CASE GROUND jack	Ground lead connection between TS-352B/U case and chassis of equipment under test.

Section II. OPERATING PROCEDURES

CAUTION

If the equipment fails to operate, refer to the troubleshooting procedures in

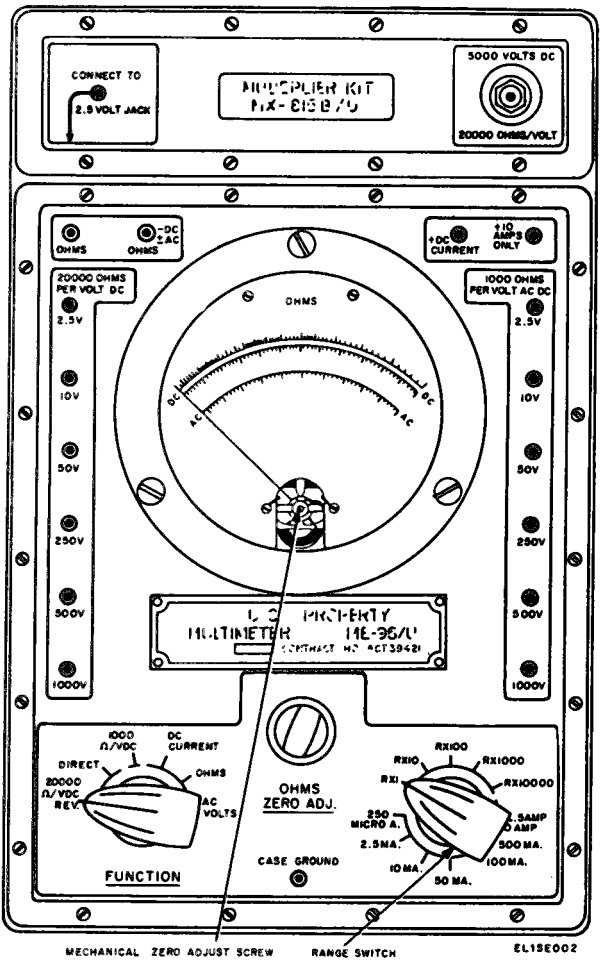

Figure 2-1. Panel control and jacks.

paragraph 3-6 and 3-7. Haphazard troubleshooting can damage the TS-352B/U.

2-3. Preliminary Operating Procedures

a. Battery Installation. To install the batteries in the multimeter (fig. 2-2), place the multimeter face down on a flat firm surface and proceed as follows:

(1) Loosen the retaining screws that hold the cover in place by turning the screws counterclockwise.

(2) Lift up and remove the cover. Place the cover so that the connection diagram on the inside of the cover (fig. 2-3) can be easily referred to in order to make the necessary connections.

(3) Connect three Dry Batteries BA-31 in series; use the connectors supplied. Install the batteries in the battery compartment, as indicated by the connection diagram on the battery compartment cover.

(4) Place Dry Battery BA-30 in the compartment provided so the spring makes contact with the bottom of the battery.

(5) Place the battery compartment cover on the bottom of the multimeter.

(6) Align the retaining screws with their proper holes.

(7) Hold the cover to prevent it from shifting, and secure the cover in position by turning

