

TECHNICAL MANUAL

OPERATOR'S AND ORGANIZATIONAL
MAINTENANCE MANUAL, INCLUDING
REPAIR PARTS AND SPECIAL TOOLS
LIST

MULTIPLEXER TD-754/G

This copy is a reprint which includes current
pages from Changes 1 through 5.

HEADQUARTERS, DEPARTMENT OF THE ARMY

MAY 1971

WARNING

**HIGH VOLTAGE
DEATH ON CONTACT**

may result if safety precautions
are not observed

**DANGEROUS VOLTAGES ARE PRESENT
DON'T TAKE CHANCES!**

CAUTION

Do not make screwdriver adjustments in this equipment unless specifically directed. Indiscriminate adjustments will render this equipment inoperable.

Change
No. 6

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 1 January 1989

OPERATOR'S AND ORGANIZATIONAL
MAINTENANCE MANUAL
MULTIPLEXER TD-754/G
(NSN 5820-00-930-8078)

TM 11-5805-383-12, 3 May 1971, is changed as follows:

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MULTIPLEXER TD-754/G
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**OPERATOR'S AND ORGANIZATIONAL
MAINTENANCE MANUAL:
MULTIPLEXER TD-754/G
(NSN 5820-00-930-8078)**

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To be distributed in accordance with DA Form 12-51C, Operators Maintenance requirements for TD 754/G Multiplexer.



5

SAFETY STEPS TO FOLLOW IF SOMEONE IS THE VICTIM OF ELECTRICAL SHOCK

1

DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL

2

IF POSSIBLE, TURN OFF THE ELECTRICAL POWER

3

IF YOU CANNOT TURN OFF THE ELECTRICAL POWER, PULL, PUSH, OR LIFT THE PERSON TO SAFETY USING A DRY WOODEN POLE OR A DRY ROPE OR SOME OTHER INSULATING MATERIAL

4

SEND FOR HELP AS SOON AS POSSIBLE

5

AFTER THE INJURED PERSON IS FREE OF CONTACT WITH THE SOURCE OF ELECTRICAL SHOCK, MOVE THE PERSON A SHORT DISTANCE AWAY AND IMMEDIATELY START ARTIFICIAL RESUSCITATION

WARNING

Failure to perform preventive maintenance check item 3A in preventive maintenance checks and services chart could result in a potentially lethal condition on the cable line. Make sure cable current is off when handling the cable leading to the repeaters.

WARNING

Assure that the input voltage to the TD-754/G is 115 [±]6 VAC. Higher voltages will damage the equipment or possibly cause an explosion resulting in injury to personnel.

WARNING

High voltage of 1,000 volts dc exists in the equipment when the cable current circuit is energized. Injury or DEATH could result from failure to comply with safety precautions.

WARNING

Compressed air shall not be used for cleaning purposes except where reduced to less than 29 pounds per square inch (psi) and then only with effective chip guarding and personnel protective equipment. Do not use compressed air to dry parts when TRICHLOROTRIFLUOROETHANE has been used. Compressed air is dangerous and can cause serious bodily harm if protective means or methods are not observed to prevent chip or particle (of whatever size) from being blown into the eyes or unbroken skin of the operator or other personnel.

WARNING

Adequate ventilation should be provided while using TRICHLOROTRIFLUOROETHANE. Prolonged breathing of vapor should be avoided. The solvent should not be used near heat or open flame; the products of decomposition are toxic and irritating. Since TRICHLOROTRIFLUOROETHANE dissolves natural oils, prolonged contact with skin should be avoided. When necessary, use gloves which the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.

TECHNICAL MANUAL }
 No. 11-5805-383-12 }

HEADQUARTERS
 DEPARTMENT OF THE ARMY
 WASHINGTON, DC, 3 May 1971

OPERATORS AND ORGANIZATIONAL MAINTENANCE MANUAL :

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 back of this manual direct to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: DRSEL-ME-MP, Fort Monmouth, New Jersey 07703.

In either case, a reply will be furnished direct to you.

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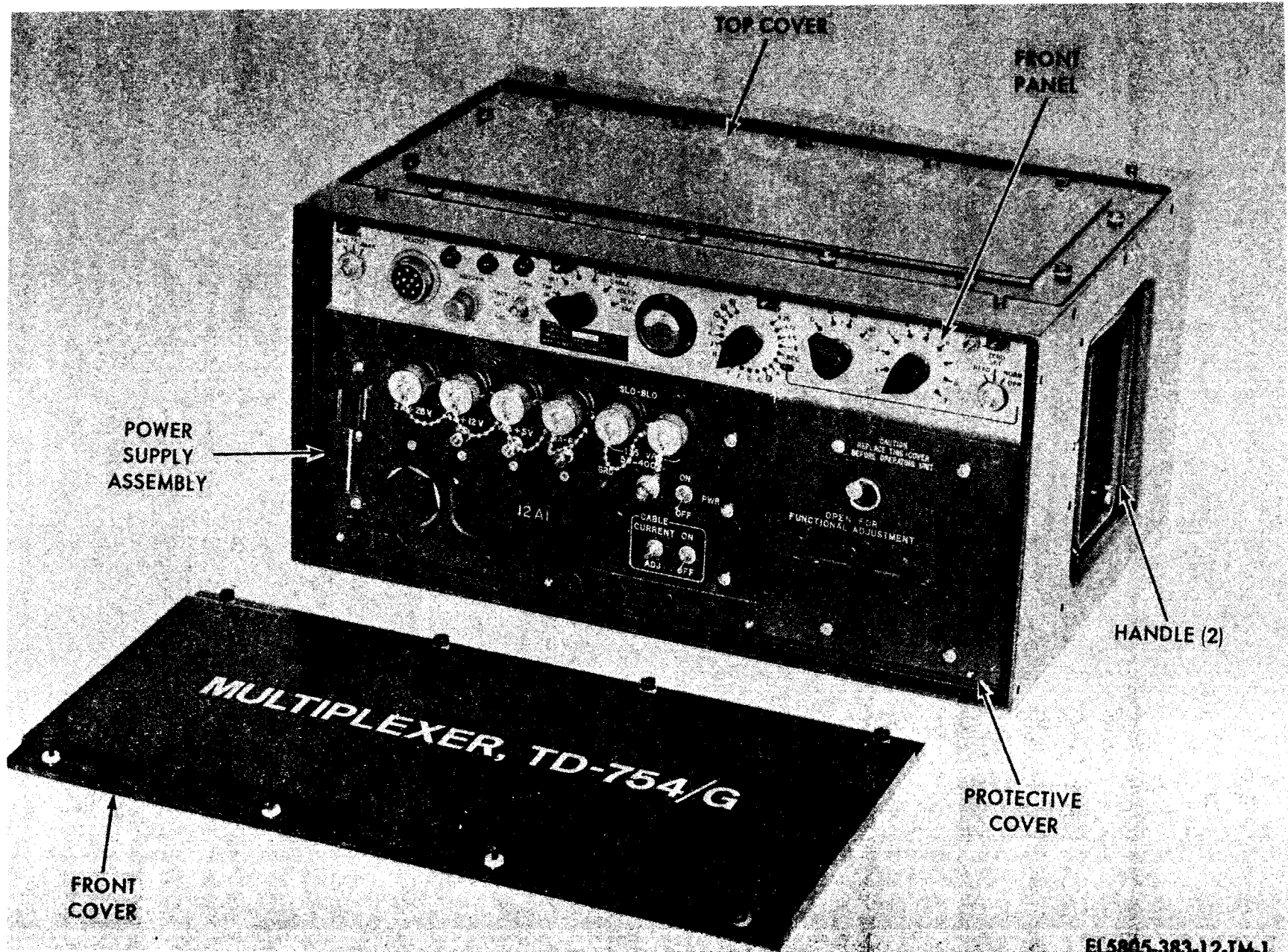


Figure 1-1. Multiplexer TD-754/G.

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CHAPTER 1 INTRODUCTION

Section I. GENERAL

1-1. Scope

a. This manual describes Multiplexer TD-754/G (fig. 1-1) and contains instructions for its installation, connection, alignment, operation, maintenance, troubleshooting, repair and adjustment, shipment, and demolition.

b. References are contained in appendix A to applicable publications. The basic issue items list is contained in appendix B and the maintenance allocation chart is contained in appendix C.

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

Refer to the latest issue of DA Pam 310-1 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. Report of Packaging and Handling Deficiencies.

Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/NAVMATINST 4355.73B/AFR 40054/MCO 4430.3H.

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

1-3.1. Reporting Equipment Improvement Recommendations (EIR)

If your Multiplexer 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 the design. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Communications-Electronics and Fort Monmouth, ATTN: AMSEL-PA-MA-D, Fort Monmouth, New Jersey 07703-5000. We'll send you a reply.

1-3.2. 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. Disassembly and repacking of equipment for shipment or limited storage are covered in chapter 5 and TM 740-90-1.

1-3.3. Destruction of Army Electronics Materiel

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

Section II. DESCRIPTION AND DATA

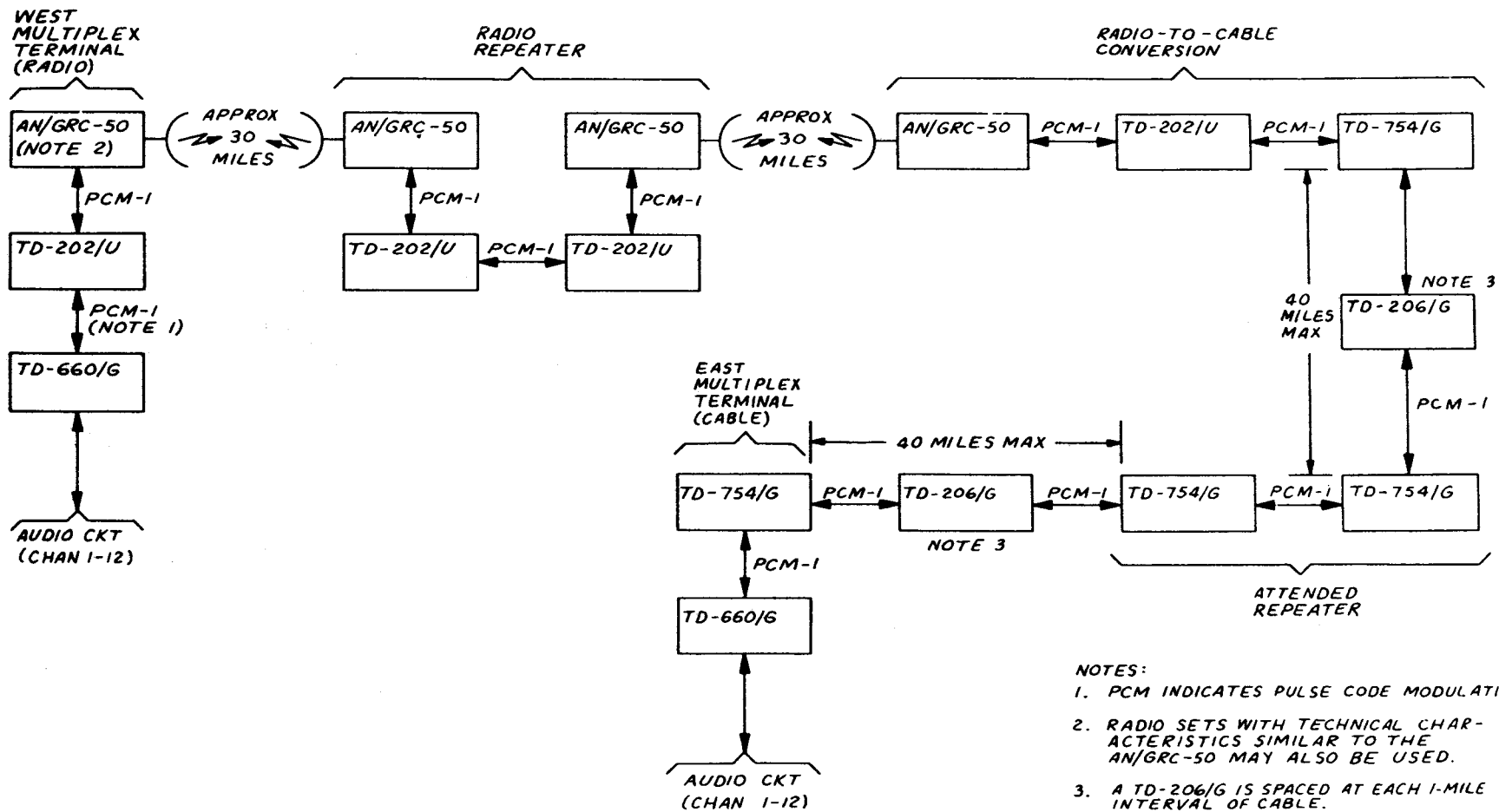
1-4. Purpose and Use

a. General The TD-754/G provides the capability for transmission of pulse-code modulation (pcm) pulses through cable transmission systems. Pcm pulses from Multiplexer TD-660/G, or similar equipment, are applied to the TD-754/G. In the TD-754/G, the pcm pulses are encoded into another pcm format and transmitted at a 2304-kHz rate through a cable link to another TD-754/G, the TD-754/G at the opposite end of the cable link decodes the pcm pulses into their original pcm format and applies them to a

TD-660/G or similar equipment. The TD-754/G also provides cable current to power Pulse Form Restorers TD-206/G installed in the cable link. Order wire facilities that operate over the cable link are also contained in the TD-754/G to provide a phone link between terminals.

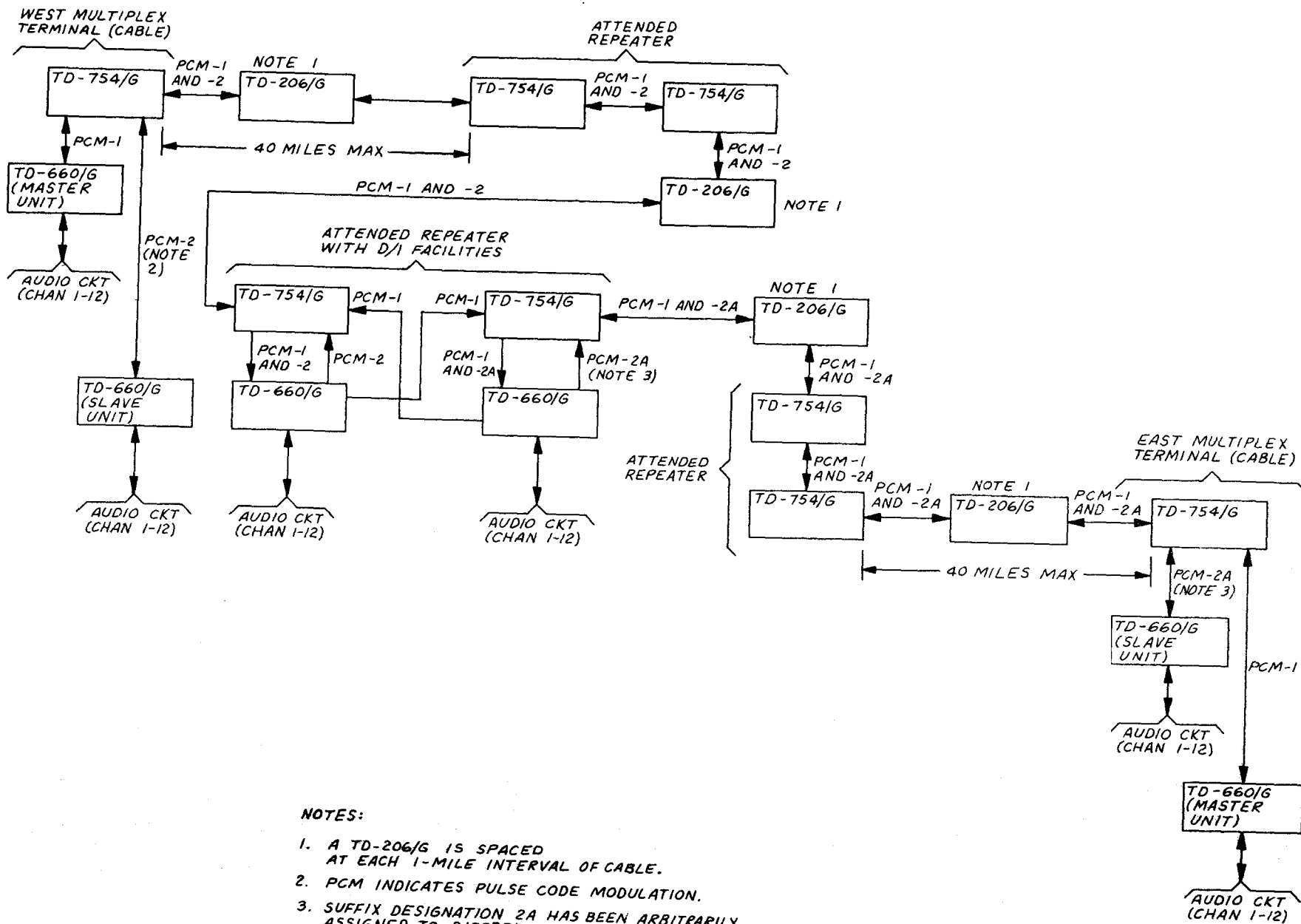
b. System Information.

(1) Two TD-754/G's can be operated on a cable link that extends to 40 miles. The pcm pulses from a TD-754/G are transmitted through Cable Assembly, Special Purpose, Electrical CX-11230/G or CX-



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Figure 1-2. Typical 12-channel integrated radio relay/cable system, using AN/GRC-50 or AN/GRC-66.

