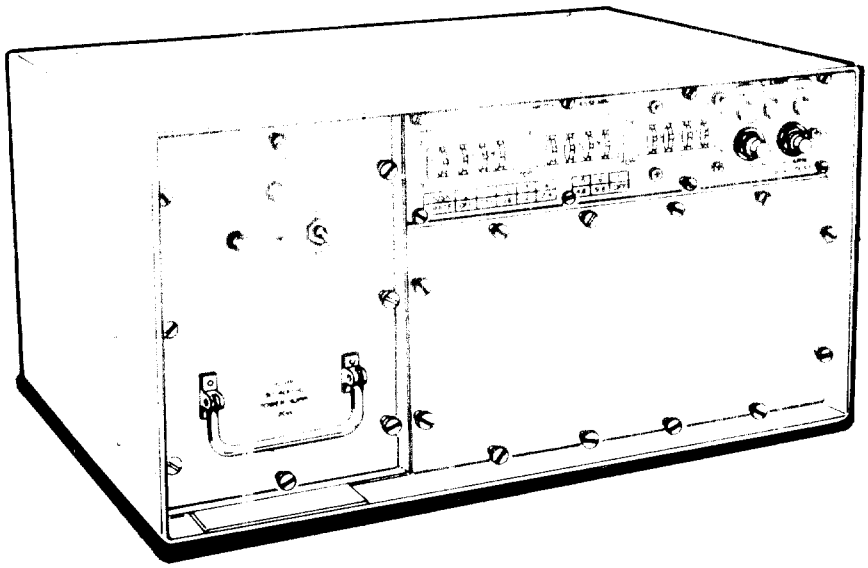
TM 11-5805-638-12

OPERATOR'S AND ORGANIZATIONAL MAINTENANCE MANUAL



MULTIPLEXER, TIME DIVISION, DIGITAL TD-1069/G

(NSN 5805-01-028-8425)

This copy is a reprint which includes current pages from Change 1

HEADQUARTERS, DEPARTMENT OF THE ARMY

NOVEMBER 1982

CHANGE
No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 3 August 1984

OPERATOR AND ORGANIZATIONAL MAINTENANCE MANUAL MULTIPLEXER, TIME DIVISION, DIGITAL TD-1069/G (NSN 5805-01-028-8425)

TM 11-5805-638-12, 19 November 1982, is changed as follows:

1. New or changed material is indicated by a vertical bar in the margin of the page.

2. Remove old pages and insert new pages as indicated below:

Remove pages	*Insert pages*
1-1and l-2	1-1and 1-2
A-l and A-2	A-l and A-2
B-1 through B-8	B-l through B-8

3. File this change sheet in front of the publication.

By Order of the Secretary of the Army:

JOHN A. WICKHAM JR.
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with special list.

WARNING

When connected to 115 vac power source, high voltage is present at exposed power supply connector inside the chassis. DEATH or SERIOUS INJURY may result from contact.

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.

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 WOODEN POLE OR A 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

Technical Manual
TM 11-5805-638-12

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, NOVEMBER 19 1982

OPERATOR'S ORGANIZATIONAL MAINTENANCE MANUAL FOR MULTIPLEXER, TIME DIVISION, DIGITAL TD-1069/G (NSN 5805-01-028-8425)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

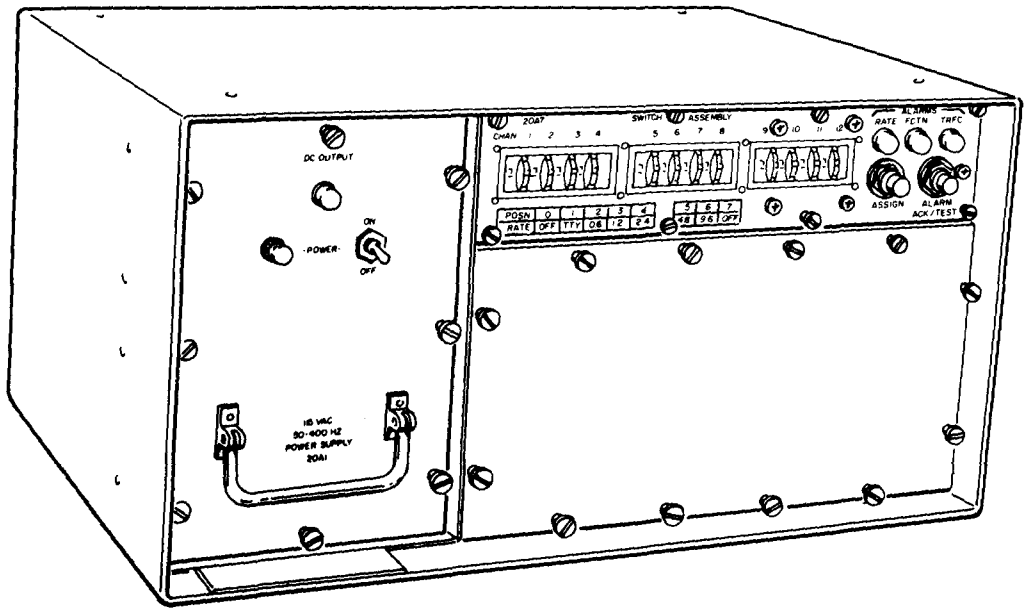
You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: DRSEL-ME-MP, Fort Monmouth, New Jersey 07703.

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

Table of Contents

HOW TO USE THIS MANUAL

- This manual tells you about operation and maintenance of the Time Division Digital Multiplexer TD-1069/G.
- Additional manuals that you should use when operating and maintaining the TD-1069/G are listed in Appendix A. Components of end item and basic issue items to help you inventory items are listed in Appendix C.
- Use Appendix B, Maintenance Allocation Chart (MAC) to determine items applicable to your maintenance level. Use Appendix E, Expendable Supplies and Materials List for items you will need to operate and maintain the TD-1069/G. Refer also to Repair Parts and Special Tools List (RPSTL), TM 11-5805-638-20P.
- In this manual, paragraphs are numbered sequentially. If you are looking for specific information, use the subject index at the back of the manual to locate the page where the topic is discussed. For your convenience a table of contents is included at the beginning of each chapter.
- Margin tabs are provided as an aid in locating the subjects listed on the cover.



MULTIPLEXER, TIME DIVISION,
DIGITAL TD-1069/G

CHAPTER 1
INTRODUCTION

SECTION I.GENERAL INFORMATION

1-1. SCOPE.

a. Type of Manual. Operator and Organizational Maintenance Manual.

b. Model Number and Equipment Name. Multiplexer, Time Division, Digital TD-1069/G.

c. Purpose of Equipment. The purpose of the equipment is to provide the interface between local data sources and a radio link.

1-2. 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 4355.73A/AFR 400-54/MCO 4430.3F.

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. CONSOLIDATED INDEX OF ARMY PUBLICATIONS AND BLANK FORMS

- DA Pam 310-1. 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.

1-4. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your Time Division Digital Multiplexer TD-1069/G needs improvement let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design.Put it on an SF 368 (Quality Deficiency Report).Mail it to Commander, US Army Communications-Electronics Report). Mail it to Commander, US Army Communications Electronics Command and Fort Monmouth, ATTN: DRSEL-ME-MP, Fort Monmouth, New Jersey 07703-5007. We'll send you a reply.

1-5. DESTRUCTION OF ARMY ELECTRONICS MATERIEL

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

1-6. 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 admministrative storage the PMCS should be performed to assure operational readiness. Disassembly and repacking of equipment for shipment or limited storage are covered in paragraphs 4-34 through 4-39.

1-7. NOMENCLATURE CROSS REFERENCE LIST

The following should help you locate the official nomenclature of major equipment that comprise the TDDM. Official nomenclature must be used when completing report forms or when looking up technical manuals.

Carbon paper is required — only face of form is chemical treated

SECTION III

27a. From (Action point)	29a. To (Screening point)
27b. Typed Name, Duty Phone and Signature	28b. Typed Name, Duty Phone and Signature

DO NOT DETACH THIS STUB ON COPIES FORWARDED TO SCREENING AND ACTION POINTS
Carbon paper not required to complete this side.

QUALITY DEFICIENCY REPORT
(Category II)

SECTION I

1a. From (Originating point)	2a. To (Screening point)
2ND SIGNAL BRIGADE TAYLOR BARRACKS, MANNHEIM GERMANY	USACSA FIELD OFFICE - EUROPE APO NEW YORK 09056
1b. Typed Name, Duty Phone and Signature JOHN DAWSON 3483 John Dawson	2b. Typed Name, Duty Phone and Signature TOM KELLY 3596 Tom Kelly

3. Report Control No.	4. Date Deficiency Discovered	5. National Stock No. (NSN)	6. Nomenclature
M6327-32	12 DEC 81	5815-01-057-0854	TELETYPEWRITER SET AN/UGC-129

7. Manufacturer/Mfg. Code/Shipper	8. Mfg. Part No.	9. Serial/Lot/Batch No.	10. Contract/PO/Document No.
TRACOR (19377)	137200-0002		

11. Item	12. Date Manufactured/ Repaired/Overhauled	13. Operating Time at Failure	14. Government Furnished Material
☐ New ☐ Repaired/ Overhauled		1500 HOURS	☒ Yes ☐ No

15. Quantity	a. Received	b. Inspected	c. Deficient	d. In Stock

16. Deficient Item Works On/With	(1) Type/Model/Series	(2) Serial No.
a. End Item (Aircraft, tank, ship, howitzer, etc.)		

b. Next Higher Assembly	(1) National Stock No. (NSN)	(2) Nomenclature	(3) Part No.	(4) Serial No./Lot No.

17. Dollar Value	18. Est. Correction Cost	19. Item Under Warranty	20. Work Unit Code/EIC (Navy and Air Force only)
		☐ Yes ☐ No ☐ Unknown	

21. Action/Disposition
☐ Holding Exhibit for ____ days ☐ Released for Investigation ☐ Returned to Stock/ Disposed of ☐ Repaired ☐ Other (Explain in Item 22)

22. Details (Describe, to best ability, what is wrong, how and why, circumstances prior to difficulty, description of difficulty, cause, action taken including disposition, recommendations. Identify with related item number. Include and list supporting documents. Continue on separate sheet if necessary.)

BITE TEST FAILURE INDICATED ON PCB DISPLAY AT TEST SEQUENCE CODE 4A (HEXADECIMAL). KEYBOARD I/O SHOWS WRONG KEY, BITE SHOWS WRONG KEY. ALL OTHER TEST OK. SUSPECT SHORT CIRCUIT IN KEYBOARD.

SECTION II

23a. To (Action Point)	24a. To (Support Point) (Use Items 25 and 26 if more than one)
23b. Typed Name, Duty Phone and Signature	24b. Typed Name, Duty Phone and Signature
25a. To (Support Point)	26a. To (Support Point)
25b. Typed Name, Duty Phone and Signature	26b. Typed Name, Duty Phone and Signature

368-101

STANDARD FORM 368, April 1974
General Services Administration (FPMR 101-26-7)

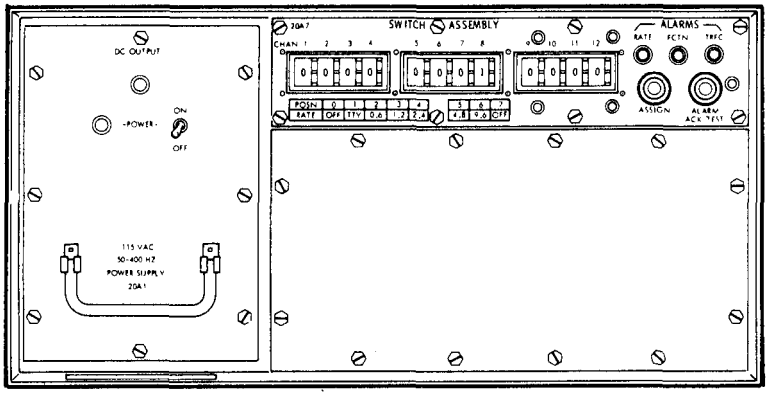
☐ Phone Call/Visit

(Specify)

...essary.)

ANDARD FORM 368 BACK
...l 1974

COMMON NAME	OFFICIAL NOMENCLATURE
TDDM	MULTIPLEXER, TIME DIVISION, DIGITAL TD-1069/G

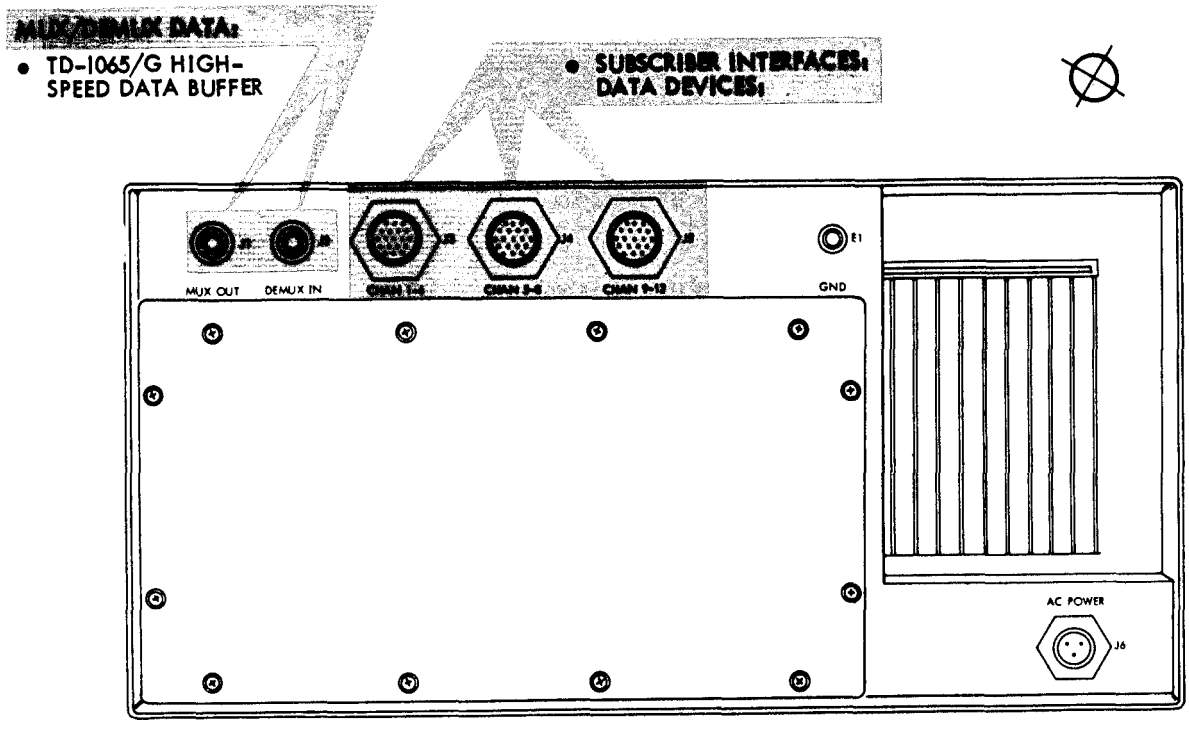


Section II. DESCRIPTION AND DATA

1-8. PURPOSE AND USE

The Time Division Digital Multiplexer TD-1069/G, hereinafter referred to as the TDDM, is a transportable ground communications device which can simultaneously multiplex and demultiplex up to 12 channels of digital data through land lines. The TDDM is capable of interfacing with devices which provide balanced conditioned diphase modulated data streams and balanced NRZ teletypewriter signals. It also provides interface compatibility for frequency shift keying (FSK) TTY signals compatible with the Telegraph Terminal TH-22/TG. Transmission is accomplished in a conditioned diphase format. The TDDM is ground and air transportable and is intended for use in communications centers of the Army Tactical Area Communications System, in SAM-D communications centers, and elsewhere in the field Army at Command and Area Signal Centers. Specifically, the TDDM is capable of interfacing with a Central Office, Telephone Automatic AN/TTC-38; High Speed Serial Data Buffer TD-1065/G; and Forward Area Teletypewriter Equipment AN/UGC-74(V)3. Refer to paragraph 1-10 for specific limitations relative to input signals, transmission rates and lines, and operating power.

