

**TECHNICAL MANUAL**

**OPERATOR'S AND ORGANIZATIONAL MAINTENANCE MANUAL**

**INCLUDING REPAIR PARTS AND SPECIAL TOOLS LISTS**

**TELEPHONE  
TEST SET  
TS-716/U**

---

**HEADQUARTERS, DEPARTMENT OF THE ARMY**

**MAY 1971**

**Operator's and Organizational Maintenance Manual  
Including Repair Parts and Special Tools Lists  
TELEPHONE TEST SET TS-716/U**

CHAPTER			Paragraph	Page
1.		INTRODUCTION		
		Scope .....	1-1	1-1
		Indexes of equipment publications .....	1-2	1-1
Section	I.	General		
		Forms and records .....	1-3	1-1
	II.	Description and data.....		
		Purpose and use .....	1-4	1-2
		Technical characteristics .....	1-5	1-2
		Components and running spares of Telephone Test Set TS-7 16/U	1-6	1-3
		Description of TS-716/U .....	1-7	1-3
		Description of assemblies .....	1-8	1-3
CHAPTER	2.	OPERATION		
Section	I.	Service upon receipt of equipment		
		Unpacking.....	2-1	2-1
		Checking unpacked equipment .....	2-2	2-1
		Tools and test equipment required for installation.....	2-3	2-2
		Installation of fuses.....	2-4	2-3
		Connections.....	2-5	2-3
		Adjustments.....	2-6	2-3
		Damage from improper settings .....	2-7	2-4
	II.	Operator's controls and indicators		
		Telephone Test Set TS-716/U operating controls and indicators.	2-8	2-4
		Types of operation.....	2-9	2-7
	III.	Operation of Telephone Test Set TS716/U		
		Operating procedure.....	2-10	2-7
		Efficiency tests of complete telephone sets .....	2-11	2-8
		Telephone dial tests .....	2-12	2-9
		Line-Level and click suppression varistor tests .....	2-13	2-9
		Ringer tests .....	2-14	2-10
		Telephone hand generator test .....	2-15	2-10

			Paragraph	Page
		Frequency response and sensitivity tests.....	2-16	2-10
		Insulation resistance test.....	2-17	2-11
		Continuity test.....	2-18	2-11
		Stopping procedure.....	2-19	2-11
		Operation at low temperatures.....	2-20	2-12
SECTION	IV.	Operation under unusual conditions		
		Operation under tropical conditions.....	2-21	2-12
		Operation in desert climates.....	2-22	2-12
		Scope of operator maintenance.....	3-1	3-1
CHAPTER	3.	OPERATOR MAINTENANCE		
		Operator preventive maintenance.....	3-2	3-1
		Preventive maintenance checks and service periods.....	3-3	3-1
		Daily preventive maintenance checks and services chart.....	3-4	3-1
		Cleaning.....	3-5	3-4
		Scope of organizational maintenance.....	4-1	4-1
CHAPTER	4.	ORGANIZATIONAL MAINTENANCE		
		Weekly preventive maintenance checks and services chart.....	4-2	4-1
		Monthly preventive maintenance checks and services chart.....	4-3	4-3
		Touchup painting instructions.....	4-4	4-4
		Troubleshooting chart.....	4-5	4-4
		Repairs and adjustments.....	4-6	4-7
CHAPTER	5.	SHIPMENT, LIMITED STORAGE, AND DEMOLITION TO PREVENT ENEMY USE		
Section	I.	Shipment and limited storage		
		Disassembly of equipment.....	5-1	5-1
		Repacking for shipment or limited storage.....	5-2	5-1
	II.	Demolition of materiel to prevent enemy use		
		Authority for demolition.....	5-3	5-2
		Methods of destruction.....	5-4	5-2
APPENDIX	A.	REFERENCES.....		A-1
	B.	BASIC ISSUE ITEMS LIST.....		B-1
	C.	MAINTENANCE ALLOCATION.....		C-1
	D.	ORGANIZATIONAL MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST.....		D-1