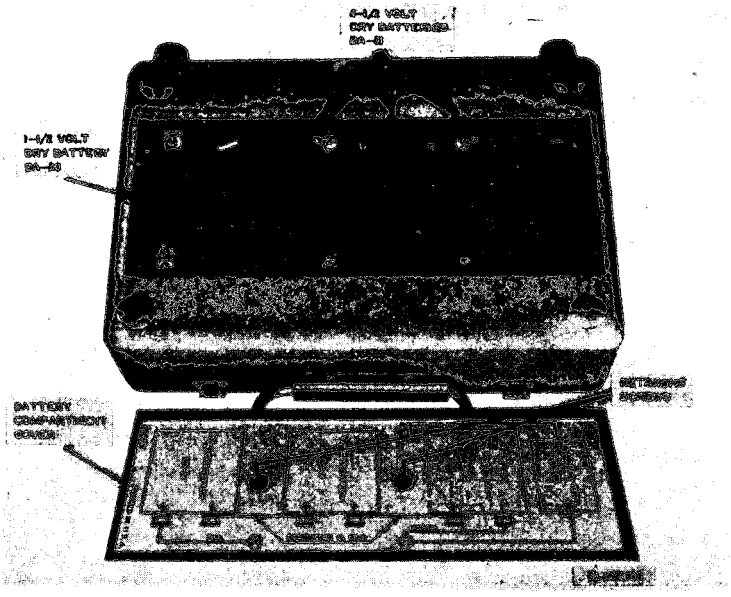

Figure 2-2. Battery compartment with batteries in position.

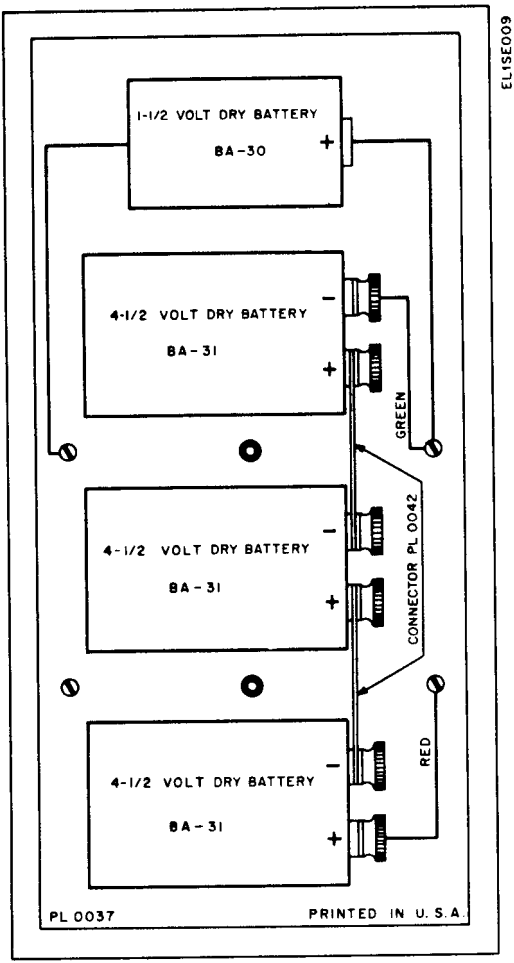

Figure 2-3. Battery connection diagram on inside compartment cover.

the retaining screws clockwise with a suitable screwdriver until tight.

b. Preliminary Starting Procedure. Before using the TS-352B/U, carefully read the operating instructions (para 2-4 through 2-7). For maximum accuracy in all measurements, use the range that will produce a meter indication as close to midscale as possible.

CAUTION

When measuring unknown voltage or current values, start at the highest range and reduce the range a step at a time until midscale deflection is obtained on the meter. Excessive voltage or current values that cause greater that full scale deflection can damage the meter.

NOTE

Before using the TS-352B/U, check the mechanical zero of the meter. If the meter pointer is not exactly over the zero line, reset by using the proper size screwdriver to adjust the small screw set into the glass of the meter face.

Refer to figure 2-1 for location of all controls and indicators.

2-4. Voltage Measurements

(Fig. 2-1)

a. 0 to 1,000 Volts Dc (20,000 Ohms Per Volt).

(1) Turn the FUNCTION switch to DIRECT.

(2) Plug the black test lead into the OHMS-DC±AC jack.

(3) Plug the red test lead into the appropriate range jack in the 20000 OHMS PER VOLT DC jacks column.

WARNING

If equipment under test has high voltage, be sure that the power is turned off while connecting the test lead prods. Connect the TS-352B/U CASE GROUND jack to the equipment ground or test bench ground as an added safety precaution. Failure to observe these precautions could result in serious injury, or death.