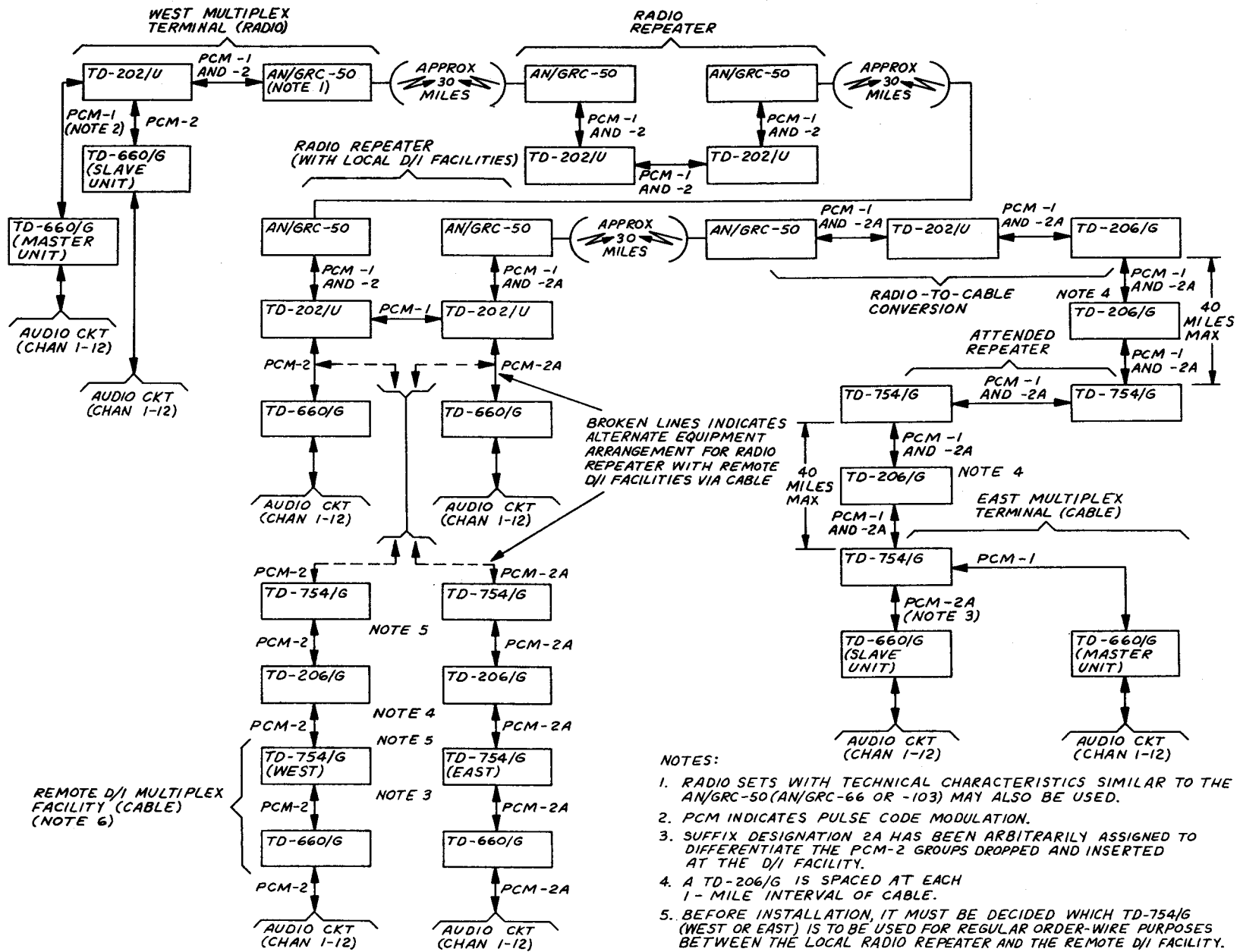


NOTES:

1. A TD-206/G IS SPACED AT EACH 1-MILE INTERVAL OF CABLE.
2. PCM INDICATES PULSE CODE MODULATION.
3. SUFFIX DESIGNATION 2A HAS BEEN ARBITRARILY ASSIGNED TO DIFFERENTIATE THE PCM-2 GROUPS DROPPED AND INSERTED AT THE D/I FACILITY.

Figure 1-3. Typical 24-channel cable system with drop and insert facilities.

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- NOTES:
1. RADIO SETS WITH TECHNICAL CHARACTERISTICS SIMILAR TO THE AN/GRC-50 (AN/GRC-66 OR -103) MAY ALSO BE USED.
 2. PCM INDICATES PULSE CODE MODULATION.
 3. SUFFIX DESIGNATION 2A HAS BEEN ARBITRARILY ASSIGNED TO DIFFERENTIATE THE PCM-2 GROUPS DROPPED AND INSERTED AT THE D/I FACILITY.
 4. A TD-206/G IS SPACED AT EACH 1-MILE INTERVAL OF CABLE.
 5. BEFORE INSTALLATION, IT MUST BE DECIDED WHICH TD-754/G (WEST OR EAST) IS TO BE USED FOR REGULAR ORDER-WIRE PURPOSES BETWEEN THE LOCAL RADIO REPEATER AND THE REMOTE D/I FACILITY.
 6. REMOTE D/I FACILITIES OVER CABLE ARE LIMITED TO DISTANCE OF 5 MILES OR LESS.

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Figure 1-4. Typical 24-channel integrated radio relay/cable system with drop and insert facilities.

4245/G (alternate) that connects between TD-206/G, which is spaced between each mile of cable. A constant pulse amplitude is not a critical factor in the cable transmission system. Therefore, the quality of voice circuits can be maintained through long distance cable links as long as the TD-206/G's can recondition the pulses without loss of pulses.

(2) The TD-754/G can operate in systems that use Radio Set AN/GRC-50, Radio Set AN/GRC-66, Radio Set AN/GRC-103, Multiplexer TD-202/U, Multiplexer TD-203/U, Multiplexer TD-204/U, Multiplexer TD-352/U, Multiplexer TD-353/U, or the TD-660/G. Figures 1-2, 1-3, and 1-4 show the various system configurations in which the TD-754/G can be used.

(3) The order-wire facilities are transmitted as audio voltages that are superimposed on the outgoing pcm pulses through the cable link. The order-wire facilities are independent of traffic failure or TD-206/G failure.

1-5. Technical Characteristics

a. General.

Number of audio channels -----	6, 12, 24, or 48
Compatible radio relay sets -----	AN/GRC-50, AN/GRC-66, or AN/GRC-103
Compatible cable sets -----	TD-660/G, TD-202/U, TD-203/U, TD-204/U, TD-352/U, or TD-353/U
Compatible cable -----	CX-11230/G or CX-4245/G (alternate)
Cable input/output data:	
Type of modulation -----	PCM (Dipulse)
Type of multiplexing -----	Time-division-multiplex
Cable input/output impedance.	91 ohms
Pulsewidth -----	200 ±30 nanoseconds
Pulse frequency -----	2304-kHz bit rate
Bandwidth -----	1-MHz bandpass
External equipment input/output data:	
Pulse amplitude -----	2 volts-rising to a peak amplitude of 0 volt from a base voltage of -2 volts
Pulse bit rate and pulse interval:	
6-channel operation -----	288 kHz, 3.472 μsec
12-channel operation -----	576 kHz, 1.736 μsec
24-channel operation -----	1152 kHz, 0.868 μsec
48-channel operation -----	2304 kHz, 0.434 μsec

b. Power Data.

power requirement -----	109 to 121 volts ac, single phase, 47 to 420 Hz
-------------------------	---

Power consumption -----	35 watts
Power output -----	24 watts (maximum)
Output regulated current to cable	38 ±1,1 ma

1-6. Components and Dimensions

a. Components. The components of the TD-754/G are listed in the basic issue items list in appendix B.

b. Dimensions. The overall dimensions and weight of the TD-754/G are listed below.

Height -----	8½ inches
Depth -----	12 inches
Width -----	17¼ inches
Unit weight -----	45 pounds

1-7. Description

a. General. The TD-754/G contains five plug-in panels and one replaceable power supply assembly. All operator controls and indicators are mounted on the front of the TD-754/G and all the interconnecting cable receptacles, except for the HEADSET receptacle, are mounted on the rear. The TD-754/G has two handles for ease of handling, and the case is built so that mounting flanges can be attached and the TD-754/G can be rack-mounted.

b. Front Panel (fig. 1-1). All operator controls and indicators are mounted on the front panel of the TD-754/G and on the front panel of the power supply assembly. A protective cover over the five plug-in panels (12A2 through 12A6), is attached to the front panel by four screws. The protective cover has a hinged adjustment cover that provides access to screwdriver adjustments on the plug-in panels as shown on figure 3-1. The controls, indicators, and fuses are listed and explained in chapter 3.

c. Rear Panel (fig. 1-5). The rear panel contains nine input/output coaxial receptacles, a multipin power receptacle, and a multipin patch through receptacle. An access cover to the intraunit wiring to the plug-in panel receptacles is mounted in the rear of the TD-754/G multiplexer case.

d. Top Cover (fig. 1-1). The top cover provides access to components mounted in the top of the TD-754/G multiplexer case. The top cover is attached to the case by 14 captive screws.

e. Plug-in Panels (fig. 4-2). The five plug-in panels (12A2 through 12A6) are physically similar. All components are soldered directly to the printed circuit wiring on the board. All components are mounted on one side of the board.

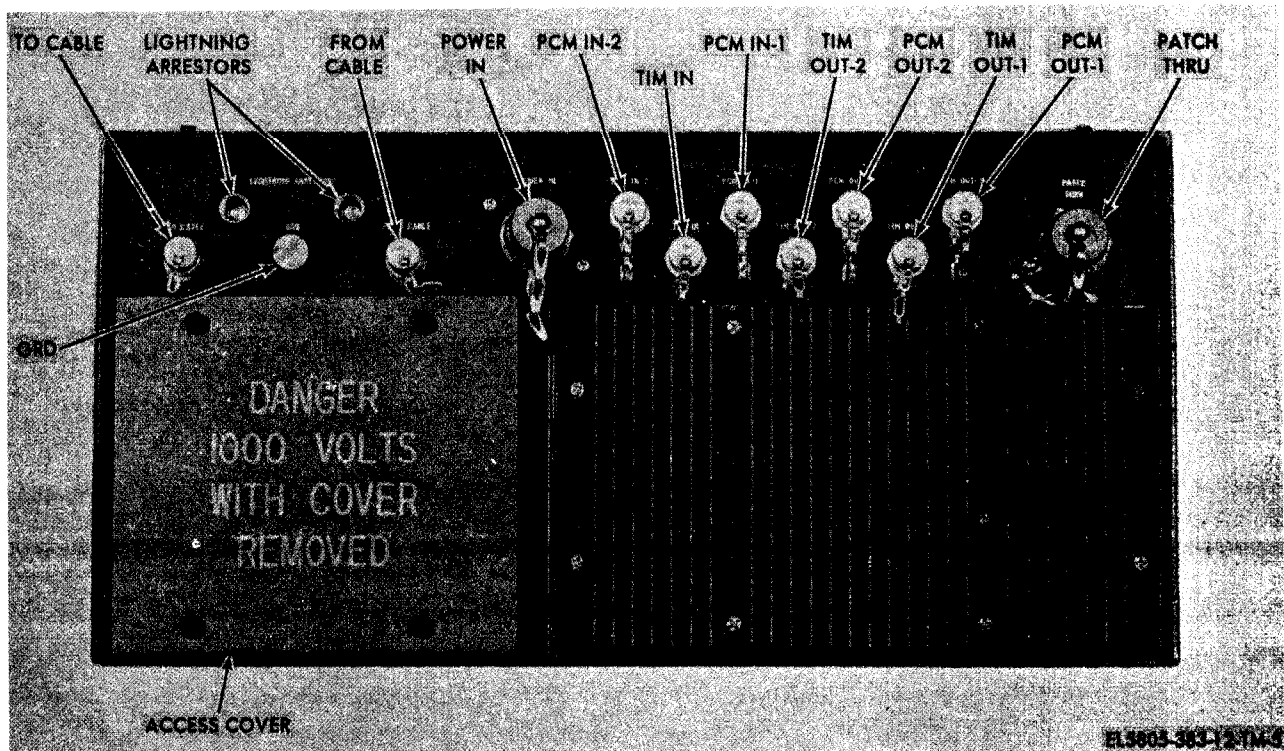


Figure 1-5. Multiplexer TD-754/G, rear panel.

Each board is keyed on the connector end to insure that plug-in panels are not inserted into the wrong receptacle in the TD-754/G. Test jacks for monitoring major test points in the plug-in panel are mounted on the end of each panel. Screwdriver adjustments that can be performed by organizational level maintenance personnel are also mounted on the end of some panels. These adjustments are accessible through the openings on the protective cover as shown on figure 3-1.

f. *Replaceable Items.* The lamps and fuses on the front panel that are replaceable at organizational level are shown on figure 1-6.

g. *Power Supply Assembly 12A1* (fig. 1-1). Power supply assembly 12A1 is a plug-in assembly that is secured to the TD-754/G by eight captive screws. There are two multipin connectors on the rear panel of the assembly that mate with two connectors in the case when the assembly is installed.

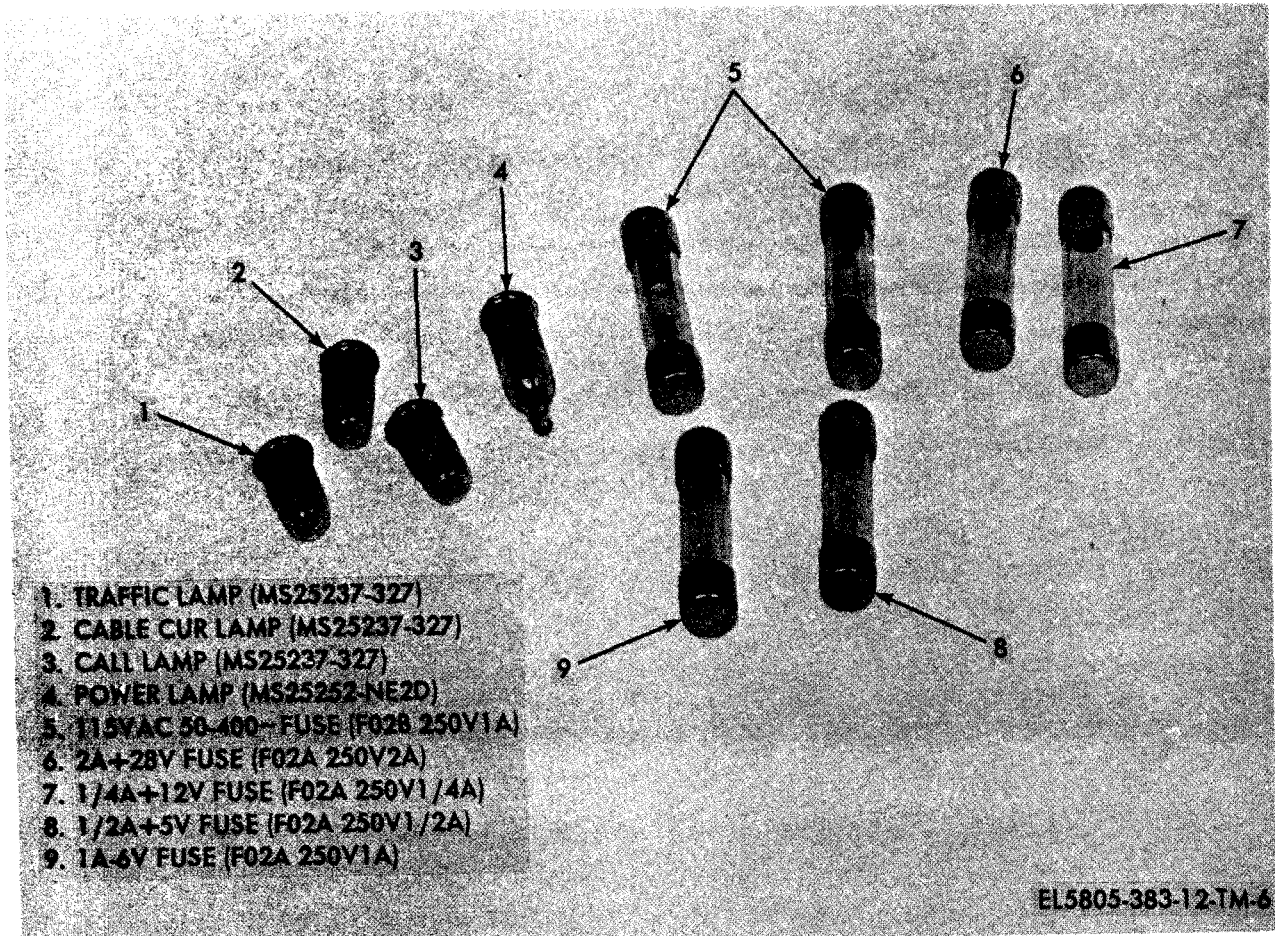


Figure 1-6. Front panel pluckout lamps and fuses.

CHAPTER 2 INSTALLATION

Section I. UNPACKING AND SITING

2-1. Unpacking and Checking Equipment

a. The TD-754/G is commercially packaged for domestic shipment. The instructions prescribed in *b* below apply to a shipment in a domestic packing case.

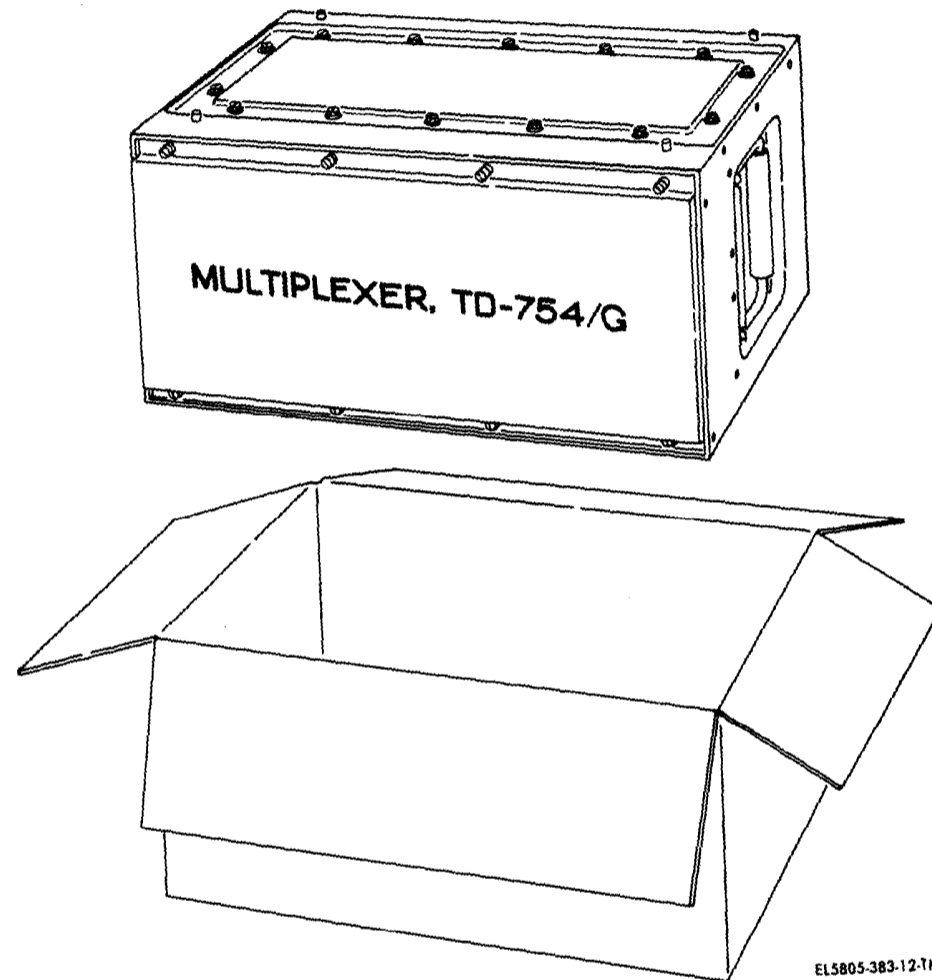
CAUTION

Take care in unpacking and handling. If the equipment is damaged, a complete overhaul may be required or the equipment may be damaged beyond repair.

NOTE

The original packing cases are reusable. If practical, they should be saved for reshipment or limited storage. Typical packaging of TD-754/G is shown on figure 2-1.

b. Open the case. If heavy wrapping paper has been used, remove it carefully before taking out the TD-754/G. Check the contents of the shipment against the master packing slip. If the contents have been damaged, refer to paragraph 1-3b.



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Figure 2-1. Typical packaging diagram.

2-2. Siting and Shelter Requirements

The TD-754/G is operated as part of an overall multiplex radio relay or cable system. It is primarily intended for installation at forward areas in light vehicles or shelters. The TD-754/G is usually installed with a TD-660/G, or similar pcm equipment, in a shelter.

WARNING

Assure that the input voltage to the TD-754/G is 115 ± 6 VAC. Higher voltages will damage the equipment or possibly cause an explosion resulting in injury to personnel.

a. The TD-754/G should be located near a power

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source of 115 ± 6 volts, single phase, 47 to 420 Hz.

b. The TD-754/G should be positioned so that adequate space is available at the rear panel for the connection of a power cable between the equipment and ac power source. Also, provide adequate space for coaxial cabling between the rear panel of the TD-754/G and associated pcm equipment.

c. A minimum clearance of 2 feet must be allowed in front of the TD-754/G. This is to provide adequate space to perform removal and installation of plug-in

panels and to permit adjustment of controls on the front of the TD-754/G.

