

TECHNICAL MANUAL
OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT,
AND GENERAL SUPPORT MAINTENANCE MANUAL
INCLUDING REPAIR PARTS
FOR
SUPPORT MAINTENANCE GUIDED MISSILE
SYSTEM SHOP EQUIPMENT AN/TSM-96:
DIGITAL MULTIMETER,
FLUKE MODEL 8375A/CF
NSN 4935-01-084-1426

CHAPARRAL AIR DEFENSE GUIDED MISSILE SYSTEM

DEPARTMENT OF THE ARMY

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**OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT, AND
GENERAL SUPPORT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LISTS)
FOR
SUPPORT MAINTENANCE GUIDED MISSILE SYSTEM
SHOP EQUIPMENT AN/TSM-96:
DIGITAL MULTIMETER, FLUKE MODEL 8375A/CF
(NSN 6625-00-908-8790)**

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 the back of this manual directly to Commander, US Army Missile Command, ATTN: DRSMI-SNPM, Redstone Arsenal, Alabama 35898. A reply will be furnished to you.

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This manual is an authentication of the manufacturer's commercial literature which, through usage, has been found to cover the data required to operate and maintain this equipment. Since the manual was not prepared in accordance with military specifications, the format has not been structured to consider levels of maintenance.

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Section O. INTRODUCTION

0-1. Scope. This manual contains instructions for the operation and organizational, direct support and general support maintenance of Digital Voltmeter, Fluke Model 8375A/CF. Throughout this manual, Digital Voltmeter, Fluke Model 8375A/CF is referred to as the 8375A.

0-2. 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 (MWO's) pertaining to the equipment.

0-3. 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.

b. Report of Packaging and Handling Deficiencies. Fill out and forward DD Form 6 (Packaging Improvement Report) as prescribed in AR 735-11-2/NAVSUPINST 4440.127E/AFR 400-54/MCO 4430.3E and DSAR 4140.55.

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

0-4. Reporting Equipment Improvement Recommendations (EIR). If your 8375A 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. Tell us why a procedure is hard to perform. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Missile Command, ATTN: DRSMI-SNEM, Redstone Arsenal, Alabama 35898. We'll send you a reply.

0-5. Administrative Storage. To prepare the 8375A for administrative storage, perform the procedures described in Section 4, Maintenance and Calibration. Upon removal from administrative storage, perform the procedures described in Section 4, Maintenance and Calibration, to determine that the equipment is fully operational.

0-6. Destruction of Army Electronics Materiel.

Destruction of Army electronics materiel to prevent enemy use shall be in accordance with TM 9-1425-585-14.

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Section 1

Introduction & Specifications

1-1. INTRODUCTION

1-2. The Model 8375A is a versatile digital multimeter with five full decades of digits plus a sixth digit for 20% overrange. The instrument offers five ranges of dc voltage measurement including autorange, autopolarity, and switchable active filtering. Four ranges of true rms ac voltage measurement and seven ranges of resistance measurement are also included.

1-3. Fluke's Recirculating-Remainder A/D conversion technique is used in the 8375A. This conversion circuitry periodically samples the input and serially digitizes the sample, providing a reliable instrument with high long-term accuracy and linearity plus superior environmental characteristics.

1-4. DC voltages are measured on five ranges with up to one microvolt of resolution. Overranging of 20% with 1100 volt overload capability further characterizes these ranges. A non-blinking readout contains an in-line readout tube display showing polarity, overrange digit, and five full decades of digits followed by a lighted function annunciator. The speed at which the readout updates is controlled by a sample rate control.

1-5. True-rms ac voltages to 1100 volts are measured on four ranges over a frequency domain of 10 Hz to 100 kHz with up to 10 microvolts resolution. Also, proper measurement of waveforms with high distortion and high crest factor characteristics can be made with this true-rms converter.

1-6. True four-terminal resistance measurements on the 10-ohm through 10K-ohm ranges are made with low power dissipation in the unknown resistor. The instrument autoranges through all resistance ranges, from 10 ohms to 10 megaohms, with up to 100 microohms resolution.

1-7. Pushbutton selection, 1000-volt guarding, full autoranging, instantaneous auto-polarity, and calibration of all functions through the top guard cover are standard features of the 8375A.

1-8. Isolated four-terminal DC/DC ratios are measured in real time via the DC External Reference option. The Reference input LO terminal may be elevated by as much as +13V from the input LO terminal without loss of ratio accuracy. Furthermore, the standard reference voltage span of +IV to +10.5V permits measurement of ratios from a wide number of sources. Special reference voltage ranges are available on request.

1-9. Isolated Data Output and Isolated Remote Control options use guarded toroids to transfer data and commands to and from the 8375A with no degradation of common-mode rejection specifications. These options are also DTL/TTL compatible and are designed to permit multiplexing of several 8375A's on common sets of control and data output lines. Moreover, they are buffered to prevent interaction between the DMM and the acquisition/control devices.

1-10. External Triggering of the 8375A is accomplished via its Data Output Unit, and resulting data may be acquired fully in parallel BCD format or serially by character in multiples of four bits. A single control line enables automatic time delays that allow for full settling of the analog input prior to digitization of the data transferred. Five flags provide continuous measurement status information for the acquisition device.

1-11. Remote Control is exerted by contact closures or logic levels. The 8375A's Control Command Storage feature permits the 8375A to latch on commands, which may be later removed from inputs while the 8375A retains the commanded function and range in internal memory.