(4) Connect the black test lead prod to the chassis (ground) and the red test lead prod to the test point of the equipment under test.

(5) If the meter pointer goes off scale to the left, turn the FUNCTION switch to REV.

(6) Read the meter indication on the DC scale.

b. 0 to 5,000 Volts Dc (20, 000 Ohms Per Volt).

(1) Insert Cable Assembly, Special Purpose, Electrical CX-927/U (fig. 1-1) in the 5000 VOLTS DC 20000 OHMS/VOLT jack of Multiplier Kit MX-815B/U.

(2) Connect Cable Assembly, Special Purpose, Electrical CX-939/U (fig. 1-1) between the multiplier and the 20000 OHMS PER VOLT DC 2.5V jack of the TS-352B/U.

(3) Turn the FUNCTION switch to DIRECT.

(4) Plug the black test lead into the OHMS-DC±AC jack.

(5) Connect the black test lead prod to the chassis ground, and the clamp of Cable Assembly, Special Propose, Electrical CX-927/U to the test point of the equipment under test, and turn on the equipment.

(6) If the meter pointer goes off scale to the left, turn the FUNCTION switch to REV.

(7) Read the meter indication on the 0 to 5 DC scale.

c. 0 to 1,000 volts DC (1,000 Ohms Per volt.)

(1) Turn the FUNCTION switch to 1000 Ω/VDC.

(2) Plug the black test lead into the OHMS-DC±AC jack.

(3) Plug the red test lead into the appropriate 1000 OHMS PER VOLT AC DC jack.

(4) Connect the black test lead prod to the chassis (ground), and the red test lead prod to the test point of the equipment under test.

(5) If the meter goes off scale to the left, reverse the test lead prods.

(6) Read the meter indication on the DC scale.

d. 0 to 1,000 Volts Ac.

(1) Turn the FUNCTION switch to A C VOLTS.

(2) Plug the black test lead into the OHMS-DC±AC jack.

(3) Plug the red test lead into the appropriate 1000 OHMS PER VOLT AC DC jack.

(4) Connect the black test lead prod and the red test lead prod to the points in the circuit between which the voltage is to be measured.

(5) Read the meter indication on the A C scale.

2-5. Resistance Measurements

a. Multimeter Zero Adjusting. Zero adjust the multimeter before making resistance measurements. Each time the range switch is turned to a different resistance range, repeat the zero adjusting procedures as follows:

(1) Turn the FUNCTION switch to OHMS.

NOTE

Do not leave the FUNCTION switch in the OHMS position any longer than necessary to perform the resistance tests. Leaving the switch in this position will drain the batteries.

(2) Plug the black test lead into the OHMS-DC±AC jack.

(3) Plug the red test lead into the OHMS jack.

(4) Set the range switch to the desired position and touch the two test lead prods together.

(5) Turn the OHMS ZERO ADJ. knob until meter pointer appears directly over the 0 on the right side of the OHMS scale.

(6) Separate the test lead prods.

b. Measuring Resistance.

(1) Repeat procedures described in *a* (l), (2), and (3) above.

(2) If the approximate resistance of the circuit under test is known, turn the range switch to the appropriate resistance range and zero adjust the meter *(a* (4), (5), and (6) above).

(3) Connect the test prods across the resistance to be measured.

(4) Read the meter indication on the OHMS scale.

(5) If the resistance to be measured is unknown, proceed as follows:

(a) Set the range switch to RX10000.

(b) Connect the test prods across the unknown resistance.

(c) Turn the range switch counterclockwise, one range at a time, until the meter pointer stops close to midscale.

(6) Zero adjust the meter *(a* (4), (5), and (6)

above) and read the meter indication on the OHMS scale.

2-6. Direct Current Measurement

(fig. 1-1)

CAUTION

When measuring current, always connect the multimeter in series with the circuit under test. Be sure that the lead polarity is observed (black-negative and red-positive). Wrong connections may damage the multimeter. Do not measure more than 10 amperes.

a. Known Curret Measurement.

