

TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL,

DIRECT SUPPORT,

AND

GENERAL SUPPORT MAINTENANCE MANUAL

MULTIMETER AN/USM-451

(NSN 6625-01-060-6804)

This copy is a reprint which includes current
pages from Changes 1 and 2.

HEADQUARTERS, DEPARTMENT OF THE ARMY

AUGUST 1979

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REPORTING ERRORS
AND
RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in back of this manual direct to Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: DRSEL-ME-MP, Fort Monmouth, New Jersey 07703. A reply will be furnished to you.

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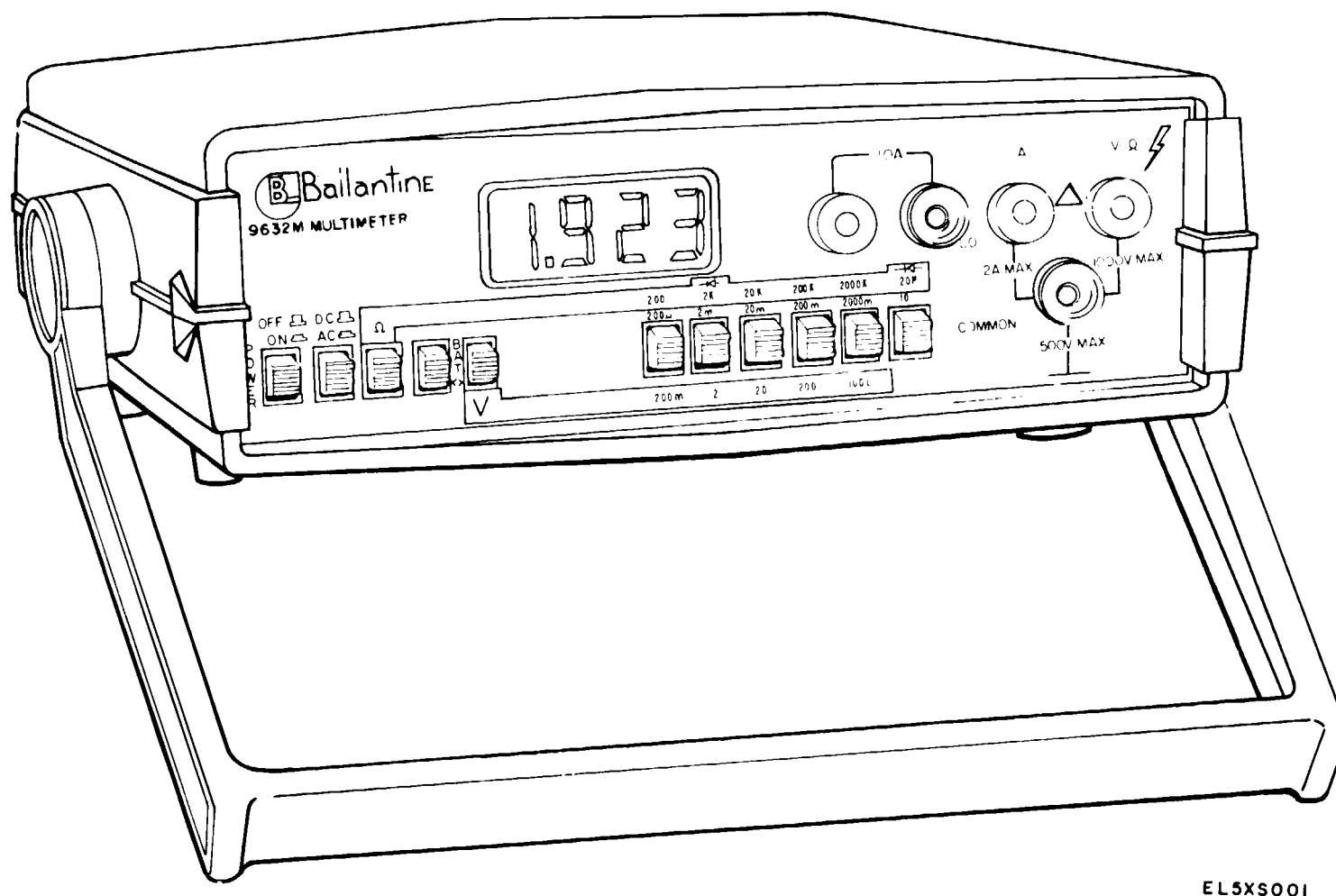
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Figure 1-1. Multimeter, AN/USM-451