2-3. Installation

There are no unusual or complex installation procedures. When a TD-754/G is to be rack-mounted or installed in a vehicle, two mounting flanges, one attached to each side of the TD-754/G multiplexer case, are required. Four blind screw holes are available on each side of the case for screws when attaching a mounting flange.

Section II. INTERUNIT CONNECTIONS

2-4. General

This section contains the necessary information for interunit connections, initial adjustments, and initial checks. These operations must be performed to properly install a TD-754/G in a system. The interunit connections are prescribed in paragraph 2-5. The initial adjustments and initial checks are prescribed in paragraphs 2-6 and 2-7, respectively.

2-5. Interunit Connections

The various system configurations in which a TD-754/G can be used are listed below. Select the appropriate system configuration and connect the interunit cables as shown on the applicable figure

<i>System configuration</i>	<i>Applicable figure</i>
Multiplexer terminal (cable), 6- or 12-channel operation.	2-2
Radio-to-cable conversation, 6- or 12-channel operation, using AN/GRC-103.	2-3
Radio-to-cable conversion, 6-, 12-, or 24 channel operation.	2-4
Attended repeater (cable), 6-, 12-, or 48-channel operation.	2-5
Multiplexer terminal (cable), 24-channel operation.	2-6
Attended-repeater (cable) with drop and insert facilities.	2-7

<i>System configuration</i>	<i>Applicable figure</i>
Radio repeater with remote drop and insert facilities via cable extension.	2-8
Remove drop and insert multiplex terminal	2-9

2-6. Initial Adjustments

Set controls on TD-754/G as prescribed below. Controls on associated pcm equipment, each as the TD-660/G, should be set as directed in the applicable operator and organizational maintenance manual.

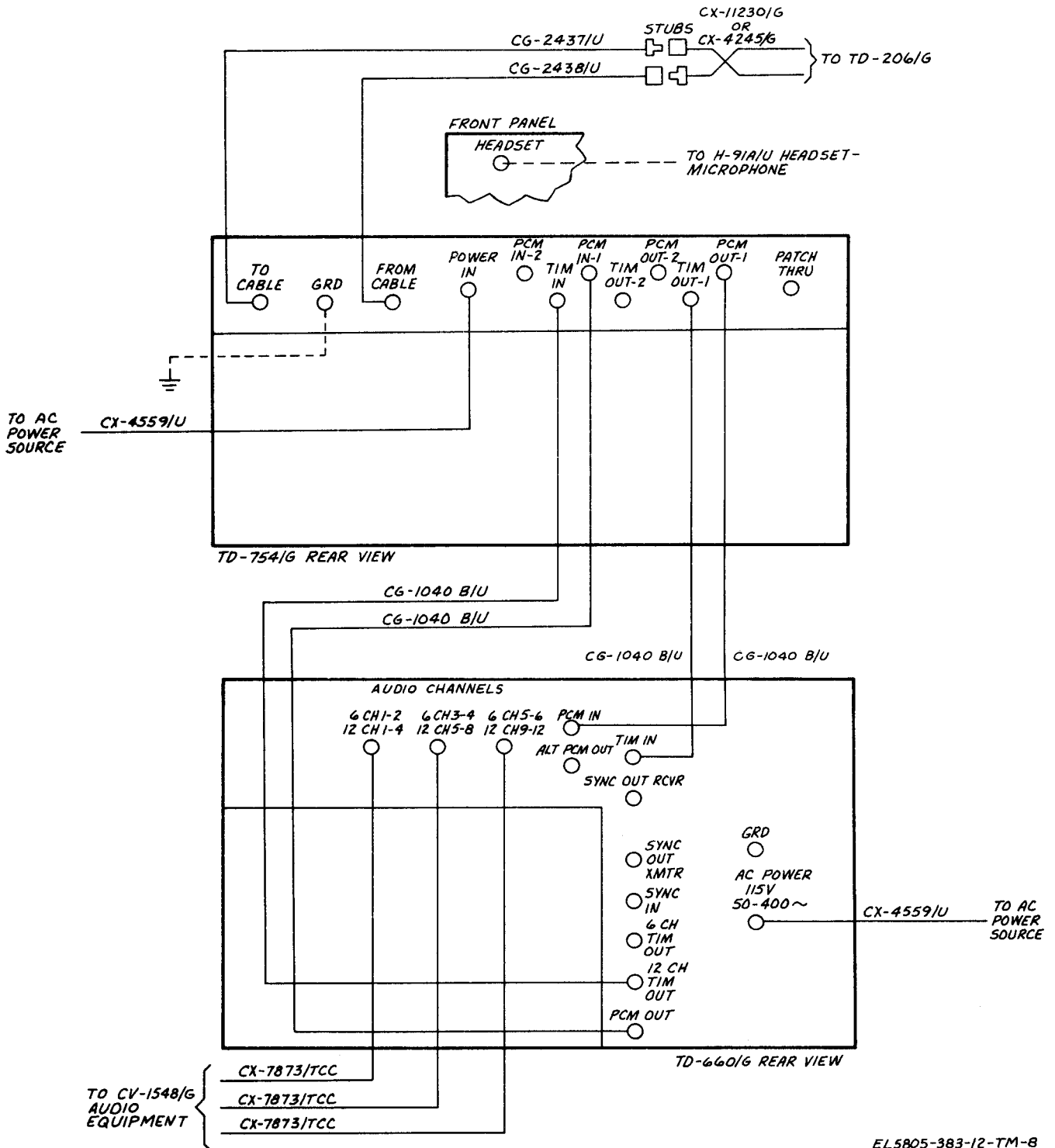
a. Front Panel.

<i>Switch</i>	<i>Setting</i>
PWR	OFF
MODE	6/12, 24, or 48AR
READ-ZERO SET-NORM	
OPR	NORM OPR
CABLE CURRENT	OFF
METER SEL	SERV FAC
SERV SELREF
FAULT LOC MILES (2)	0

CAUTION

Use special screwdriver attached to front panel when performing adjustments in *b* and *c* below; otherwise, ment may be damaged.

b. Panel 12A4. As determined by distance of

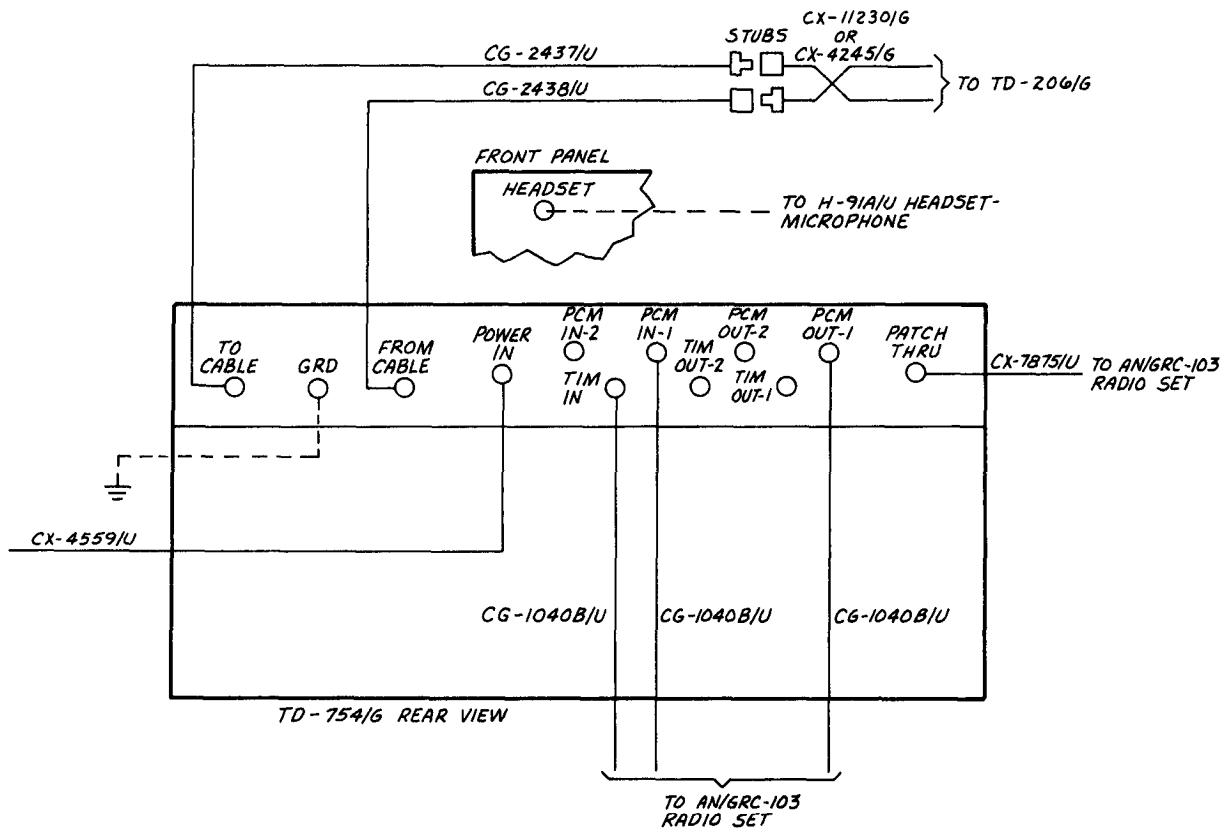


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Figure 2-2. Multiplexer terminal (cable) 6- or 12-channel operation, interunit connection diagram.

nearest TD-206/G, TD-204/U, or TD-754/G in cable link, operate CABLE MILES switch on end of panel to position that corresponds to actual cable length in miles (1, 3/4, 1/2, or 1/4).

c. Panel 12A5. As determined by distance of nearest TD-206/G, TD-204/U, or TD-754/G in cable link, operate CABLE MILES switch on end of panel to position that corresponds to ac-



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Figure 2-3. Radio to-cable conversion, 6- or 12-channel operation, using AN/GRC-103, interunit connection diagram.

tual cable length in miles (1, 3/4, 1/2, or 1/4). When two TD-754/G's (or a TD-754/G and a TD-204/U) are connected in a cable link without a TD-206/G, set CABLE MILES switch to 1.

2-7. Initial Checks

NOTE

When audible alarm sounds, press BUZZER OFF switch to silence audible alarm.

a. Check that all interunit connections have been made as prescribed in paragraph 2-5. Insure that all cable connections or rear panel are tight.

b. Check that initial adjustments as prescribed in paragraph 2-6 have been performed.

c. Check that power supply assembly 12A1 is properly installed and that captive screws holding assembly in place are tight.

d. Check that each of the six fuseholders con-

tains a good fuse and that fuse is the proper ampere rating as indicated below.

Fuse	Ampere Rating
+28V	2 amp
+12V	1/4 amp
+5V	1/2 amp
-6V	1 amp
115V AC(2)	1 amp

e. Remove protective cover over plug-in panels and check that each plug-in panel is properly seated. Replace protective cover.

NOTE

TRAFFIC indicator will light if pcm pulses are not applied from cable link to TD-764/G when PWR switch is operated to ON.

f. Operate PWR switch to ON. Observe that power indicator to left of PWR switch and CABLE CUR indicator are lighted. Audible alarm may sound.

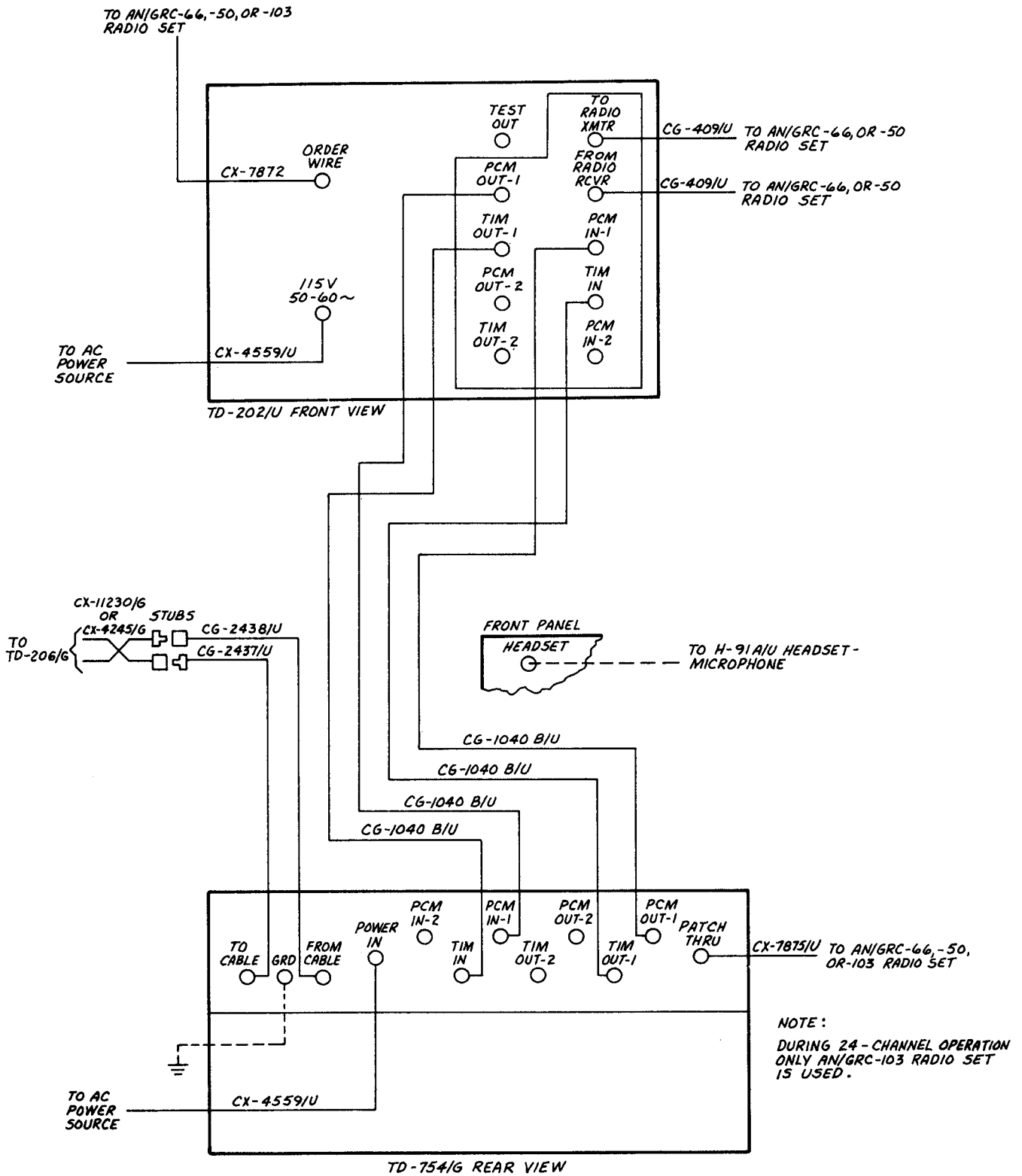


Figure 2-4. Radio-to-cable conversion, 6-, 12-, or 24-channel operation, interunit connection diagram.

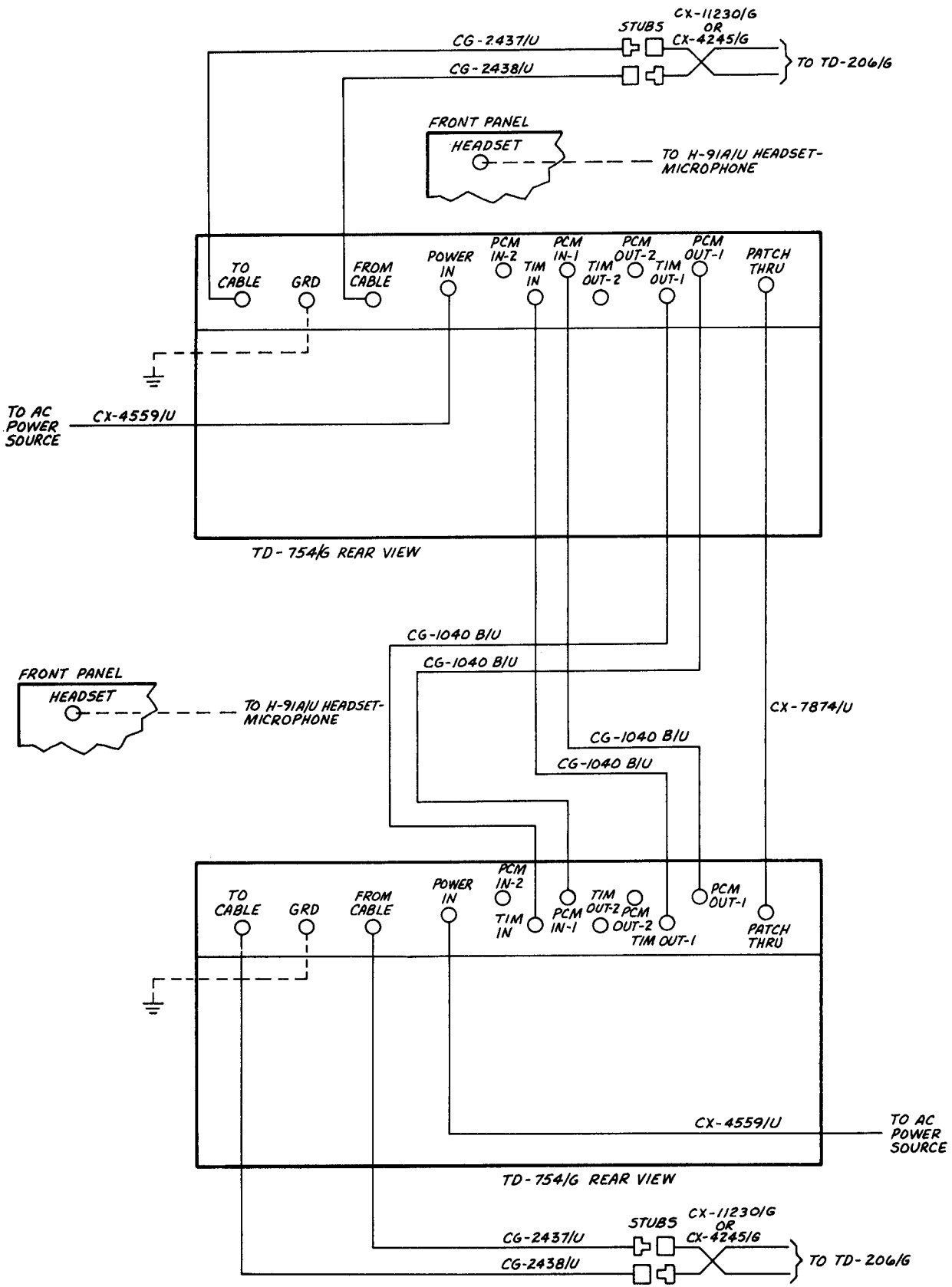


Figure 2-5. Attended repeater (cable), 6-, 12-, or 48-channel operation, interunit connection diagram.

