

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATION AND
ORGANIZATIONAL
MAINTENANCE

ELECTRICAL METER
TEST SET
TS-656/U

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

**ELECTRICAL METER TEST SET TS-656/U
OPERATION AND ORGANIZATIONAL MAINTENANCE**

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CHAPTER 1

INTRODUCTION

Section I. GENERAL

1. Scope

This manual describes Electrical Meter Test Set TS456/U and covers its installation, operation, and first and second echelon maintenance. It includes operation under usual conditions, instructions for cleaning and inspection of the equipment, and replacement of parts available to first and second echelons of maintenance.

2. Forms and Records

a. Unsatisfactory Equipment Reports

- (1) *For Army.* Fill out and forward DA Form 468 (Unsatisfactory Equipment Report) to the Commanding Officer, U.S. Army Signal Equipment Support Agency, Fort Monmouth, N.J., as prescribed in AR 700-38.
- (2) *For Air Force.* Fill out and forward AF TO Form 29 (Unsatisfactory Report) to the Commander, Air Materiel Command, Wright-Patterson Air Force Base, Ohio, as prescribed in AF TO 00-35D-54.

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); Navy Shipping Guide, Article 1850-4 (Navy); and AFR 714 (Air Force).

c. Preventive Maintenance Form. Prepare DA Form 11-266 (fig. 5) (Maintenance Check List for Signal Equipment (Test Equipment)), in accordance with instructions on the form.

d. Parts List Form. Forward DA Form 2028 (Recommended Changes to DA Technical Manual Parts Lists or Supply Manuals 7, 8, or 9) directly to the Commanding Officer, U.S. Army Signal Equipment Support Agency, Fort Monmouth, N.J., with comments on parts listings in the appendix.

e. Comments on Manual. Forward all other comments on this publication directly to the Commanding Officer, U.S. Army Signal Publications Agency, Fort Monmouth, N.J.

Section II. DESCRIPTION AND DATA

3. Purpose and Use

a. Purpose. Electrical Meter Test Set TS-656/U supplies accurately metered alternating current (ac) and direct current (dc) voltages and direct current outputs for testing meter movements.

b. Use. The TS-656/U is used to check the operation and accuracy of ac and dc ammeters and voltmeters. The meter to be tested is subjected to voltage or current comparable to that impressed on it during operating conditions. The TS-656/U may also be used as a general purpose laboratory power supply.

4. Technical Characteristics

Ac voltage ranges 0 to 2.5 volts; 0 to 5 volts; 0 to 10 volts; 0 to 25 volts; 0 to 50 volts; 0 to 100 volts; 0 to 250 volts; and 0 to 500 volts.

Dc voltage ranges 0 to 2.5 volts; 0 to 5 volts; 0 to 10 volts; 0 to 25 volts; 0 to 50 volts; 0 to 100 volts; 0 to 250 volts; and 0 to 500 volts.

Direct current ranges.... 0 to 100 ua; 0 to 250 ua; 0 to 500 ua ; 0 to 1 ma; 0 to 2.5 ma, 0 to 5 ma; 0 to 10 ma: 0 to 25 ma; 0 to 50 ma; 0 to 100 ma; 0 to 250 ma; 0 to 500 ma; and 0 to 1 amp.

Output:

Ac voltage ranges 250 ma maximum.

Dc voltage ranges:

0 to 2.5 volts

through 0 to 50

volts..... 50 ma maximum.

0 to 100 volts

through 0 to 500

volts..... 250 ma maximum.

Direct current

ranges..... 750 millivolts maximum.

Dc voltage range regulation:

0 to 2.5 volts through

0 to 50 volts..... 10 percent at 15 ma.

0 to 100 volts through

0 to 500 volts..... 2 percent at 15 ma.

Accuracy:

Ac voltage ranges:

50 ma load..... ± 2 1/2 percent from 55° to 95° F; ±4 1/2 percent at -4° and 125° F.

250 ma load..... ± 3 1/2 percent from 55° to 95° F.; ± 4 1/2 percent at -4° and 125° F.

Dc voltage ranges..... ± 2 percent from 55° to 95° F; ±3 percent at -4° and 125° F.

Direct current

ranges..... ± 2 percent from 55° to 95° F; ±3 percent at -4° and 125° F.

Meter:

Type Ruggedized, D'Arsonval movement.

Resistance 2,875 ohms (temperature compensated).

Sensitivity 100 microamperes dc at 287.5 mv.

Power requirements.. 120 volts ac, 60 cycles, 160 watts, single phase.

5. Components of Electrical Meter Test Set TS656/U (fig. 1)

Quantity	Item	Dimensions (in.) (lb)	Weight
1	Tester.....	17 3/4 x 14 1/4 x 11 3/4 ..	49
1	Test Lead Set CX-1331 /U.	48 lg.....	2.5 oz.
1 set	Running spares consisting of: Fuse* (1/4 ampere), 2 ea. Fuse* (5 ampere), 4 ea. Lamp (NE-51), 1 ea.		