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope.

a. This manual describes Multimeter, AN/USM-451 (fig. 1-1) and provides instructions for operation, organizational maintenance, and general support (GS) maintenance. It includes a maintenance allocation chart (appx. D.) Instructions are provided for the operator and organizational technician for operation and preventive maintenance. Circuit functioning is included for general support maintenance, together with instructions appropriate to these categories of maintenance for troubleshooting, testing, adjusting, aligning, and repairing the equipment and replacing maintenance parts.

b. No direct support maintenance is authorized.

1-2. Consolidated Index of Army Publications and Blank Forms

Refer to the latest issue of DA Pam 310-1 to determine whether there are new editions, changes or additional publications pertaining to the equipment.

1-3. Reports of Maintenance Forms, Records, and Reports

a. Reports of Maintenance and Unsatisfactory Equipment. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, The Army Maintenance Management System (TAMMS).

b. Report of Packaging and Handling Deficiencies. Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/NAVMATINST 4355.73 A/AFR 400-54/MCO 4430.3F.

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 4610.33C/AFR 75-18/MCO P4610.19D/DLAR 4500.15.

1-4. Administrative Storage.

Refer to Chapter 5 for administrative instructions,

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.

1-6. Reporting Equipment Improvement Recommendations (EIR)

If your equipment needs improvement, let us know. Send us an EIR. You, the user are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Put it on on SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: DRSEL-ME-MP, Fort Monmouth, New Jersey 07703. We'll send you a reply.

Section II. DESCRIPTION AND DATA

1-7. Description.

a. This manual provides operation and maintenance instructions for Multimeter AN/USM-451 manufactured by Ballantine Laboratories, Inc., Boonton, New Jersey. This multimeter is also identified as Ballantine Model 9632M; however, only the government assigned nomenclature is used in this manual. The term "multimeter" is used interchangeably in the text as a common name reference to Multimeter AN/USM-451.

b. The AN/USM-451 is a compact, portable, light weight 3-1/2 digit multi meter incorporating push button selection of six functions; Volts DC, Volts AC, Amperes DC, Amperes AC, Ohms and a Battery Test. It has a daylight viewing liquid crystal display with easy to read 0.5 inch (13mm) high numerals. Readout is automatic for polarity and decimal point position. Full scale resolution is plus or minus 1999 digits and overrange is indicated by all digits except the most significant "1" being blanked. Zero drift is prevented by an auto-zero circuit, particularly useful for low level and downscale measurements. Overload protection is provided on all ranges by electronic limiters. Current ranges are protected by a replaceable fuse.

c. The instrument features battery power from two "D" cells that provide more than 200 hours of operation. A battery test mode permits a measure of remaining battery life.

NOTE

The battery test mode does not check the condition of the four re-chargeable Nickel Cadmium "D" cells that provide power for the Liquid Crystal Display (LCD) heater. (Optional Heater Battery Pack)

d. Push button controls permit the selection of all functions and ranges. The measurement capabilities include 28 ranges and battery test.

e. The AN/USM-451 is well suited for demanding environments. It includes protection against electromagnetic interference, 5°F to 131°F operation, extended humidity exposure as well as reliability under vibration and shock. The rugged plastic case is completely coated on the interior surfaces with a conducting material which provides full electrical shielding.

f. The AN/USM-451 case is provided with a carry handle that also serves as a tilt stand. To change the position of the handle, simply pull one side of the handle at a time outward from the case to disengage the detent mechanism; then, rotate the handle to the desired position, push the handle back toward the case and rotate slightly until it detents in place. The handle may be detached by first removing the decorative discs from each of the handle bearing sections. Then remove the retaining screws, washers and spring in each handle bearing and snap the handle out of the sockets in the plastic side sections.

NOTE

Some instruments are not equipped with the spring type handle retaining mechanisms. For these units, remove the handle by carefully holding the instrument and pulling both sides of the handle away from the case until each side has snapped out and the handle is separated from the case.

1-8. Tabulated Data.

a. Electrical.

The electrical specifications apply over the following reference environment:

Temperature 68°F to 86°F

Humidity to 90% relative humidity (R.H.)