

TECHNICAL MANUAL

DIRECT SUPPORT AND
GENERAL SUPPORT
MAINTENANCE MANUAL

FOR

MULTIPLEXER TD-754/G
(NSN 5820-00-930-8078)

INTRODUCTION
PAGE 1-1

DIRECT SUPPORT
TROUBLESHOOTING
PAGE 2-4

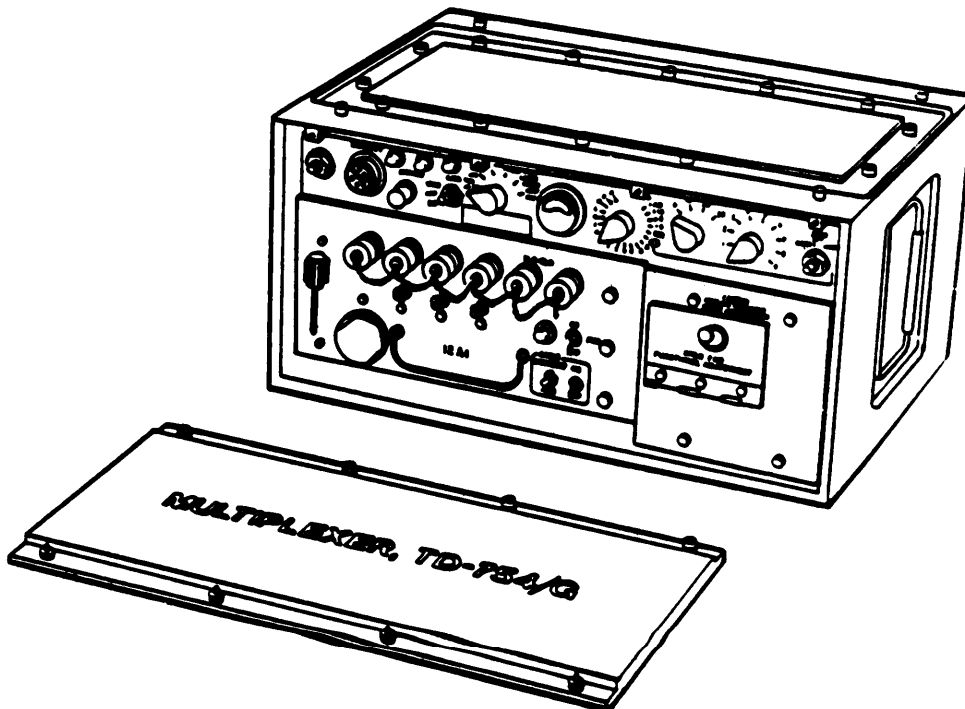
DIRECT SUPPORT
MAINTENANCE
PAGE 2-23

GENERAL SUPPORT
TROUBLESHOOTING
PAGE 3-2

GENERAL SUPPORT
MAINTENANCE
PAGE 3-5

REFERENCES
PAGE A-1

ILLUSTRATED LIST OF
MANUFACTURED ITEMS
PAGE C-1



TECHNICAL MANUAL

No. 11-5805-383-34

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 15 August 1991

Direct Support and General Support Maintenance Manual
for
MULTIPLEXER TD-754/G
(NSN 5820-00-930-8078)

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 direct to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-LC-LM-LT, Fort Monmouth, New Jersey 07703-5007. In either case, a reply will be furnished direct to you.

TABLE OF CONTENTS

	Page
CHAPTER 1. INTRODUCTION	
Section I. General	1-1
Section II. Equipment Description and Data.....	1-3
Section III. Principals of Operation	1-5
CHAPTER 2. DIRECT SUPPORT MAINTENANCE	
Section I. Repair Parts, Special Tools, TMDE and Support Equipment	2-1
Section II. Direct Support Troubleshooting	2-4
Section III. Direct Support Maintenance Procedures	2-23
CHAPTER 3. GENERAL SUPPORT MAINTENANCE	
Section I. Repair Parts, Special Tools, TMDE and Support Equipment	3-1
Section II. General Support Troubleshooting	3-2
Section III. General Support Maintenance Procedures	3-5
APPENDIX A. REFERENCES	A-1
APPENDIX B. EXPENDABLE SUPPLIES AND MATERIALS LIST	B-1
APPENDIX C. ILLUSTRATED LIST OF MANUFACTURED ITEMS	C-1

NOTE: CECOM DMWR 11-5805-383 (1 Aug 1988) replaces Depot portion of TM 11-5805-383-35. (This notice does not appear on DMWR.) This TM 11-5805-383-34 replaces balance of (Jan 1971) and all changes.