TD - 1069 PERIPHERAL DEVICE INTERFACES



TTY NRZ SIGNALING DEVICES:

AN/UGC-129 TELETYPEWRITER
AN/UGC-74A(V)3 TERMINAL, COMMUNICATIONS

TTY FSK SIGNALING DEVICES:

TH-22 TELETYPEWRITER

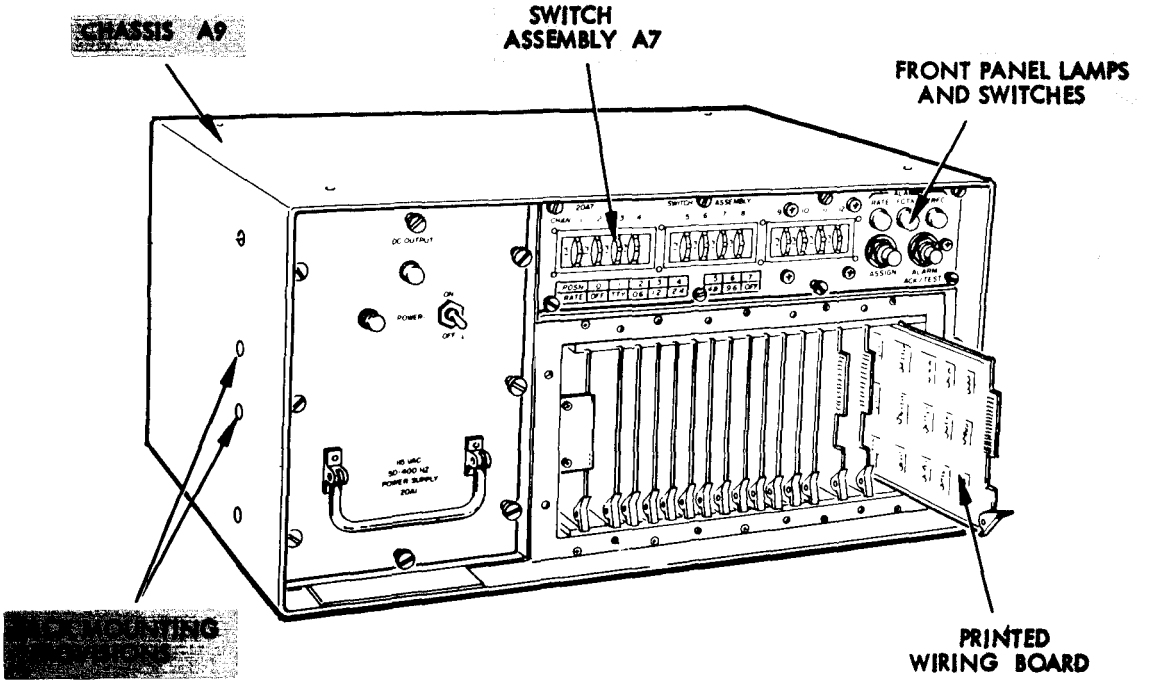
1-9. DESCRIPTION OF EQUIPMENT

Each TDDM consists of an electrical equipment chassis (A9), power supply module (Al), and 16 plug-in modules (A2 through A8).

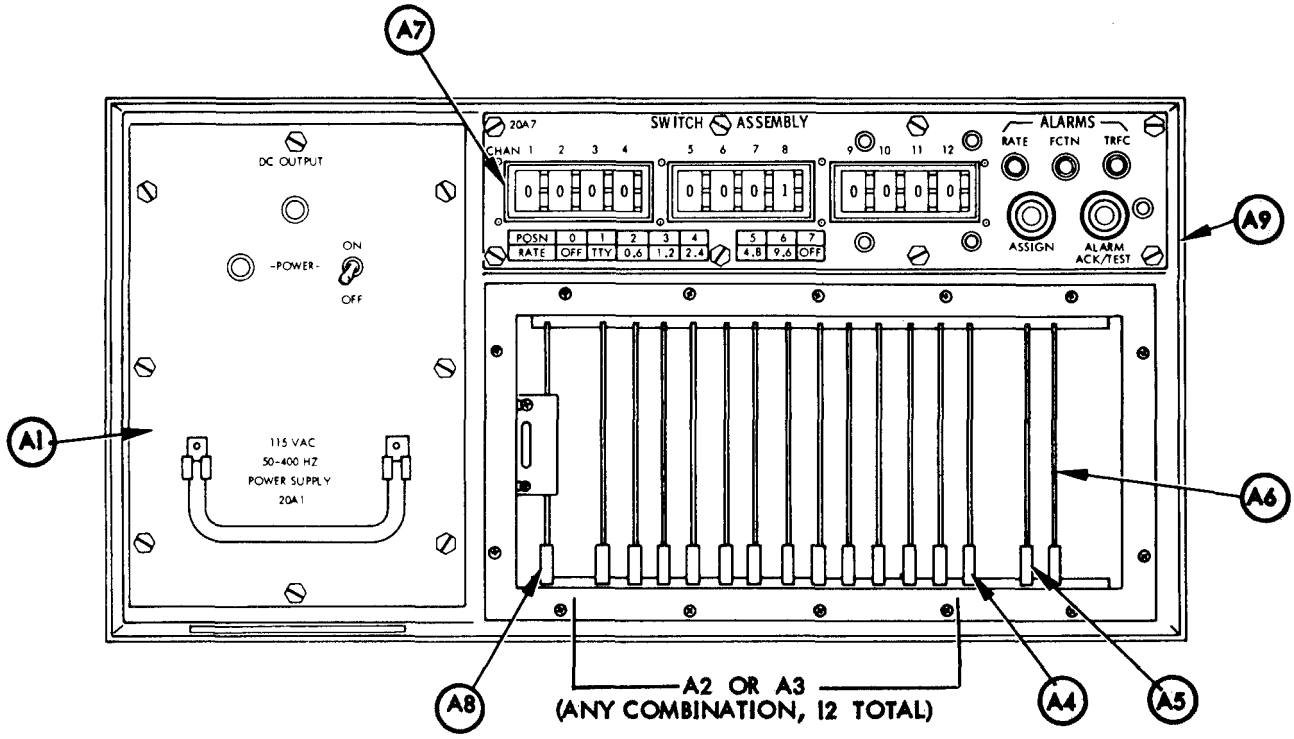
The chassis houses all of the electronic circuitry and is arranged for easy access to interior components for servicing, installation and operation. Mounting brackets (not supplied) can be attached on each side of the chassis to allow installation in standard 19-inch racks.

All operating controls are accessible from the front. Power, ground and input/output signal connectors are all located at the rear of the chassis so they will not interfere with operator activity at the front panel.

The power supply module (Al) and printed wiring modules (A2 through A6, and A8) are supported by guides within the chassis which facilitate removal and replacement of the modules.



Item Name	Reference Designation	Quantity
Power Supply Module	Al	1
Digital Data Channel Module	A2	6
Frequency Shift Keying Data Channel Module	A3	6
Digital Clock Pulse Generator Module	A4	1
Digital Controller Module	A5	1
Alarm-Memory Module	A6	1
Rate-Mode Switch Assembly	A7	1
Overvoltage Absorber Module	A8	1
Chassis	A9	1



1-10. TECHNICAL CHARACTERISTICS

a. Size and Weight

Height - 8-1/2 inches.
Depth - 12 inches.
Width - 17-1/4 inches (19 inches with mounting angles attached).
Weight - 34 pounds
Mounting - 19-inch rack style.

b. Channel Characteristics.

Number of Channels - 12

Digital Channels - up to 4.8 km (3 miles) WF-16 field wire.

TTY Signals: 45.5 to 150 baud, any format, synchronous or start/stop. MIL-STD-188.100 compatible.

Data Signals: 600,1200,2400, 4800 or 9600 bps +50 ppm, Conditioned Diphase Modulation, MIL-STD-188.100 compatible.

FSK Channels - up to 8 km (5 miles) WF-16 field wire.

TTY Signals: up to 150 baud, TH-22 compatible. 1232.5 ±3 Hz space, 1317.5 ±3 Hz mark frequencies.

Channel Rate Select - 12 front panel switches, one per channel. No operator strapping or patching required.

c. Multiplex Characteristics.

Rate . . . . . 32 kbps ±30 ppm

Interface . . . . . MIL-STD-188 balanced conditioned diphase (output impedance 135 ohms); up to 4.8 Km (3 miles) WF-16 and 1000 feet WM-30 cables.

Frame Sync and BCI
Acquisition time . . . . . Less than 300 ms with probability 0.9 in 10^{-4} BEP environment.

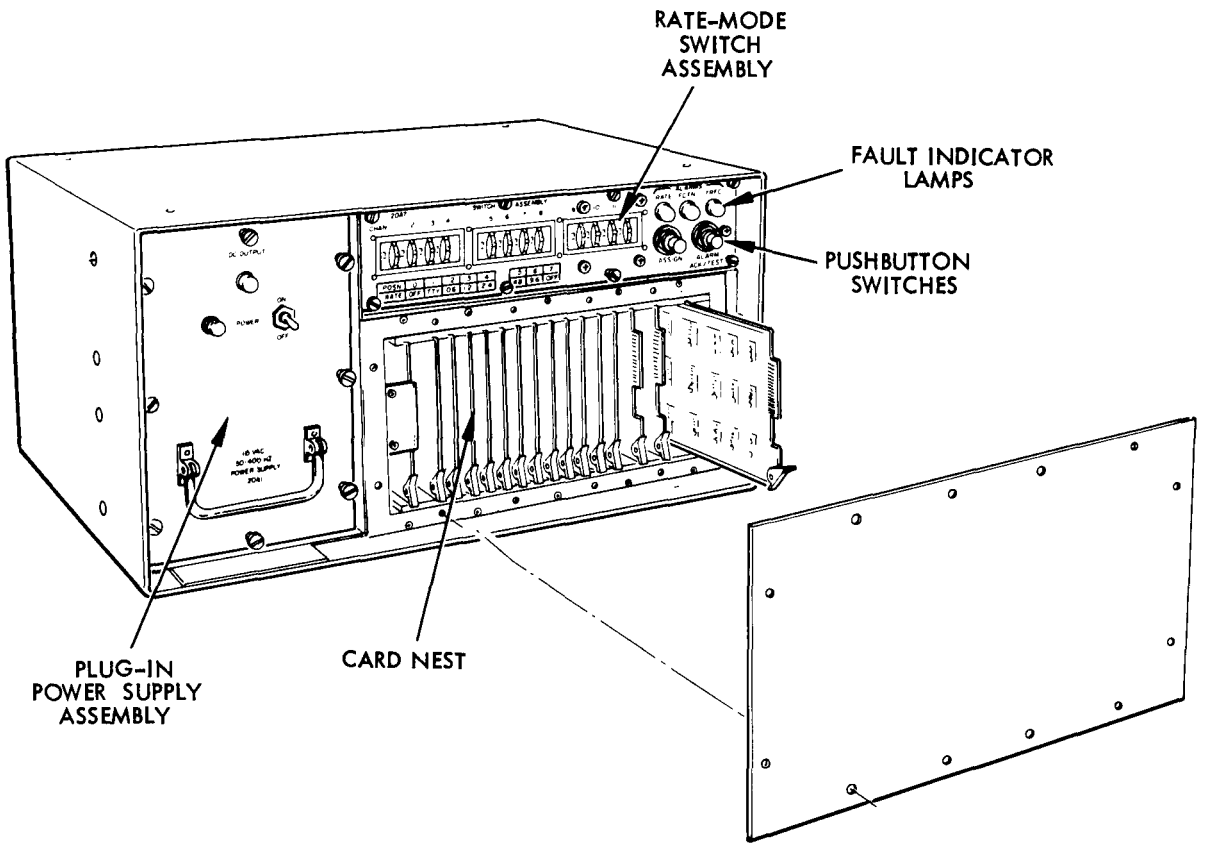
d. Input Power Requirements.

Voltage	115 Vac ±10%
Frequency	50/60/400 Hz ±5%
Phase	Single Phase.
Input Power	80 Watts.

e. Environmental Service Conditions.

Altitude (above mean sea level)	15,000 feet max. (operating).
Temperature (ambient)	25°F to +145°F (18° to 63°C) operating. -70°F to +160°F (57°C to 71°C) nonoperating.
Humidity	+30° to +65°C (86°F to 149°F) at 94 ±4% relative humidity
Salt Fog	MIL-STD-810C Method 509.1, 48 hours
Fungus	Conformal Coated.

Section III. TECHNICAL PRINCIPLES OF OPERATION



1-11. PRINCIPLES OF OPERATION

RATE-MODE SWITCH ASSEMBLY - has 12 thumbwheel switches, one for each channel. Each switch is used to set the bit rate and mode for one channel.

FAULT INDICATOR LAMPS - show the operational status of the TDDM. The three red indicators lamps are normally off; a lighted lamp indicates an operational fault condition.

PUSHBUTTON SWITCHES - are used to set the operational condition when the rate and mode for each channel have been selected and to acknowledge fault conditions or test the lamps.

CARD NEST - houses 15 plug-in modules and an Overvoltage Absorber. Each module has an indicator lamp that lights to indicate a fault on that module.

POWER SUPPLY - is a plug-in module that supplies dc operating voltages for the TDDM. The ON/OFF switch and DC and AC power indicator lamps are on the front panel. The indicator lamps are normally lit.

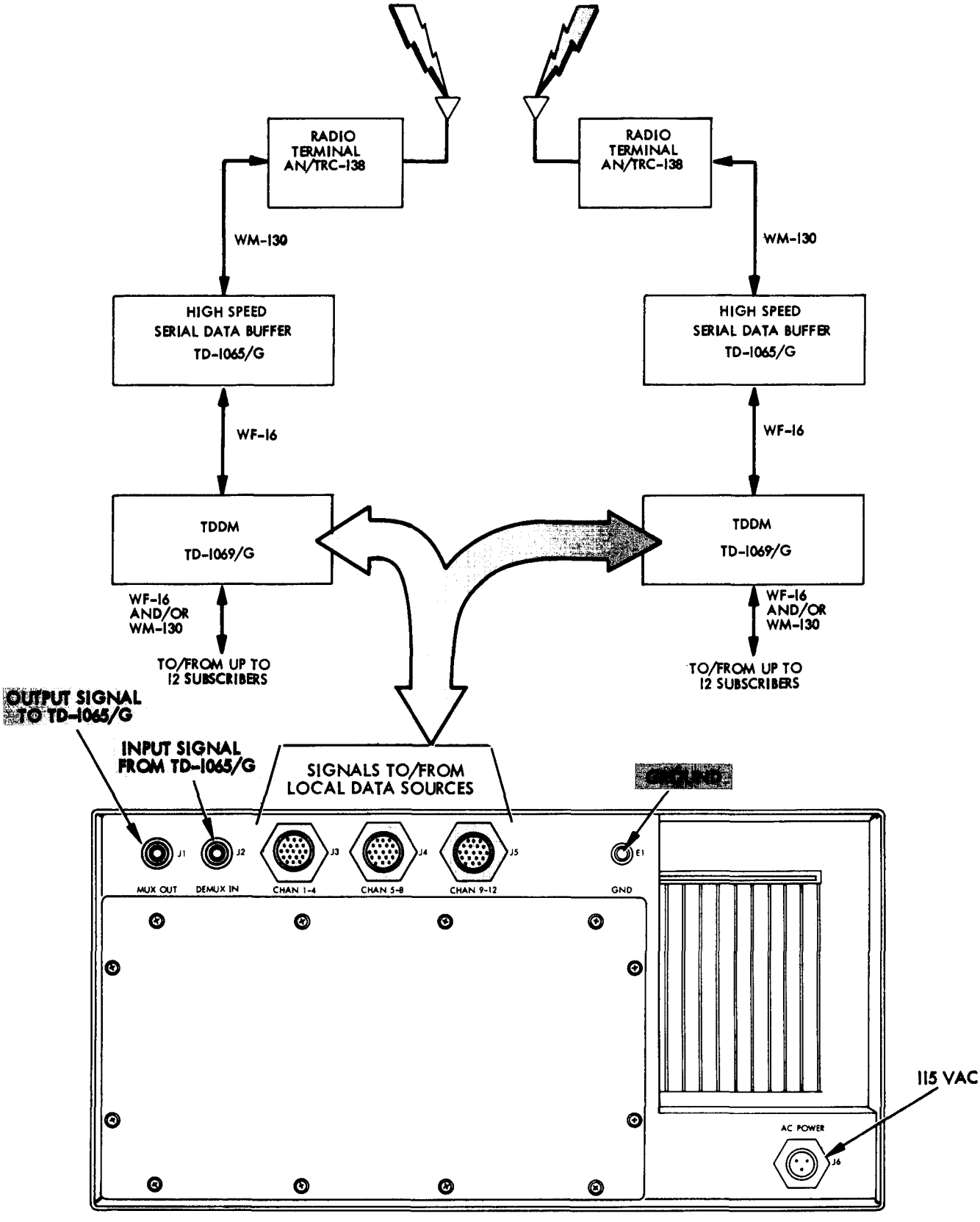
1-12. SYSTEM APPLICATION

The 12 input channels of the TDDM provide for flexible input arrangements and allow the TDDM to be used to the fullest extent possible.