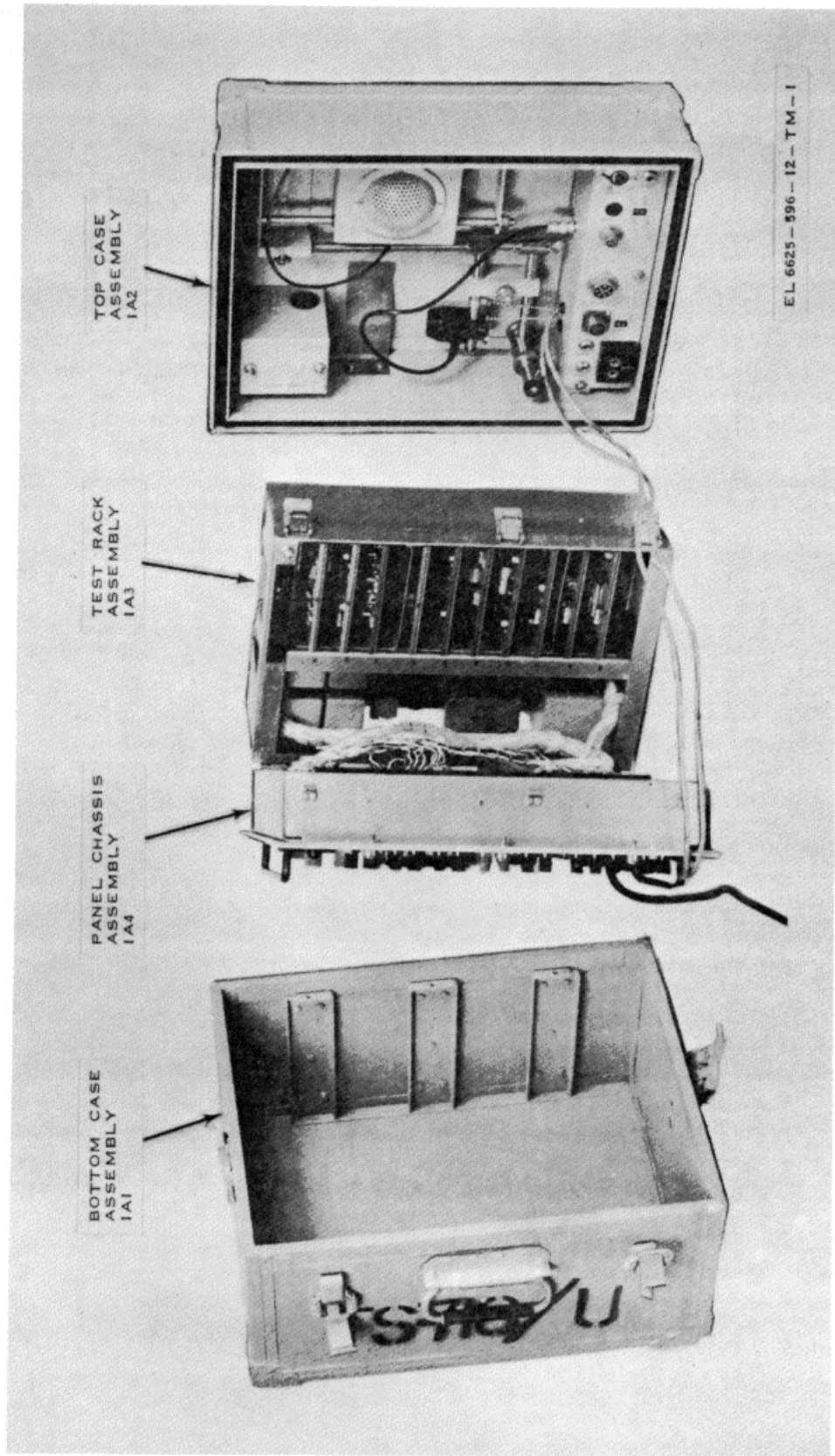


Figure 1-1. Telephone Test Set TS-716/U.