LIST OF ILLUSTRATIONS

Figure Number	Title	Page
1-1	Multiplexer TD-754/G	1-2
1-2	Location of Major Components	1-4
1-3	TD-754/G Overall Block Diagram	1-7
1-4	Transmit Circuits, Block Diagram	1-9
1-5	Cable input Circuits, Block Diagram	1-10
1-6	Receive Circuits, Block Diagram	1-11
1-7	Order Wire Facilities, Block Diagram	1-13
1-8	Power Supply Circuits, Block Diagram	1-14
1-9	Monitor Circuit, Block Diagram	1-16
1-10	Cable Fault Locator Circuit, Block Diagram	1-17
1-11	Transmit Circuits, Timing Diagram	1-19
1-12	Phase Adjustment, Simplified Waveform Diagram	1-25
1-13	Receive Circuits, Timing Diagram	1-27
1-14	Dummy Train Detector, Timing Diagram	1-30
1-15	Cable Constant Current Supply Circuit, Waveform Diagram	1-38
1-16	Monitor Circuit, Typical DC Sample Voltage Test, Simplified Schematic Diagram.. . . .	1-41
1-17	Monitor Circuit, Typical DC Power Voltage Test, Simplified Schematic Diagram.. . . .	1-42
1-18	Cable Fault Locator Circuit	1-44
2-1	TD-754/G Performance Test Setup	2-2
2-2	Troubleshooting and Alignment Test Setup	2-3
2-3	TD-754/G Component Locations	2-9
2-4	Power Supply Component Locations	2-15
2-5	Heat Sink Assembly 12A1A3 Repair and Replacement	2-27
2-6	Filter Assembly 12A8 Replacement	2-29
2-7	Filter Assembly 12A9 Replacement	2-31
3-1	Panel Assembly 12A7 Component Locations	3-4
3-2	Panel Assembly 12A2 Alignment.	3-7
3-3	Panel Assembly 12A5 Alignment.	3-11
3-4	Phase Adjustment, Waveform Diagram	3-13
3-5	Panel Assembly 12A7 Alignment.	3-15
3-6	TD-754/G PerformanceTestSetup	3-18
3-7	Fault Locator Circuit Tester	3-28
3-8	Fault Locator Circuit Tester Schematic	3-29
C-1	Extension Test Cable Fabrication Wiring Diagram	C-1
FO-1	Military Standard Color Code Markings	FP-1
FO-2	Power Supply Assembly 12A1, Schematic Diagram	FP-3
FO-3	Panel Assembly 12A2, Schematic Diagram	FP-7
FO-4	Panel Assembly 12A3, Schematic Diagram	FP-9
FO-5	Panel Assembly 12A4, Schematic Diagram	FP-11
FO-6	Panel Assembly 12A5, Schematic Diagram	FP-13
FO-7	Panel Assembly 12A6, Schematic Diagram	FP-15

LIST OF ILLUSTRATIONS (cont)

Figure Number	Title	Page
FO-8	TD-754/G, Overall Schematic Diagram	FP-17
FO-9	TD-754/G, Overall Wiring Diagram	FP-19
FO-10	Power Supply Assembly 12A1, Overall Wiring Diagram	FP-25

LIST OF TABLES

Table Number	Title	Page
2-1	Direct Support System Troubleshooting	2-6
2-2	Direct Support Power Supply Troubleshooting	2-11
3-1	General Support Troubleshooting	3-3
3-2	Physical Inspections	3-16
3-3	Cable Current and Alarm Circuit Tests	3-20
3-4	TD-754/G Power Circuit Tests	3-21
3-5	Traffic Alarm and Input Monitor Circuit Tests	3-21
3-6	Order Wire Circuit Monitor Tests	3-22
3-7	Transmit Circuit Monitor Tests	3-23
3-8	Cable Input Circuit Monitor Tests	3-23
3-9	Receive Circuits Monitor Tests	3-24
3-10	Monitor Circuit Test	3-25
3-11	Patch Through Order Wire Test	3-26
3-12	Fault Locate and Meter Zero Set Circuit Test	3-27

CHAPTER 1

INTRODUCTION

	Page
Section I. General Information	1-1
Section II. Equipment Description and Data.. . . .	1-3
Section III. Principles of Operation	1-5

Section 1. GENERAL

Para.		Page
1-1	Scope	1-1
1-2	Consolidated Index of Army Publications and Blank Forms	1-1
1-3	Maintenance Forms and Records	1-1
1-4	Reporting Equipment improvement Recommendations	1-2
1-5	Administrative Storage	1-2
1-6	Destruction of Army Materiel to Prevent Enemy Use	1-2
1-7	List of Abbreviations	1-3

1-1. Scope

This manual contains instructions for direct support and general support maintenance including troubleshooting, testing, alignment and repair for Multiplexer TD-754/G and includes a functional description of the equipment. References are provided in Appendix A.

