

TM 9-6625-2801-14&P

TECHNICAL MANUAL

**OPERATOR'S, ORGANIZATIONAL,
DIRECT SUPPORT, AND GENERAL SUPPORT
MAINTENANCE MANUAL (INCLUDING MAINTENANCE REPAIR PARTS LIST)
FOR**

TEST SET, ELECTRICAL

TEKTRONIX TYPE 1502-1

NSN 6625-04-084-3855

TEKTRONIX, INC.

HEADQUARTERS, DEPARTMENT OF THE ARMY

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REPORTING OF ERRORS

You can help improve this manual. If you find any mistake or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publication and Blank Forms) , or DA Form 2028-2 located in the back of this manual direct to: Commander, U.S. Army Armament Materiel Readiness Command, ATTN: DRSAR-MAS , Rock Island, IL 61299. A reply will be furnished to you.

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*NOTE

Throughout the text, this is referred to as a Time Domain Reflectometer or a TDR. This is in lieu of the authorized Federal nomenclature.

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This technical manual is an authentication of the manufacturers' commercial literature and does not conform with the format and content specified in AR 310-3, Military Publications. This technical manual does, however, contain available information that is essential to the operation and maintenance of the equipment.

INSTRUCTIONS FOR REQUISITIONING PARTS

NOT IDENTIFIED BY NSN

When requisitioning parts not identified by National Stock Number, it is mandatory that the following information be furnished the supply officer.

- 1 - Manufacturer's Federal Supply Code Number - 80009
- 2 - Manufacturer's Part Number exactly as listed herein.
- 3 - Nomenclature exactly as listed herein, including dimensions, if necessary.
- 4 - Manufacturer's Model Number. Tektronix Type 1502-1
- 5 - Manufacturer's Serial Number (End Item)
- 6 - Any other information such as Type, Frame Number, and Electrical Characteristics, if applicable.
- 7 - If DD Form 1348 is used, fill in all blocks except 4, 5, 6, and Remarks field in accordance with AR 725-50.

Complete Form as Follows:

- (a) In blocks 4, 5, and 6, list manufacturer's Federal Supply Code Number - 80009, followed by a colon and manufacturer's Part Number for the repair part.

- (b) Complete Remarks field as follows:

Noun: (nomenclature of repair part)

For: NSN: 6625-01-084-3855

Manufacturer: Tektronix, Inc.

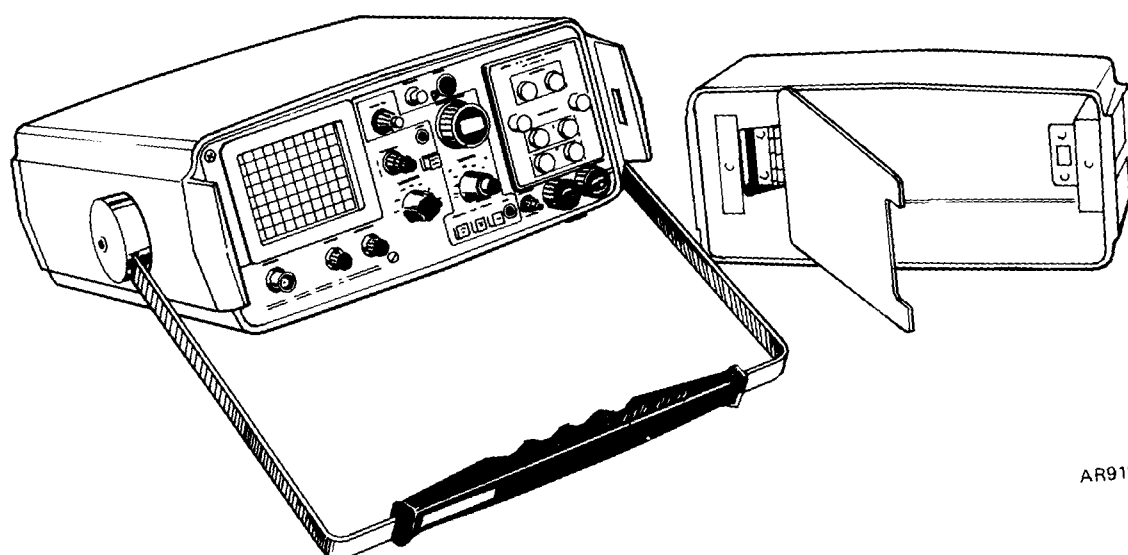
P.O. Box 500

Beaverton, Oregon 97005

Model: 1502-1

Serial: (of end item)

Any other pertinent information such as Frame Number, Type, Dimensions, etc.