For detailed technical considerations regarding system planning, refer to Section II, Chapter 1. In general, any combination of inputs as defined in paragraph l-10b may be accommodated, provided the individual maximum channel rates of 9.6 kb/s (kilobits per second) and the overall capacity of 30 kb/s are not exceeded. Typically, the TDDM can be set to handle:

- 12 channels at 600 bits per second each (total of 7.2 kb/s).
- 12 channels at 1.2 kb/s each (total of 14.4 kb/s).
- 3 channels at 9.6 kb/s each or 6 channels at 4.8 kb/s each (total of 28.8 kb/s).

The TDDM at the line (local) input side interfaces with 12 full duplex (simultaneous transmission and reception) inputs. The inputs may be any mix of conditioned diphase (CDP), TTY or FSK. The TDDM multiplexes these signals into a single data stream at 32 kb/s. The multiplexed output signal is routed by cable to the TD-1065(*)/G


RADIO TERMINAL AN/TRC-138
RADIO TERMINAL AN/TRC-138
WM-130
WM-130
HIGH SPEED SERIAL DATA BUFFER TD-1065/G
HIGH SPEED SERIAL DATA BUFFER TD-1065/G
WF-16
WF-16
TDDM TD-1069/G
TDDM TD-1069/G
WF-16 AND/OR WM-130
WF-16 AND/OR WM-130
TO/FROM UP TO 12 SUBSCRIBERS
TO/FROM UP TO 12 SUBSCRIBERS
OUTPUT SIGNAL TO TD-1065/G
INPUT SIGNAL FROM TD-1065/G
SIGNALS TO/FROM LOCAL DATA SOURCES
J1
J2
J3
J4
J5
E1
MUX OUT
DEMUX IN
CHAN 1-4
CHAN 5-8
CHAN 9-12
GND
AC POWER
J6
115 VAC

High Speed Serial Data Buffer and then by radio to distant site. The return signal from the distant site is received by radio and routed through TD-1065/G to the TDDM. In the TDDM, the signal from the high-speed data buffer is demultiplexed and the individual channel signals are routed to the proper local interface lines.

The data rate for each channel must be the same at the local site and at the remote site.

1-13. DATA CHANNEL MODULE APPLICATIONS

The TDDM is supplied with six digital data channel modules (A2) and six frequency shift keying (FSK) data channel modules (A3) installed in the card nest. TDDM channels are of two types: designated digital channels and FSK channels. Input signals for digital channels may be either data or TTY signals. The applicable data rates are shown in paragraph 1-10b. Type A2 modules are used in the card nest slots for digital channels. FSK channel input signals are always frequency shift keying teletype signals (para l-10b). Type A3 modules are used for channels with FSK input signals.

The data signals for digital channels are in conditioned diphase (CDP) modulation format. The TTY signals for digital channels are in standard TTY, synchronous or start/stop format. For FSK channels, the signal is shifted between two frequencies for MARK (1317.5 ±3 Hz) and SPACE (1232.5 ±3 Hz). There is a rate-mode switch for each channel. Each rate-mode switch must be set according to the module type, input signal type, and data rate. The data is summarized in the chart below. Refer also to paragraph 2-3.

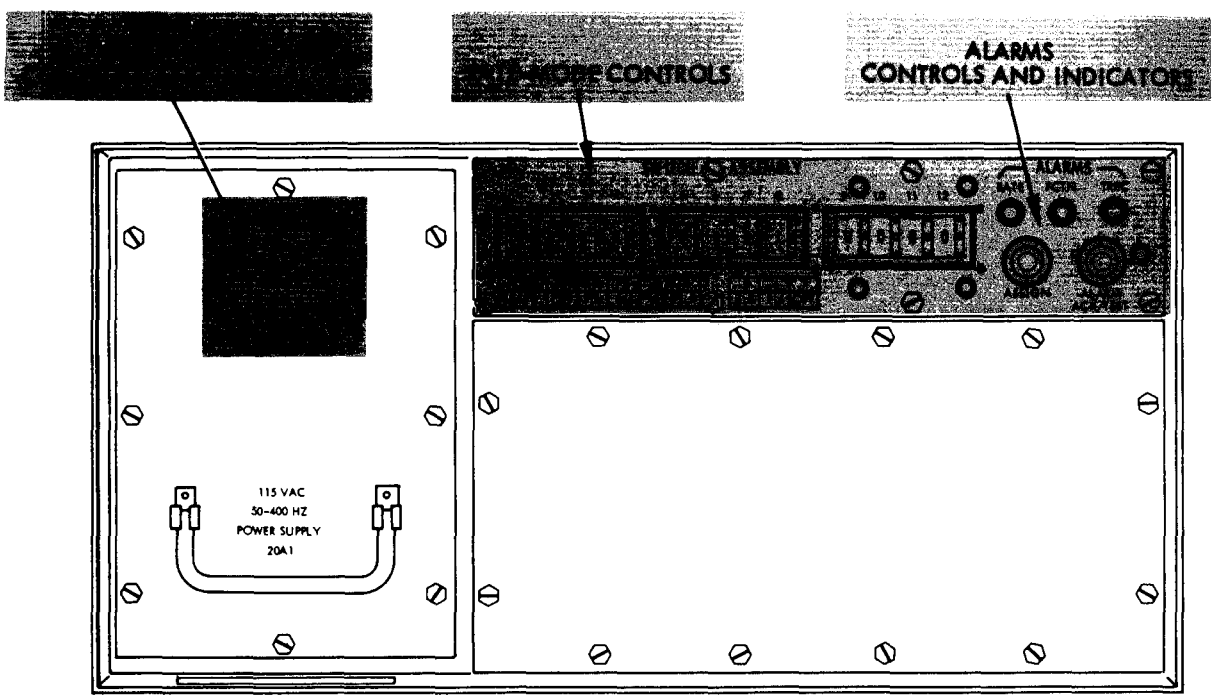
Module Type	Input Signal on Channel	RATE/MODE Switch Position for Same Channel
A2	digital data (CDP)	position 2,3,4,5 or 6 (CDP) according to required rate
A2	standard TTY	position 1 (TTY)
A3	FSK TTY	position 1 (TTY)

CHAPTER 2
OPERATING INSTRUCTIONS

Section I. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

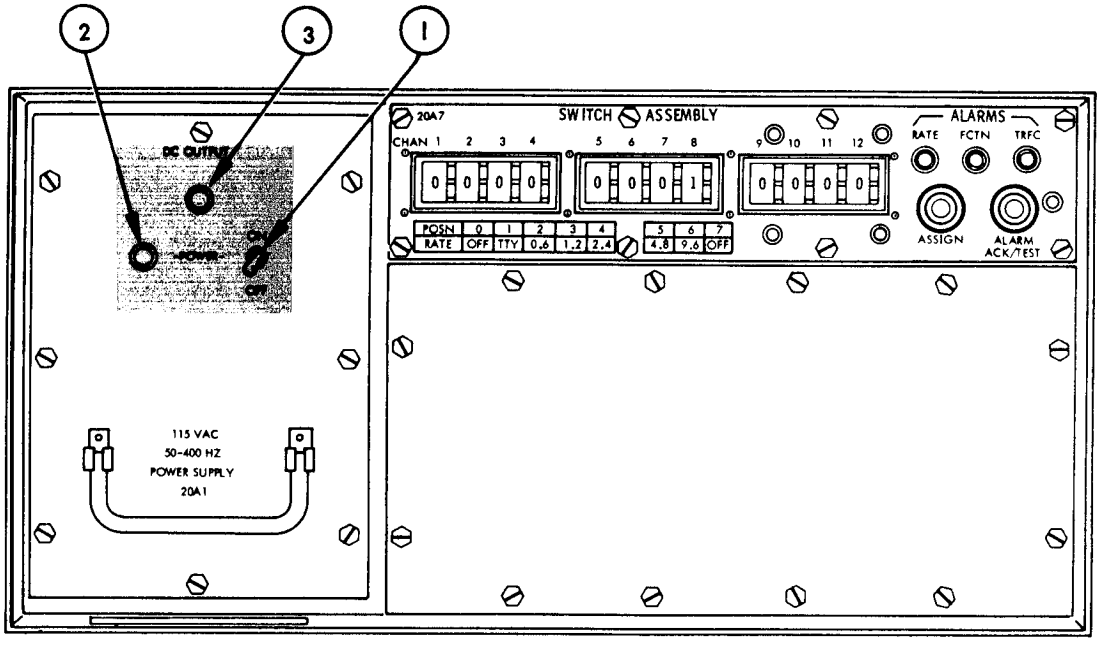
2-1. INTRODUCTION

As the operator of the TDDM you will be concerned with the controls and indicators that are discussed in a general way in this section. Section III of this chapter gives specific instructions for operating the controls and indicators during usual operating conditions.



2-2. POWER CONTROLS AND INDICATORS

The TDDM has a POWER ON/OFF switch ①, an ac POWER indicator ②, and a DC OUTPUT indicator ③.



ON

OFF

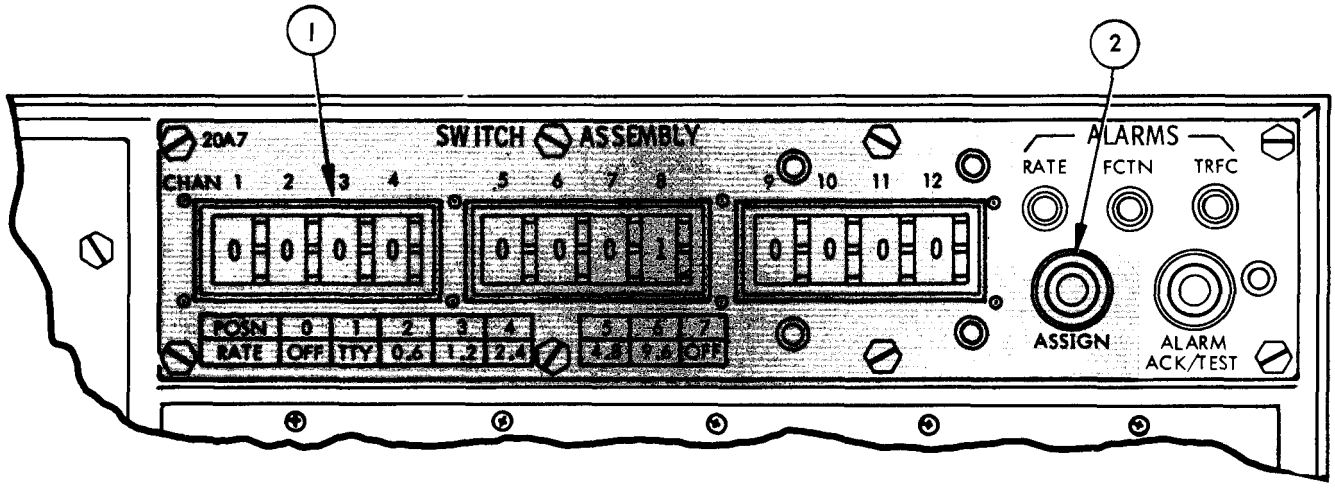
① POWER ON/OFF switch - turns TDDM on and off. Applies 115 Vac to TDDM power supply circuits.

② POWER indicator (neon) - when lit indicates power is applied to the TDDM power supply.

③ DC OUTPUT indicator (green) - when lit indicates: 1) all power supply dc output voltages are normal; 2) no current overload conditions exist; 3) and internal temperature is in normal range. If DC OUTPUT indicator turns off during operation, it indicates at least one of these conditions is no longer true.

2-3. RATE-MODE CONTROLS

The TDDM has 12 rate-mode thumbwheel switches ①, one for each channel, to set the bit rate and mode, and an ASSIGN pushbutton switch ②.



① 

CHAN 1 Rate-Mode thumbwheel switch - has eight positions to set rate and mode for channel 1. The switch positions and corresponding bit rates and modes are printed on the switch assembly front panel and are listed below. When the switch is set to the desired position, programming signals (according to the selected position) are routed to the automatic channel select circuit. To enter the program signals into the automatic channel circuit, it is necessary to press the ASSIGN pushbutton switch. Operation of the CHAN 2 through CHAN 12 rate-mode switches is the same.

② 

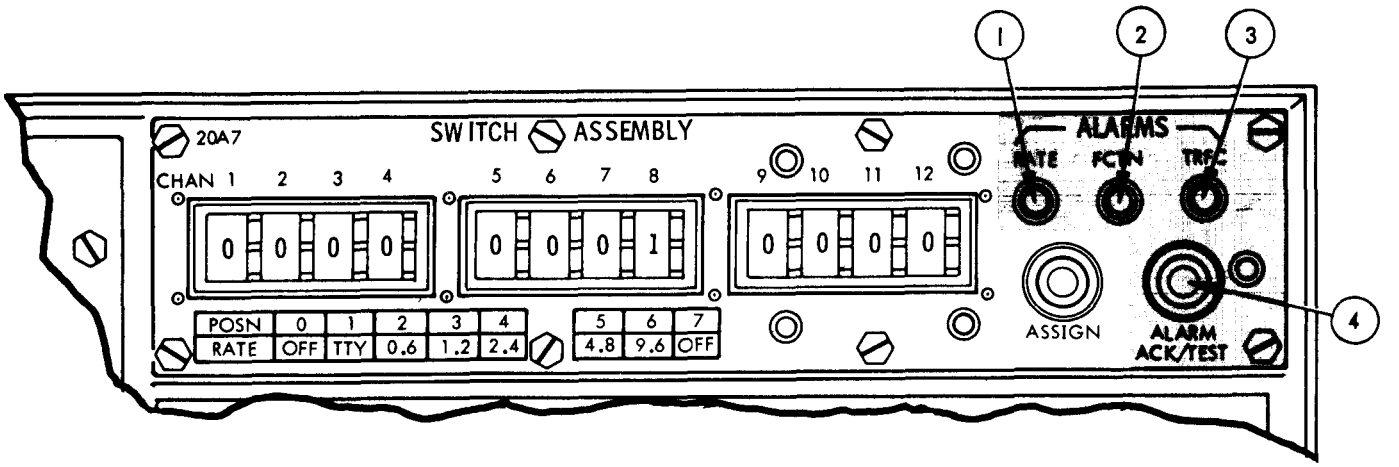
ASSIGN pushbutton switch - when pressed, enters programming signals from the rate-mode switches into the automatic channel select circuit. The ASSIGN pushbutton must be pressed whenever a change has been made in one or more rate-mode switch settings.