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

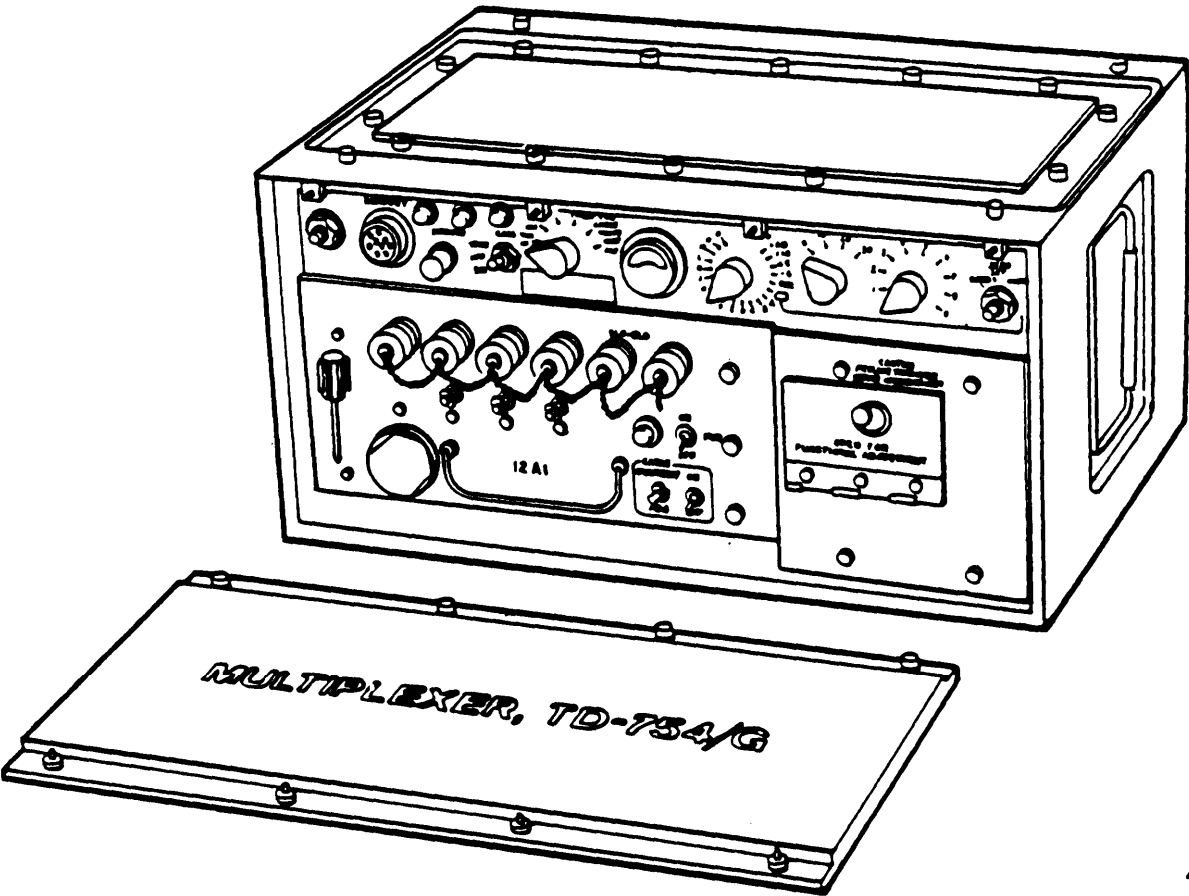
Refer to the latest issue of DA PAM 25-30 to determine whether there are new editions, changes or additional publications pertaining to the equipment.

1-3. 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 DA Pam 738-750, as contained in Maintenance Management Update.

b. Reporting of Item and Packaging Discrepancies. Fill out and forward SF364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/SECNAVINST 4355.18/AFR 400-54/MCO 4430.3J.

c. Transportation Discrepancy Report (TDR) (SF 361). Fill out and forward Transportation Discrepancy Report (TDR) (SF 361) as prescribed in AR 55-38/NAVSUPINST 4610.33C/AFR 75-18/MCO P4610.19D/DLAR 4500.15.



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Figure 1-1. Multiplexer TD-754/G.