(1) Turn the FUNCTION switch to DC CURRENT.

(2) Plug the black test lead into the OHMS-DC±AC jack.

(3) If the current is known to be more than 2.5 amperes, but less than 10 amperes, plug the red test lead into the +10 AMPS ONLY jack and turn the range switch to the appropriate range.

(4) Connect the test lead prods to the points in the circuit in which the current is to be measured.

(5) Read the meter indication on the DC scale.

b. Unknown Current Measurement.

(1) Determine whether the current to be measured is 10 amperes or less.

(2) Turn the FUNCTION switch to DC CURRENT.

(3) Plug the black test lead into the OHMS-DC±AC jack.

(4) Plug the red test lead into the +10 AMPS ONLY jack and turn the range switch to 10 AMP.

(5) Connect the test lead prods (*a*(4) above) and read the meter indication on the DC scale.

(6) If the meter pointer indicates between 2.5 and 10 amperes, the range selection is correct; read the meter indication.

(7) If the meter pointer indicates less than 2.5 amperes, turn off the equipment under test and move the red test lead from the +10 AMPS ONLY jack to the +DC CURRENT jack. Do not change the range switch setting.

(8) Turn on the equipment under test and read the meter indication on the DC scale.

(9) If the meter pointer does not move close to midscale, turn the range switch clockwise, one range at a time, until a midscale meter indication is obtained.

2-7. Procedures for Testing Transistor Circuits

Test transistorized circuits as follows:

a. When measuring resistance, turn off or disconnect the power from the equipment under

test. Damage will result from any external voltages which are applied to the ohms circuit of the TS-352B/U.

b. If the equipment contains transistors, and does not have an isolation transformer in its power supply circuit, connect one in the power input circuit. A suitable transformer is identified by National stock No. 5950-00-256-1779.

c. Make connections carefully so that shorts will not be caused by exposed test prod or clip connections. Tape or sleeve (spaghetti) test prods or clips to leave a little exposed as needed to make contact to the circuit under test.

d. When the TS-352B/U is used for resistance measurements on transistorized equipment, use the RX100 range only. The negative lead of the ohmmeter circuit is connected to the positive side of the battery. The equipment battery (or its equivalent) is recommended as the source of power when servicing transistorized equipment. Observe battery polarity. Polarity reversal may damage the transistors or electrolytic capacitors in the circuit. If a battery eliminator is used in place of the battery, it must have good voltage regulation and low ac ripple. Good regulation is important because the output voltage of a battery eliminator with poor regulation may exceed the maximum voltage rating of the transistors in the equipment being tested. A battery eliminator with poor ac filtering will create a false indication

of poor filtering in the equipment being tested.

e. Turn off the transistorized equipment before switching the battery eliminator on or off. The transient voltages, created by switching the battery eliminator on and off, may exceed the punch-through rating of the transistors. Make sure that a normal load (such as a speaker for a receiver) is connected to the transistorized equipment before applying power.

f. Refer to the individual technical manual for the equipment being tested.

2-8. Shutdown and Storage Procedures

a. Shutdown Procedure.

(1) Remove all test leads and accessories from the jacks of the TS-352B/U and place them in the test leads and accessories compartment (fig. 1-1).

(2) Place the FUNCTION switch in the AC VOLTS position.

b. Storage.

(1) The original packing material may be used for repacking.

CAUTION

Do not leave batteries in battery compartment for an extended period of time. Corrosion of the batteries could lead to severe damage to the equipment.

(2) Pack the TS-352B/U securely to prevent damage during transit or limited storage. Use sufficient wadding. Protect the equipment from rain or snow.