Rate Switch Position	Rate KB/S	Mode	Rate Switch Position	Rate KB/S	Mode
0		OFF	4	2.4	CDP
1	1.2	TTY*	5	4.8	CDP
2	0.6	CDP	6	9.6	CDP
3	1.2	CDP	7		OFF

*Includes FSK

2-4. ALARMS - CONTROLS AND INDICATORS

The TDDM has three functional fault indicators, RATE ①, FCTN ② TRFC ③, and an ALARM pushbutton switch ④ to acknowlege alarm conditions. When any ALARMS lamp lights an audible alarm sounds.



① RATE

RATE indicator (red) - normally off, RATE indicator lights (steady) if the total data rate programmed on all 12 channel switches exceeds 30 kb/s. It lights (flashing) if any channel has an FSK module and the corresponding rate switch is not set to OFF or TTY position.

② FCTN

FCTN indicator (red) - normally off, FCTN indicator lights to indicate a functional fault in TDDM. When FCTN indicator lights, fault lamp on the module that failed also lights.

③ TRFC

TRFC indicator (red) - normally off, TRFC indicator lights (steady) to indicate absence of incoming (receive) traffic. It lights (flashing) to indicate that the local clock cannot synchronize with the received signal.

④ ALARM ACK/TEST

ALARM ACK/TEST pushbutton - provides for silencing the audible alarm and testing the audible alarm and indicators. If an audible alarm is sounded, pressing the pushbutton will reset the alarm. If there are subsequent alarm conditions, or the initial fault clears, the audible alarm will sound again. The pushbutton is also used to test the audible alarm and indicators; when it is pressed, the audible alarm will sound and indicators will light until it is released.

Section II. OPERATOR PREVENTIVE MAINTENANCE CHECKS AND SERVICES

2-5. ROUTINES

a. Because of the simplicity of the equipment, no PMCS is required on the TDDM.

b. Routine checks are not listed as PMCS checks. They are checks such as the following:

- Cleaning
- Dusting
- Monitor indicator lamps during operation
- Checking for frayed cables
- Storing items not in use
- Covering unused receptacles
- Checking for loose nut, bolts, screws and cable connections

c. Routine checks are things that you should do anytime you see they must be done. If you find a routine check like one of those listed in the PMCS TABLE, it was listed because other personnel reported problems with this item.

Section III. OPERATION UNDER USUAL CONDITIONS

2-6. SCOPE

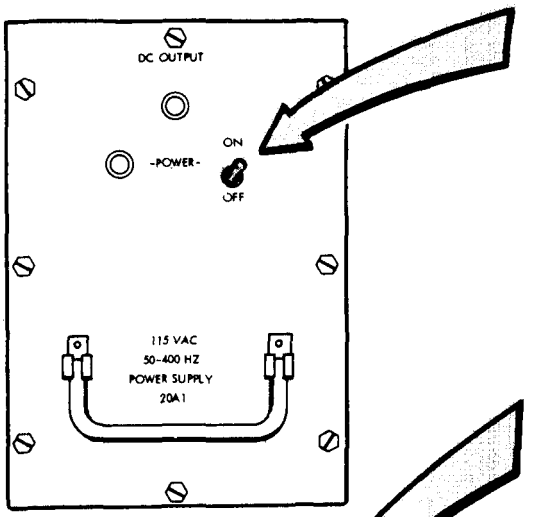
The TDDM is initially transported and installed by higher maintenance personnel. Organizational and direct support personnel are responsible for equipment maintenance and you the operator are responsible for equipment operation. This section contains step-by-step instructions for placing the equipment into operation and removing the equipment from operation.

2-7. INITIAL CHECKS

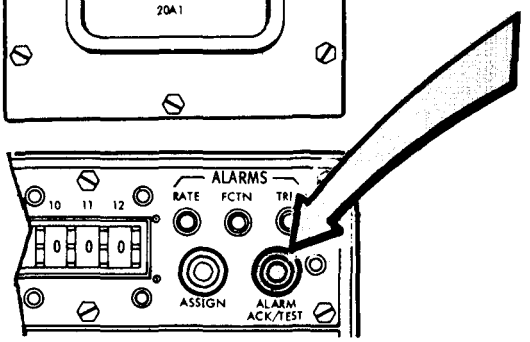
You will be ready for operation after making the initial checks listed below, prepare the equipment for use, and make preliminary adjustments on the equipment.

- Equipment - Inspect your equipment. Use the Components of End Item List (COEIL) in Appendix C to be sure you have everything needed to operate the system. Also look for damaged items. Report missing or damaged material to your supervisor.
- External Power Sources - Make certain that all external power sources and generators are set and adjusted for 115 vac.

2-8. TURN-ON PROCEDURE

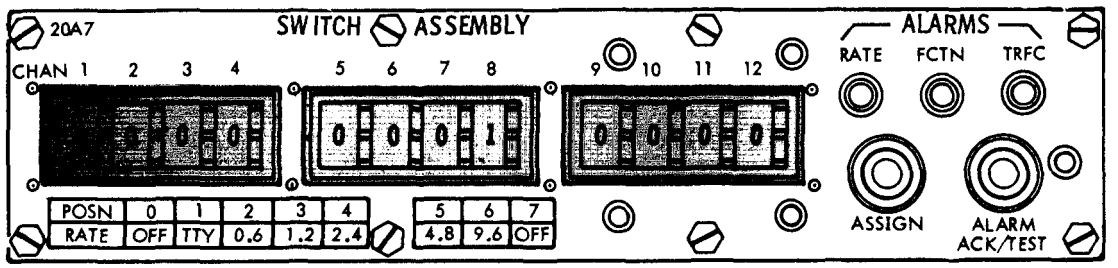


Set POWER ON/OFF switch to ON. Observe that POWER and DC OUTPUT indicators light.



Press ALARM ACK/TEST pushbutton switch. Observe that ALARMS-RATE, FCTN and TRFC Indicators light, and turn off when pushbutton switch is released.

Set CHAN 1 to CHAN 12 rate-mode switches as specified by data supplied by operations supervisor.



When rate-mode switches have been set, press ASSIGN pushbutton switch. Your TDDM is now ready to process traffic.

2-9. OPERATING PROCEDURE

Operation of the TDDM is automatic and does not require operator action. Your duties are to turn on the equipment as described above, monitor the indicator lamps during operation and shut down the equipment at the end of operation.

If a fault occurs, an audible alarm will sound and an ALARMS indicator will light or a power supply indicator will turn off. When this occurs, press the ALARM ACK/TEST pushbutton switch to silence the audible alarm and notify organizational maintenance.

2-10. STOPPING PROCEDURE

Set POWER ON/OFF switch to OFF position.

2-11. ENVIRONMENT

The TDDM is designed to operate at room temperature and normal humidity. However, in an emergency it may be necessary to operate equipment under extreme conditions. When operating under extreme environmental conditions the following precautions are necessary.

a. Cold Environment. Extreme cold causes wires and cables to become hard, brittle and difficult to handle.

- Be careful when handling cables and when connecting them. Bumps and unnecessary loops will result in damage to cables or connector pins.
- Make sure that connectors and cables are free of condensation and moisture. If necessary, cover equipment when not in use to prevent moisture from entering.
- Replace connector covers as soon as a cable is disconnected.

b. Hot Environment. In hot, dry environments connectors and cables are subject to damage from dust and dirt.

- Replace the covers on the connectors and receptacles when not in use.
- Make sure that all equipment is free of dirt and grease.

c. Warm, Damp Environment. In warm, damp environments the equipment is subject to damage from moisture and fungi. Wipe all moisture and fungi from equipment with a lint free cloth.

CHAPTER 3
OPERATOR MAINTENANCE INSTRUCTIONS

3-1. SCOPE

Operator maintenance includes the items listed below. There are no lubrication or troubleshooting procedures.

- Cleaning
- Lamp Replacement

3-2. CLEANING

The cleaning procedure includes all items in paragraph 2-5b. Inspect the exterior of the TDDM. Exterior surfaces should be clean and free of dirt, dust, grease and fungus.

Clean the front panel with a soft, clean cloth. If dirt is difficult to remove, dampen the cloth with water. Use mild soap for more effective cleaning.

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 the skin should be avoided. When necessary, use gloves which the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately. Use cleaning compound, Item 1, Appendix E.

- When the use of compressed air is required for cleaning, the following precaution shall be adhered to:

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 TRICHLOROTRIFLUORCETHANE 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.

3-3. LAMP REPLACEMENT.

a. Power Indicators. To remove the POWER indicator lamp, unscrew it from the socket and screw in a replacement lamp.

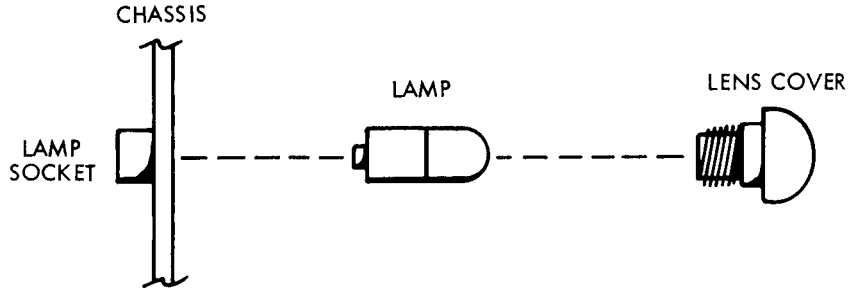
b. DC OUTPUT and ALARMS Lamps. To replace the DC OUTPUT and ALARMS - RATE, FCTN and TRFC lamps, use the following procedure.

1. Unscrew the indicator lens cover and remove it from the lamp socket.

2. Use fingernails to grasp base of lamp and pull it out of lens cover.

3. Insert replacement lamp into lens cover.

4. Screw the assembled lamp and lens cover into lamp socket on front panel.



CHAPTER 4
ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

4-1.SCOPE

As an organizational maintenance repair person you must use these instructions to help keep your equipment in good repair. These instructions include procedures for servicing equipment when received, installing and checking equipment, PMCS, troubleshooting, maintenance instructions and how to prepare the equipment for storage or shipment. If you cannot repair your TDDM equipment using the procedures given in this chapter notify direct support maintenance personnel. Prior to performing any maintenance, verify operator's reported malfunctions.

Section I. REPAIR PARTS SPECIAL TOOLS, TMDE AND SUPPORT EQUIPMENT

4-2. COMMON TOOLS AND EQUIPMENT

For authorized commmon tools and equipment refer to the MAC applicable to your level of maintenance.

4-3. SPECIAL TOOLS, TMDE AND SUPPORT EQUIPMENT

Organizational level maintenance is limited to observation of equipment to see if operation is normal. If not normal, troubleshoot the equipment to isolate the defective module for replacement. No special tools or TMDE and support equipment are required to perform organizational maintenance.

4-4. REPAIR PARTS

Organizational level repair parts are illustrated and listed in TM 11-5805-638-20P Repair Parts and Special Tools List (RPSTL) for the TDDM .

Section II. SERVICE UPON RECEIPT

This section provides information that you require to inspect, service and operationally test the TDDM before it is subjected to normal everyday use and contains unpacking, service upon receipt of material, installation, preliminary servicing and adjustment of equipment.

4-5. SERVICE UPON RECEIPT OF MATERIEL

When spare modules or equipment items are received they should be inspected, unpacked, checked and installed using the procedures given in the paragraphs that follow.

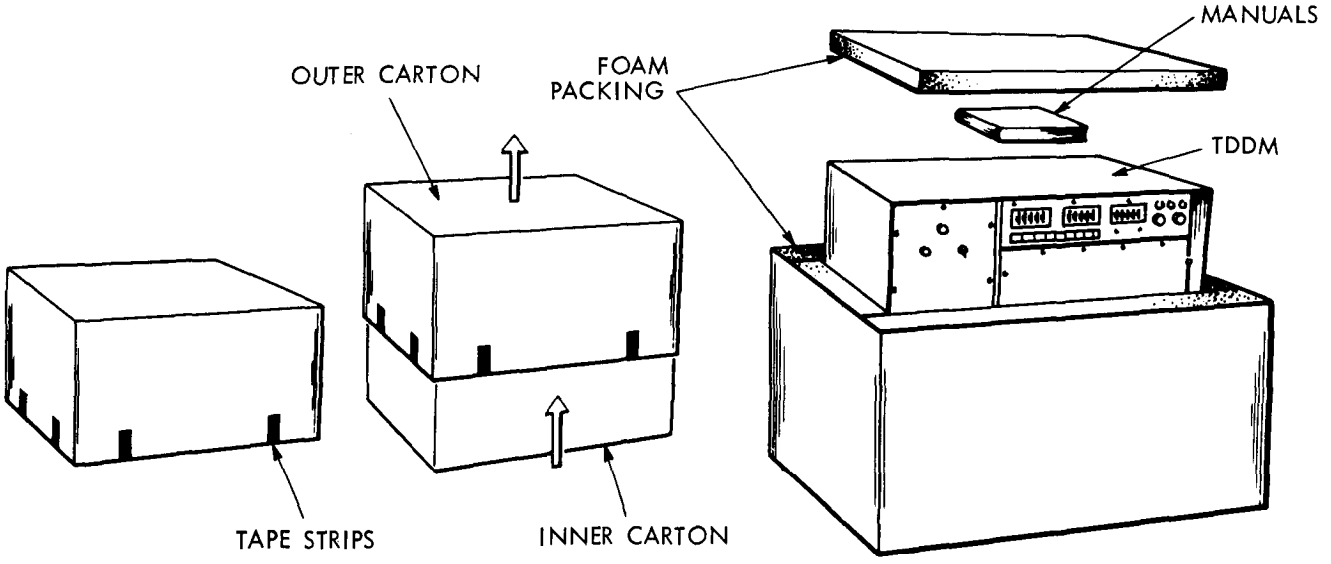
Inspect item per ACTION column.

ITEM		ACTION
Outer Carton	a.	Inspect outer carton for possible water damage and damage incurred during shipment.
	b.	If outer container is damaged report damage to maintenance supervisor.
Spare Modules		Inspect spare modules for possible damage incurred during shipment.
Front Panel		Inspect front panel for dents and scratches.
Controls and Indicators		Inspect all controls and indicators for damage. Check that they function mechanically.
Connectors		Inspect connectors for bent pins or damaged key-ways.

4-6. UNPACKING

The TDDM container is made up of two telescoping doublewall cardboard cartons. The outside dimensions are 26 x 18-3/4 x 16" (outer carton) and 24-1/2 x 18 1/2 x 15" (inner carton)

- Cut strips of black tape on bottom of carton.
- Lift off outer carton.
- Remove top piece of 3-inch foam packing.
- Remove manuals from top of TDDM.
- Carefully lift and remove TDDM from inner carton.
- Save all packing material for reshipping purposes.



4-7. SITING AND SHELTER REQUIREMENTS

The TDDM is primarily intended for installation in shelters and is usually installed in racks with radio sets and other associated equipment. However, the TDDM can be located in any building, van, truck or tent available at the equipment location.

a. The TDDM should be located near an ac power source of 115 volts 50/60/400 Hertz (Hz).

b. The location of the TDDM should be convenient to the subscriber and carrier or radio set equipment.

c. A minimum clearance of 2 feet must be allowed in front of the TDDM to permit replacement of plug-in assemblies and setting of controls. The TDDM should be positioned with its front panel facing forward.

d. Adequate clearance must be provided in back of the TDDM to allow room for the connecting cables.

4-8. CHECKING UNPACKED EQUIPMENT

- Inspect the equipment for damage that may have occurred during shipment. If the equipment has been damaged, fill out and forward SF 364, Report of Discrepancy (ROD) as prescribed in AR 735-11-21.
- Check the equipment against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with the instructions of TM 38-750.
- Check that the equipment is complete as listed on the packing slip. If a packing slip is not available, check the equipment against the list of items comprising the TDDM in Appendix C. Report all discrepancies in accordance with paragraph 1-2. Shortage of a minor assembly or part that does not affect proper functioning of the equipment should not prevent the use of the equipment.
- Check to see whether the equipment has been modified. If it has been modified, the modification work order (MWO) number will appear near the nomenclature plate. Check also to see whether all MWO'S, current at the time the equipment is placed in use, have been applied.