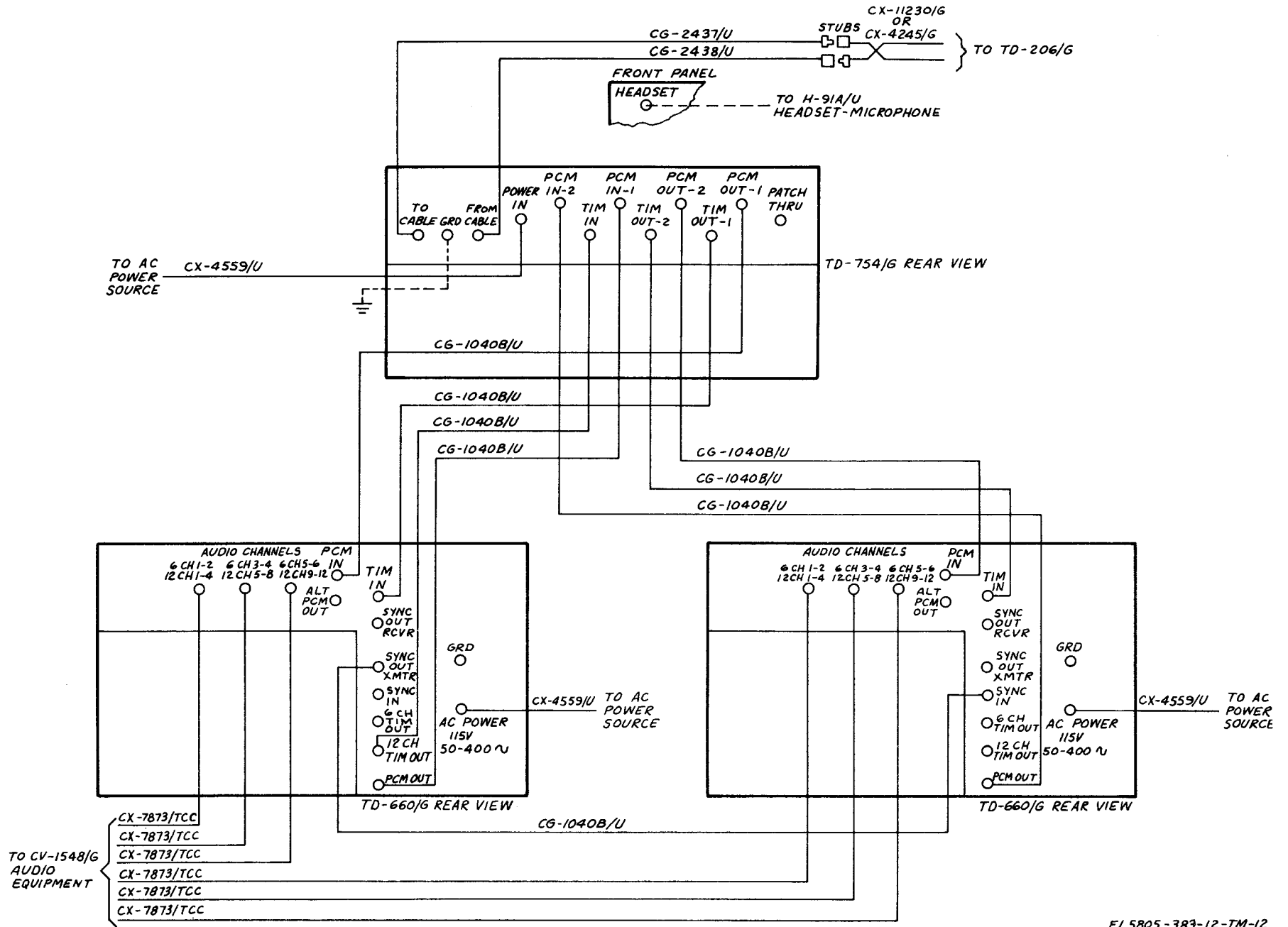


Figure 2-6. Multiplexer terminal (cable), 24-channel operation, interunit connection diagram.

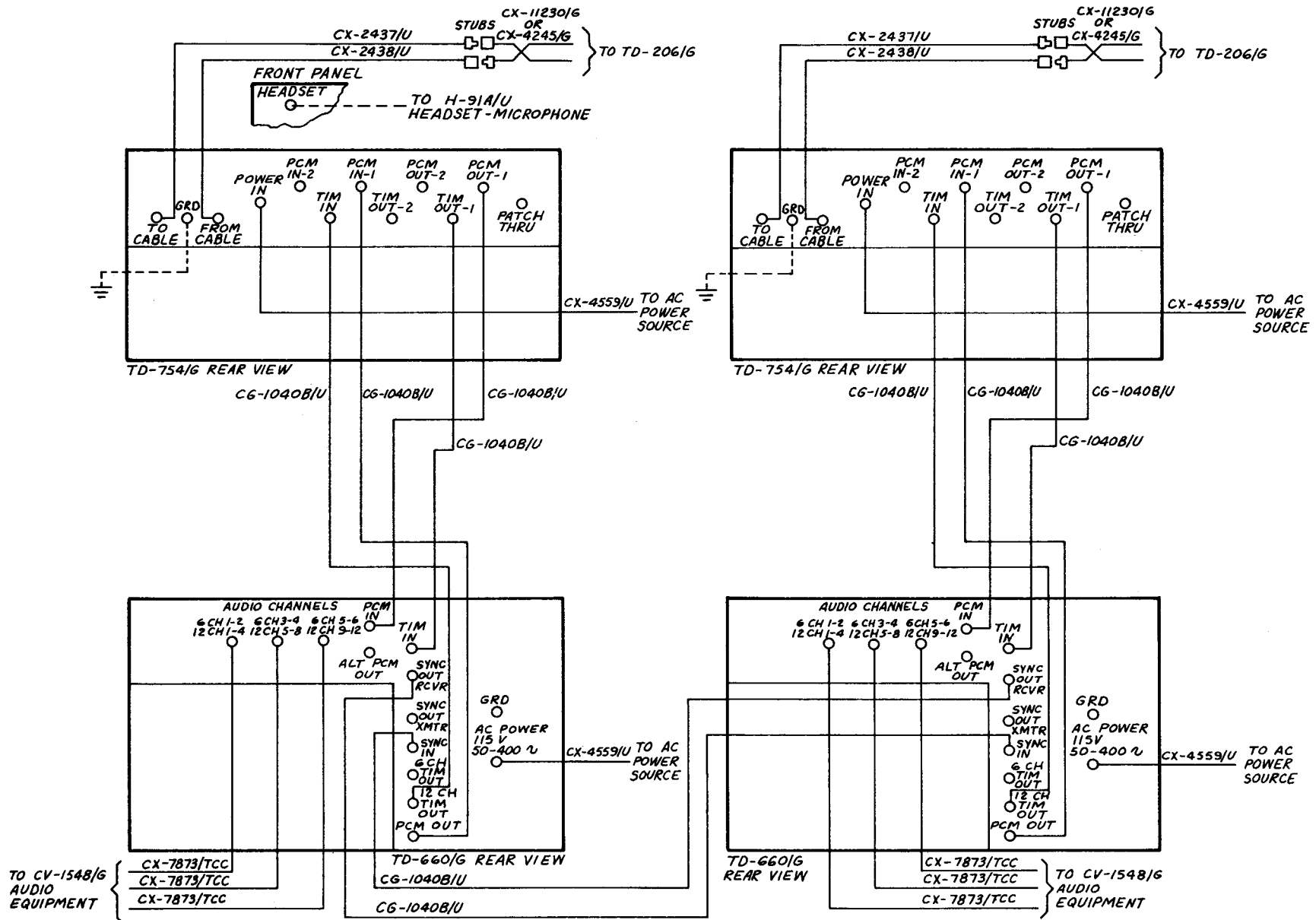
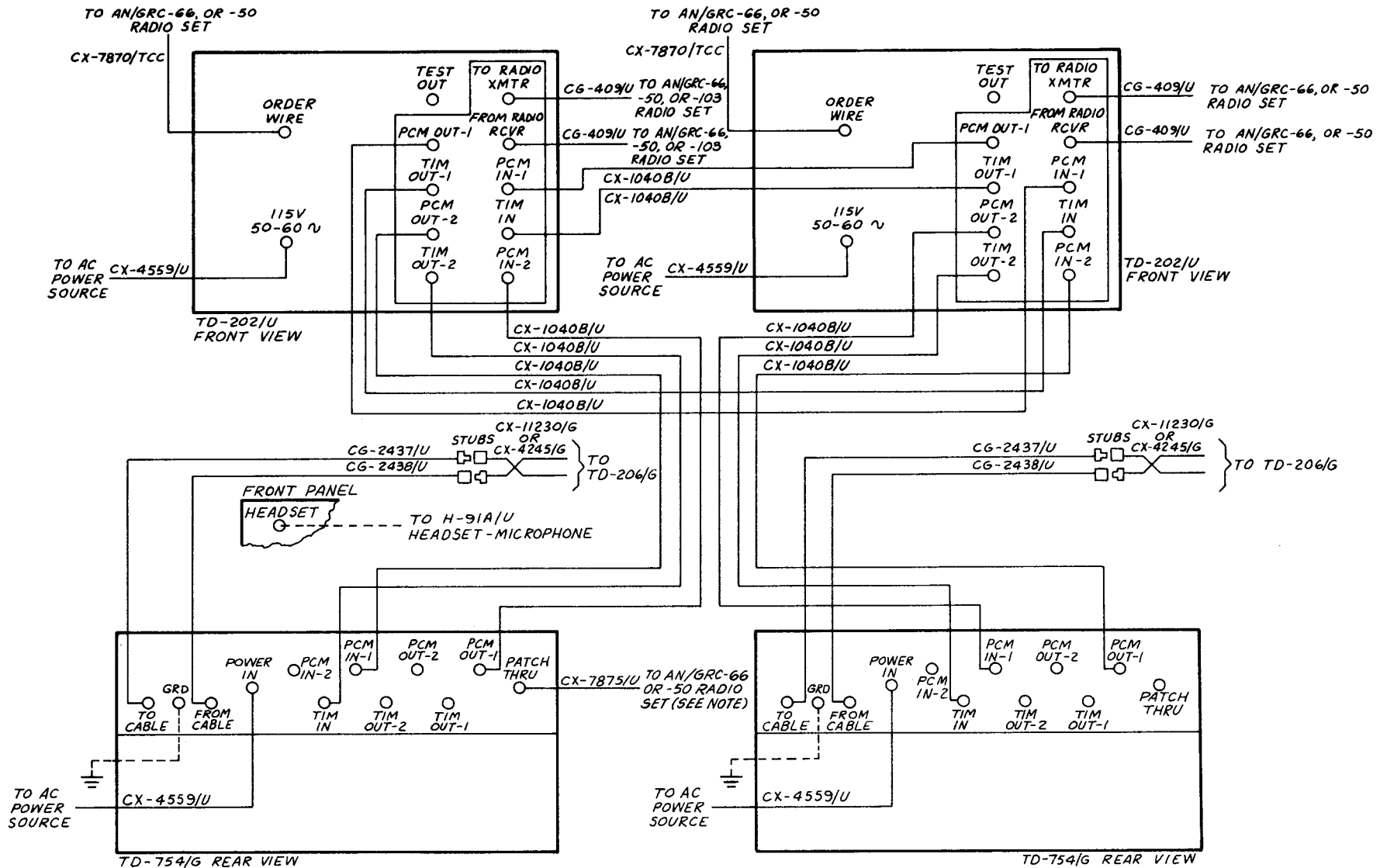


Figure 2-7. Attended-repeater (cable) with drop and insert facilities, interunit connection diagram.



NOTE:
BEFORE INSTALLATION, IT MUST BE DETERMINED WHICH OF THE TWO TD-754/G UNITS (EAST OR WEST) IS TO BE USED FOR REGULAR ORDER-WIRE PURPOSES BETWEEN THE LOCAL RADIO REPEATER AND THE REMOTE D/I FACILITY. THIS FIGURE SHOWS THE WEST TD-754/G ORDER-WIRE CIRCUIT CONNECTED.

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Figure 2-8. Radio repeater with remote drop and insert facilities via cable extension, interunit connection diagram.

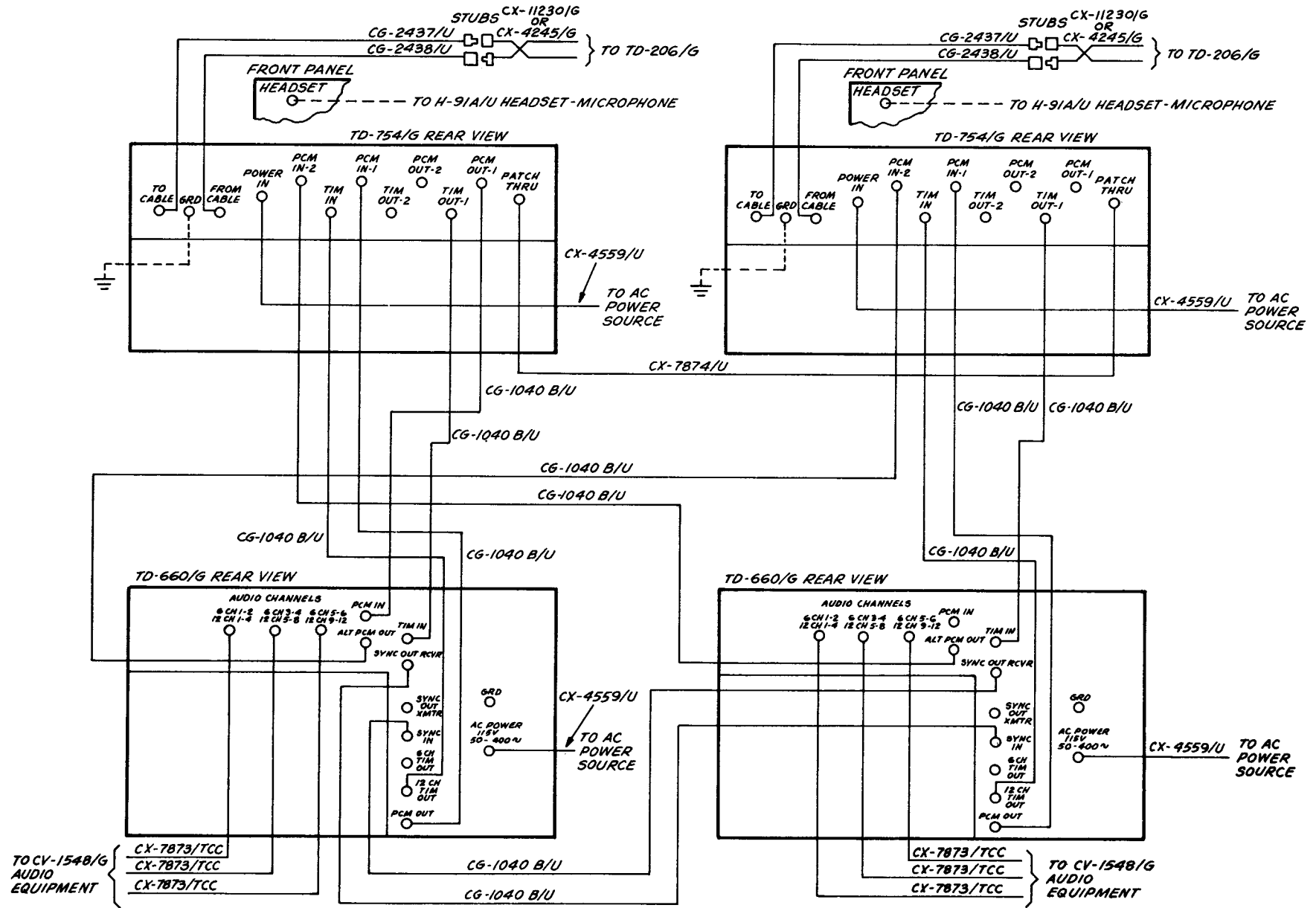


Figure 2-9. Remote drop and insert multiplex terminal, interunit connection diagram.

g. Observe that indicator on TEST ALIGN meter is in yellow band.

NOTE

When incorrect indications are obtained in *h* and *i* below, perform power supply alignment in paragraph 2-9.

h. Operate CABLE CURRENT switch to ON. Observe that CABLE CUR indicator is out.

i. Operate METER SEL switch to CABLE CUR. Observe that indication on TEST ALIGN meter is in green band.

WARNING

Failure of the cable current cutoff circuits presents a hazard to the user. The following check is a functional test of this circuit.

j. Adjust CABLE CURRENT switch to OFF. Disconnect cable attached to rear panel TO CABLE connectors.

k. Adjust METER SEL switch to CABLE VOLTS and CABLE CURRENT switch to ON. Observe that TEST ALIGN meter indicates full-scale for approximately one second and then returns to zero. Also observe that CABLE CUR indicator is lighted. Inability to obtain these results indicates faulty equipment, refer to organizational maintenance.

l. Adjust CABLE CURRENT switch to OFF. Reconnect cable to rear panel to cable connector and perform steps *h* and *i* above.

Section III. SYSTEM ALIGNMENT

2-8. General

a. The following instructions can be performed by qualified operator and organizational maintenance personnel. The procedures consist of checking and aligning the dc power circuits on power supply assembly 12A1 as prescribed in paragraph 2-9 and the setting of the test tone level in the order-wire facilities on panel 12A2 as prescribed in paragraph 2-10.

b. Do not perform alignment procedures unless the connections, initial checks, and adjustments prescribed in section II have been performed.

c. When performing system alignment, it must be assumed that all other units that make up the system are operating properly and that any malfunction of other units can be detected by responsible personnel. If other units in the system are faulty, refer to the respective instruction and troubleshooting manuals.

CAUTION

Use special screwdriver attached to front panel when performing adjustments on front panel, power supply assembly 12A1, panel 12A2, panel 12A4, or panel 12A5; otherwise, equipment may be damaged.

b. Operate METER SEL switch to SERV FAC and SERV SEL switch to REF. Observe that indication on TEST ALIGN meter is in yellow band.

c. Operate SERV SEL switch to +28. Observe that indication on TEST ALIGN meter is in green band.

d. Operate SERV SEL switch to +12, +5, and -6. Observe that there is a hairline indication in green band on TEST ALIGN meter for each switch position. If any indication is incorrect, adjust appropriate potentiometer on the front panel.

e. Operate METER SEL switch to CALBE CUR and observe that a hairline indication on TEST ALIGN meter is in green band. If indication is incorrect, adjust CABLE CURRENT ADJ potentiometer for correct indication.

NOTE

Indication on TEST ALIGN meter in *f* below can vary between systems. The amount of high voltage developed in power supply assembly 12A1 varies proportionately to number of TD-206/G's installed in the cable link. As number of TD-206/G's are increased, the greater the high voltage required.

f. Operate METER SEL switch to CABLE VOLTS. Observe and record the indication on the TEST ALIGN meter for future reference and comparison.

2-9. Power Supply Alignment

These procedures consist of checking the dc outputs of the +28-, +12-, +5-, and -6-volt power supply circuits and checking the constant cable current output. The tests are performed using the monitor circuit facilities on the front panel.

a. Operate PWR and CABLE CURRENT switches to ON.

2-10. Order-Wire Facilities Adjustment

The order wire facilities adjustment is performed to establish the correct input level of the cable-in order-wire signals applied from the TD-754/G at the opposite end of the cable link. The alignment procedure should be under the supervision of the designated control station at either the east or the

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west terminal.

a. Connect Headset-Microphone H-91A/U to HEADSET receptacle located on front panel.

b. If applicable, operate PWR switch to ON. Observe that power indicator lights.

c. Operate CABLE CURRENT switch to ON. Observe that CABLE CUR indicator is out.

d. Operate METER SEL switch to SERV FAC.

e. Operate SERV SEL switch to 0.

f. Listen to receiver of Headset-Microphone H-91A/U to determine whether or not the order-wire circuit is in use.

g. Operate TALK-OFF-SIG switch to SIG for about 2 seconds if order-wire circuit is not in use.

h. Operate TALK-OFF-SIG switch to TALK to converse with called station.

i. Direct operator at opposite end of cable link to operate TONE switch on panel 12A2 to ON.

j. Upon receipt of test tone, adjust CRL potentiometer on panel 12A2 for a green band

indication on TEST ALIGN METER.

k. Upon completion of adjustment in *j* above, notify operator at opposite end of cable link that alignment is complete. Operator should operate TONE switch on panel 12A2 to OFF.

