

TECHNICAL MANUAL

**OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT,
AND GENERAL SUPPORT MAINTENANCE MANUAL
INCLUDING REPAIR PARTS AND SPECIAL TOOLS LISTS
FOR
OSCILLOSCOPE, TEKTRONIX MODEL R7704
(NSN 6625-00-007-8487)**

HEADQUARTERS, DEPARTMENT OF THE ARMY

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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 and Electronics Materiel Readiness Command, ATTN: DRSEL-ME-MQ, Fort Monmouth, NJ 07703.
In either case, a reply will be furnished direct 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 0 INTRODUCTION

0-1. Scope

This manual contains instructions for the operation and organizational, direct support, and general support maintenance of Oscilloscope, Tektronix Model R7704. Throughout this manual, Oscilloscope, Tektronix Model R7704 is referred to as the R7704.

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. 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.

b. Report of Packaging and Handling Deficiencies. Fill out and forward DD Form 6 (Packaging Improvement Report) as prescribed in AR 735-11/NAVINST 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 R7704 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 Communications and Electronics Materiel Readiness Command, ATT'N: DRSEL-ME-MQ, Fort Monmouth, NJ 07703. We'll send you a reply.

0-5. Administrative Storage

To prepare the R7704 for administrative storage, perform the procedures described in Section 4, Maintenance, and Section 5, Performance Check/Calibration. Upon removal from administrative storage, perform the procedures described in Section 5, Performance Check/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 750-244-2.