Section III. INSTALLATION INSTRUCTIONS

4-9. GENERAL

NOTE

The installation instructions contained in this section are for Army on-site maintenance teams.

As an organizational maintenance repair person you are responsible for installing new or repaired TDDM modules. After installing a TDDM module, refer to Chapter 2 of this manual for equipment turn-on and operating instructions.

4-10. TOOLS, TEST EQUIPMENT AND MATERIELS REQUIRED FOR INSTALLATION

TOOLS:

The only tool required to install the TDDM components is a standard screwdriver, which is contained in Took Kit, Electronic Equipment TK-105/G.

MATERIAL REQUIRED:

- Two L brackets are needed to secure the TDDM to an equipment rack .
- Eight screws (#10, 1/4 inch) and eight nuts and washers (see para 4-11).

4-11. INSTALLATION INSTRUCTIONS

WARNING

HIGH VOLTAGE
is used in the equipment.
DEATH ON CONTACT
MAY RESULT IF SAFETY PRECAUTIONS
ARE NOT OBSERVED.

Never work on electronic equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment. When the technician is aided by operators, he must warn them about dangerous areas.

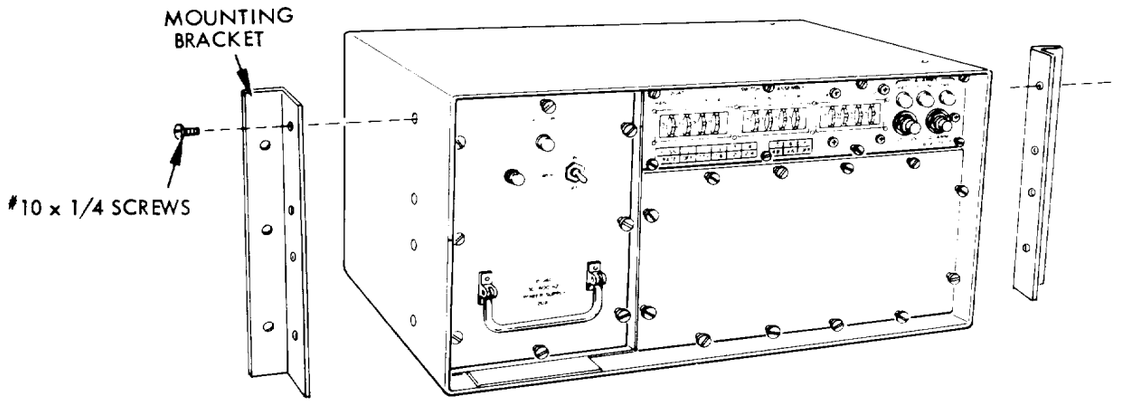
With external 115 vac power source connected to TDDM chassis, 115 volts is present at exposed power supply connector inside the chassis when the power supply is removed. The 115 vac power supply to the equipment must be shut off before beginning work on the equipment.

Do not contact 115 volt ac input connections when installing this equipment. The line ac input filter capacitor may be charged to ac input voltage.

Whenever the nature of the operation permits, keep one hand away from the equipment to reduce the hazard of current flowing through vital organs of the body.

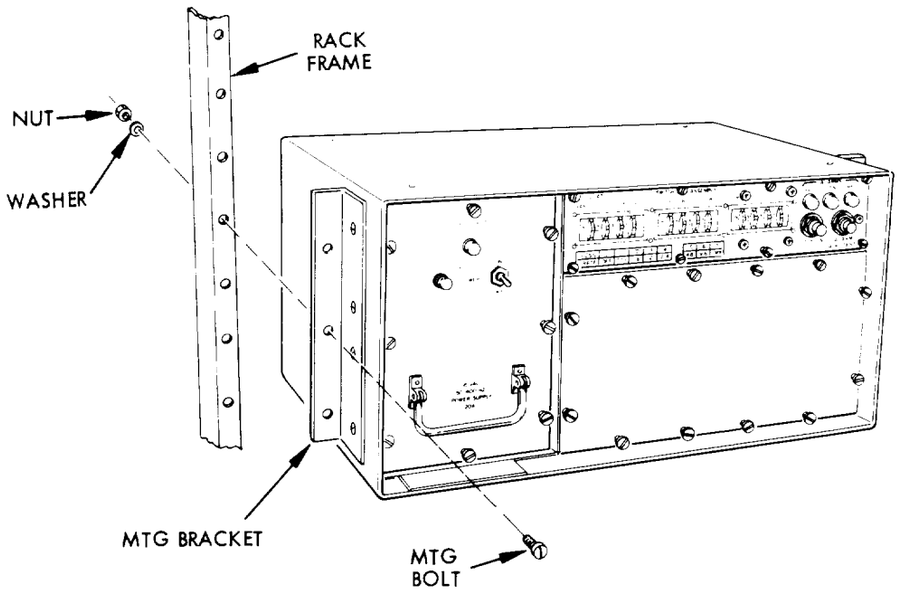
Do not be misled by the term low voltage. Potentials as low as 50 volts may cause death under adverse conditions. For artificial respiration refer to FM 21-11.

a. Attach two mounting brackets (not supplied) to TDDM chassis. Use eight # 10 x ¼ inch screws.



b. Place TDDM in selected location.

c. Align mounting holes in brackets on TDDM with holes in rack or cabinet frame and secure with hardware.



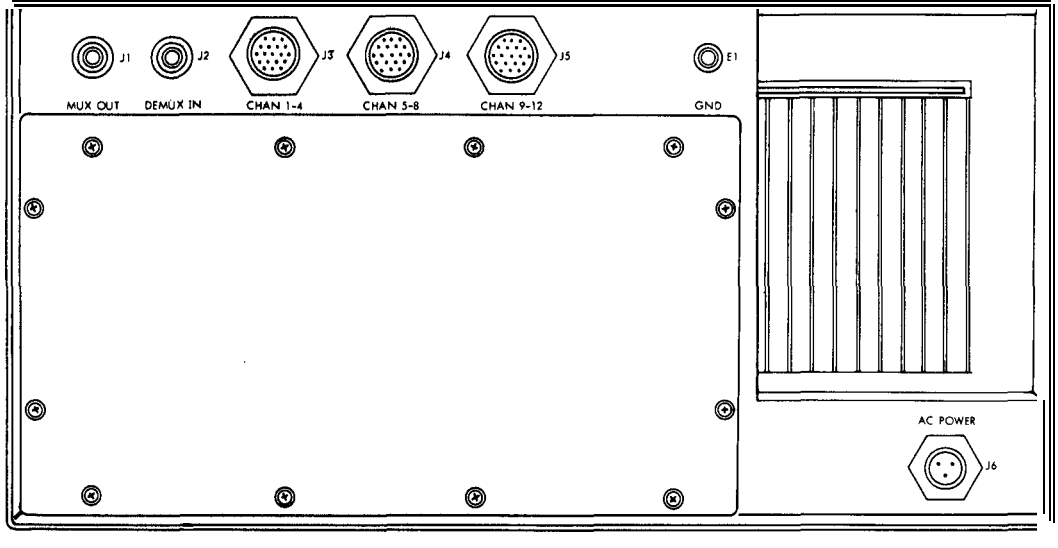
4-12. PRELIMINARY SERVICING AND ADJUSTMENT OF EQUIPMENT

Preliminary servicing and adjustment of equipment consists of: checking equipment interconnections checking the initial settings of all controls and checking all necessary items required to ensure proper operation of the TDDM.

Perform the following preliminary checks before applying power to the equipment.

ITEM	INSPECT FOR	REMEDY
Primary Power	Check that generator and/or primary power is set for 115 vac operation	Set generator/ and/or primary power for 115 vac operation.
Front Panel	Check front panel controls and indicators for switch settings.	Refer to paragraph 4-13 of this manual for preliminary switch positions.
Data Channel Modules	Check that each data channel has the correct module in its card positon.	Refer to paragraph 4-13.
Ground	Check that ground terminal is connected to system ground.	Make ground connection.
AC Power Cable	Check that ac power cable is connected to source of 115 vat.	Connect power cable.

(REAR VIEW)



4-13. OPERATING CONFIGURATION

The TDDM uses two types of plug-in modules for the 12 data channels. Digital data channel modules (A2, part No. B4007500) are used for channels that have either conditioned diphase (CDP) or TTY signals. Frequency Shift Keying (FSK) modules (A3, part No. B4007503) are used for channels with signals from a TH-22/G Telegraph Terminal. The channel module, at each position in the card nest, must be CDP/TTY or FSK type in accordance with the type of signals on the channel. Each channel rate-mode switch must be set to correspond with the card type used for the same channel. The following observations should be made:

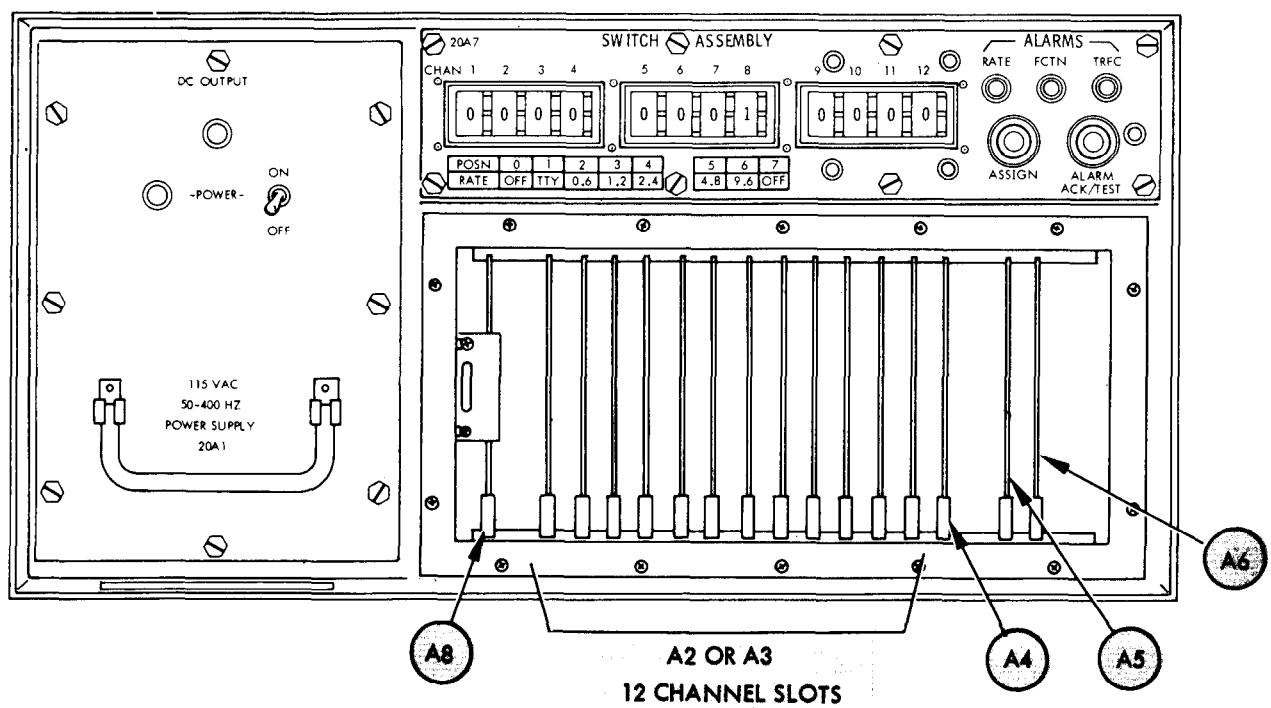
a. Check that each channel slot in the card nest has the type of data module required for the type of service on the channel.

b. Check that each channel rate-mode switch is set to a position compatible with the corresponding channel card. Refer to paragraph 2-3.

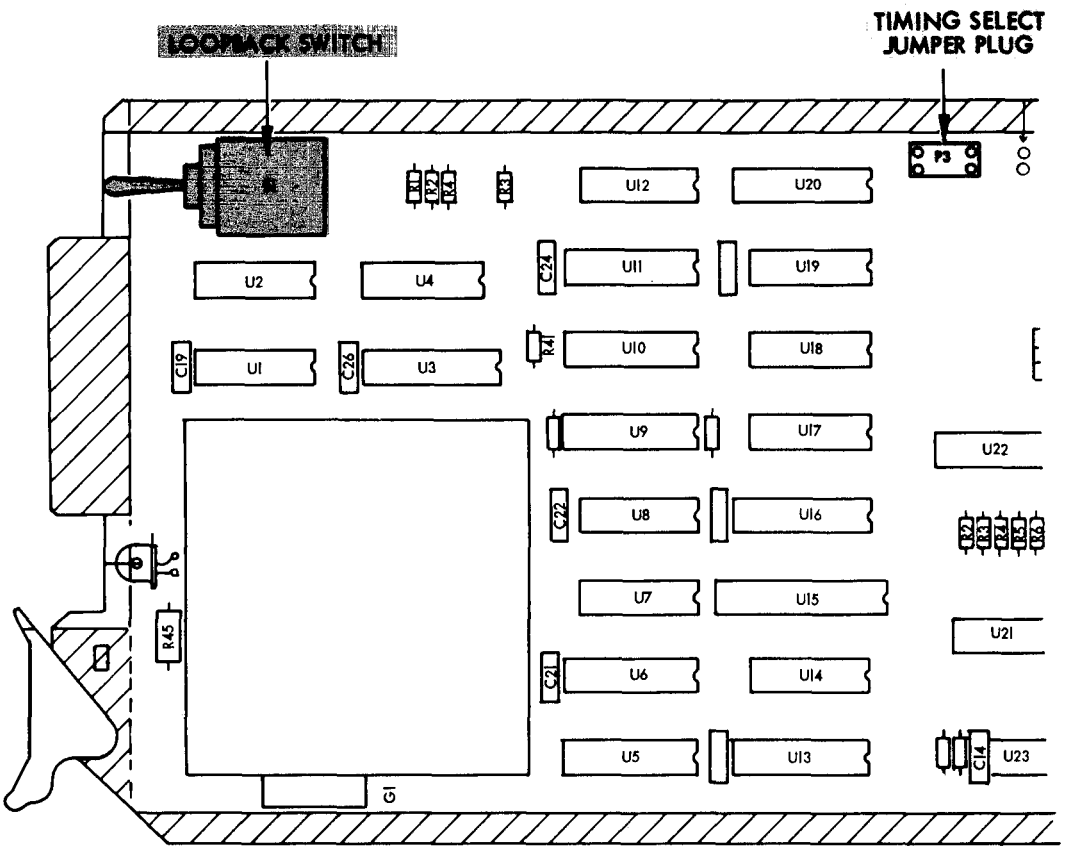
c. Check the total bit rate of all channel rate-mode switches. Refer to paragraphs 1-12 and 2-3. The total bit rate must not exceed 30 kb/s.

d. See paragraph 4-25 for card nest cover removal.

