TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL, DIRECT

SUPPORT, AND GENERAL SUPPORT

MAINTENANCE MANUAL

OHMMETER ZM-21/U

(NSN 5950-00-645-2191),

OHMMETER ZM-21A/U

(NSN 6625-00-643-1030),

AND

OHMMETER ZM-21B/U

(NSN 6625-00-581-2466)

HEADQUARTERS, DEPARTMENT OF THE ARMY

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REPORTING OF ERRORS

You can improve this manual by recommending improvements using DA Form 2028-2 (Test) located in the back of the manual. Simply tear out the self-addressed form, fill it out as shown on the sample, fold it where shown, and drop it in the mail.

If there are no blank DA Form 2028-2 (Test) forms in the back of your manual, use the standard DA Form 2028 (Recommended Changes to Publications and Blank Forms) and forward to the Commander, US Army Electronics Command, ATTN: DRSEL-MA-Q, Fort Monmouth, NJ 07703.

In either case, a reply will be furnished direct to you.

***This manual supersedes so much of TM 11-2050, 1 November 1954, including all changes, as pertains to Ohmmeter ZM-21A/U.**

LIST OF ILLUSTRATIONS

Figure 1-1. Ohmmeter ZM-21B/U.

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope

a. This manual describes Ohmmeter ZM-21/U, ZM-21A/U, and ZM-21B/U (ZM-21 (*)/U) and its operation, functioning; and operator, organizational, and general support maintenance. There is no direct support maintenance authorized for this equipment.

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

c. The maintenance allocation Chart (MAC) appears in appendix C.

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 this equipment.

b. DA Pam 310-7. Refer to DA Pam 310-7 to determine whether there are modification work orders (MWOs) pertaining to this 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 Deficiencies. 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) (SF361). 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

For procedures, forms, records, and inspections required during administrative storage of this equipment, refer to TM 740-90-1.

1-5. Destruction of Army Materiel

Demolition and destruction of electronic equipment will be under the direction of the commander and in accordance with TM 750-244-2.

Section II. DESCRIPTION AND DATA

1-6. Description

a. Ohmmeter ZM-21/U, ZM-21A/U, and ZM-21B/U (fig. 1-1) are a self-contained, portable, constant-voltage, insulation-resistance measuring sets (hereinafter referred to as ohmmeter). Figure 1-1 illustrates ZM-21B/U, all other models are similar in outward appearances. The ohmmeter consists of a high-range ohmmeter of special design, a hand-operated, direct current (dc) generator, a controller (controller in ZM-21A and ZM-21B only), and a resistance network housed in a bakelite case. Three terminals are provided for external connections. On the top is a handle and a hinged protective cover for the meter window glass. Printed on the back of the hinged protective cover are condensed instructions for operation.

b. The test leads that come with the ohmmeter are six feet long with spade clips at one end and spring clips at the other end. The spring clips are covered with rubber covers, one black and one red.

c. The carrying case is a gray, enamel-painted metal box (ZM-21/U and ZM-21A/U) with a webbed carrying strap and two latches the carrying case for the ZM-21B/U is made of plastic.

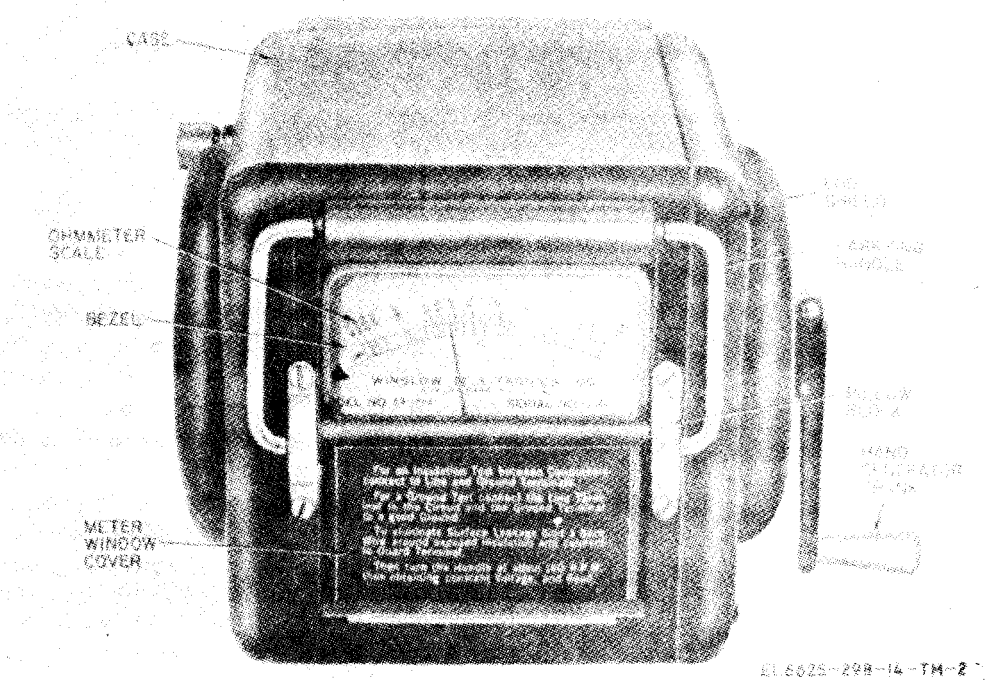

Figure 1-2. Ohmmeter ZM-21(*)/U, exterior view.

1-7. Purpose and Use

a. Ohmmeter (fig. 1-2) is used to determine the insulation condition of telephone cables, of transformers, between windings and ground of rotating equipment, and of all other types of electrical equipment for which insulation resistance is an important factor.

b. The ohmmeter applies a high potential to equipment under test in order to detect low insulation resistance which may not indicate satisfactorily on a low potential ohmmeter.

c. Regular use of the ohmmeter can minimize failure in circuits or equipment caused by faulty insulation. A sudden lowering of insulation resistance indicates a fault that should be investigated immediately.

1-8. Tabulated Data

Resistance range . . . . . 0 through 1,000 megohms.
Test potential..... 500 volts dc ±5 percent (when measuring values below 2 megohms, the voltage drops materially).
Accuracy . . . . Within 1 percent of any cardinal calibration point.

NOTE

Insulation resistance above 1,000 megohms is indicated by a point marked infinity (∞) on the meter scale.

1-9. Items Comprising an Operable Ohmmeter ZM-21(*)/U

Refer to table 1-1 for items comprising an operable Ohmmeter ZM-21(*)/U.

Table 1-1. Items Comprising an Operable Ohmmeter ZM-21(*)/U

Qty	Item	Dimensions (in.)			Weight	Volume (cu. ft)
		Length	Height	Width		
1	Ohmmeter ZM-21(*)/U	7½	6	7¼	10.7	0.2
1	Carrying case	10	7	8½	5.5	0.34
1	Cord CD-478 (black)	72	.....	.....	0.11	
1	Cord CD-478 (red)	72	.....	.....	0.11	