NOTE

Perform *l* through *o* below only when the TD-754/G is used as an attended-repeater station.

l. On adjacent TD-754/G, operate TONE switch on panel 12A2 to ON.

m. On TD-754/G that is being aligned, operate METER SEL switch to SERV FAC and SERV SEL switch to 0.

n. On TD-754/G that is being aligned, adjust PRL potentiometer on panel 12A2 for green band indication on TEST ALIGN meter.

o. On adjacent TD-754/G, place TONE switch on panel 12A2 to OFF.

CHAPTER 3

OPERATING INSTRUCTIONS

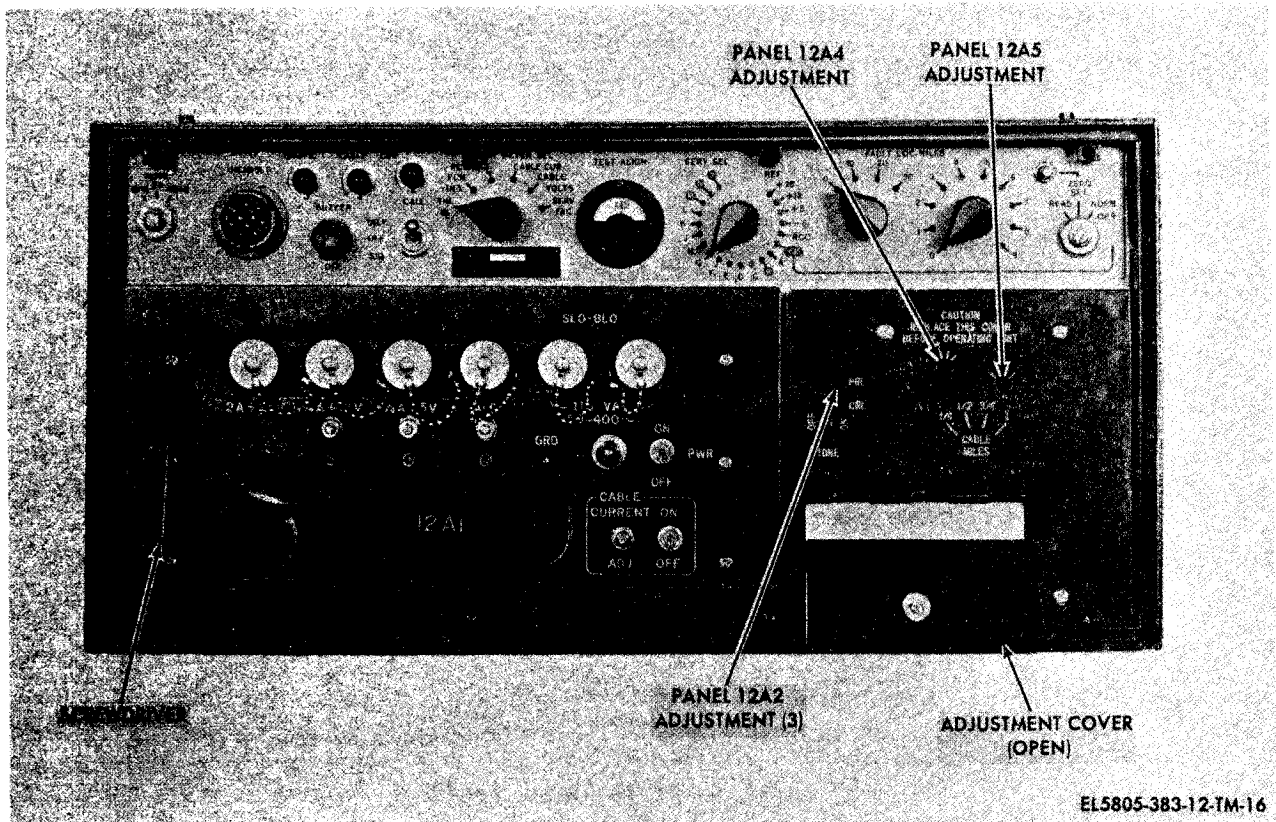
3-1. Controls and Indicators

The controls and indicators on the front panel of the TD-754/G are listed with their functional description in a below and are shown on figure 3-1. The fuses and receptacles on the front panel and rear panel are discussed and listed in *b* below.

a. Front Panel Controls and Indicators.

<i>Controls and Indicators</i>	<i>Function</i>
MODE rotary switch:	
6/12 position -----	Paces TD-754/G in 6/12-channel mode of operation.
24 position -----	Places TD-754/G in 24-channel mode of operation.

<i>Controls and Indicators</i>	<i>Function</i>
48AR position -----	Places TD-754/G in 48-channel mode of operation.
TRAFFIC indicator -----	Lights when pcm pulses from cable link are missing.
CABLE CUR indicator -----	Lights when cable current to cable link is missing.
CALL indicator -----	Lights when order-wire call signal is received.
BUZZER OFF push-button switch -----	Causes audible alarm to change state. When alarm is energized, pressing BUZZER OFF switch silences alarm. When alarm is off, pressing BUZZER OFF switch energizes alarm.



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Figure 3-1. Controls, indicators, and fuses.

<i>Controls and Indicators</i>	<i>Function</i>
TALK-OFF SIG toggle switch:	
TALK position ----	Enables talk circuit between attached Headset-Microphone H-91A/U and order-wire facilities in TD-754/G.
SIG position -----	Enables order-wire call signal from order-wire facilities to cable link.
METER SEL rotary switch -----	Selects one of six inputs to TEST ALIGN meter for monitoring key voltages and presence or absence of pulses in the TD-754/G.
TIM IN position ---	Checks for presence of incoming timing pulses in panel 12A4 from attached pcm equipment (TD-660/G).
PCM IN-1 position --	Checks for presence of incoming pcm-1 pulses in panel 12A4 from attached pcm equipment (TD-660/G).
PCM IN-2 position --	Checks for presence of incoming pcm-2 pulses (in 24-channel operation only) in panel 12A4 from attached pcm equipment (TD-660/G).
CABLE CUR position -----	Checks for presence and level of cable current to the cable link.
CABLE VOLTS position -----	Checks for presence of high voltage in cable current circuit.
SERV FAC position -----	Connects output from SERV SEL switch to TEST ALIGN meter.
TEST ALIGN meter -----	Provides visual go/no-go indications of signals selected by METER SEL and SERV SEL switches.
SERV SEL rotary switch -----	Selects any one of 21 inputs to TEST ALIGN meter for monitoring key voltages and presence or absence of pulses in the TD-754/G.
REF position -----	Checks that reference voltage is present and is within tolerance.
+28 position -----	Checks that +28 volts are present and are within tolerance.
+12 position -----	Checks that +12 volts are present and are within tolerance.
+5 position -----	Checks that +5 volts are present and are within tolerance.

<i>Controls and Indicators</i>	<i>Function</i>
-6 position -----	Checks that -6 volts are present and are within tolerance.
RCC position -----	Checks for presence of received cable current from cable link input to TD-754/G.
FL position -----	Part of cable fault locator function.
A position -----	Checks for presence of pcm-1 pulses in panel 12A4.
B position -----	Checks for presence of pcm-2 pulses in panel 12A4.
C position -----	Checks for presence of mixed pcm pulses in panel 12A4.
D position -----	Checks for presence of output pcm pulses in panel 12A4.
E position -----	Checks for presence of received timing pulses in panel 12A5.
F position -----	Checks for presence of received pcm pulses from cable link in panel 12A5.
G position -----	Checks for presence of pcm pulses in panel 12A6.
H position -----	Checks for presence of timing No. 1 output pulses from panel 12A6.
J position -----	Checks for presence of timing No. 2 output pulses from panel 12A6.
K position -----	Checks for presence of pcm No. 1 output pulses from panel 12A6.
L position -----	Checks for presence of pcm No. 2 output pulses from panel 12A6.
M position -----	Checks for presence of order-wire outgoing cable signal voltages from panel 12A3.
N position -----	Checks for presence of outgoing patch-through order-wire signal voltages from panel 12A2.
O position -----	Checks for presence of outgoing headset order-wire signal voltages from panel 12A2.
FAULT LOC MILES switch (2) -----	Part of cable fault locator function.
READ-ZERO SET-NORM OPR rotary switch:	
READ position -----	Part of cable fault locator function.
ZERO SET position --	Part of cable fault locator function.
NORM OPR position -----	Bypasses cable fault locator function in normal operation of TD-754/G.
ZERO SET potentiometer -----	Part of cable fault locator function.
Power indicator -----	Lights when PWR switch is

<i>Controls and Indicators</i>	<i>Function</i>
PWR toggle switch -----	placed to ON and 115 volts ac is applied to equipment. On-off control for 115-volt ac input.
CABLE CURRENT toggle switch -----	On-off control for constant cable current supply circuit.
CABLE CURRENT ADJ potentiometer ----	Controls cable current output from constant cable current supply circuit.
¼A + 12V potentiometer -	Controls +12-volt output of +12-volt power supply circuit.
½A + 5V potentiometer --	Controls +5-volt output of +5-volt power supply circuit.
1A-6V potentiometer ----	Controls -6-volt output of -6-volt power supply circuit.
TONE switch (panel 12A2) -----	On-off control of test tone output from panel 12A2.
PRL potentiometer (panel 12A2) -----	Controls amplitude of incoming patch-through order-wire signals on panel 12A2.
CRL potentiometer (panel 12A2) -----	Controls amplitude of incoming cable-in order-wire signals on panel 12A2.
CABLE MILES switch (panel 12A4) : -----	Controls amplitude of outgoing pcm and order-wire signals from panel 12A4 to cable link.
1 position -----	No attenuation of signal. Used when distance to TD-206/G in cable link is 1 mile.
¾ position -----	Attenuates signal to compensate for ¼ mile of cable impedance when distance to TD-206/G in cable link is ¾ mile.
½ position -----	Attenuates signal to compensate for ½ mile of cable impedance when distance to TD-206/G in cable link is ½ mile.
¼ position -----	Attenuates signal to compensate for ¼ mile of cable impedance when distance to TD-206/G in cable link is ¼ mile.
CABLE MILES switch (panel 12A5) : -----	Controls amplitude of incoming pcm and order-wire signals from cable link.
1 position -----	No attenuation of signal. Used when distance from TD-206/G in cable link is 1 mile.
¾ position -----	Attenuates signal to compensate for ¼ mile of cable im-

<i>Controls and Indicators</i>	<i>Function</i>
½ position -----	pedance when distance to TD-206 in cable link is ¾ mile. Attenuates signal to compensate for ½ mile of cable impedance when distance to TD-206/G in cable link is ½ mile.
¼ position -----	Attenuates signal to compensate for ¾ mile of cable impedance when distance to TD-206/G in cable link is ¼ mile.

b. Front and Rear Panel Fuses and Receptacles. The location of the fuses and receptacle on the front panel of the TD-754/G is shown on figure 3-1. The location of the receptacles on the rear panel is shown on figure 1-5. The receptacles that are used and the applicable cables connected in the various system configurations are shown on figures 2-2 through 2-9. The functional description of the fuses mounted on the front panel are listed below.

<i>Fuses</i>	<i>Function</i>
2A + 28V fuse -----	Protects + 28-volt power supply circuit.
¼A + 12V fuse -----	Protects + 12-volt power supply circuit.
½A + 5V fuse -----	Protects + 5-volt power supply circuit.
1A-6V fuse -----	Protects - 6-volt power supply circuit.
115 VAC 50-400 ~ fuses (2) -----	Protects 115-volt ac input (1 ampere rating).

3-2. Selecting Mode of Operation

The TD-754/G can be operated in any one of three modes. The TD-754/G is placed in the correct mode of operation by operating the MODE switch on the front panel to one of three positions. When the TD-754/G is operated in the 6- or 12-channel mode of operation, the MODE switch is operated to 6/12. In 24-channel mode of operation, the MODE switch is operated to 24. In the 48-channel mode of operation, or when the TD-754/G is used as an attended-repeater station, the MODE switch is operated to 48AR.

3-3. Starting Procedures

NOTE

Refer to the applicable technical manual for operating instructions for the associated pcm equipment used with the TD-754/G.

a. Operate PWR switch to ON. Observe that power indicator to left of PWR switch is lighted.

b. Operate CABLE CURRENT switch to ON. Observe that CABLE CUR indicator is out.

c. Operate METER SEL switch to SERV FAC.

d. Operate SERV SEL switch to REF and observe that indication on TEST ALIGN meter is in yellow band.

e. Operate SERV SEL switch to +28 and observe that indication on TEST ALIGN meter is in green band.

f. Operate SERV SEL switch to +12, +5, and -6 and observe that there is a hairline indication in green band on TEST ALIGN meter for each switch position.

3-4. Order-Wire Operating Procedures

a. Initiating Calls.

(1) Listen to receiver of Headset-Microphone H-91A/U to determine whether or not the order-wire circuit is in use.

(2) Operate the TALK-OFF-SIG switch to SIG for approximately 2 seconds. If station codes are assigned to each individual station, operate the TALK-OFF-SIG switch from OFF to SIG in accordance with the station code of the called station.

(3) Operate the TALK-OFF-SIG switch to TALK to converse with the called station.

(4) After the call is completed, operate TALK-OFF-SIG switch to OFF.

b. Answering Calls.

(1) When the audio alarm sounds and the CALL indicator on the front panel is lighted, operate the TALK-OFF-SIG switch to TALK and converse with the calling station. If station codes are assigned, answer only the call code that corresponds to your station code.

(2) When the call is completed, operate TALK-OFF-SIG switch to OFF.

3-5. Stopping Procedures

a. Operate CABLE CURRENT switch to OFF. Observe that CABLE CUR indicator is lighted.

b. Operate PWR switch to OFF. Observe that power indicator and CABLE CUR indicator are out.

3-6. Operation Under Unusual Conditions

Operation of the TD-754/G may be difficult in regions where conditions of extreme cold, heat, humidity, dust, dirt, sand, etc prevail. Although every precaution is taken in the design of the equipment to maintain the technical characteristics over a wide temperature and humidity range, extreme weather conditions may cause poor operation unless precautions are taken. The maximum low temperature for storage is -65°F. The maximum low temperature for equipment operation is -25°F and the maximum high temperature for equipment operation is 125°F. Observe the precautions in a through c below.

NOTE

To minimize exposure of equipment to the elements, keep all covers on the TD-754/G securely in place.

a. Arctic Climates.

(1) Keep the equipment warm and dry.

(2) When equipment has been exposed to cold temperatures and is brought into a warm room, moisture condenses on the equipment. This condensation may affect equipment operation. When the equipment reaches room temperature, dry it thoroughly.

b. *Tropical Climates.* When the TD-754/G is operated in a tropical climate, it may be stored and operated in an uncontrolled environment. When the equipment is below ground level, or in swampy areas, moisture conditions are more acute than normal. Ventilation is usually poor; the high relative humidity becomes lower than the surrounding air. To minimize this condition, provide as good a ventilation as possible. Dry the equipment thoroughly before using it.

c. *Desert Climates.* The main problem with equipment operation in desert areas is sand, dust, or dirt that infiltrates the equipment. Keep the TD-754/G as free from sand, dust, and dirt as possible.

CHAPTER 4 MAINTENANCE

Section I. PREVENTIVE MAINTENANCE

4-1. Scope of Maintenance

The maintenance duties assigned to the operator and organizational repair personnel of the equipment are listed below together with a reference to the paragraphs covering the specific maintenance functions. The tools and test equipment required are listed in appendix C.

- a. Operator/crew preventive maintenance checks and services chart (para 4-4).
- b. Organizational preventive maintenance checks and services (para 4-4.1).
- c. Cleaning (para 4-4.2).
- d. Touchup painting (para 4-4.3).

4-2. General

NOTE

Refer to TM 750-244-2 for proper procedures for destruction of this equipment to prevent enemy use.

a. Operator/crew preventive maintenance is the systematic care, servicing and inspection of equipment to prevent the occurrence of trouble, to reduce downtime, and to maintain equipment in serviceable condition. To be sure that your multiplexer set is always ready for your mission, you must do scheduled preventive maintenance checks and services (PMCS).

(1) BEFORE OPERATION, perform your B PMCS to be sure that your equipment is ready to go.

(2) DURING OPERATION, perform your D PMCS. This should help you to spot small troubles before they become big problems.

(3) When an item of equipment is reinstalled after removal, for any reason, perform the necessary B PMCS to be sure the item meets the readiness reporting criteria.

(4) Use the ITEM NO. column in the PMCS table to get the number to be used in the TM ITEM NO. column on DA Form 2404 (Equipment Inspection and Maintenance Worksheet) when you fill out the form.

b. Routine checks like CLEANING, DUSTING, WASHING, CHECKING FOR FRAYED CABLES, STOWING ITEMS NOT IN USE, COVERING UNUSED RECEPTACLES, CHECK-

ING FOR LOOSE NUTS AND BOLTS AND CHECKING FOR COMPLETENESS are not listed as PMCS checks. They are things that you should do any time you see they must be done. If you find a routine check like one of those listed in your PMCS, it is because other operators reported problems with this item.

NOTE

When you are doing any PMCS or routine checks, keep in mind the warnings and cautions.

WARNINGS

- Adequate ventilation should be provided while using TRICHLOROTRIFLUOROETHANE. Prolonged breathing of vapor should be avoided. The solvent should not be used near heat or open flame; the products of decomposition are toxic and irritating. Since TRICHLOROTRIFLUOROETHANE dissolves natural oils, prolonged contact with skin should be avoided. When necessary, use gloves which the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.
- Compressed air is dangerous and can cause serious bodily harm if protective means or methods are not observed to prevent a chip or particle (of whatever size) from being blown into the eyes or unbroken skin of the operator or other personnel. Goggles must be worn at all times while cleaning with compressed air. Compressed air shall not be used for cleaning purposes except where reduced to less than 29 pounds per square inch gage (psig) and then only with effective chip guarding and personnel protective equipment. Do not use compressed air to dry parts when trichlorotrifluoroethane has been used.

NOTES

The PROCEDURES column in your PMCS charts instruct how to perform the required checks and services. Carefully follow these instructions and, if tools are needed or the chart so instructs,

get organizational maintenance to do the necessary work.

If your equipment must be in operation all the time, check those items that can be checked and serviced without disturbing operation. Make the complete checks and services when the equipment can be shut down.

c. Deficiencies that cannot be corrected must be reported to higher category maintenance personnel. Records and reports of preventive maintenance must be made in accordance with procedures given in DA Pam 738-750.

4-3. Operator/Crew Preventive Maintenance Checks and Services

Perform before operation PMCS if you are operating the item for the first time.

NOTE

The checks in the interval column are to be performed in the order listed.