1-4. Reporting Equipment Improvement Recommendations (EIR)

If your Multiplexer TD-754/G need 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 the equipment. Let us know why you don't like the design or performance. Put it on a SF 368 (Product Quality Deficiency Report). Mail it to: Commander US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-ED-PH, Fort Monmouth, New Jersey 07703-5000. We'll send you a reply.

1-5. Administrative Storage

Administrative storage of equipment issued to and used by Army activities will have preventive maintenance performed in accordance with the PMCS charts before storing. When removing the equipment from administrative storage the PMCS should be performed to assure operational readiness. (Refer to TM 11-5805-383-12.)

1-6. Destruction of Army Electronics Materiel

Destruction of Army electronics materiel to prevent enemy use shall be in accordance with TM 750-244-2.

1-7. List of Abbreviations

VF	Voice Frequency
TMDE	Test, Measurement, and Diagnostic Equipment
PCM	Pulse-code Modulation
KHz	Kilohertz
RZ	Return-to-Zero
NRZ	Nonreturn-to-zero
SF	Service Facilities

Section II. Equipment Description and Data

Para.		Page
1-8	Equipment Characteristics, Capabilities and Features	1-3
1-9	Location and Description of Major Components	1-4
1-10	Differences Between Models	1-5
1-11	Equipment Data	1-5
1-12	Safety, Care and Handling	1-5

1-8. Equipment Characteristics, Capabilities and Features

The TD-754/G enables voice frequency (VF) communication through cable transmission systems composed of pulse-code modulations (pcm) equipment, such as Multiplexer TD-660/G. Typically, a TD-660/G or similar equipment sends a pcm pulse to a TD-754/G. The TD-754/G receives and encodes the pulse and transmits the altered pulse to a second TD-754/G which decodes the pulse (returning it to its original format) and transmits the pulse to another TD-660/G or similar equipment. The TD-754/G has 6-, 12-, 24-, or 48- channel capacity.

The two TD-754/G's can be up to 40 miles apart, with Pulse Form Restorers TD-206/G installed at 1-mile intervals along the cable link. The TD-206/G's are powered by the TD-754/G.

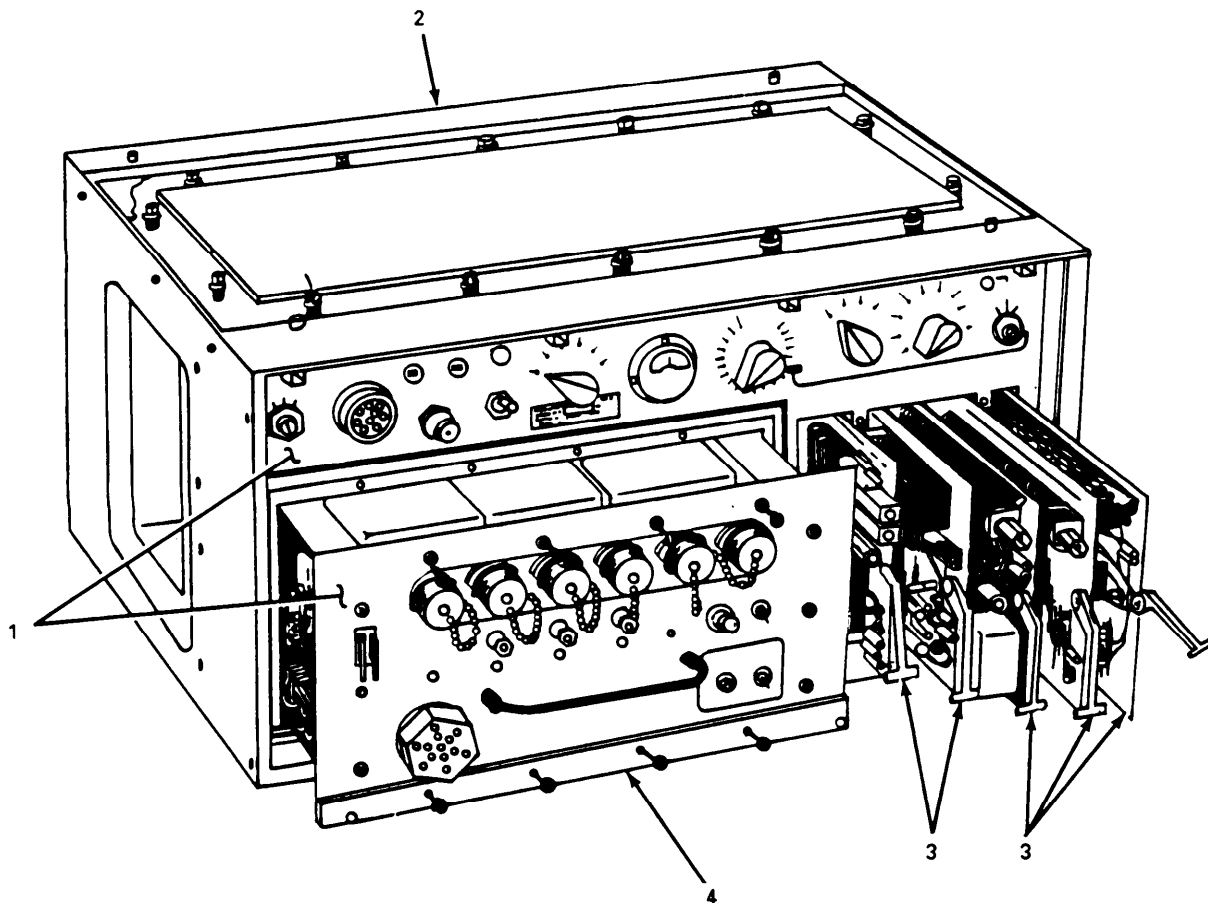
Order wire facilities in the TD-754/G permit voice communication between the two TD-754/G operators when Headset H-91/U is connected to the headset receptacle. When operating as an attended repeater, incoming order wire signals can be retransmitted. Although transmitted along the same cable link as the pcm pulses, order wire audio voltage signals are not affected by traffic failure or TD-206/G failure.