*Stored in spare fuse holders.

6. Common Names

Nomenclature	Common name
Electrical Meter Test Set TS-656/U	Test set
Main component of TS-656/U	Tester
Test Lead Set CX-1331/U	Test leads

7. Description of Test Set

The test set (fig. 1) is a self-contained metered power supply. The major components of the test set are the tester and the test leads.

a. *Tester.* The front panel of the tester contains the controls, indicators, jacks, fuses, and spare fuses. When the equipment is not in use, it is protected by a detachable watertight cover.

b. *Test Leads.* The test leads consist of two 48-inch cables, one red and one black. Each cable is terminated at the ends by sharp-pointed test prods; one test prod is 4 1/2 inches long and the other 1 1/2 inches long. When not in use, the test leads are stored between the cover and the front panel of the tester.

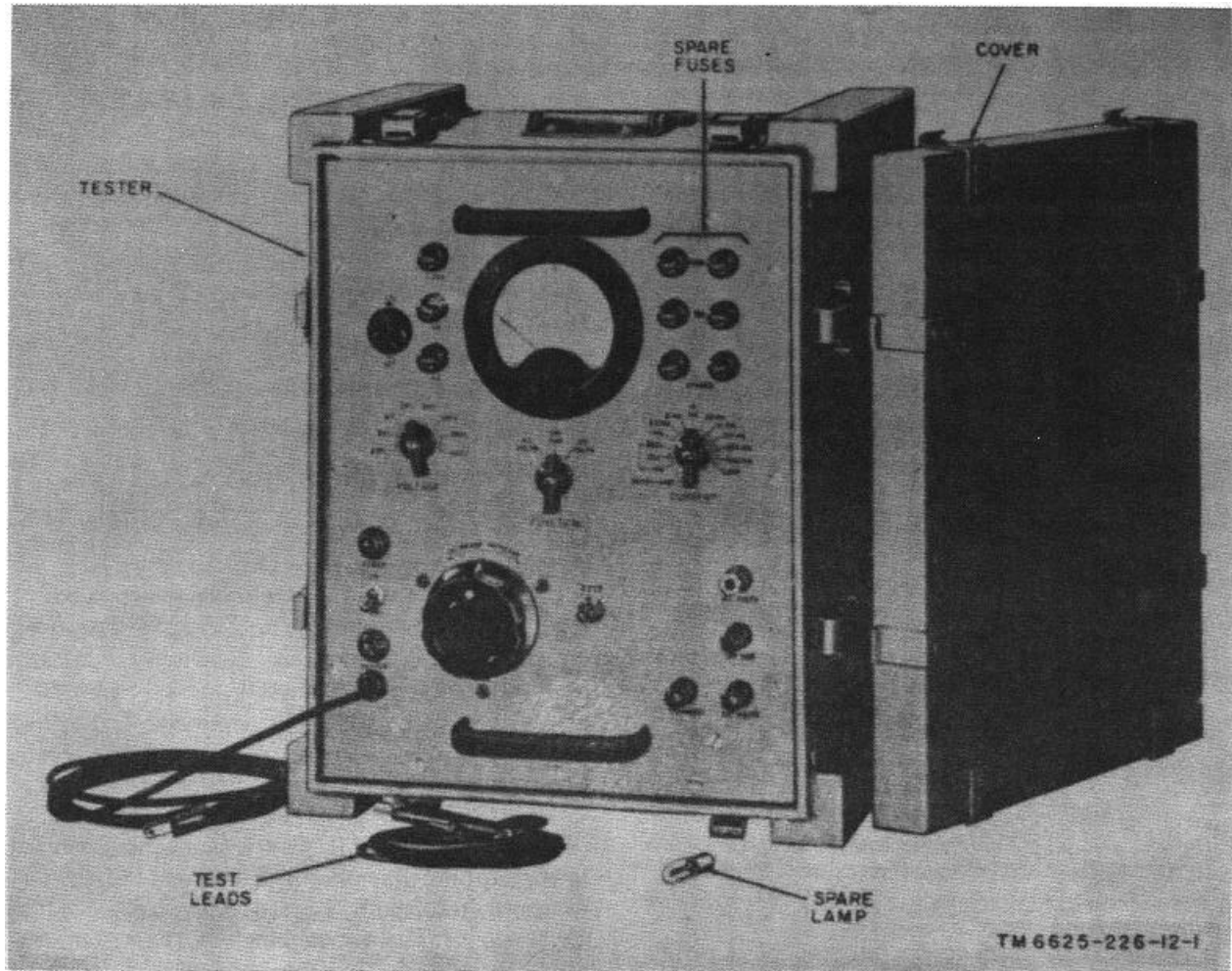


Figure 1. Electrical meter test TS-656/U.