LOCATION OF MODULES
(CARD NEST COVER OFF)



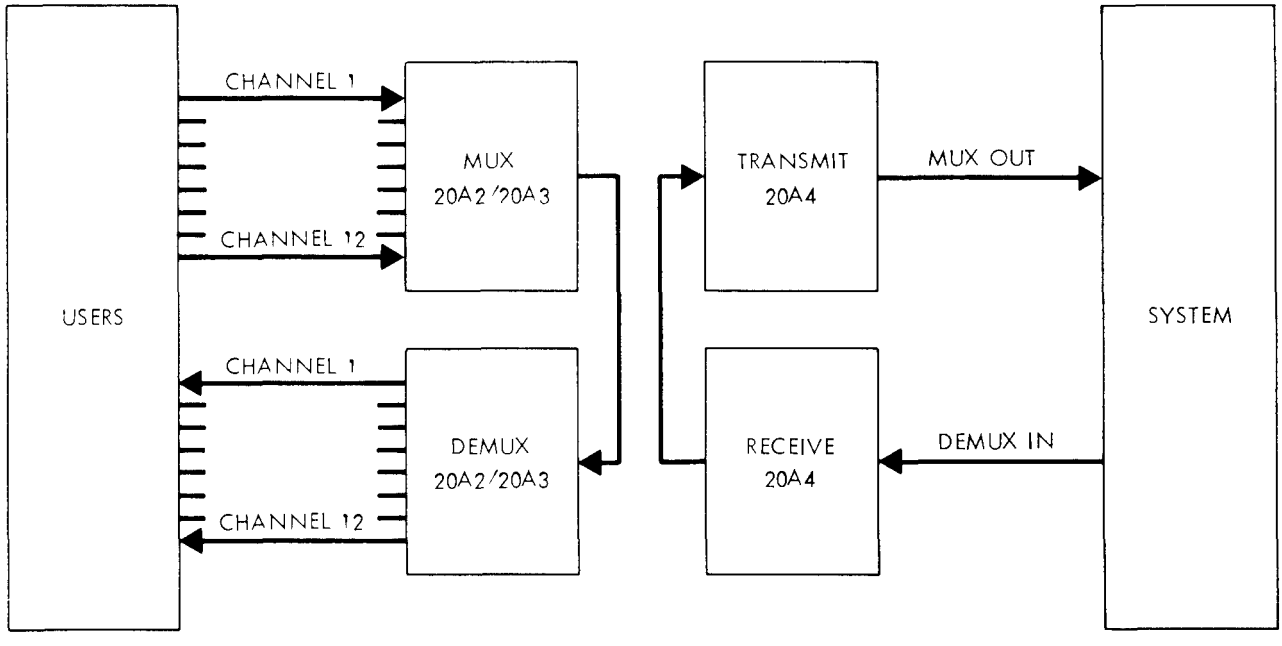
MODULE A4


LOOPBACK SWITCH
TIMING SELECT JUMPER PLUG
P3
R1
R2
R4
R3
U12
U20
C24
U11
U19
U2
U4
R41
U10
U18
C19
U1
C26
U3
U9
U17
U22
C22
U8
U16
R2
R3
R4
R5
R6
U7
U15
U21
R45
C21
U6
U14
U5
U13
C14
U23
G1

4-14. DIGITAL CLOCK PULSE GENERATOR MODULE

Three controls have been placed on the Digital Clock Pulse Generator module (A4) to prevent inadvertent activation or tampering by operating personnel. These controls are infrequently used and improper manipulation can result in degradation of system functions. Following is a description of these controls.

- Loopback - A loopback toggle switch is located on the Digital Clock Pulse Generator module. This switch provides for internal loopback test by connecting the TD-1069/G multiplexer output with the TD-1069/G demultiplexer input, and provides system loopback test by connecting the input multiplexed signal with the output multiplexed signal. This control is on the front edge of the module to permit activation while in place. When set to ON (up) this switch interrupts normal traffic and provides an internal loopback test as follows:

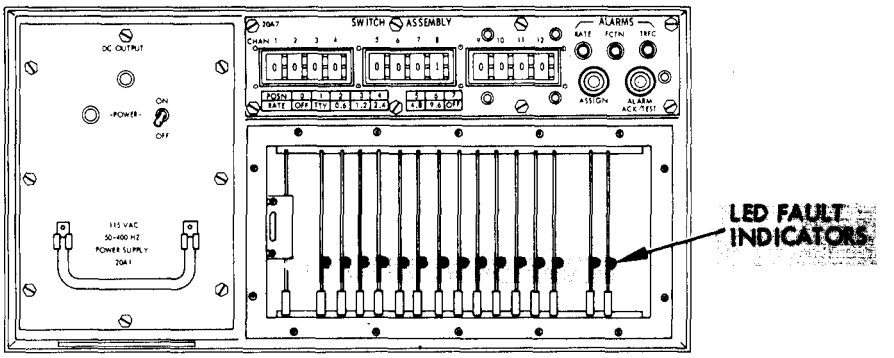


The user channel mux/demux circuits are looped back to allow isolation of user type faults. The DEMUX in Receive (REC) circuit is looped back to the transmit (XMT) MUX OUT circuit to allow isolation of system type faults.

- Timing select - A jumper plug for the selection of either internal (INT) or received (REC) timing for the transmitted multiplex stream timing reference is mounted on the Digital Clock Pulse Generator Module. The selection is made only during initial set-up of the TD-1069 and requires removal of the module from the TDDM. No unsoldering or special tools are needed to position the jumper plug.

- Oscillator Adjustment - A screwdriver adjustment (not shown) is provided on the Digital Clock Pulse Generator module to permit returning of the master oscillator to its center frequency. This adjustment is accessible only with the module placed on an extender. This is a depot level maintenance task; do not attempt.

Each module (except Overvoltage Absorber A8) in the card nest has a light emitting diode (LED) fault indicator. The LEDs are mounted at the front edge of the module. They are visible only when the card nest cover is removed. A lit LED (red) indicates a faulty module.



(CARD NEST COVER OFF)

4-15. INTERNAL CONTROL SETTING

The LOOPBACK switch and the timing select jumper plug, both located on Digital Clock Pulse Generator module A4, must be set before the power is turned on. The operations supervisor will tell you what positions to use for them.

a. Remove the card nest cover

b. Remove module A4 from the card nest

c. Set the LOOPBACK switch to the required position.

CAUTION

When removing, handling, or re-inserting the timing select jumper plug, be careful not to bend pins.

d. Check position of Timing Select Jumper Plug. If it is not already in the required position, remove and reinsert when in the required position. To remove the plug, alternately pry up at opposite ends, using a thin-blade screwdriver or knife blade.

Section IV. ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

4-16. GENERAL

Preventive maintenance is the routine care, servicing, and inspection of equipment. This is to prevent trouble, to reduce downtime, and to assure the equipment is serviceable. The procedures in the PMCS Table explain the routine care essential to proper upkeep and operation of the TDDM.

a. Records and Reports. Records and reports of these checks must be made in accordance with the requirements of TM 38-750.

b. Troubleshooting . If the equipment fails to operate, verify the operator's reported fault. Then, use the organizational troubleshooting table.

4-17. PMCS TABLE

The preventive maintenance checks and services described in the PMCS table outline what is to be done at specific times. These checks are to maintain the equipment in good general (physical) condition and in good operating condition. The table states what, when and how to check and the action to take for any faults found during the PMCS.

These checks and services must be done by organizational maintenance personnel on a semi-annual (SA), during (D) and under such special conditions as follows:

a. When the equipment is initially installed.

b. When the equipment is reinstalled after removal for any reason.

NOTE

When equipment is installed or reinstalled, all items in the organizational PMCS table shall be performed.

ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES

ITEM NUMBER	INTERVAL SA	INTERVAL D	ITEM TO BE INSPECTED	ACTION REQUIRED	REFERENCE
1	•		Preservation	Check all painted surfaces for bare spots. Spot paint as necessary.	Appendix A TB 43-0118
2	•		Publications	Check the publications using DA Pam 310-1. Should be complete, current and serviceable.	Appendix A
3	•		Modifications	Check DA Pam 750-10 to ensure all applicable MWO's have been applied.	Appendix A
4	•		Hardware	CAUTION To avoid stripping or breaking tighten any hardware carefully. Check the TDDM to ensure it is secure. Tighten any loose mounting bolts; replace any stripped or broken bolts.	
5		•	Operations (Indicator Lamps)	Operation of the TDDM is verified by checking that the POWER and DC OUTPUT indicators are lit and that no ALARMS indicators are lit.	

Section V. TROUBLESHOOTING

-18. TROUBLESHOOTING TABLE

This section contains organizational troubleshooting instructions that allow you to efficiently troubleshoot your equipment. Only those checks and corrective action which you are authorized by the MAC to perform are included. Notify direct support maintenance personnel for all other malfunctions. The test and inspections for each malfunction are listed in a logical sequence and any corrective action you take should follow the same sequence. If the malfunction cannot be cleared by replacing the suspect item or component, such as modules, notify direct support maintenance.

The organizational maintenance concept for each item is as follows:

On-site maintenance for the TDDM consists of repair by replacement of one or more of the module assemblies.

- Power Supply Module
- Card Nest Modules
- Switch Assembly

Refer to paragraph 4-25 for disassembly instructions.

HOW TO USE THE TROUBLESHOOTING TABLE

a. Perform the operator's troubleshooting INSPECTION OR TEST steps to verify all switch and control settings and equipment initial conditions.

b. Refer to the Organizational Troubleshooting Index below and look up your MALFUNCTION, identified in capital letters and indexed with troubleshooting Part numbers.

c. Perform the INSPECTION OR TEST steps to aid in isolating the fault to the most probable suspect item or module.

Each INSPECTION OR TEST step should be performed in the sequence given along with any CORRECTIVE ACTION until the MALFUNCTION is cleared or you are directed to report the MALFUNCTION to direct support maintenance.

d. Unless otherwise specified, perform the CORRECTIVE ACTION if the INSPECTION OR TEST procedure results are not obtained. If a CORRECTIVE ACTION or paragraph reference is not given for an INSPECTION OR TEST step, perform the next INSPECTION OR TEST.

ORGANIZATIONAL TROUBLESHOOTING INDEX

ORGANIZATIONAL TROUBLESHOOTING TABLE

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. POWER INDICATOR NOT LIT	Set POWER ON/OFF switch OFF, then ON. If indicator lights, return TDDM to normal operation.	Replace Power Supply.
2. DC OUTPUT INDICATOR NOT LIT	Set POWER ON/OFF switch OFF, then ON. If DC OUTPUT indicator lights, return TDDM to normal operation.	Replace Power Supply.
3. ALARMS - RATE INDICATOR LIT (STEADY)	Total bit rate set on the 12 CHAN rate-mode switches exceeds 30 kb/s. Check setting of CHAN rate-mode switches against listing for your site. If any CHAN rate-mode switch is not set as indicated on list, set it to required position, then press ASSIGN pushbutton.	Notify direct support maintenance.
4. ALARMS - RATE INDICATOR LIT (FLASHING)	A channel with an FSK Data (A3) module does not have the corresponding CHAN rate-mode switch set to position l. Check setting of switches for all channels that have FSK modules. Set switches to position 1. Then press ASSIGN pushbutton.	Notify direct support maintenance.
5. ALARMS - FCTN INDICATOR LIT	Remove cover of card nest and observe module fault lamps.	Replace module with lighted fault lamp.
6. ALARMS - TRFC INDICATOR LIT	Notify traffic supervisor or direct support maintenance.	

Section VI. ORGANIZATIONAL MAINTENANCE PROCEDURES

4-19. MAINTENANCE OPERATIONS

This section contains organizational maintenance procedures consisting of instruction to service, check, inspect, remove clean, test, replace, adjust and place the TDDM into service.

4-20. SERVICING

Servicing the TDDM consists of checking that expendable supplies and materials are available in accordance with Appendix E, and determining that all operator maintenance instruction have been performed.

4-21. OPERATIONAL CHECKS

Operational/inspection checks of the TDDM consist of inspection of indicator lamps for normal operation.

4-22. INSPECTION OF INSTALLED ITEMS

Perform the inspection procedures below with the equipment installed and when troubleshooting TDDM. If the inspection limits given in the following paragraphs cannot be obtained, refer to the troubleshooting section of this chapter and perform the corrective action.

4-23. INSPECTION PROCEDURE

Inspection of items while installed consists of:

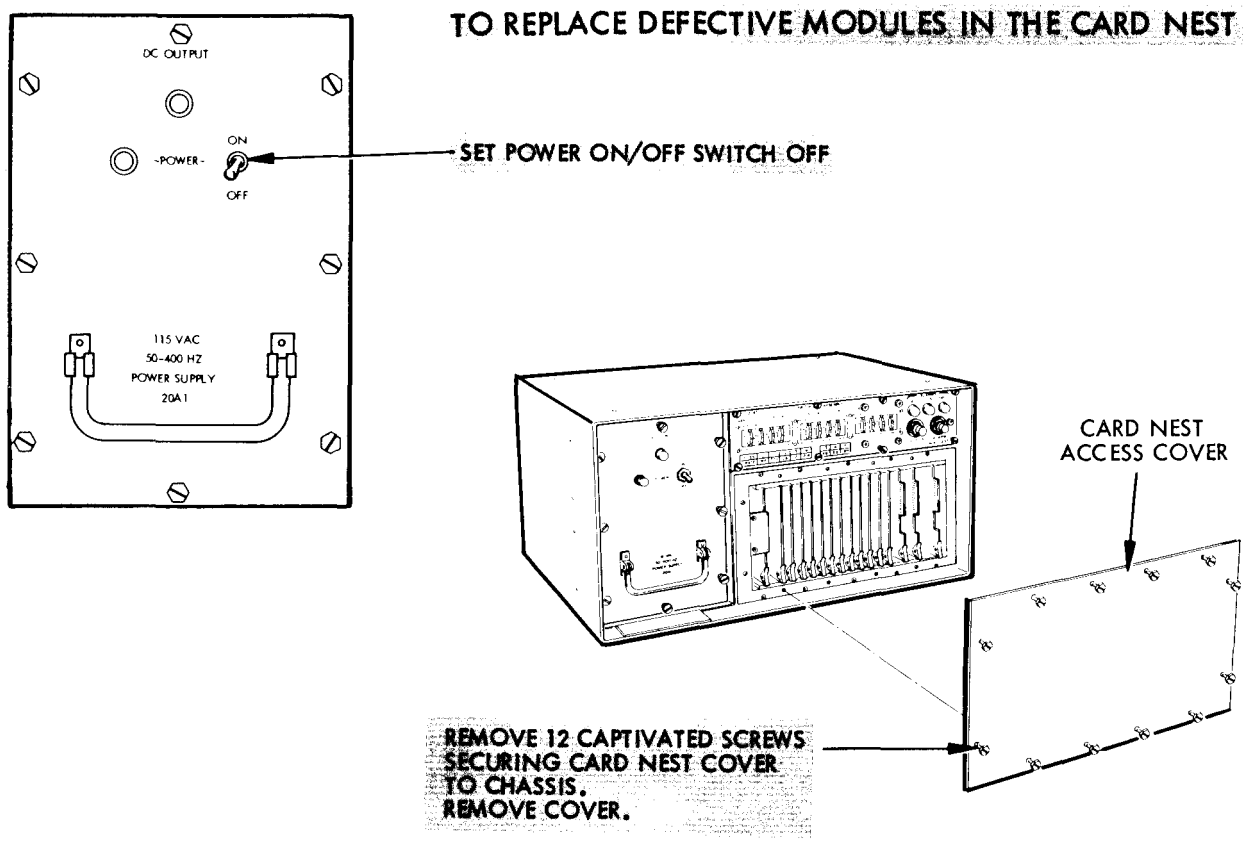
- Verifying malfunctions reported by the operator
- Observing front panel controls and equipment operation to determine that the malfunction exists.

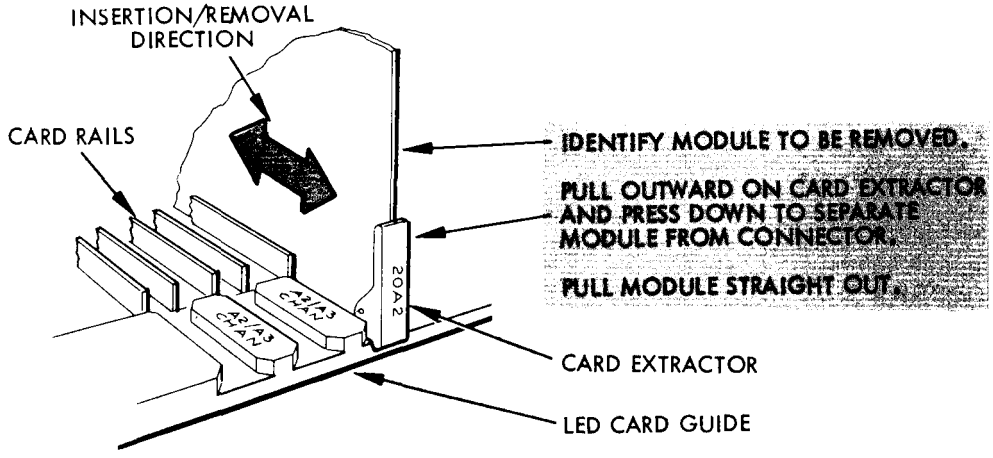
4-24. REMOVAL

Remove your TDDM items using these procedures when inspection requires that the item must be removed from service to be replaced/repaired.