4-4. Operator/Crew Preventive Maintenance Checks and Services Chart

B - Before

D - During

Item No.	Interval		Item to be inspected	Procedures - Check for and have repaired or adjusted as necessary	Equipment is not Ready/Available If:
	B	D			
1	•		Mission Essential Equipment	Check for completeness and satisfactory condition of the equipment. Report missing items.	Available equipment is insufficient to support the combat mission.
2		•	Traffic (PCM) Alarm Circuit	<p>CAUTION</p> <p>Perform when there is no traffic. Notify operator at opposite end of cable link to momentarily operate POWER switch to OFF on TD-660/G. Observe that TRAFFIC indicator lights and then goes out.</p>	
3	*		Audible Alarm Circuit Test	Momentarily press the BUZZER ON switch several times. Note that audible alarm is alternately energized and silenced.	Audible alarm does not operate.
3A	*		Excessive Cable Current Shutdown Check	<p>WARNING</p> <p>Failure to perform this check could result in a potentially lethal condition on the cable line. Make sure cable current is off when handling the cable leading to the repeaters.</p> <p>Operate PWR switch to ON and observe that power and cable CUR indicators light. Operate cable current switch to ON. Observe that cable current indicator is out. Adjust cable current ADJ pot clockwise until cable current indicator light comes on and audible alarm sounds.</p>	Available equipment is insufficient to support the combat mission.

*Do these checks before each deployment to mission location. This will permit any existig problems to be corrected before the mission starts. The checks do not need to be done again until redeployment.

B - Before

D - During

Item No.	Interval		Item to be inspected	Procedures - Check for and have repaired or adjusted as necessary	Equipment is not Ready/Available If:
	B	D			
4	*		Equipment Serviceability	<p>WARNING</p> <p>If the above does NOT occur, then a hazardous and potentially lethal condition exists. The unit must be returned for depot repair.</p> <p>NOTE</p> <p>TD-754/G must be in system operation or connected and operating in the loopback configuration as described in paragraph 4-10.</p> <p>Perform monitor circuit checks as described in paragraph 4-8.</p>	

*Do these checks before each deployment to a mission location. This will permit any existing problems to be corrected before the mission starts. The checks do not need to be done again until redeployment.

4-4.1. Organizational Preventive Maintenance Checks and Services

There are no scheduled organizational preventive maintenance checks and services on this equipment. The operator will perform general maintenance and scheduled PMCS. When a problem develops that is beyond the capabilities of the operator, the operator will advise organizational maintenance on DA Form 2404 and request assistance.

4-4.2. Cleaning

a. Use a dry, clean, lint-free cloth or brush to remove dust and dirt. If necessary, moisten the cloth or brush with mild soap and water. After surface is cleaned, wipe dry with a clean cloth.

WARNING

Compressed air is dangerous and can cause serious bodily harm if protective means or methods are not observed to prevent a chip or particle (of whatever size) from being blown into the eyes or

unbroken skin of the operator or other personnel. Goggles must be worn at all times while cleaning with compressed air. Compressed air shall not be used for cleaning purposes except where reduced to less than 29 pounds per square inch gage (psig) and then only with effective chip guarding and personnel protective equipment. Do not use compressed air to dry parts when trichlorotrifluoroethane has been used.

b. Dry, compressed air, not to exceed 60 pounds per-square-inch, may be used to blow dust and dirt from inaccessible places on equipment.

4-4.3. Touchup Painting

Remove dust and corrosion from metal surfaces by lightly sanding with fine sandpaper. Brush two thin coats of paint on bare metal to protect it from further corrosion. Refer to the applicable cleaning and refinishing practices specified in TB 43-0118.

Section II. TROUBLESHOOTING**4-5. General**

a. The TD-754/G contains visual alarm circuits and an audible alarm circuit to warn operating personnel of certain malfunctions (para 4-7). A monitor circuit (para 4-8) is also contained in the equipment to assist in locating faulty circuits. When the TD-754/G is suspected of being faulty, perform the operator's daily preventive maintenance checks and services (para 4-2) to locate the specific abnormal symptom. When one or more specific symptoms occur, refer to the applicable symptom in the troubleshooting chart (para 4-6) to confirm the trouble and appropriate corrective action. Paragraph 4-9 contains the procedures for locating a faulty TD-206/G in the cable link.

b. Operator personnel can replace defective fuses and lamps, and perform circuit checks, using the monitor circuit on the front panel. The removal and replacement of power supply assembly 12A1 and panels 12A2 through 12A6 will be performed by qualified organizational maintenance personnel or a higher level of maintenance personnel. Continuity or voltage checks, using a Multimeter TS-352/U or similar equipment to determine a faulty component, will be performed by qualified organizational maintenance personnel or a higher level of maintenance personnel.

c. The symptoms are listed in the troubleshooting chart with the assumption that the external equipment used with the TD-754/G is operational. It is also assumed that a visual check for proper cable connections and physical damage has been performed. When more than one probable trouble is listed in the troubleshooting

chart for a given symptom, proceed through each symptom and corrective action until the fault is corrected. If the appropriate corrective action does not correct the fault, refer the equipment to the appropriate level of maintenance personnel as designated in the maintenance allocation chart in appendix C.

WARNING

In normal operation, power supply assembly 12A1 contains up to 1,000 volts dc when CABLE CURRENT switch is on.

CAUTION

When a blown fuse is discovered during troubleshooting, it is almost always a result of trouble and not a cause. If replacement of the blown fuse with a known good fuse results in the blowing of the replacement fuse, more detailed troubleshooting is required. Replacing a blown fuse with a fuse of a higher current rating, or defeating the fuse with a screwdriver or another type of shorting device that does not open the circuit, can result in extensive damage to the TD-754/G.

CAUTION

Always operate the PWR switch to OFF before removing or replacing panels 12A2 through 12A6. Disconnect the power cable from the power source, or turn off system power, before removing or replacing power supply assembly 12A1.

4-6. Troubleshooting Chart

<i>Item No.</i>	<i>Symptom</i>	<i>Probable trouble</i>	<i>Corrective action</i>
1	Power indicator on front panel fails to light when PWR switch is operated to ON.	<ul style="list-style-type: none"> a. Blown 115 VAC fuses. b. Defective power lamp. c. Power supply assembly 12A1 not properly installed in TD-754/G. d. No 115-vac input. 	<ul style="list-style-type: none"> Check fuses. Check lamp. Check for proper installation of power supply assembly 12A1 in TD-754/G. Check that external power cable is properly connected to POWER IN receptacle.
2	TEST ALIGN meter fails to indicate in yellow band when SERV SEL switch is operated to REF (METER SEL switch to SERV FAC).	<ul style="list-style-type: none"> a. Defective reference power supply circuit. b. Defective monitor circuit. 	<ul style="list-style-type: none"> Replace power supply assembly 12A1. Repair is assigned to a higher level of maintenance personnel.
3	TEST ALIGN meter fails to indicate in green band when SERV SEL switch is operated to +28 (METER SEL switch to SERV FAC).	<ul style="list-style-type: none"> a. Blown 2A+28V fuse. b. Defective +28-volt power supply circuit. 	<ul style="list-style-type: none"> Check fuse. Replace power supply assembly 12A1.
4	TEST ALIGN meter fails to indicate in green band for any one of the following positions of SERV SEL switch (METER SEL switch to SERV FAC):		
	+12	<ul style="list-style-type: none"> a. Blown $\frac{1}{4}$ A+12V fuse. b. +12V potentiometer out of adjustment. 	<ul style="list-style-type: none"> Check fuse. Adjust +12V potentiometer on front panel for hairline indication.
	+5	<ul style="list-style-type: none"> c. Defective +12-volt power supply circuit. a. Blown $\frac{1}{2}$ A+5V fuse. b. +5V potentiometer out of adjustment. 	<ul style="list-style-type: none"> Replace power supply assembly 12A1. Check fuse. Adjust +5V potentiometer on front panel for hairline indication.
	-6	<ul style="list-style-type: none"> c. Defective +5-volt power supply circuit. a. Blown 1A-6V fuse. b. -6V potentiometer out of adjustment. 	<ul style="list-style-type: none"> Replace power supply assembly 12A1. Check fuse. Adjust -6V potentiometer on front panel for hairline indication.
	-6	<ul style="list-style-type: none"> c. Defective -6-volt power supply circuit. 	<ul style="list-style-type: none"> Replace power supply assembly 12A1.
5	TEST ALIGN meter fails to indicate in green band for any one of the following positions of METER SEL switch:		
	TIM IN	<ul style="list-style-type: none"> a. Defective panel 12A4. b. No timing input. 	<ul style="list-style-type: none"> Replace panel 12A4. Check that external cable at TIM IN receptacle is properly connected.
	PCM IN-1	<ul style="list-style-type: none"> a. Defective panel 12A4. b. No pcm-1 input. 	<ul style="list-style-type: none"> Replace panel 12A4. Check that external cable at PCM IN-1 receptacle is properly connected.
	PCM IN-2 (24-channel operation only)	<ul style="list-style-type: none"> a. Defective panel 12A4. b. No pcm-2 input. 	<ul style="list-style-type: none"> Replace panel 12A4. Check that external cable at PCM IN-2 receptacle is properly connected.

CABLE CUR

- a. Cable current supply circuit automatically turned off by temporary condition.
- b. CABLE CURRENT ADJ potentiometer out of adjustment.
- c. Defective constant cable current supply circuit.

Operate CABLE CURRENT switch to OFF and then to ON.
Adjust CABLE CURRENT ADJ potentiometer on front panel for hairline indication.
Replace power supply assembly 12A1.

CABLE VOLTS

(Normal indication on TEST ALIGN meter varies proportionally to the number of TD-206/G's in cable link. Normal indication on TEST ALIGN meter increases (clockwise) as TD-206/G's are added in the cable link.)

- a. Cable current supply circuit automatically turned off by temporary condition.
- b. Defective high-voltage circuit.

Operate CABLE CURRENT switch to OFF and then to ON.
Replace power supply assembly 12A1.

- 6 CABLE CUR indicator lights and audible alarm is energized.

- a. Cable current supply circuit automatically turned off by temporary condition.
- b. CABLE CURRENT ADJ potentiometer out of adjustment.
- c. Defective constant cable current supply circuit.

Operate CABLE CURRENT switch to OFF and then to ON.
Adjust CABLE CURRENT ADJ potentiometer on front panel for hairline indication with SERV SEL switch operated to CABLE CUR and METER SEL switch operated to SERV FAC.
Replace power supply assembly 12A1.

- 7 TEST ALIGN meter fails to indicate in green band when SERV SEL switch is operated to one of the following positions (METER SEL switch to SERV FAC):

RCC

- a. Defective panel 12A2.
- b. Defective panel 12A5.

Replace panel 12A2.
Replace panel 12A5.
Replace panel 12A4.
Replace panel 12A4.

A

B (Not applicable in 48-channel mode of operation)

C

D

E

F

- Defective panel 12A4.
Defective panel 12A4.
Defective panel 12A5.
a. Switch on panel 12A5 not properly set.

Replace panel 12A4.
Replace panel 12A4.
Replace panel 12A5.
a. Check switch (para 2-6c).
b. Check setting of switch on panel 12A4 of transmitting TD-754/G.

G

H

J

K

L

- b. Defective panel 12A5.
 - c. Defective panel 12A6.
- Defective panel 12A6.
Defective panel 12A6.
Defective panel 12A6.
Defective panel 12A6.
Defective panel 12A6.

Replace panel 12A5.
Replace panel 12A6.
Replace panel 12A6.
Replace panel 12A6.
Replace panel 12A6.
Replace panel 12A6.
Replace panel 12A6.

Note. TONE switch on panel 12A2 is operated to ON to properly monitor circuits at switch positions M and N.

M

- a. Defective panel 12A2.
- b. Defective panel 12A3.

Replace panel 12A2.
Replace panel 12A3.

N	a. CRL potentiometer on panel 12A2 out of adjustment. b. Defective panel 12A2.	Perform order-wire facilities adjustment (para 2-10). Replace panel 12A2.
O (A call signal or test tone signal from TD-754/G on opposite end of cable link must be applied while observing TEST ALIGN meter.)	a. CRL potentiometer on panel 12A2 out of adjustment. b. PRL potentiometer on panel 12A2 out of adjustment. (Patchthrough mode of operation only.)	Perform order-wire facilities adjustment (para 2-10). Perform order-wire facilities adjustment (para 2-10).
Cable-in order-wire signals are weak or missing.	a. CRL potentiometer on panel 12A2 out of adjustment. b. Defective panel 12A2.	Perform order-wire facilities adjustment (para 2-10). Replace panel 12A2.
Patchthrough order-wire signals are weak or missing. (Attended-repeater operation only.)	a. PRL potentiometer out of adjustment. b. Defective panel 12A2.	Perform order-wire facilities adjustment (para 2-10). Replace panel 12A2.
Output call signal and/or test tone signal is weak or missing.	Defective panel 12A2.	Replace panel 12A2.
Order-wire signals to and from attached Headset-Microphone H-91A/U are faulty.	Faulty cable connection.	Check that external cable is properly connected to HEADSET receptacle.
Faulty indications on TEST ALIGN meter when performing cable fault locator function.	a. Defective power supply assembly 12A1. b. Defective FAULT LOC MILES switch.	Replace power supply assembly 12A1. Maintenance of switches is assigned to a higher level of maintenance personnel.
Faulty indications on TEST ALIGN meter when performing monitor function.	Defective monitor circuits.	Maintenance of circuits is assigned to a higher level of maintenance personnel.
Audible alarm does not sound when TRAFFIC, CALL, or CABLE CUR indicator lights.	a. Defective panel 12A3. b. Defective audible alarm horn.	Replace panel 12A3. Replace power supply assembly 12A1.
CALL indicator does not light, but audible alarm sounds when ring signal is applied.	a. Defective CALL lamp. b. Defective panel 12A3.	Check CALL lamp. Replace panel 12A3.
TRAFFIC indicator does not light, but audible alarm sounds when incoming pcm pulses are missing.	a. Defective TRAFFIC lamp. b. Defective panel 12A3.	Check TRAFFIC lamp. Replace panel 12A3.
CABLE CUR indicator does not light, but audible alarm sounds when cable current is missing.	a. Defective CABLE CUR lamp. b. Defective panel 12A3.	Check CABLE CUR lamp. Replace panel 12A3.
CALL indicator does not light and audible alarm does not sound when ring signal is applied.	Defective panel 12A3.	Replace panel 12A3.
TRAFFIC indicator does not light and audible alarm does not sound when incoming pcm pulses are missing.	Defective panel 12A3.	Replace panel 12A3.
CABLE CUR indicator does not light and audible alarm does not sound when cable current is missing.	Defective panel 12A3.	Replace panel 12A3.
TEST ALIGN meter indicates that the circuit being monitored is defective, but circuit being monitored is operating satisfactorily.	Defective monitor circuit.	Maintenance of monitor circuit is assigned to a higher level of maintenance personnel.

<i>Item No.</i>	<i>Symptom</i>	<i>Probable trouble</i>	<i>Corrective action</i>
22	Output pcm pulses to cable link are weak, distorted, or missing.	<ul style="list-style-type: none"> a. CABLE MILES switch on panel 12A4 not properly set. b. CABLE MILES switch on panel 12A5 of receiving TD-754/G not properly set. c. Defective panel 12A4. 	<ul style="list-style-type: none"> Check position of CABLE MILES switch (para 2-6b). Check setting of CABLE MILES switch on panel 12A5 of receiving TD-754/G. Replace panel 12A4.
23	Input pcm pulses to TD-754/G from cable link not properly processed to attached TD-660/G, or similar equipment.	<ul style="list-style-type: none"> a. CABLE MILES switch on panel 12A5 not properly set. b. CABLE MILES switch on panel 12A4 of transmitting TD-754/G not properly set. c. Defective panel 12A5. d. Defective panel 12A6. 	<ul style="list-style-type: none"> Check position of CABLE MILES switch (para 2-6c). Check setting of CABLE MILES switch on panel 12A4 of transmitting TD-754/G. Replace panel 12A5. Replace panel 12A6.
24	Input order-wire signals weak, distorted, or missing.	<ul style="list-style-type: none"> a. CRL potentiometer on panel 12A2 is out of adjustment. b. Defective panel 12A2. 	<ul style="list-style-type: none"> Perform order-wire facilities adjustments in paragraph 2-10. Replace panel 12A2.
25	Output order-wire signals weak, distorted, or missing.	<ul style="list-style-type: none"> a. Defective panel 12A2. b. Defective panel 12A3. 	<ul style="list-style-type: none"> Replace panel 12A2. Replace panel 12A3.

4-7. Audible and Visual Alarm Circuits

The TD-754/G contains an audible alarm circuit and visual alarm circuits to warn the operating personnel of a system malfunction. When incoming traffic (pcm pulses) is missing from the cable link input at the FROM CABLE receptacle, the TRAFFIC indicator is lighted and the audible alarm sounds. Pressing the BUZZER OFF switch silences the audible alarm, but the TRAFFIC indicator remains lighted until traffic is restored. The CABLE CUR indicator is lighted and the audible alarm sounds when the cable current is missing from the cable link. Pressing the BUZZER OFF switch silences the audible alarm, but the CABLE CUR indicator remains lighted. The cable current alarm circuit remains energized until the fault is corrected and the CABLE CURRENT switch is operated to OFF and then to ON. Pressing the BUZZER OFF switch when the audible alarm is energized by an incoming call signal will not silence the audible alarm. At any time, except when a call signal is being applied, momentarily pressing the BUZZER OFF switch several times causes the audible alarm to be alternately energized and silenced.

4-8. Monitor Circuit Check Procedures

The monitor circuit uses the METER SEL switch and the TEST ALIGN meter. By operating the switches, key circuit voltages and signal functions in the TD-754/G can be monitored without disturbing system operation. The normal indication shown on the TEST ALIGN meter for each position of the METER SEL switch and the SERV SEL switch are listed in *a* and *b* below. When an abnormal indication on the TEST ALIGN meter is obtained, note the item number listed under the Item No. column, and then locate the appropriate item number in the troubleshooting chart in paragraph 4-6. Once the item number is located in the troubleshooting chart, refer to the appropriate symptom listed after the item number and perform the corrective action.

a. Normal Indication Using METER SEL Switch.

Setting	Normal indication on TEST ALIGN meter	Item No.
TIM IN	In green band	5
PCM IN-1	In green band	5
PCM IN-2	In green band (24-channel operation only)	5
CABLE CUR	In green band	5

Setting	Normal indication on TEST ALIGN meter	Item No.
CABLE VOLTS	Normal indication varies proportionately to number of TD-206/G's in cable link (approximately 10 volts for each TD-206/G).	5

b. Normal Indication Using SERV SEL Switch With METER SEL Switch Operated to SERV FAC.

Setting	Normal indication on TEST ALIGN meter	Item No.
REF	In yellow band	2
+28	In green band	3
+12	In green band	4
+5	In green band	4
-6	In green band	4
RCC	In green band	7
A	In green band	7
B	In green band (not applicable in 48-channel operation)	7
C	In green band	7
D	In green band	7
E	In green band	7
F	In green band	7
G	In green band	7
H	In green band	7
J	In green band	7
K	In green band	7
L	In green band	7
M	In, or to right of, green band (see note 1)	7
N	In, or to right of, green band (see note 1)	7
O	In green band (see note 2)	7

NOTES

1. Operating TONE switch on panel 12A2 to ON should cause a normal indication on TEST ALIGN meter for switch positions M and N.

2. A call signal or test tone signal applied from TD-754/G on opposite end of cable link should cause a normal indication on TEST ALIGN meter for switch position O.

4-9. Cable Fault Locator Circuit Operating Procedures

The following procedures are used to locate a faulty TD-206/G in the output cable link that is connected to the TO CABLE receptacle on the rear panel. These procedures cannot be used to locate a break in the cable link. The TD-660/G,

or similar equipment, connected to the TD-754/G is not required for these procedures.

