TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) FOR DELAY AND LINEARITY TEST SIGNAL GENERATOR 70E1-MW (NSN 6625-00-880-1936) AND DELAY AND LINEARITY TEST SIGNAL ANALYZER 70E2-MW (NSN 6625-00-068-0729) (COLLINS RADIO GROUP)

HEADQUARTERS, DEPARTMENT OF THE ARMY

JULY 1980

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WASHINGTON, DC, 7July 1980

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REPORTING OF ERRORS

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 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. A reply will be forwarded direct to you.

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 and AR 310-3, the format has not been structured to consider levels of maintenance.

SECTION 0
INTRODUCTION

0-1 Scope

This manual contains the general description, installation, operation, principles of operation, and maintenance of the test instruments, which are known as the Delay and Linearity Test Signal Generator 70E1-MW and the Delay and Linearity Test Signal Analyzer 70E2-MW.

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 735-11-2/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 Re- port (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 Delay and Linearity Test Set 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, ATTN: DRSEL-ME-MQ, Fort Monmouth, New Jersey 07703. We'll send you a reply.

0-5 Administrative Storage

Administrative storage of equipment issued to and used by Army activities shall be in accordance with TM 740-90-1.

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.

general description

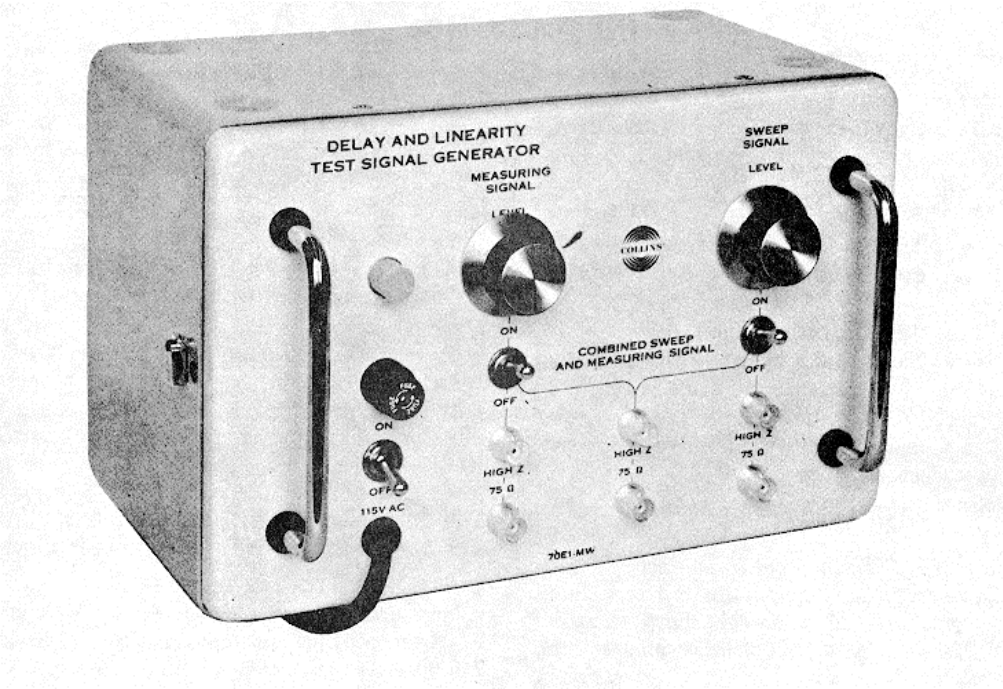

Figure 1-1. 70E1-MW Delay and Linearity Test Signal Generator

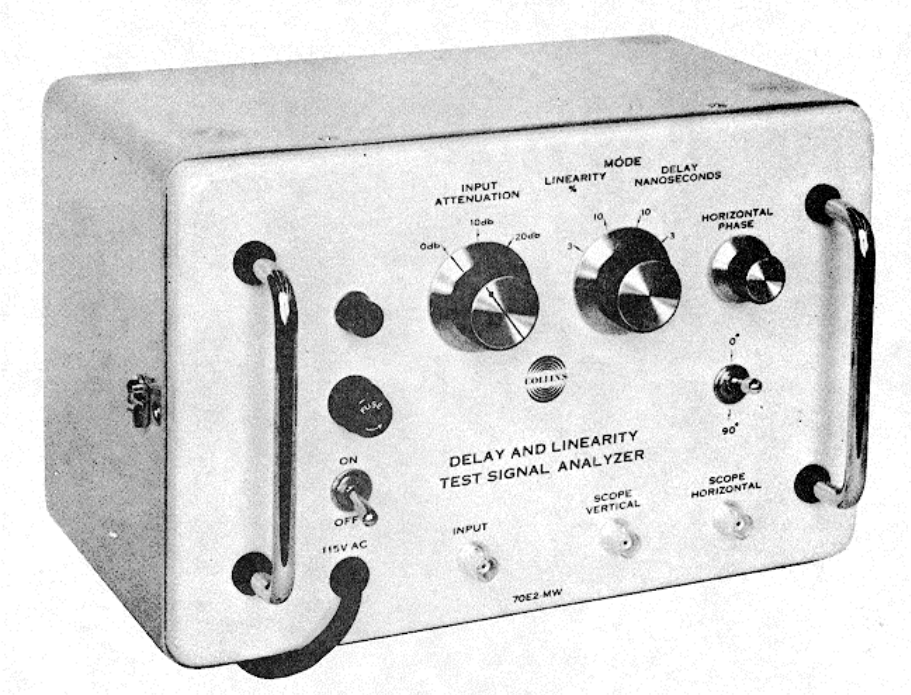

Figure 1-2. 70E2-MW Delay and Linearity Test Signal Analyzer

section 1
general description

1.1 GENERAL.