The TD-754/G has a monitor circuit that performs self-testing, and a cable fault locator circuit to detect and isolate faulty TD-206/G's in the cable link.

The TD-754/G can also be used in radio transmission systems. For a listing of compatible radio sets, multiplexer and cables refer to TM 11-5805-383-12.

1-9. Location and Description of Major Components (figure 1-2)

Item	Description
1. Front panel	Contains all operator controls and indicators and the protective cover over plug-in panels.
2. Rear panel	Contains all coaxial cable, multipin power and patch-through receptacles.
3. Plug-in panels (12A2 through 12A6)	Contain the transmit, receive, cable input and order wire circuits, and test jacks for monitoring major test points. The boards are keyed at the connector end to assure that each board is plugged into the correct TD-754/G receptacle.
4. Power supply 12A1	Provides dc power required to operate the TD-754/G and the TD-206/G's along the cable link. The power supply plugs into two multipin connectors located inside the rear panel of the TD-754/G case.



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Figure 1-2. Location of Major Components.

1-10. Differences Between Models

There are no differences between models applicable to the equipment covered by this technical manual.

1-11. Equipment Data

Refer to TM 11-5805-383-12 for pertinent technical data and equipment specifications.

1-12. Safety, Care and Handling

Throughout this manual are warnings, cautions and notes designed to protect personnel and equipment when handling the multiplexer. Learn the warnings on the warning page before attempting to perform maintenance, and observe all warnings, cautions and notes as you come upon them in the text.

Always be sure your equipment is properly grounded before turning on the power. If the multiplexer is removed from its rack mounting for operation, testing, service or maintenance, the equipment must be grounded to the work bench before the power is turned on, using a jumper wire of equal or larger gage than the power input wire.

The multiplexer weighs 45 pounds. Do not attempt to lift it without assistance.

Section III. PRINCIPLES OF OPERATION

Para.		Page
1-13	General	1-5
1-14	Block Level Discussion General Information	1-5
1-15	Overall Block Diagram Discussion	1-6
1-16	Detailed Block Diagram Discussion.	1-8
1-17	Theory of Operation General information	1-18
1-18	Transmit Circuits	1-18
1-19	Cable Input Circuits	1-24
1-20	Receive Circuits	1-26
1-21	Order Wire Facilities	1-32
1-22	Power Supply Circuits	1-36
1-23	Service Facilities	1-41

1-13. General

Principles of operation is divided into block level discussions and theory of operation. The block level discussions (paragraphs 1-14 through 1-16) provide an understanding of the purpose and function of the system and its component circuits, and the way in which the component circuits interact. Theory of operation (paragraphs 1-17 through 1-23) provides a detailed circuit analysis of each individual circuit that comprises the system.

1-14. Block Level Discussion General Information

The TD-754/G provides interface between pcm equipment, such as two Multiplexer TD-660(*)/G, connected in a cable link configuration. The TD-754/G also provides cable current to power Restorers, Pulse Form TD-206/G connected in the cable link. Order wire facilities for entering and monitoring order wire data on the cable link are also contained in the TD-754/G. The service facilities in the TD-754/G contain a monitor circuit and a cable fault