## CHAPTER 1

## INTRODUCTION

---

**Section I. GENERAL****1-1. Scope**

a. This manual describes Telephone Test Set TS-716/U (fig. 1-1), hereafter referred to as the TS-716/U, and provides instructions for installation, operation, and operator and organizational maintenance. It includes instructions for operation under usual and unusual conditions, cleaning and inspection of the equipment, and replacement of parts available to the operator and organizational repairman.

b. Other publications pertaining to this equipment are listed in appendix A.

**1-2. Indexes of Equipment Publications**

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

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

**1-3. Forms and Records**

a. Reports of Maintenance and Unsatisfactory Equipment. Use the equipment forms and records in accordance with instructions in TM 38-750. b. Report of Packaging and Handling Deficiencies. Fill out and forward DD Form 6 (Report of Packaging and Handling Deficiencies) as prescribed in AR 700-58 (Army)/NAVSUP Pub 378 (Navy)/ AFR 71-4 (Air Force)/ and MCO P4030.29 (Marine Corps).

c. Discrepancy in Shipment Report (DISREP) (SF 361). Fill out and forward Discrepancy in Shipment Report (DISREP) SF 316 as prescribed in AR 55-38 (Army)/NAVSUP Pub 459 (Navy)/AFM 75-34 (Air Force)/ and MCO P4610.19 (Marine Corps).

d. Reporting of Equipment Publication Improvements. The reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications) and forwarded direct to Commanding General, U.S. Army Electronics Command, ATTN: AMSEILME-NMP-EM, Fort Monmouth, N.J., 07703,

**Section II. DESCRIPTION AND DATA**

**1-4. Purpose and Use**

Telephone Test Set TS-716/U is a portable, self-calibrating, multipurpose instrument used to test and evaluate on a *good-* or *bad-* basis the electrical and acoustical performance of sound transducers. Satisfactory operation of the item being tested is indicated when the meter pointer reads within a good scale reading in the test being performed or listed in the table applicable to the test in TB 11-6625-596-12/1. Any other meter reading indicates unsatisfactory operation of the equipment under test. All tests are evaluated on a good or bad basis, except the tests for ringers, hand generators, insulation resistance, and continuity. The TS-716/U performs the following tests:

- a. Transmit and receive efficiency tests of complete telephone sets.
- b. Speed and percent break of telephone dials.
- c. Test of line-level and click suppression varistors.
- d. Test of ringers.
- e. Test of telephone hand generators.
- f. Frequency response and sensitivity tests of earphones, carbon and dynamic microphones, sound-powered telephones, and special-purpose narrow-band transducers.
- g. Test of insulation resistance.
- H Continuity checks of circuit wiring.

**1-5. Technical Characteristics**

*a. Electrical*

Inputs:

Telephone line..... Common battery.  
                                   Common battery signal.  
                                   Local battery.

Earphone ..... 15-, 125-, 300-, 1,000-, and 8,000-ohm loads.  
 Microphone ..... 4-, 20-, 40-, 100-, 150-, 1,000-, and 50,000-ohm loads.

Outputs:

Continuity test terminals ..... 6 volts ac open circuit.  
 Telephone line terminals ..... 24 volts dc (common battery-common battery signal only).  
                                   20 hertz up to 100 volts peak-to-peak for ringer and insulation resistance tests.  
                                   Test signal, white noise, +3 db, 100 to 8,000 hertz.  
 Carbon microphone terminals ..... 0-24 volts dc.  
 Noise generator terminals ..... Test signal, 0-8 volts rms, depending on setting of NOISE GENERATOR control, with 35-ohm load across terminals.  
 Line-voltage input ..... 115 or 230 volts, 60 hertz.  
 Power consumption ..... 35 watts

*b. Acoustical.*

Test microphone:

Impedance ..... 7 ohms.  
 Sensitivity ..... 7.5 Mv/dyne/cm<sup>2</sup>  
 Frequency response ..... 300 to 5,100 hertz ±3 db.

Test loudspeaker:

Impedance ..... 25 ohms.  
 Sensitivity ..... 90 db referred to 0.0002 dyne/cm<sup>2</sup> with 10 mw input at 1,000 hertz.