Delay and Linearity Test Signal Generator 70E1-MW and Delay and Linearity Test Signal Analyzer 70E2-MW are complementary test instruments used to measure time delay and linearity in a microwave system. See figures 1-1 and 1-2. This manual contains the general description, installation, operation, principles of operation, and maintenance of the test instruments. Parts lists and drawings are contained at the end of the book.

1.2 EQUIPMENT DESCRIPTION.

The 70E1-MW and 70E2-MW consist of transistorized, printed circuit, subassemblies mounted in metal cases with carrying handles and removable front covers. The instruments may be stacked vertically for bench mounting or may be operated in any convenient position when used in the field. The front panel of each unit mounts the ac power cable, operating controls, input and output jacks, and fuse holder.

1. 2.1 PHYSICAL CHARACTERISTICS.

Size:
11 by 7 by 8 inches

Weight:
70E1-MW, 11 pounds
70E2-MW, 12 pounds

Finish:
Case, gray enamel
Front panel, off-white enamel

1.2.2 OPERATING CHARACTERISTICS.

Ambient Service Conditions:
Temperature
0° to 50°C (32° to 122°F)

Relative Humidity
Up to 95% at 50°C

Altitude
Up to 15,000 feet above msl

Type of Service:
Intermittent, attended

1.2.3 ELECTRICAL CHARACTERISTICS.

Power Requirements:
115 volts ac, 50 to 60 cps, 10 watts
(3-wire power cord with ground provided)

70E1-MW, Test Generator:
Inputs
None

Outputs
80-CPS Sweep Signal
Variable, 20-Db* Range
High-Z Output
2 to 20 volts rms, nominal

75-Ohm Output
0.04 to 0.40 volt rms, nominal

304-Kc Measuring Signal
Variable, 20-Db Range
High- Z Output
0.15 to 1. 50 volts rms, nominal

75-Ohm Output
2 to 20 millivolts rms, nominal

Combined Outputs
Same voltages and impedances shown for 80-cps and 304-kc outputs, except the signals are combined.

70E2-MW, Test Analyzer:
Inputs
Demodulated 80-CPS Signal
0.03 to 3.00 volts rms

Demodulated 304-Kc Signal
0.01 to 0. 50 volt rms

Outputs
SCOPE VERT
High Z, 10 nanoseconds = 100 millivolts
peak-to-peak

SCOPE HORIZ
High Z, 2. 5 volts rms

+ Referenced to 0. 775 volt across any impedance