- a. Operate READ-ZERO SET-NORM OPR switch to ZERO SET.
- b. Operate PWR switch to ON.
- c. Operate CABLE CURRENT switch to ON.
- d. Operate METER SEL switch to CABLE CUR and observe a hairline indication on TEST ALIGN meter.

- e. Operate METER SEL switch to SERV FAC.
- f. Operate SERV SEL switch to FL.
- g. Adjust ZERO SET potentiometer for hairline indication on TEST ALIGN meter.
- h. Operate READ-ZERO SET-NORM OPR switch to READ.
- i. Operate two FAULT LOC MILES switches to obtain, as close as possible, a hairline indication on TEST ALIGN meter.

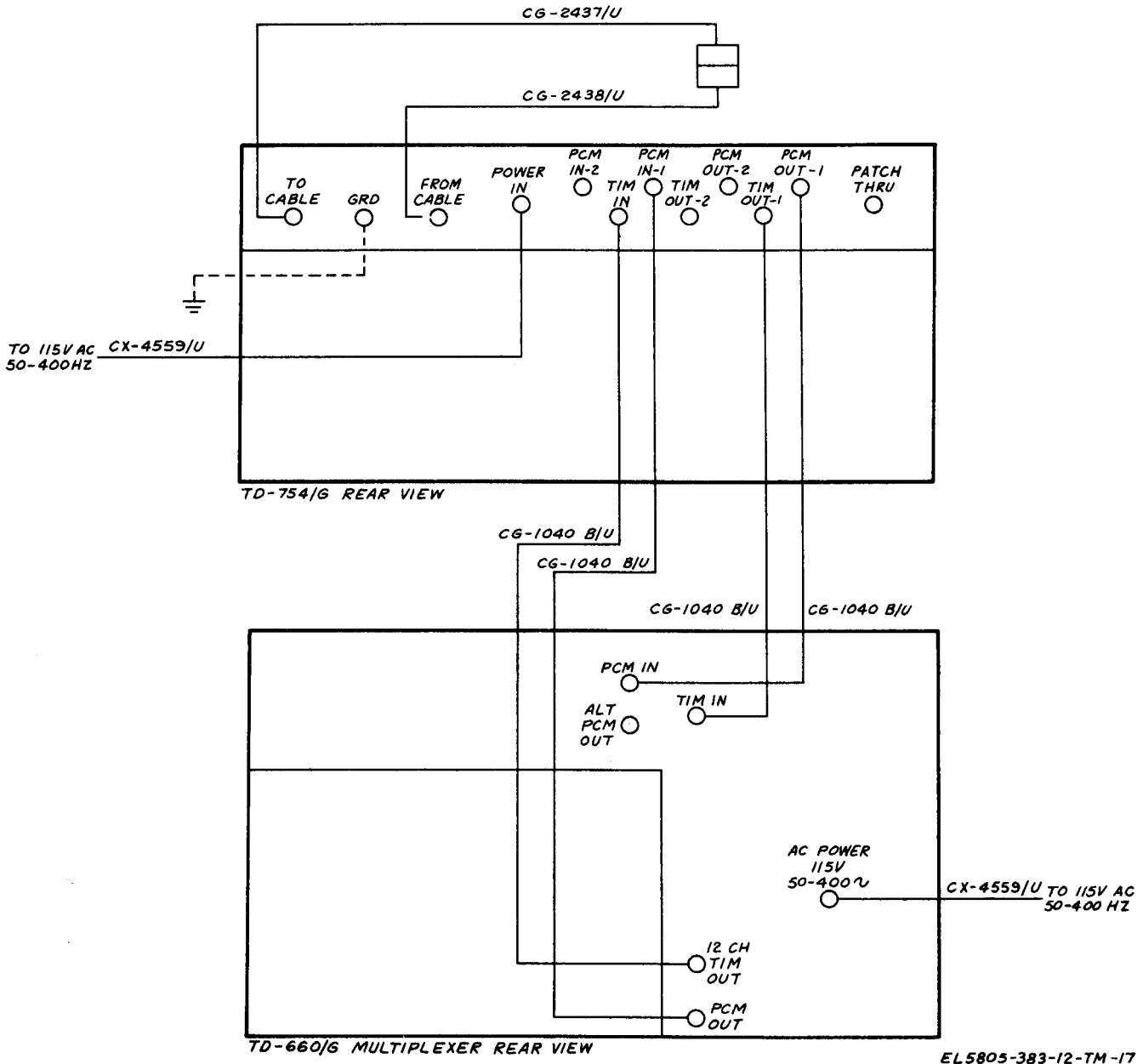


Figure 4-1. Loopback test setup, interunit cable diagram.

j. Observe positions of FAULT LOC MILES switches. Add numbers at each switch position together. The total indicates the number of operating TD-206/G's in front of the faulty TD-206/G. *For example*, the first switch position is 10 and the second switch position is 5, which indicates that the first 15 TD-206/G's are operational and that TD-206/G number 16 is faulty.

k. Operate READ-ZERO SET-NORM OPR switch to NORM OPR after procedure is complete.

4-10. Loopback Check Procedures

a. *General.* The loopback check can be used to check a TD-754/G that is not connected into a cable link. When a TD-754/G that is normally connected into a cable link is to be connected into this configuration, authorized downtime is required since the cable inputs and outputs to the TD-754/G are rerouted. A known good TD-660/G is required. No special cabling or test equipment is required to check a TD-754/G in this configuration.

b. *Preliminary Procedures.*

- (1) On TD-660/G, operate POWER switch to OFF.
- (2) On TD-754/G, operate PWR switch to OFF.
- (3) Connect equipment as shown on figure 4-1.
- (4) On TD-754/G, operate CABLE MILES switch on panel 12A4 to 1/2.

(5) On TD-754/G, operate CABLE MILES switch on panel 12A5 to 1/2.

(6) On TD-754/G, operate switches to following positions:

<i>Switch</i>	<i>Setting</i>
MODE	6/12
READ-ZERO SET-NORM OPR	NORM OPR
TALK-OFF-SIG	OFF
PWR	ON
CABLE CURRENT	ON

Note. Press BUZZER OFF switch as necessary to silence audible alarm.

(7) On TD-660/G, operate switches to following positions:

<i>Switch</i>	<i>Setting</i>
MODE	12CH
MASTER-SLAVE	MASTER
2 WIRE-4 WIRE	4 WIRE
POWER	ON

c. *Loopback Troubleshooting Procedures.* Perform the monitor circuit check procedures in paragraph 4-8 to locate faulty circuit.

NOTE

When monitoring positions N, M, and O on TEST ALIGN meter, operate TALK-OFF-SIG switch to SIG. TEST ALIGN meter should indicate in, or to the right of, green band.

d. *Stopping Procedures.*

- (1) On TD-660/G, place POWER switch to OFF.
- (2) On TD-754/G, place CABLE CURRENT switch to OFF.
- (3) On TD-754/G, place PWR switch to OFF.

Section III. REPAIR AND ADJUSTMENTS

4-11. Adjustments

a. The dc output voltages from the internal +12-, +5-, and -6-volt power supply circuits are adjusted by performing the power supply alignment procedures in paragraph 2-9.

b. The input voltage level of the incoming order-wire signals is adjusted by performing the order-wire facilities adjustment procedures in paragraph 2-10.

4-12. Plug-In Panel Replacement Procedures (Fig. 4-2)

WARNING

High voltage of 1,000 volts dc can exist

in the equipment when the power cable is connected between the power source and the equipment. Injury or DEATH could result from failure to comply with safety precautions.

The following procedures should be followed when replacing panels 12A2 through 12A6 to prevent possible damage to the equipment.

- a. Operate PWR and CABLE CURRENT switches to OFF.
- b. Remove protective cover from front panel.
- c. Grasp handle of panel and pull panel straight out while applying a steady pressure.

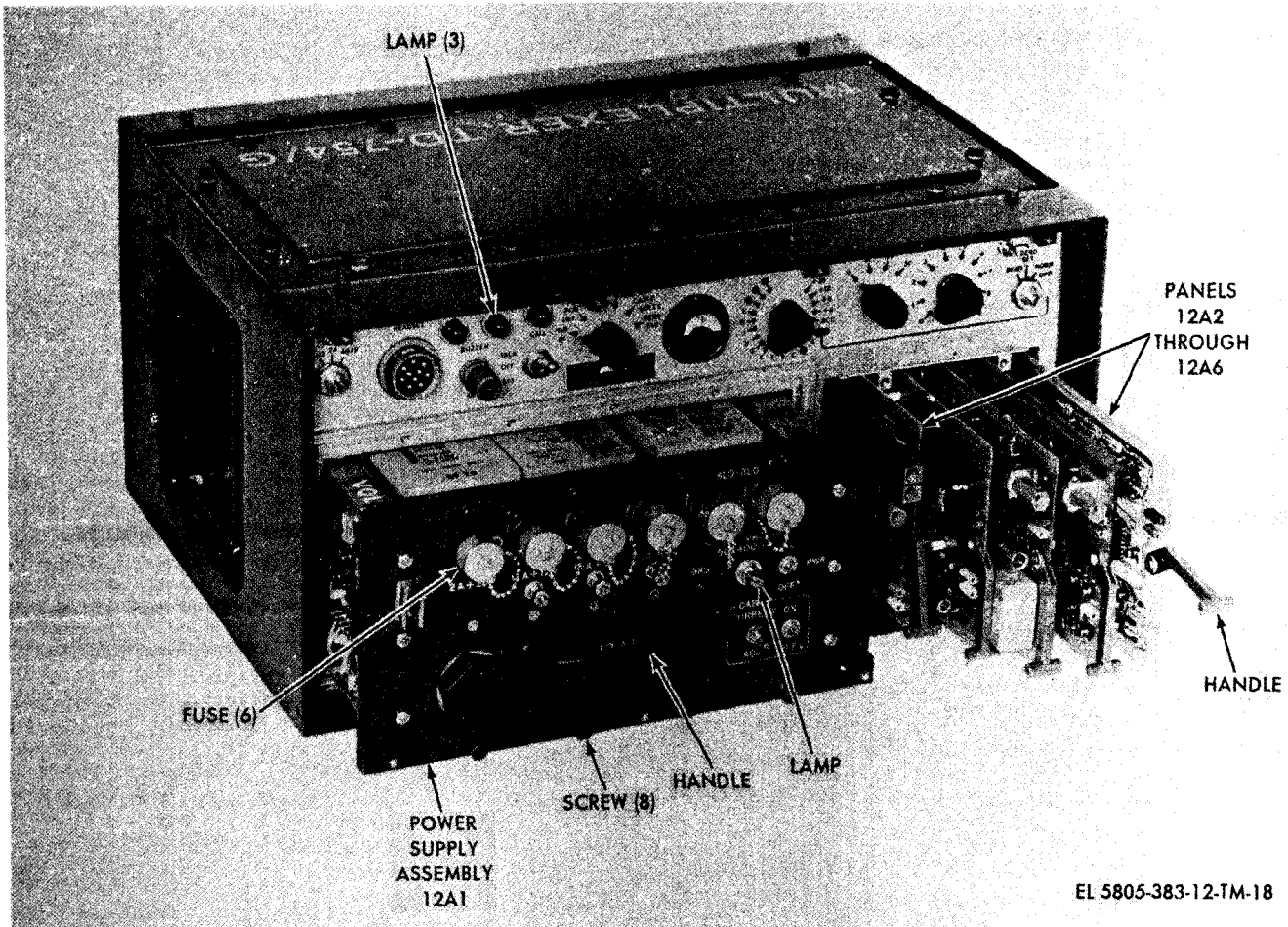


Figure 4-2. Location of pluckout items.

d. Align panel to be installed within the proper guides, and slide panel in until it makes firm contact with receptacle. Ensure that panel is firmly in place by pressing against the handle of the panel.

e. Attach protective cover to front panel.

4-13. Power Supply Assembly 12A1 Replacement Procedures

WARNING

High voltage of 1,000 volts dc can exist in the equipment when PWR switch and CABLE CURRENT switch are operated to ON. The 115 volts ac is present in the equipment when the power cable is connected between the power source and the equipment. Injury or DEATH could result from failure to comply with safety precautions.

The following procedures should be followed

when replacing power supply assembly 12A1 to prevent possible injury to personnel or damage to the equipment.

a. Operate PWR and CABLE CURRENT switches to OFF.

b. Loosen captive screws on power supply assembly 12A1.

CAUTION

Power supply assembly 12A1 is heavy. Remove slowly from front panel, using two hands.

c. Grasp handle and pull power supply assembly 12A1 straight out while applying a steady pressure.

d. On power supply assembly 12A1 that is to be installed, place PWR and CABLE CURRENT switches to OFF.

e. Carefully align power supply assembly 12A1

in front panel, and slowly push assembly into case until two connectors on case and two connectors on rear of assembly mate firmly.

f. Tighten captive screws on power supply assembly to secure it to front panel.

CHAPTER 5

SHIPMENT AND LIMITED STORAGE

Section I. SHIPMENT AND LIMITED STORAGE

5-1. Disassembly of Equipment

The following disassembly procedures are supplied as a guide for the preparation of the TD-754/G for reshipment and storage.

- a. Operate PWR and CABLE CURRENT switches to OFF.
- b. Disconnect all interunit cabling from rear panel.
- c. Disconnect ground strap from rear panel.
- d. Disconnect Headset-Microphone H-91A/U from front panel.
- e. Check that all covers are in place and secure,

5-2. Repackaging for Shipment or limited Storage

- a. Repackaging of equipment for shipment or

limited storage normally will be performed at a packaging facility or by a packaging team. Should emergency packaging be required, select the materials from those listed in SB 38-100, Preservation, Packaging, and Packing Materials, Supplies, and Equipment used by the Army. Package the equipment in accordance with the original packaging, so far as possible, with the available materials. Subparagraph *b* below prescribes the minimum packaging requirements that should be used when repackaging equipment.

- b. Wrap the TD-754/G in waterproof paper. Place filler material on the bottom, sides, and top of equipment and place TD-754/G in packing case. Wrap the instruction manual and place it on top of the TD-754/G. Secure the package in a manner to prevent accidental opening of case during handling or storage.

Section II deleted.

APPENDIX A REFERENCES

DA Pam 310-1	Consolidated Index of Army Publications and Blank Forms.
DA Pam 738-750	The Army Maintenance Management System (TAMMS).
SB 38-100	Preservation, Packaging, Packing and Marking Materials, Supplies and Equipment Used by the Army.
TB 43-0118	Field Instructions for Painting and Preserving Communications-Electronics Equipment.
TM 11-5805-367-12	Operator's and Organizational Maintenance Manual: Multiplexer TD-202/U (NSN5805-00-884-2176), TD-203/U (5805-00-884-2177), TD-204/U (5805-00-900-8200), TD-352/U (5805-00-900-8199), and TD-353/U (5805-00-985-9153), Restorer, Pulse Form TD-206/G (5805-00-868-8078), TD-206B/G (5805-01-020-2251) and Converters, Telephone Signal CV-1548/G (5805-00-069-8795) and CV-1548A/G (5805-00-069-8795).
TM 11-5805-382-12	Operator's and Organizational Maintenance Manual: Multiplexer TD-660/G (NSN 5820-00-930-8079), TD-660A/G and TD-660B/G (NSN 5820-00-928-3382).
TM 11-5805-383-20P	Organizational Maintenance Repair Parts and Special Tools Lists for Multiplexer TD-754/G (NSN 5820-00-930-8078).
TM 11-5895-456-15	Organizational, Direct Support, General Support, and Depot Maintenance Manual for Medium Capacity Tactical Radio Relay System.
TM 11-5965-206-14P	Operator's, Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools): Headset-Microphone H-91A/U (FSN 5965-669-6871); Handset-Headset H-144/U, H-144A/U, H-144B/U, and H-144C/U (FSN 5965-682-2769) and Headset Microphone H-210/G (FSN 5965-892-1068).
TM 11-6625-648-12	Operator's and Organizational Maintenance Manual: Test Set, Telephone AN/PTM-7 (NSN 6625-00-902-7574).
TM 740-90-1	Administrative Storage of Equipment.
TM 750-244-2	Procedures for Destruction of Electronics Materiel to Prevent Enemy Use (Electronics Command).

APPENDIX B

BASIC ISSUE ITEMS LIST

Section I. INTRODUCTION

B-1. Scope

This appendix lists items which accompany the TD-754/G or are required for installation, operation, or operator's maintenance.

<i>Code</i>	<i>Explanation</i>
0	Organizational maintenance

- (3) *Recoverability code.* The recoverability code is the third code in the column. Items not coded are expendable. The recoverability code listed in the BIIL is:

B-2. General

This Basic Issue Items List is divided into the following sections:

a. Basic Issue Items - Section II. A list of items which accompany the TD-754/G and are required by the operator/crew for installation, operation, or maintenance.

b. Maintenance and Operating Supplies - Section III. Not applicable.

<i>Code</i>	<i>Explanation</i>
S	Repair parts and assemblies which are economically repairable at DSU and GSU activities and which normally are furnished by supply on an exchange basis. When items are determined by a GSU to be uneconomically repairable, they will be evacuated to a depot for evaluation and analysis before final disposition.

B-3. Explanation of Columns

The following provides an explanation of columns in the tabular list of the Basic Issue Items, Section II.

a. Source, Maintenance, and Recoverability Codes (SMR), Column 1:

- (1) *Source code.* The selection status and source for the listed item is the first code in the column. The source codes listed in the BIIL are:

<i>Code</i>	<i>Explanation</i>
G	Major assemblies which are procured with PEMA funds for initial issue only as exchange assemblies at DSU and GSU levels. These assemblies will not be stocked above DS and GS levels or returned to depot supply level.
P	Repair parts which are stocked in or supplied from the GSA/DSA or Army supply system and authorized for use at indicated maintenance categories.

- (2) *Maintenance code.* The maintenance code is the second code in the column. The maintenance code listed below indicates the lowest category of maintenance authorized to install the listed item.

b. Federal Stock Number, Column 2. For requisitioning purposes, the Federal Stock Number must be converted to the National Stock Number (NSN) by adding "-00-" after the federal stock classification (FSC) code (first four digits). For example, FSN 6145-161-0790 converts to NSN 6145-00-161-0790.

c. Description, (Column 3. This column indicates the Federal item name and any additional description of the item required. A part number or other reference number is followed by the applicable five-digit Federal supply code for manufacturers in parentheses.

d. Unit of Measure (U/M), Column 4. A two-character alphabetic abbreviation indicating the amount or quantity of the item upon which the allowances are based (e.g., ft. ea, pr, etc.).

e. Quantity Incorporated in Unit, Column 5. This column indicates the quantity of the item used in the functional group. A "V" appearing in this column in lieu of a quantity indicates that a definite quantity cannot be indicated (e.g., shims, spacers, etc.).

f. Quantity Furnished With Equipment, Column 6. This column indicates the quantity of an item furnished with the equipment.

g. Illustration, Column 7. This column is divided as follows:

- (1) Figure Number, Column 7a. Indicates the figure number of the illustration in which the item is shown.
- (2) Item Number, Column 7b. Indicates the callout number used to reference the item in the illustration.