4-25. DISASSEMBLY

Disassembly of the TDDM, at the organizational level, consists of replacing defective subassemblies/modules with new or repaired subassemblies/modules, when directed to by the troubleshooting table or direct support maintenance. Disassemble and replace subassemblies/modules using the procedures shown below.

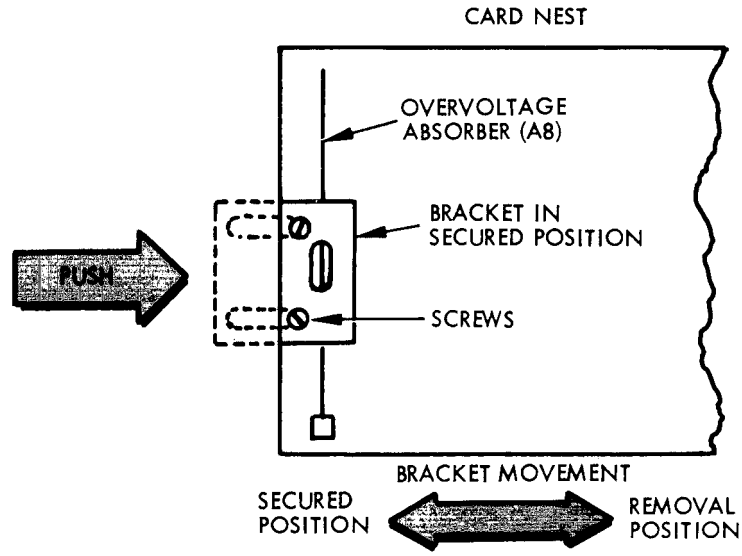




NOTE

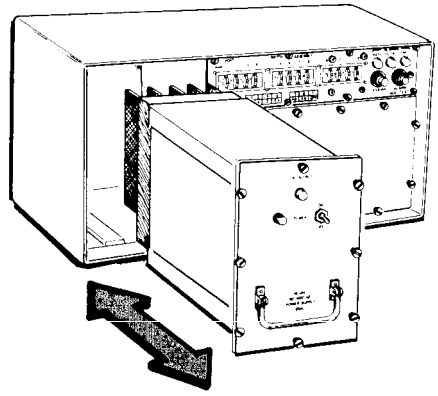
The Overvoltage Absorber (A8) is secured in place by a bracket. Shift bracket as instructed below, before performing removal procedure.

- Loosen (do not remove) two screws securing bracket.
- Push bracket to riqht (removal position).
- Tighten both screws again.
- Proceed with module removal.



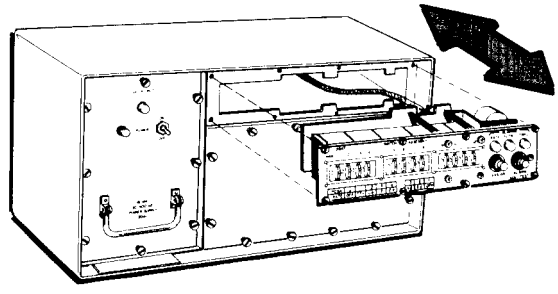
TO REPLACE POWER SUPPLY A1

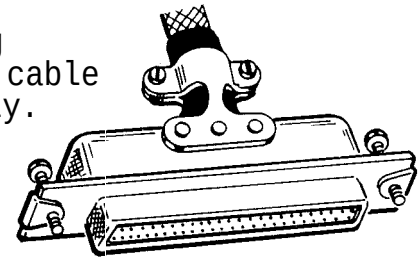
- Set Power ON/OFF switch OFF
- Loosen eight captive screws securing power supply front panel to chassis.
- Grasp power supply handle and pull power supply straight out.



TO REPLACE SWITCH ASSEMBLY A7

- Set Power ON/OFF switch OFF.
- Loosen eight captive screws securing switch assembly to chassis.
- Pull switch assembly straight out.
- Loosen two screws holding connector and disconnect cable at rear of switch assembly.





4-26. INSPECTION-ACCEPTANCE/REJECTION CRITERIA

Organizational acceptance/rejection criteria for TDDM items are contained in the PMCS procedures of paragraph 4-17. These inspection procedures are used to determine if the TDDM meets minimum performance standards and consists of verifying that tests should be performed when troubleshooting and after replacing a TDDM item with a new/or repaired item. If test communications are poor or faulty, the faulty TDDM item should be alined and/or replaced by direct support maintenance as directed by the organizational and direct support troubleshooting tables.

4-27. REPAIR OR REPLACEMENT

Repair of the TDDM consists of replacing defective items with serviceable like-type parts in a manner to allow the proper functioning of the equipment. Items authorized by organizational maintenance are identified in the Repair Parts and Special Tools List (RPSTL), TM-11-5805-638-20P. The RPSTL authorizes the requisitioning and issue of spares and repair parts as indicated by the source and maintenance codes. Refer to paragraph 4-17 for installation and removal instruction.

4-28. TESTING

Organizational test of TDDM items consists of performing the PMCS inspection procedures and communications test. These tests should be performed to determine that the TDDM meets a minimum performance standard when operation becomes questionable or when troubleshooting.

4-29. PAINTING

Organizational painting procedures consist of performing the paint touch-up procedures given below.

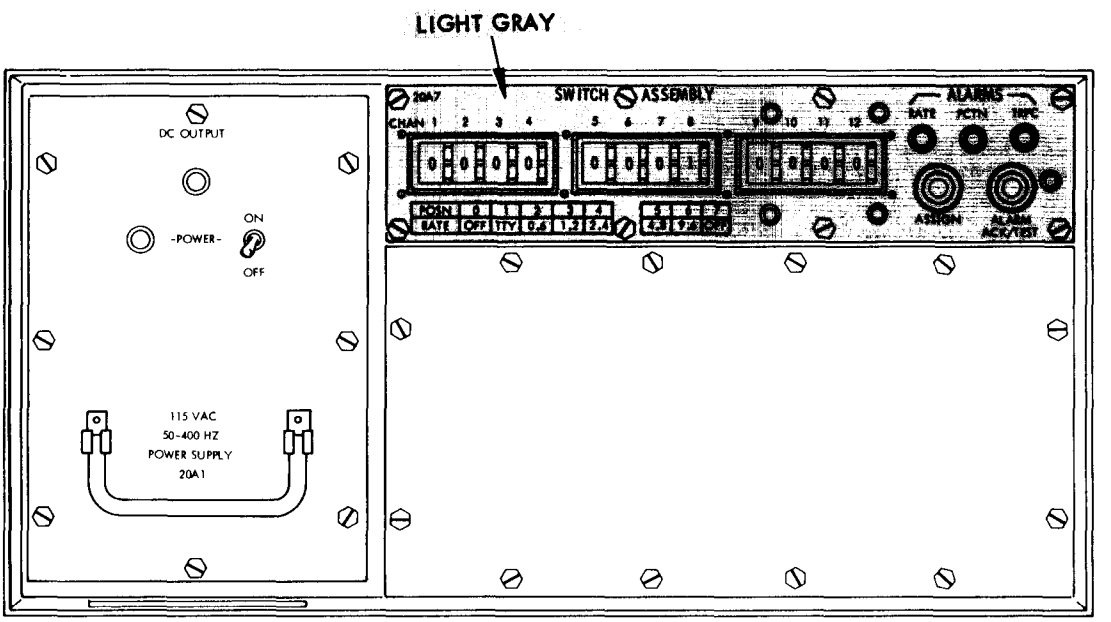
NOTE

Selected areas on the TDDM must not be painted. These items are data plates, rubber and plastic components, receptacle connectors, polished steel parts, glass parts. ..etc. Refer to applicable cleaning and refinishing practices specified in SB 11-573.

- Mask selected areas that must not be painted.
- Clean all damaged painted surfaces of dust, dirt and moisture with a clean, soft, lint-free cloth (use cleaning cloth Item 2 Appendix E).
- Remove rust and corrosion from metal surfaces by lightly sanding them with 0000 sandpaper (use sandpaper Item 3, Appendix E).
- Prime surface to be painted per MIL-P-8585 then paint as follows:

  Forest Green - use a single coat of forest green per MIL-E-52798A for all exterior surfaces except front panel of switch assembly A7 (use paint Item 4, Appendix E).

  Light Gray - use a single coat of light gray per MIL-E-1590 for front panel of switch assembly A7 (use paint Item 5, Appendix E.)



4-30. REASSEMBLY

Reassembly of items at the organizational level consist of replacing defective items with new/or repaired items. When directed to by the troubleshooting table, reassemble and replace the defective module using the procedures below.

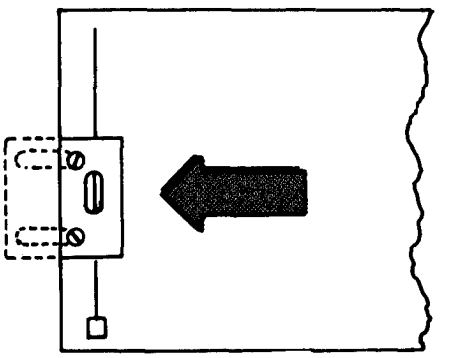
CARD NEST

- Carefully insert printed circuit boards into the chassis circuit board guides and slide printed circuit boards straight into their respective connectors.
- Replace card nest cover and secure with 12 captive screws.

NOTE

After replacement of overvoltage absorber A8, move bracket to secured position.

- Loosen (do not remove) screws securing bracket.
- Push bracket to left (secure position)
- Tighten screws again.



POWER SUPPLY A1

- Place power supply in position in chassis and push in firmly to ensure that rear connector is securely seated.
- Secure by tightening eight captive screws.

SWITCH ASSEMBLY A7

- Connect cable to connector at rear of Switch Assembly.
- Place Switch Assembly in position in chassis and secure by tightening eight captive screws.

4-31. TEST PROCEDURES

Organizational test procedures (operational checks) for the TDDM are contained in paragraph 4-21.

4-32. RADIO INTERFERENCE SUPPRESSION

Your TDDM equipment is designed to keep all radio interference/ electromagnetic radiation levels at a minimum to prevent enemy reception of classified data. The shielded cables, conduits and equipment grounds all form a part of the radio interference suppression/electromagnetic radiation suppression system. Make certain that the TDDM is properly mounted and secured, cables are properly shielded and that all cables and dummy plugs are properly installed. Essentially, radio interference/electromagnetic radiation suppression is attained by providing a low resistance path to ground for stray currents.

4-33. PLACING INTO SERVICE

Prior to placing the TDDM into service the following precaution should be observed:

- Make certain that the grounded generator or primary voltage to the TDDM is set for 115 Vac operation.

Section VII. PREPARATION FOR STORAGE OR SHIPMENT

4-34. GENERAL

This section provides special instructions for preparation for storage or shipment and includes security procedures, repacking, marking, administrative storage and shipping requirements.

4-35. SECURITY PROCEDURES

Follow the security procedures given in AR 190-11 and AR 190-13.

4-36. REPACKING

Repacking of equipment for shipment or limited storage normally will be performed at a packing facility or by a repacking team. Should emergency packing be required, select the materials from those listed in SB 38-100, and package the equipment in the original packaging, so far as possible, with the available materials. See pages 4-3 and 4-4 of this manual for illustration of packing materials.

Wrap the TDDM in waterproof paper. Place filler material on top and bottom of equipment and TDDM in packing case (see page 4-4). Wrap this manual and place it on top of the TDDM and secure the package is such manner to prevent accidental opening during handling and/or storage.

4-37. MARKING

Mark each shipping carton using, as a minimum, the items given below. Use any lettering means that provides legibility and durability.

MINIMUM MARKINGS

- National Stock Number (NSN) or part number when NSN is not available.
- Noun nomenclature.
- Quantity and unit of issue.
- Contract, purchase order or delivery order number.
- Additional markings as may be required by the commanding officer.
- Exterior shipping containers shall be marked with the appropriate address and attached to the outside in an envelope or placed inside the container.
- One copy of the shipping documents and order documentation shall be attached to the outside in an envelope or placed inside the container.

4-38. ADMINISTRATIVE STORAGE

Short term (administrative storage) = 1 to 45 days. Administrative storage covers storage of equipment which can be readied for mission performance within 24 hours. Before placing an item in administrative storage, the next scheduled preventive maintenance checks and services should be performed, all known deficiencies corrected, and all current modification work orders applied. The administrative storage site should provide required protection from the elements and allow access for visual inspection.

4-39. SHIPPING REQUIREMENTS

Ship all items, where possible, in their original shipping containers. If the original shipping containers are not available, use W5C water resistant boxes or equivalent with adequate cushioning to protect equipment from physical and mechanical damage. If necessary, use additional wrapping and cushioning to protect fragile switches and controls from damage. In addition, all units should be packed so that the exterior shipping containers will meet common carrier acceptance and provide safe delivery to the destination.

APPENDIX A
REFERENCES

A-1. PUBLICATIONS INDEXES

The following indexes should be consulted frequently for latest changes or revisions of references given in this appendix and for new publications relating to material covered in this manual.

Consolidated Index of Army Publications and Blank Forms . . . . . DA Pam 310-1
The Army Maintenance Management System (TAMMS) . . . . . DA Pam 738-750
Index of Modification Work Orders . . . . . DA Pam 750-10

A-2. FORMS AND RECORDS

The following forms and records pertain to this material.

Discrepancy in Shipment SF361
Report of Discrepancy (ROD). SF364
Quality Deficiency Report SF368
Recommended Changes to Publications and Blank Forms . . . . . DA Form 2028

A-3. OTHER PUBLICATIONS

The following publications contain information pertinent to this material and associated equipment.

a. Destruction to prevent enemy use.

Procedures for Destruction of Electronics Material to Prevent Enemy Use (Electronics Command) . . . . . TM 750-244-2

b. Maintenance.

Administrative Storage of Equipment . . . . . TM 740-90-1

c. Medical - First Aid.

First Aid for Soldiers . . . . . FM 21-11

d. General.

Painting and Preservation Supplies Available for Field Use for Electronics Command Equipment SB1l-573
Preservation, Packaging, Packing and Marking Materials, Supplies and Equipment Used by the Army . . . . . SB 38-100

e. Related Publications.

Hand Receipt Covering Contents of Components of End Item (CDEI), Basic Issue Items (BII), and Additional Authorization List (AAL) for Multiplexer, Time Division, Digital TD-1069/G . . . . . .TM 11-5805-638-12-HR

Organizational Maintenance Repair Parts and Special Tools List for Multiplexer, Time Division, Digital TD-1069/G . . . . . .TM 11-5805-638-20P

APPENDIX B
MAINTENANCE ALLOCATION

Section I. INTRODUCTION

B-1. GENERAL

This appendix provides a summary of the maintenance operations for Time Division Digital Multiplexer TD-1069/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.

B-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. To perform 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 equipment 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. To emplace, seat, or fix into position an item, part, module (component or assembly) for an unserviceable counterpart.

h. Replace. To substitute a serviceable like-type part, subassembly, module (component or assembly) for an unserviceable counterpart.

i. Repair . To perform of maintenance services (inspect, test, service, adjust, align, calibrate, replace) or other maintenance actions (welding, grinding, riveting, straightening, facing, remachining, or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module/component/assembly, end item or system. This function does not include the trial and error replacement of running spare type items such as fuses, lamps, or electron tubes.

k. Rebuild. To perform 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 material 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 equipment/components.

B-3. COLUMN ENTRIES

a. Column 1, Group Number. Column 1 lists group numbers, the purpose of which is to identify components, assemblies, subassemblies and module 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 function to be performed on the item listed in column 2. When items are listed without maintenance functions it is solely for the 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 "worktime" 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 "worktime" figures will be shown for each category. The number of man-hours esecified by the "worktime" 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 are as follows:

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

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 remark in Section IV, Remarks, which is pertinent to the item opposite the particular code.