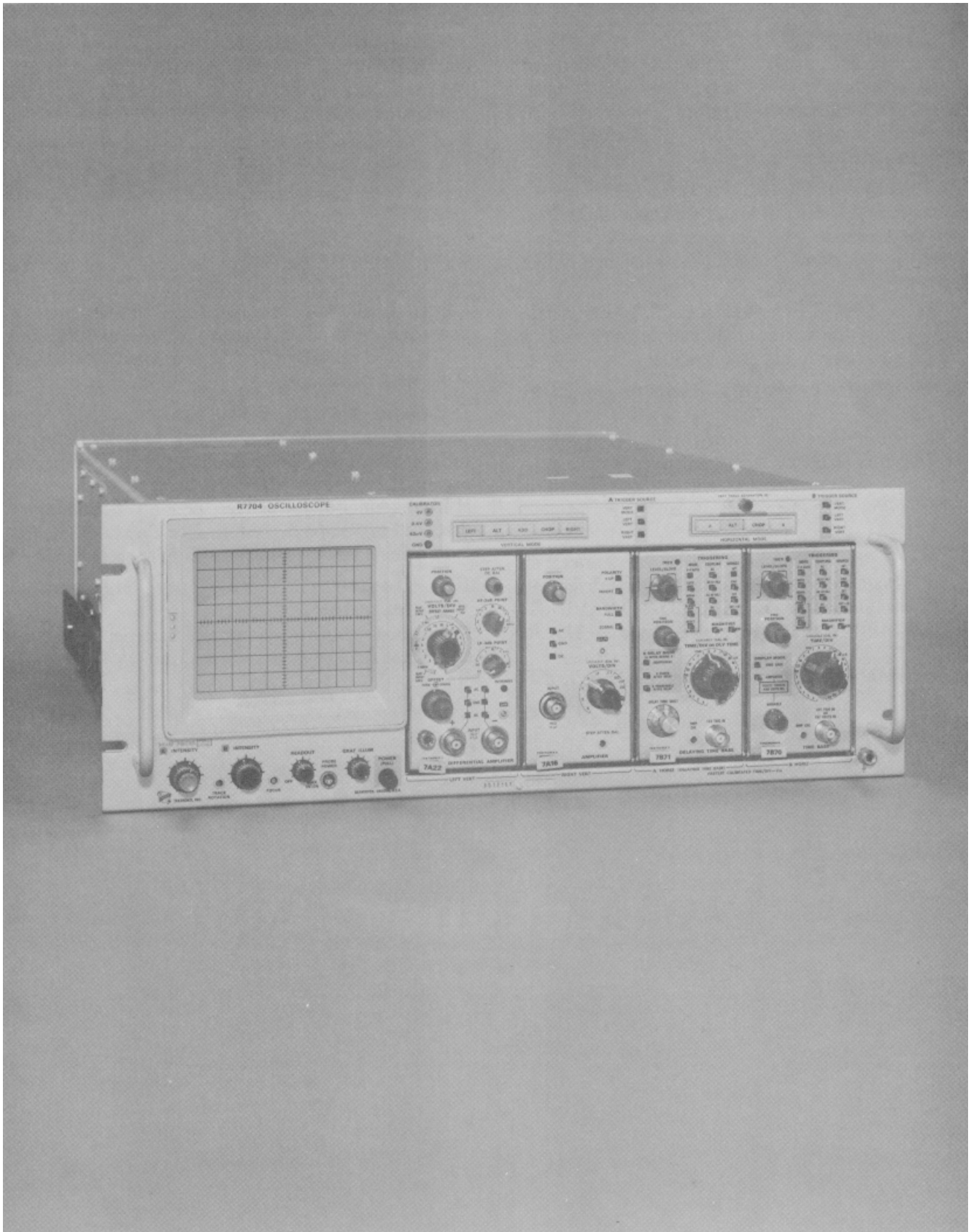


Fig. 1-1. The R7704 Oscilloscope

SECTION 1 R7704 SPECIFICATION

Change information, if any, affecting this section will be found at the rear of the manual.

Introduction

The Tektronix R7704 Oscilloscope is a solid-state, high performance instrument designed for mounting in a 19-inch rack (complete rackmounting information is given in Section 6). This instrument accepts Tektronix 7-series plug-in units to form a complete measurement system. The flexibility of this plug-in feature and the variety of plug-in units available allow the system to be used for many measurement applications.

The R7704 has four plug-in compartments. The left pair of plug-ins is connected to the vertical deflection system. The right pair is connected to the horizontal deflection system. Electronic switching between the plug-in units connected to each deflection system allows a dual-trace vertical display and/or a dual-sweep horizontal display. This instrument features regulated DC power supplies to assure that performance is not affected by variations in line voltage and frequency, or by changes in load due to the varying power requirements of the plug-in units. Maximum power consumption of this instrument is about 225 watts (60 hertz, 115-volt line).

The R7704 features a CRT with small spot size and high writing speed. Graticule area is 8 X 10 centimeters. In addition, the instrument contains a readout system to provide CRT display of alpha-numeric information from the plug-in units; data such as deflection factor, sweep rate, etc. can be encoded.

This instrument will meet the electrical characteristics listed in Table 1-1 following complete calibration as given in Section 5. The performance check procedure included in Section 5 provides a convenient method of checking instrument performance without making internal checks or adjustments. The following electrical characteristics apply over a calibration interval of 1000 hours and an ambient temperature range of 0°C to +50° C, except as otherwise indicated. Warmup time for given accuracy is 20 minutes.

NOTE

Many of the measurement capabilities of this instrument are determined by the choice of plug-in units. The following characteristics apply to the R7704 Oscilloscope only. See the system specification later in this section for characteristics of the complete system.

TABLE 1-1.
ELECTRICAL

Characteristic	Performance
VERTICAL DEFLECTION SYSTEM	
Deflection Factor	Compatible with all 7-series plug-in units.
Deflection Accuracy	Less than 1% difference between vertical compartments.
Low-Frequency Linearity	0.1 division or less compression or expansion of a center-screen two-division signal when positioned anywhere vertically within the graticule area.
Bandwidth	Varies with vertical plug-in selected.
Risetime	See System Specifications.

Characteristic	Performance Requirement
Isolation Between Vertical Compartments	At least 100:1 from DC to 150 megahertz.
Chopped Mode Repetition rate	One megahertz $\pm 20\%$.
Time segment from each compartment	0.4 to 0.6 microsecond.
Delay Line	Permits viewing of leading edge of triggering signal
Difference in Delay Between Compartments	0.2 nanosecond or less.