CHAPTER 3
MAINTENANCE INSTRUCTIONS

Section I. PREVENTIVE MAINTENANCE CHECKS AND SERVICES

3-1. Preventive Maintenance

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

a. Systematic Care. The procedures given in paragraphs 3-3, 3-4, and 3-5 cover routine systematic care and cleaning essential to proper upkeep and operation of the equipment. Item numbers indicate the sequence of minimum inspection requirements.

b. Preventive Maintenance Checks and Services. The preventive maintenance checks and services charts (para 3-3 and 3-4) outline functions to be performed at specific intervals. These checks and services are designed to maintain Army equipment in a combat-serviceable condition; that is, in good general (physial) condition and in good operating condition. The charts indicate what to check, how to check, and the normal conditions. References included are to paragraphs that contain detailed repair or replace-

ment procedures. Defects discovered during operation of the test set will be noted for future correction, to be made as soon as operation has ceased. Operation will be stopped immediately if a deficiency is noted which would damage the equipment. If the defect cannot be remedied by the operator, higher category of maintenance or repair is required. Records and reports of these checks and services must be made in accordance with TM 38-750.

3-2. Preventive Maintenance Checks and Services Periods

Preventive maintenance checks and services of the TS-352B/U are required daily (only if the equipment is to be used that day) and weekly.

a. Paragraph 3-3 specifies the checks and services that must be performed every day that the equipment is used, and under the special conditions listed below:

(1) Before the TS-352B/U is taken on a mission.

(2) When the TS-352B/U is initially installed.

(3) When the TS-352B/U is reinstalled after removal for any reason.

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

b. Paragraph 3-4 specifies additional checks

and services that must be performed on a weekly basis.

3-3. Operator/Crew Daily Preventive Maintenance Checks and Services Chart

D—Daily
Time Requred: 0.16 M/H

W—Weekly
Time Required:

Interval and sequence No. D	Interval and sequence No. W	ITEM TO BE INSPECTED PROCEDURE	Worktime (M/H)
1		TS-352B/U Check equipment for completeness and general condition (para 1-8).	0.01
2		EXTERIOR SURFACES Clean exterior surfaces of the equipment (para 3-5).	0.10
3		EXTERNAL JACKS Inspect external jacks for breakage and for firm seating.	0.01
4		METER GLASS Inspect front panel glass window for damaged housing, broken glass, physical damage, dust, or moisture.	0.01
5		KNOBS, CONTROLS, AND SWITCHES During operation (sequence	0.02

Interval and sequence No.		ITEM TO BE INSPECTED PROCEDURE	Worktime (M/H)
D	W		
		No. 6), check knobs, controls, and switches for proper mechanical action. Action must be positive, without backlash, binding or scraping.	
6		OPERATION During operation, be alert for any abnormal indications.	0.01

3-4. Operator/Crew Weekly Preventive Maintenance Checks and Services Chart

D—Daily
Time Required:

W—Weekly
Time Required: 0.14

Interval and sequence No.		ITEM TO BE INSPECTED PROCEDURE	Worktime (M/H)
D	W		
	1	CABLES Inspect external cables for cuts, cracked or gouged jackets, fraying or kinks.	0.01

Interval and sequence No. D	Interval and sequence No. W	ITEM TO BE INSPECTED PROCEDURE	Worktime (M/H)
	2	HARDWARE Inspect all exterior hardware for looseness, and damage. The TS-352B/U cover, carrying handle, hinges, and all bolts and screws must be tight and not damaged.	0.02
	3	METAL SURFACES Inspect exposed metal surfaces for rust and and corrosion. If these conditions exist, refer to a higher maintenance category for repair.	0.01
	4	BATTERIES Inspect batteries for leakage, corrosion, and swelling. Replace batteries if any of these conditions exist (para 2-3a).	0.10

3-5. Cleaning.

Inspect the exterior of the TS-352B/U. The surfaces should be clean, and free of dust, dirt, grease, and fungus.

a. Remove dust and loose dirt with a soft, clean cloth.