B-4. Federal Supply Codes for Manufacturers

Code	Manufacturer
34675	Martin-Marietta Corp. Ocala Operation 498 Oak Road Ocala, Florida 32670
81349	Military Specification
96906	Military Standard

Section II. BASIC ISSUE ITEMS

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION Reference Number & Mfr Code	Usable On Code	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) QTY FURN WITH EQUIP	(7) ILLUSTRATIONS	
							(a) FIG. NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
	5820-930 -8078	MULTIPLEXER TD-754/G : Provides transmitting and receiving multiplexer facilities for 6-, 12-, 24-, and 48-channel cable systems. The TD-754/G can receive or transmit PCM signals to one or two TD-660/G's, or similar equipment, connected to it. TECHNICAL MANUAL TM 11-5 805-383-12 Requisition through pinpoint account number if assigned; otherwise, through nearest Adjutant General Facility. NOTE : A quantity of one technical manual is packed with each equipment. Where a valid need exists, additional copies may be requisitioned and kept on hand. OPERATOR/CREW REPAIR PARTS , ACCESSORIES , TOOLS, AND TEST EQUIPMENT		EA	1			
P-O	5920-280-8344	FUSE : F02A250V1/2A (81349)		EA	1	5	1-6	12A1 F4
P-O	5920-043-2641	FUSE : F02A250V1/4A (81349)		EA	1	5	1-6	12A1 F3
P-C	5920-280-8342	FUSE : F02A250V1A (81349)		EA	1	5	1-6	12A1 F5
P-O	5920-280-4960	FUSE : F02A250V2A (81349)		EA	1	5	1-6	12A1 F6
P-O	5920-284-9220	FUSE , SLOW BLOW : F02B250V1A (81349)		EA	2	5	1-6	12A1 F1 12A1 F2
P-O	6240-155-7836	LAMP : MS25237-327 (96906)		EA	3	2	106	12 DS1 12 DS2 12 DS3
P-O-S	6240-892-4420	LAMP , NEON : MS25252-C7A (96906)		EA	1	1	1-6	12A1 DS1
P-O-S	5805-503-5647	PANEL ASSEMBLY : SME525422 (34675)		EA	1	1	4-2	12A2
P-O-S	5820-137-2330	PANEL ASSEMBLY : SME525425 (34675)		EA	1	1	4-2	12A3
P-O-S	5820-137-2331	PANEL ASSEMBLY : SME525428 (34675)		EA	1	1	4-2	12A4
P-O-S	5820-137-2329	PANEL ASSEMBLY : SME525431 (34675)		EA	1	1	4-2	12A5
P-O-S	5820-137-2333	PANEL ASSEMBLY : SME525434 (34675)		EA	1	1	4-2	12A6
P-O-S	5120-079-8979	Tool, Adjustment, SPS 524961		EA	1	1	3-1	sc rewdriver

APPENDIX C MAINTENANCE ALLOCATION

Section I. INTRODUCTION

C-1. General

This appendix provides a summary of the maintenance operations for TD-754/G. It authorizes categories of maintenance for specific maintenance functions on repairable items and components and the tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

C-2. Maintenance Function

Maintenance functions will be limited to and defined as follows:

a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.

b. Test. To verify serviceability and to detect incipient failure by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. Service. Operations required periodically to keep an item in proper operating condition; i.e., to clean (decontaminate), to preserve, to drain, to paint, or to replenish fuel, lubricants, hydraulic fluids, or compressed air supplies.

d. Adjust. To maintain, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to the specified parameters.

e. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test measuring and diagnostic equipments used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. Install. The act of emplacing, seating, or fixing into position an item, part, module (component or assembly) in a manner to allow the proper functioning of the equipment or system.

h. Replace. The act of substituting a serviceable like type part, subassembly, or module (component or assembly) for an unserviceable counterpart.

i. Repair. The application of maintenance services (inspect, test, service, adjust, align, calibrate, replace) or other maintenance actions (welding,

grinding, riveting, straightening, facing, re-machining, or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

j. Overhaul. That maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards (i.e., DMWR) in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours, miles, etc.) considered in classifying Army equipments/components.

C-3. Column Entries

a. Column 1, Group Number. Column 1 lists group numbers, the purpose of which is to identify components, assemblies, subassemblies, and modules with the next higher assembly.

b. Column 2, Component/Assembly. Column 2 contains the noun names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. Column 3, Maintenance Functions. Column 3 lists the functions to be performed on the item listed in column 2. When items are listed without maintenance functions, it is solely for purpose of having the group numbers in the MAC and RPSTL coincide.

d. Column 4, Maintenance Category. Column 4 specifies, by the listing of a "work time" figure in the appropriate subcolumn(s), the lowest level of maintenance authorized to perform the function listed in column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate "work time" figures will be shown for each category. The

number of task-hours specified by the "work time" figure represents the average time required to restore an item (assembly, subassembly, component, module, end item or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, troubleshooting time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. Subcolumns of column 4 areas follows:

- C-Operator/Crew
- O-Organizational
- F-Direct Support
- H-General Support
- D-Depot

e. Column 5, Tools and Equipment. Column 5 specifies by code, those common tool sets (not individual tools) and special tools, test, and support equipment required to perform the designated function.

f. Column 6, Remarks. Column 6 contains an alphabetic code which leads to the remark in section IV, Remarks, which is pertinent to the item opposite the particular code.

C-4. Tool and Test Equipment Requirements (Sec III)

a. Tool or Test Equipment Reference Code. The

numbers in this column coincide with the numbers used in the tools and equipment column of the MAC. The numbers indicate the applicable tool or test equipment for the maintenance functions.

b. Maintenance Category. The codes in this column indicate the maintenance category allocated the tool or test equipment.

c. Nomenclature. This column lists the noun name and nomenclature of the tools and test equipment required to perform the maintenance functions.

d. National/NATO Stock Number. This column lists the National/NATO stock number of the specific tool or test equipment.

e. Tool Number. This column lists the manufacturer's part number of the tool followed by the Federal Supply Code for manufacturers (5-digit) in parentheses.

C-5. Remarks (Sec IV)

a. Reference Code. This code refers to the appropriate item in section II, column 6.

b. Remarks. This column provides the required explanatory information necessary to clarify items appearing in section II.

SECTION II MAINTENANCE ALLOCATION CHART
FOR
MULTIPLEXER TD-754/G

TM 11-5805-383-12

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT.	(6) REMARKS
			C	O	F	H	D		
00	MULTIPLEXER TD-754/G	Inspect		0.1				1	
		Install		0.3				2	
		Adjust		0.5				2,6,7,12,	
		Adjust				0.5		13,14,16,	
		Align		0.5				17	
		Align					1.0		2,5,6,7,
01	POWER SUPPLY ASSEMBLY 12A1	Test		0.7				8,12,13,	
		Test			1.5			14,16,17	
		Repair		0.4				1,3	A
		Repair			1.0			1 thru 7,	
		Overhaul					8.0	12,13	B
		Overhaul						1,6	
0101	PANEL ASSEMBLY 12A1A1	Test		0.5				9,10,11,	
		Test			0.7			15,18	A
		Replace		0.4				1,3	
0102	PANEL ASSEMBLY 12A1A2	Align		0.5				3 thru 7,	
		Repair			2.0			13	
		Repair						1,6	
0103	PANEL ASSEMBLY 12A1A3	Test			0.5			3,6,7,13	
		Replace			0.6			1,6	
		Repair					2.5	9,10,11,	
0104	PANEL ASSEMBLY 12A2	Repair						15,18	
		Test			0.5			3,6,7,13	
		Test			0.6			1,6	
02	PANEL ASSEMBLY 12A3	Repair					2.5	9,10,11,	
		Test			0.3			15,18	
		Replace			0.5			3,7	
03	PANEL ASSEMBLY 12A4	Replace			0.5			1,6	
		Test			1.0			1,6	
		Test		0.3				1,3	A
04	PANEL ASSEMBLY 12A5	Test		0.3				1 thru 8,	
		Test				0.8		12,13,14,	
		Replace			0.3			16,17	
05	PANEL ASSEMBLY 12A6	Replace		0.3				1	
		Adjust		0.3				2	
		Align		0.3				2,6,7,8,	
06	PANEL ASSEMBLY 12A7	Repair				0.7		12,13,14,	
		Repair						16,17	
		Repair					1.0	9,10,11,	
07	PANEL ASSEMBLY 12A8	Repair						15,18	
		Test		0.3				1,3	A
		Test				0.8		1 thru 8,	
08	PANEL ASSEMBLY 12A9	Test						12,13,14,	
		Replace		0.3				16,17	
		Replace		0.3				1	
09	PANEL ASSEMBLY 12A10	Adjust		0.1				1,6	C
		Repair				0.6		9,10,11,	
		Repair					1.2	15,18	
10	PANEL ASSEMBLY 12A11	Test		0.3				1,3	A
		Test				0.8		1 thru 8,	
		Replace		0.3				12,13,14,	
11	PANEL ASSEMBLY 12A12	Adjust		0.1				16,17	
		Adjust		0.1				1	
		Align				1.2		2,5,6,12,	
12	PANEL ASSEMBLY 12A13	Align						13,14,16,	

SECTION II MAINTENANCE ALLOCATION CHART
FOR
MULTIPLEXER TD-754/G

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT.	(6) REMARKS
			C	O	F	H	D		
06	PANEL ASSEMBLY 12A6	Repair Repair				0.6	1.2	17 1,6 9,10,11, 15,18	C
		Test Test		0.3		0.8		1,3 1 thru 8, 12,13,14, 16,17	A
07	PANEL ASSEMBLY 12A7	Replace Repair Repair		0.3		0.6	1.2	1 1,6 9,10,11, 15,18	C
		Test Align Repair			1.0	0.7 0.8		3,5,7,13 2,6,7,13 1,6	D
08	FILTER ASSEMBLY 12A8	Test Replace Repair			0.3 0.5 0.5			3,5,7,13 1,6 1,6	
09	FILTER ASSEMBLY 12A9	Test Replace Repair							

SECTION III TOOL AND TEST EQUIPMENT REQUIREMENTS
FOR
MULTIPLEXER TD-754/G

TM 11-5805-383-12

OOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	O,F,H,D	TOOL EQUIPMENT , TERMINAL TELEPHONE TE-123	5180-00-4 08-1881	
2	O, F,H,D	TOOL, ADJUSTMENT (NOTE)	5120-00-079-8979	
3	O,F,H,D	MULTIMETER TS-352B/U	5625 -00-553-0142	
4	F,H,D	MULTIMETER ME-26B/U	5625-00-646-9409	
5	F,H,D	OSCILLOSCOPE AN/USM-281C	5625-00-106-9622	
6	F,H,D	TOOL KIT, ELECTRONIC EQUIPMENT TK-105/G	5180-00-610-8177	
7	F,H,D	VOLTMETER AN/GSM-64	5625-00-87 0-2264	
8	H,D	COUNTER , ELECTRONIC, DIGITAL READOUT AN/USM-207	5625-00-911-6368	
9	D	VOLTMETER ME-30/U	5625 -00-643-1670	
10	D	SIGNAL GENERATOR SG-71/FCC	5625-00-669-0255	
11	D	SPECTRUM ANALYZER TS-723/U	5625-00-668-9418	
12	F,H,D	EXTENDER PANEL MX-8898	5625-00-463-4010	
13	F,H	TEST CABLES (NOTE)		
14	H,D	MULTIPLEXER TD-660A/G	5805 -00-928-3382	
15	D	AUTOTRANSFORMER W10MT3	5120-00-682-2557	
16	H,D	HANDSET H-91A/U	5965-00-669-6871	
17	H,D	MULTIPLEXER TD-754/G	5820-00-930-8078	
18	D	DEPOT FACILITIES		
NOTE				
ITEM 2 (SCREWDRIVER) IS PART OF THE MULTIPLEXER TD-754/G ie, A BASIC ISSUE ITEM. ITEM 13 (TEST CABLES) ARE TO BE FABRICATED IN THE FIELD.				

REFERENCE CODE	REMARKS
A	SELF TEST (OPERATIONAL) USING BUILT IN TEST EQUIPMENT (BITE).
B	REPAIR BY REPLACEMENT OF PANELS 12A1 THRU 12A6, FUSES, ETC.
C	LIMITED GS (N) REPAIR BY REPLACEMENT OF ALLOCATED REPAIR PARTS (DIODES).
D	ENTIRE TD-75 $\frac{1}{2}$ /G MUST BE FORWARDED TO GS FOR THIS REPAIR.

APPENDIX D

ADDITIONAL AUTHORIZATION LIST

Section I. INTRODUCTION

D-1. SCOPE

This appendix lists additional items you are authorized for the support of your equipment.

D-2. GENERAL

This list identifies items that do not have to accompany your equipment and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

D-3. EXPLANATION OF LISTING

National stock numbers, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment. The items are listed in alphabetical sequence by item name under the type document (i.e., CTA, MTOE, TDA, or JTA) which authorized the item(s) to you.

Section II. ADDITIONAL AUTHORIZED LIST

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION (FSCM) AND PART NUMBER	(3) USABLE ON CODE U/M	(4) QTY AUTH
5805-01-141-9231	COVER, FRONT ASSEMBLY, OUTER (80063) SM-C-604088	EA	1

By Order of the Secretary of the Army:

W. C. WESTMORELAND,
General, United States Army,
Chief of Staff.

Official:

VERNE L. BOWERS,
Major General, United States Army,
The Adjutant General.

Distribution:

Active Army:

USASA (2)
 CNGB (1)
 ACSC-E (2)
 Dir of Trans (1)
 Cof Engrs (1)
 TSG (1)
 Cof SptS (1)
 USAARENBD (2)
 USAMB (10)
 USACDC (2)
 USACDCEA (1)
 USACDCBRA (1)
 USACDCCEA (1)
 USACDCCEA Ft Huachuca (1)
 USACDCTA (1)
 USACDCADA (1)
 USACDCARMA (1)
 USACDCAVNA (1)
 USACDCFAA (1)
 USAMC (1)
 CONARC (5)
 ARADCOM (2)
 ARADCOM Rgn (2)
 OS Maj Comd (4)
 LOGCOMD (5)
 USAMICOM (4)
 USATECOM (2)
 USASTRATCOM (4)
 USAESC (70)
 MDW (1)
 Armies (2)
 Corps (2)
 1st Cav Div (3)
 Svc Colleges (2)
 USASCS (20)
 USASESS (20)
 USAADS (2)
 USAFAS (2)
 USAARMS (2)
 USAIS (2)

USAES (2)
 USAINTS (3)
 WRAMC (1)
 USACDCEC (10)
 Instl (2) except
 Fort Gordon (10)
 Fort Huachuca (10)
 Fort Carson (21)
 WSMR (3)
 Army Dep (2) except
 LBAD (14)
 SAAD (30)
 TOAD (14)
 LEAD (7)
 NAAD (5)
 SVAD (5)
 ATAD (10)
 Gen Dep (2)
 Sig Sec Gen Dep (5)
 Sig Dep (10)
 Sig FLDMS (2)
 ATS (1)
 USAERDAA (2)
 USAERDAW (5)
 USACRREL (2)
 MAAG (1)
 USARMIS (1)
 Units org under fol TOE:
 (2 copies each)
 11-35
 11-36
 11-39
 11-85
 11-86
 11-87
 11-158
 11-500 (AA-AC)
 29-15
 29-134
 29-136

NG: None

USAR: None

For explanation of abbreviations used, sec AR 310-50.

Change 3

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL MANUALS



SOMETHING WRONG WITH THIS MANUAL?

THEN... JOT DOWN THE DOPE ABOUT IT ON THIS FORM, TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL!

FROM: (YOUR UNIT'S COMPLETE ADDRESS)

Commander
Stateside Army Depot
ATTN: AMSTA-US
Stateside, N.J. 07703

DATE 10 July 1975

PUBLICATION NUMBER

TM 11-5840-340-12

DATE

23 Jan 74

TITLE

Radar Set AN/P-3-76

BE EXACT... PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.
2-25	2-28		
3-10	3-3		3-1
5-6	5-8		
		FO3	

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

Recommend that the installation antenna alignment procedure be changed throughout to specify a 2° IFF antenna lag rather than 1°.

REASON: Experience has shown that with only a 1° lag, the antenna servo system is too sensitive to wind gusting in excess of 20 knots, and has a tendency to rapidly accelerate and decelerate as it hunts, causing strain to the drive train. Hunting is minimized by adjusting the lag to 2° without degradation of operation.

Item 5, Functions column. Change "2 db" to "3db."

REASON: The adjustment procedure for the TRANS POWER FAULT indicator calls for a 3 db (500 watts) adjustment to light the TRANS POWER FAULT indicator.

Add new step f.1 to read, "Replace cover plate removed in step e.1, above."

REASON: To replace the cover plate.

Zone C 3. On J1-2, change "+24 VDC to "+5 VDC."

REASON: This is the output line of the 5 VDC power supply. + 24 VDC is the input voltage.

TEAR ALONG DOTTED LINE

TYPED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

SSG I. M. DeSpirito 999-1776

SIGN HERE:

SSG I. M. DeSpirito

DA FORM 2028-2
1 AUG 74

P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR MANUAL "FIND" MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

HISA 1686-75

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DATE

PUBLICATION NUMBER

DATE

TITLE

BE EXACT...PIN-POINT WHERE IT IS

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.
----------	------------	------------	-----------

TEAR ALONG DOTTED LINE

TYPED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

SIGN HERE:

FILL IN YOUR
UNIT'S ADDRESS

FOLD BACK

DEPARTMENT OF THE ARMY

POSTAGE AND FEES PAID
DEPARTMENT OF THE ARMY
DOD-314

OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE, \$300

Commander
US Army Electronics Command
ATTN: AMSEL-MA-Q
Fort Monmouth, New Jersey 07703

TEAR ALONG DOTTED LINE

FOLD BACK

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL MANUALS



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FROM: (YOUR UNIT'S COMPLETE ADDRESS)

DATE

PUBLICATION NUMBER

TM 11-5805-383-12

DATE

3 May 1971

TITLE

Operator's and Organizational Maintenance Manual for Multiplexer

BE EXACT... PIN-POINT WHERE IT IS

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

TD-754/G

PAGE NO.

PARA-GRAPH

FIGURE NO.

TABLE NO.

TEAR ALONG DOTTED LINE

TYPED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

SIGN HERE:

DA FORM 2028-2
1 AUG 74

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US Army Communications and
Electronics Materiel Readiness Command
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Fort Monmouth, New Jersey 07703

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FOLD BACK

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL MANUALS



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DATE

PUBLICATION NUMBER

DATE

TITLE

BE EXACT... PIN-POINT WHERE IT IS

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

PAGE NO.

PARA-GRAPH

FIGURE NO.

TABLE NO.

TEAR ALONG DOTTED LINE

TYPED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

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US Army Electronics Command
ATTN: AMSEL-MA-Q
Fort Monmouth, New Jersey 07703

TEAR ALONG DOTTED LINE

FOLD BACK

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL MANUALS



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PUBLICATION NUMBER

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3 May 1971

TITLE

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IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

TD-754/G

PAGE NO.

PARA-GRAPH

FIGURE NO.

TABLE NO.

TEAR ALONG DOTTED LINE

TYPED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

SIGN HERE:

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UNIT'S ADDRESS

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DEPARTMENT OF THE ARMY
DOD-314



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Fort Monmouth, New Jersey 07703

TEAR ALONG DOTTED LINE

FOLD BACK

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL MANUALS



SOMETHING WRONG WITH THIS MANUAL?

THEN... JOT DOWN THE DOPE ABOUT IT ON THIS FORM, TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL!

FROM: (YOUR UNIT'S COMPLETE ADDRESS)

DATE

PUBLICATION NUMBER

DATE

TITLE

BE EXACT...PIN-POINT WHERE IT IS

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.
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TEAR ALONG DOTTED LINE

TYPED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

SIGN HERE:

FILL IN YOUR
UNIT'S ADDRESS

FOLD BACK

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