B-4. TOOL AND TEST EQUIPMENT REQUIREMENTS (Section III)

a. Tool or Test Equipment Reference Code. The number in this column coincides 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. Nomenclature. This column lists the noun name and nomenclature of the tools and test equipment required to perform the maintenance functions.

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

d. 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.

B-5. REMARKS (Section 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 TIME DIVISION DIGITAL MULTIPLEXER TD-1069/G

(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, TIME DIVISION DIGITAL (20)	Inspect	0.25						
		Test		0.50					A
		Test			0.75			10,11,16,27	A
		Test				2.00		10,11,16	E
		Repair		0.25				1	B
		Repair			1.50			2 thru 9	C,G
		Repair				2.00		2 thru 9,25	H
		Overhaul					2.00	2 thru 25,27 29 thru 32,34	H
		Rebuild					2.00	2 thru 25,27 29 thru 32,34	H
01	CHASSIS, ELECTRICAL EQUIPMENT (20A9)	Inspect		0.50					D
		Test			2.00			13,16,29	G
		Replace			1.00			2 thru 9	G
		Repair					2.00	2 thru 11, 23,24,25,27	H,F
0101	CHASSIS								
0102	NEST ASSY								
0103	HARNESS ASSY	Inspect		0.50					A
		Test			1.00			16,10,27	E
		Replace			1.00			2 thru 9	
		Repair				2.00		2 thru 9	H
010301	HARNESS PIECE PARTS								
010302	HARNESS, SWITCH ASSY (W1)	Inspect		0.50					A
		Test			1.00			16,10,27	E
		Replace			1.00			2 thru 9	
		Repair				2.00		2 thru 9	H
010303	HARNESS, CHANNEL/MUX (W2)	Inspect		0.50					A
		Test			1.00			16,10,27	E
		Replace			1.00			2 thru 9	
		Repair				2.00		2 thru 9	H
010304	HARNESS, POWER SUPPLY (W3)	Inspect		0.50					A
		Test			1.00			16,10,27	E
		Replace			1.00			2 thru 9	
		Repair				2.00		2 thru 9	H
010305	HARNESS, CHANNEL (W4)	Inspect		0.50					A
		Test			1.00			16,10,27	E
		Replace			1.00			2 thru 9	
		Repair				2.00		2 thru 9	H
010306	HARNESS, CHANNEL/DEMUX (W5)	Inspect		0.50					A
		Test			1.00			16,10,27	E
		Replace			1.00			2 thru 9	
		Repair				2.00		2 thru 9	H

Section II. MAINTENANCE ALLOCATION CHART FOR TIME DIVISION DIGITAL MULTIPLEXER TD-1069/G

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY C	O	F	H	D	(5) TOOLS AND EQPT	(6) REMARKS
02	SWITCH ASSY, (20A7)	Test		0.50					C
		Test				1.00		10,14,26	E
		Replace		0.20				1	B
		Repair				2.00		2,23	H
03	POWER SUPPLY (20A1)	Inspect		0.25					A
		Test			1.00			16	E
		Test				1.00		10,11,27,32	
		Replace		0.10				1	
		Repair			1.50			2,3,23	H,F
04	CHANNEL DIGITAL DATA (20A2)	Test		0.40					C
		Test					0.50	13,28,33, 35 thru 40	E,F,I
		Replace		0.10				1	
		Repair					1.00	2,23	H
05	CHANNEL FREQ. SHIFT KEYING DATA (20A3) (1)	Test		0.40					C
		Test					0.50	10,11,13, 14,20,21 34 thru 40	E,I
		Replace		0.10				1	
		Repair					2.00	2,23	H
06	DIGITAL CLOCK PULSE GENERATOR (20A4)	Test		0.40					C
		Test					0.50	13,28,33, 35 thru 40	E,F
		Replace		0.10				1	
		Repair					1.00	2,23	H
07	ALARM MEMORY MODULE (20A6)	Test		0.40					C
		Test					0.50	28,29,33, 35 thru 40	E,F
		Replace		0.10					
		Repair					1.00	2,23	
08	DIGITAL CONTROLLER MODULE (20A5)	Test		0.40					C
		Test					0.50	28,29,33, 35 thru 40	E,F
		Replace		0.10				1	
		Repair					1.00	2,23	H
09	OVERVOLTAGE ABSORBER ASSY (20A8)	Test		0.40					C
		Test					0.50	13,28,33	E,F
		Replace		0.10				1	
		Repair					1.00	2,23	H

Section III. TOOLS AND TEST EQUIPMENT REQUIREMENTS FOR TIME DIVISION DIGITAL MULTIPLEXER TD-1069/G

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	O	TOOL KIT, ELECTRONIC EQUIPMENT TK-101/G	5180-00-064-5178	
2	F,H,D	TOOL KIT, ELECTRONIC EQUIPMENT TK-105/G	5180-00-610-8177	
3	F,H,D	REMOVAL/EXTRACTION TOOL MS18278 SIZE 20	5110-00-230-3770	
4	F,H,D	HAND CRIMP TOOL AMP 90202-2 (13511)	5120-00-117-4623	
5	F,H,D	EXTRACTION/INSERTION TOOL MS18278-1	5120-01-068-6511	
6	F,H,D	POSITIONER/M22520/2-08 (11851)	5120-00-017-3921	
7	F,H,D	CRIMP TOOL M22520/2-01 (11851)	5120-00-165-3910	
8	F,H,D	POSITIONER M22520/2-14 (11851)	5120-00-132-6962	
9	F,H,D	BENDIX WRENCH SET (MS3114E CONN) #11-6266-8-1 1/16"0 (23268) #11-6266-10-1 3/16"0 (23268)	 5120-00-851-8683 5120-00-901-1573	
10	H,D	85 RF PROBE (USED WITH AN/USM-486)	6625-01-131-3883	
11	F,H,D	OSCILLOSCOPE AN/USM-281C	6625-00-106-9622	
12	D	UNIVERSAL COUNTER HP5328A OPT 010 (28480)	6625-00-039-0086	
13	F,D	EXTENDER CARD ITTDCD B4007521 66 PIN (56996)	5805-01-159-1695	
14	H,D	POWER SUPPLY HP 6002A (28480) (THREE REQUIRED)	6130-01-067-1878	
15	D	TELECOM TEST SET AN/USM-423	6625-01-015-6563	
16	F,H,D	MULTIMETER, DIGITAL AN/USM-486 (89536)	6625-01-145-2330	
17	D	DELETED		
18	D	NOISE GENERATOR GR1390B (24655)	6625-00-799-8999	
19	D	DECADE RESISTOR ZM-57/U (24655)	6625-00-935-1470	
20	D	DELETED		
21	D	FUNCTION GENERATOR SG-1133/U	6625-00-028-4989	
22	D	PATTERN GENERATOR SG-1054/G	6625-00-137-7738	
23	H,D	REPAIR FACILITY PRS-425 (17794)	4940-01-139-2197	
24	D	BACKPLANE TESTER DITMCO 1042 (03438)		
25	H,D	WRAP-N-STRAP TOOL P1602A (82893)	5120-01-071-2998	
26		DELETED		
27	F,H,D	CABLE ASSY. HP10019A (28480) (BNC TO PIN CABLE)	6625-01-116-7553	

Section III. TOOL AND TEST EQUIPMENT REQUIREMENTS

TIME DIVISION DIGITAL MULTIPLEXER TD-1069/G

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
28	D	AUTOMATIC TEST SYSTEM HP ATS 80 (28480)		
29	F,D	EXTENDER CARD ITTDCD B4007522 (56996) 99 Pin	5805-01-159-1696	
30	D	SWITCHING MATRIX MODEL 56E		
31	D	INTERFACE TEST SET ITTDCD 1475710 (28528)		
32	H,D	POWER SUPPLY LOAD RESISTORS 20 OHMS-10W, ±5% 24 OHMS-10W, ±5% 1.3 OHMS-20W, ±5% TYPE RER. M LEVEL, MIL-R-390098	 5905-00-243-0506 5905-00-306-2762 5905-00-204-7741	
33	D	LRU TEST ADAPTOR KIT - HP94143A (28480)		
34	D	FSK CARD TEST SET ITTDCD 1475740 (28528)		
35	D	DESK TOP COMPUTER HIP 85A		
36	D	OSCILLOSCOPE HP 1980 (WITH 1965A, 19811A, 19860A ENHANCEMENTS)	6625-01-145-3903	
37	D	ATTENUATOR GEN RAD 1432 (TWO REQUIRED)		
38	D	CABLE HP-IB HIP #10833A (THREE REQUIRED)		
39	D	CABLE HP-IB HIP #10833B (TWO REQUIRED)		
40	D	CABLE HP-IB HIP #10833C		

Section III. REMARKS

REFERENCE CODE	REMARKS
A	CHECK TO ASSURE ALL INTERCONNECTIONS ARE MADE.
B	REPLACEMENT OF LAMPS, FUSES OR LRU'S.
C	FAULT ISOLATE TO LRU USING BITE.
D	PREVENTIVE MAINTENANCE.
E	TO DETERMINE THE EXTENT OF FAILURE AND REPAIR.
F	AUTOMATIC TEST EQUIPMENT (ATE).
G	REPLACE DEFECTIVE CHASSIS AND BACKPLANE; RETURN TO DEPOT FOR REPAIR LESS PLUG-IN MODULES.
H	REPLACEMENT OF DEFECTIVE COMPONENTS OR PIECE PARTS.
I	THE DIGITAL CHANNEL DATA AND CHANNEL FREQUENCY SHIFT KEYING CARDS SHALL TOTAL 12 IN QUANTITY IN ANY COMBINATION.

APPENDIX C
COMPONENTS OF END ITEM LIST

Section I. INTRODUCTION

C-1. SCOPE

This appendix lists integral components of and basic issue items for the TD-1069/G to help you inventory items required for safe and efficient operation.

C-2. GENERAL

This Components of End Item List is divided into the following sections:

a. Section II. Integral Components of the End Item. Not applicable.

b. Section III. Basic Issue Items. These are the minimum essential items required to place the TD-1069/G in operation, to operate it, and to perform emergency repairs. Although shipped separately packed they must accompany the equipment during operation and whenever it is transferred between accountable officers. This manual is your authority to requisition replacement B11 based on TOE/MTOE authorization of the end item.

C-3. EXPLANATION OF COLUMNS

a. Illustration. This column is divided as follows:

(1) Figure number. Indicates the figure number of the illustration on which the item is shown.

(2) Item number. The number used to identify item called out in the illustration.

b. National Stock Number. Indicates the National stock number assigned to the item and which will be used for requisitioning.

c. Description. Indicates the Federal item name and, if required, a minimum description to identify the item.

Part Number. Indicates the primary number used by the manufacturer, which controls the desin and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items.

d. Location. The physical location of each item listed is given in this column. The lists are designed to inventory all items in one area of the major item before moving on to an adjacent area.

e. Usable on Code. Not applicable.

f. Quantity Required (Qty Reqd). This column lists the quantity of each item required for a complete major item.

g. Quantity. This column is left blank for use during an inventory. Under the Rcvd column, list the quantity you actually receive on your major item. The Date columns are for your use when you inventory the major item at a later date; such as for shipment to another site.

Section III. BASIC ISSUES ITEMS

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
			OPERATOR'S AND ORGANIZATIONAL MAINTENANCE MANUAL TM11-5805-638-12			1		
			HAND RECEIPT COVERING CONTENTS OF COMPONENTS OF END ITEM (COEI), BASIC ISSUE ITEMS (BII), AND ADDITIONAL AUTHORIZATION LIST (AAL) FOR TIME DIVISION DIGITAL MULTIPLEXER TD-1069/G TM11-5805-638-12-HR.			1		

APPENDIX E
EXPENDABLE SUPPLIES AND MATERIALS LISTS

Section I. INTRODUCTION

E-1. SCOPE

This appendix lists expendable supplies and materials you will need to operate and maintain the TD-1069/G. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repairs Parts, and Heraldic Items).

E-2. EXPLANATION OF COLUMNS

a. Column 1 -- Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use cleaning compound, item 1, App. E").

b. Column 2 -- Level. This column identifies the lowest level of maintenance that requires the listed item.

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

c. Column 3 -- National Stock Number. This is the National stock number assigned to the item; use it to request or requisition the item.

d. Column 4 -- Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the part number followed by the Federal Supply Code for Manufacturer (FSCM) in parentheses, if applicable.

e. Column 5 -- Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea. in. pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NO.	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION PART NO. AND FSCM	(5) UNIT OF MEAS
1	0	6850-00-105-3084	Cleaning Compound (TRICHLOROTRIFLUOROETHANE)	OZ
2	0	7920-00-924-5700	Cleaning Cloth	YD
3	0	5350-00-598-5908	0000 Sandpaper	SHT
4	0		Paint, Forest Green (MIL-E-52798A)	GAL
5	0		Paint, Light Gray (MIL-E-1590)	GAL

I N D E X

INDEX (Continued)

SUBJECT PAGE

INDEX (Continued)

SUBJECT PAGE

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GLOSSARY

ac	Alternating current
bps	Bits per second
CHAN	Channel
dc	Direct Current
DEMUX	Demultiplex
EIR	Equipment Improvement Recommendation
FCTN	Functional
FSK	Frequency Shift Keying
Hz	Hertz
Kbs	Kilobits per second
Km	Kilometers
max	Maximum
MUX	Multiplex
MWO	Modification Work Order
NRZ	Nonreturn-to-zero
PMCS	Preventive Maintenance Check/Service
POSN	Position
PPM	Parts per million
PWR	Power
ROD	Report of Discrepancy
RPSTL	Repair Parts and Special Tools List
TAMMS	Army Maintenance Management System
TMDE	Test, Maintenance, Diagnostic Equipment
TRFC	Traffic
TTL	Transistor-to-transistor Logic
TTY	Teletype
Vac	Volts alternating current

GLOSSARY (Continued)

BAUD - Unit of signaling speed derived from the duration of the sortest code element. Speed in bauds is the number of code elements per second.

BIT - Abbreviation for “Binary Digit”. A unit of information equal to one binary decision.

CONDITIONED DIPHASE - A format used in digital data transmission.

DEMULTIPLEX - The process used to separate the signals that have been combined for transmission by multiplex.

DUPLEX - A communication circuit that can simultaneously transmit and receive.

FREQUENCY SHIFT KEYING - A form of frequency modulation in which the modulating wave shifts the output frequency between pre-determined values and the output wave has no phase discontinuity.

MARK - In telegraphy, a closed circuit condition. Equivalent to a binary one.

MULTIPLEX - The process of combining two or more signals so that they can be transmitted on a single channel.

SPACE - In telegraphy, an open circuit condition. Equivalent to a binary zero.

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

SOMETHING WRONG WITH THIS PUBLICATION?

FROM (PRINT YOUR UNIT'S COMPLETE ADDRESS)
Commander
Stateside Army Depot
ATTN: AMSTA-US
Stateside, N.J. 07703

DATE SENT
10 July 1975

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 11-5840-340-12	23 Jan 74	Radar Set AN/PRC-76

BE EXACT. PIN-POINT WHERE IT IS

PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO	IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
2-25	2-28			Recommend that the installation antenna alignment procedure be changed throughout to specify a 2^{o} IFF antenna lag rather than 1^{o}. REASON: Experience has shown that with only a 1^{o} lag, the antenna servo system is too sensitive to wind gusting in excess of 25 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^{o} without degradation of operation.
3-10	3-3		3-1	Item 5, Function column. Change "2 db" to "3db." REASON: The adjustment procedure the the TRANS POWER FAULT indicator calls for a 3 db (500 watts) adjustment to light the TRANS POWER FAULT indicator.
5-6	5-8			Add new step f.1 to read, "Replace cover plate removed in step e.1, above." REASON: To replace the cover plate.
		FO3		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.

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER
SSG I. M. DeSpiritof 999-1776

SIGN HERE
I. M. DeSpiritof

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