WARNING

The fumes of trichloroethane are toxic. Provide thorough ventilation whenever used. DO NOT USE NEAR AN OPEN FLAME. Trichloroethane is not flammable but exposure of the fumes to an open flame or hot metal surface forms highly toxic phosgene gas.

b. Remove grease, fungus, and ground-in dirt from the case with a cloth dampened (not wet) with trichloroethane.

c. Remove dust or dirt from plugs and jacks with a soft brush.

CAUTION

Do not press on the METER FACE when cleaning. Damage to the equipment may result.

d. Clean the front panel, meter face, and controls; use a soft, clean cloth. If necessary, dampen the cloth with water or mild detergent for more effective cleaning.

Section II. TROUBLESHOOTING

3-6. General Troubleshooting Information

a. Troubleshooting this equipment is based on the operational check (para 2-1 through 2-5). To troubleshoot the equipment, perform all func-

tions of the TS-352B/U operation (para 2-1 through 2-5), and proceed with the functions until an abnormal condition or result is observed. Note the abnormal condition, or result, and refer to the troubleshooting chart (para 3-7). Perform the checks and corrective actions indicated in the troubleshooting chart. If the corrective measures indicated do not result in correction of the trouble, higher maintenance category repair is required. Paragraphs 2-2, 2-3, and 2-4 contain additional information and step-by-step instructions for performing equipment tests and adjustments to be used dining the troubleshooting procedures.

b. All possible malfunctions that may occur are not listed, nor all tests or inspections and corrective actions. If a malfunction is not listed (except when malfunction and cause are obvious) or is not corrected by listed corrective actions, notify your supervisor.

3-7. Troubleshooting Chart.

NOTE

Before using this chart, be sure all applicable operating checks have been performed.

Item No.	Trouble symptom	Probable trouble	Checks and corrective measures
1	Meter does not indicate (para 2-4, 2-5, and 2-6).	*a.* Corroded or dirty test lead.	*a.* Clean test lead prods.
		b. Open test leads.	*b.* Replace test leads.
		c. Defective meter.	*c.* Refer to a higher maintenance category.
2	Meter does not indicate within tolerance (para 2-4, 2-5, and 2-6).	*a.* Defective multiplier resistor or resistors.	*a.* Refer to a higher maintenance category
		b. Defective compensating network.	
		c. Defective meter shunt.	
3	Meter does not indicate on AC ranges (para 2-4*d*).	Defective rectifier.	Refer to a higher maintenance category.
4	Meter cannot be zero adjusted on RX1, RX10, RX100, and RX1000 ranges (para 2-5*a*).	Weak or defective Dry Battery BA-30 (1.5 volt).	Replace battery (para 2-3*a*).

5 Meter cannot be zero adjusted on RX10000 range (para 2-3*b*).	Weak or defective Dry Batteries BA-31 (4.5 volts each).	Replace batteries (para 2-3*a*).
6 Meter zero adjustment is erratic on all ranges, or a meter cannot be zero adjusted on any range (para 2-5*a*).	*a*. Poor connections on batteries *b*. Defective batteries. *c*. Defective test leads. *d*. Defective OHMS ZERO ADJ. potentiometer.	*a*. Clean and tighten the battery connectors. *b*. Replace batteries (para 2-3*a*). *c*. Replace test leads. *d*. Refer to higher maintenance category.

APPENDIX A
REFERENCES

Following is a list of applicable publications available to the operator of Multimeter TS-352B/U:

DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (Types 7, 8, and 9), Supply Bulletins, and Lubrication Orders.
DA Pam 310-7	US Army Index of Modification Work Orders.
SB 11-6	Dry Battery Supply Data.
TM 38-750	The Army Maintenance Management System (TAMMS).
TM 740-90-1	Administrative Storage of Equipment.
TM 750-244-2	Procedures for Destruction of Electronics Materiel to Prevent Enemy Use (Electronics Command).

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NG: State AG (3); Units—Same as Active Army except allowance is one copy per unit.

USAR: None

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

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