AR918051

Figure 1-1. Time domain reflectometer, Tektronix1502-1, cover removed

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope.

a. Purpose. The purpose of this manual is to provide information and instruction for the direct support maintenance of the Time Domain Reflectometer, Tektronix 1502.1 (hereafter referred to as the TDR) including accessory equipment and external test cable assemblies (see figure 1-1),

b. Content Summary. This manual contains the following information:

- (1) A description of the equipment.
- (2) Corrective and preventive maintenance instructions.
- (3) Checkout procedures.
- (4) Repair instructions.
- (5) Shipment and storage procedures.
- (6) References to all related publications (appendix A).
- (7) Maintenance allocation chart

defining maintenance level responsibilities (appendix B).

(8) Maintenance repair parts list (appendix C).

1-2. Forms and Records. Refer to TM 38-750 for instructions on the use of appropriate forms, records and reports.

1-3. Calibration. Calibration procedures for the TDR are provided in Technical Bulletin TB 11-6625-2860-35.

1-4. Destruction of Material to Prevent Enemy Use. For information on destruction of materiel to prevent enemy use refer to TM 750-244-2.

1-5. Reporting Equipment Improvement Recommendations (EIR). EIR's will be prepared using SF 368, Quality Deficiency Report (QDR). Instructions for preparing EIR's are provided in TM 38-750, The Army Maintenance Management System (TAMMS). EIR's should be mailed directly to Commander, U.S. Army Armament Materiel Readiness Command, Attention: DRSAR-MA0, Rock Island, IL 61299. A reply will be furnished directly to you.

Section II. DESCRIPTION AND DATA

1-6. Description.

a. General. The Tektronix 1502-1 is a portable Time Domain Reflectometer which uses radar principles to test cables and provides a visual display of cable faults. The test pulses are transmitted via the CABLE output jack. Reflections are received at the same jack and displayed on the cathode-ray tube (crt).

Calibrated distance controls allow an operator to examine up to 100 feet of cable with segments as small as 1 foot displayed horizontally across the 10-division crt screen. Low-loss cables as long as 2000 feet may be examined at 100 feet per division or 200 feet per division. The horizontal crt scale is calibrated directly in distance units from 0. 1 foot per division to 200 feet per division in a 1-2-5 sequence.

A 3-digit, direct reading dial indicates the distance to any cable discontinuity when the dial is used to horizontally position the discontinuity's reflection to a crt reference line.

b. Description.

(1) Main case. The TDR is a ruggedized portable instrument that can be used in the field as well as in the laboratory. The requirements for a Type II, Class 2, Style A instrument as specified in MIL-T-28800 were used as a guideline for the environmental specifications. The TDR has a ruggedized case that provides protection when the instrument is stored in exposed areas.

(2) Accessories. When the instrument is not being used, the accessories, including the Operators manual, may be packed in the front of the instrument. Table 1-1 indicates which accessories may be placed in the cover of the TDR.

Table 1-1. TDR Accessories Storage

Accessories Stored in Cover	
Accessories	Tektronix parts number
1 50 Ω BNC Terminator	011-0123-00
1 Precision 50 Ω Cable	012-0482-00
1 Viewing Hood	016-0297-00
1 Operators Manual	070-1790-00
1 BNC Connector Female-to-Female	103-0028-00
2 Replacement Fuses (for front panel) For 115 Vac Operation or For 230 Vac Operation (Option 6)	159-0029-00 159-0054-00
1 Power Cord	161-0066-00
1 Filter, Mesh (crt)	378-0055-00

Accessories Not Stored in Cover

Accessory	Tektronix part number
1 TDR Slide Rule	003-0700-00
1 TDR Application Note #1	062-1538-00
1 X-Y Output Module	016-0606-00
1 Instruction Manual	070-1792-00

1-7. Tabulated Data. The characteristics given in table 1-2 apply after the instrument has been calibrated and will perform to the requirements given in Chapter 5.

Table 1-2. Tabulated Data System

Characteristics	Performance
Termination	50 Ω within $\pm 2\%$.
Pulse Amplitude Into 50 Ω Load	225 mV Nominal.
Vertical System	
Deflection Factor (7 steps, 1-2-5 sequence)	5 m ρ /div to 500 m ρ /div.
Accuracy	Within $\pm 3\%$.
Gain (screwdriver control)	At least 3.5:1 from calibrated point.
Displayed Noise	± 5 m ρ or less, NOISE FILTER switch "Out".
Low Noise Operation	± 2 m ρ or less, NOISE FILTER switch "In".
Horizontal System	
Distance Controls	0 to 2000 feet total.