FD-2240A
6.3MB OPTICAL LINE TERMINATING MULTIPLEXER
PREVENTIVE MAINTENANCE

1. GENERAL

1.01 This section is a cover sheet for the NEC America, Inc., FD-2240A 6.3MB Optical Line Terminating Multiplexer Preventive Maintenance. This section is reproduced with permission of NEC America, Inc., and is equivalent to NEC practice NECA 365-407-501, Issue 2.

1.02 Whenever this section is reissued the reason(s) for reissue will be listed in this paragraph.

1.03 This section provides preventive maintenance instructions and procedures for the FD-2240A 6.3MB Optical Line Terminating Multiplexer (6.3MB O-LTM).

1.04 If corrections are required in the attached document, use Form-3973 as described in Section 000-010-015.

1.05 If equipment design and/or manufacturing problems should occur, refer to Section SW 010-522-906 for procedures on filing an Engineering complaint.

2. ORDERING PROCEDURE

2.01 To order additional copies of this practice, use NECA 365-407-824SW as the section number.

3. REPAIR/RETURN

3.01 Malfunctioning units may be returned to NEC America, Inc., for repair.

Attachment: NEC America, Inc.
FD-2240A 6.3MB Optical Line
Terminating Multiplexer
Preventive Maintenance

NEC PRACTICE

NEC

NECA 365-407-501
Issue 2, December 1986

FD-2240A 6.3MB OPTICAL LINE TERMINATING MULTIPLEXER

PREVENTIVE MAINTENANCE

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FD-2240A
6.3MB OPTICAL LINE TERMINATING MULTIPLEXER
PREVENTIVE MAINTENANCE

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1. INTRODUCTION

1.01 This practice provides preventive maintenance instructions and procedures for the FD-2240A 6.3MB Optical Line Terminating Multiplexer (6.3MB O-LTM).

1.02 Issue 2 of this practice supersedes Issue 1 of NECA 365-407-501. The practice provides expanded coverage and corrects errors and omissions in the superseded document.

1.03 Whenever this practice is reissued, the reason for reissue will be listed in this paragraph.

1.04 Table 1-1 lists preventive maintenance tasks. Preventive maintenance tasks should be performed at the intervals shown in order to locate, diagnosis, and correct trouble symptoms before they become serious enough to cause unit failure or service interruption. It is recommended that a record form be posted near the equipment for recording task results. The following paragraphs provide preventive maintenance instructions.

Table 1-1
Preventive Maintenance Tasks

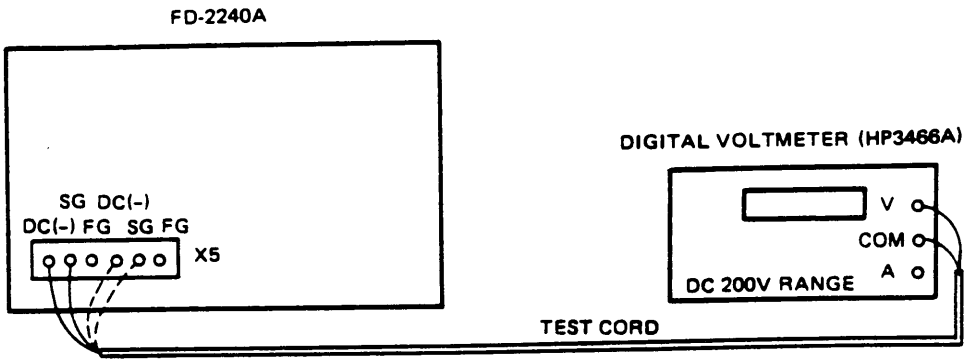
TASK	RECOMMENDED INTERVAL
Power unit voltage check	6 months
Removal of dust and dirt	6 months
Alarm LED indication check	6 months
LD current check	6 months

2. POWER UNIT VOLTAGE CHECK

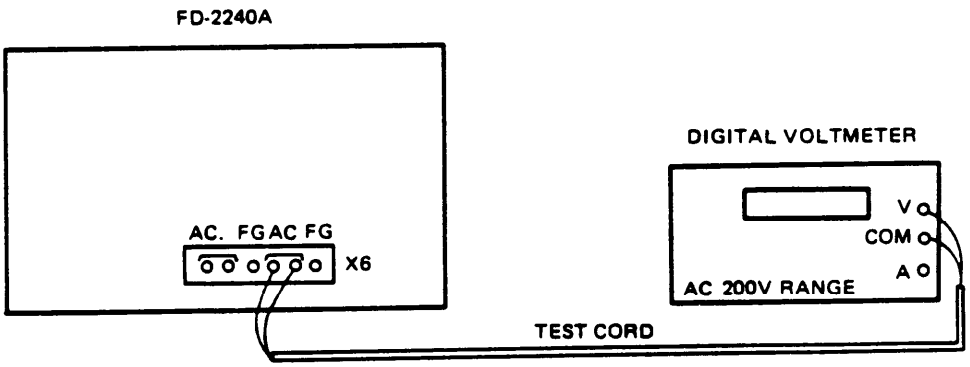
2.01 Refer to Figure 2-1 for checking power supply voltages. Primary power source measurements are made at the back of the shelf. Power unit output voltages are measured at the front panel monitor jack.

2.02 If the FD-2240A operates on -48 or -24 vdc main power supply voltage, use a digital voltmeter to measure voltage at main power terminal X5. If the equipment operates on 117 vac main power, use a digital voltmeter to measure the AC voltage applied to terminal X6. The voltage between the terminal pins of each supply input (MAIN 1 and MAIN 2) should be within the ranges listed in Table 2-1.

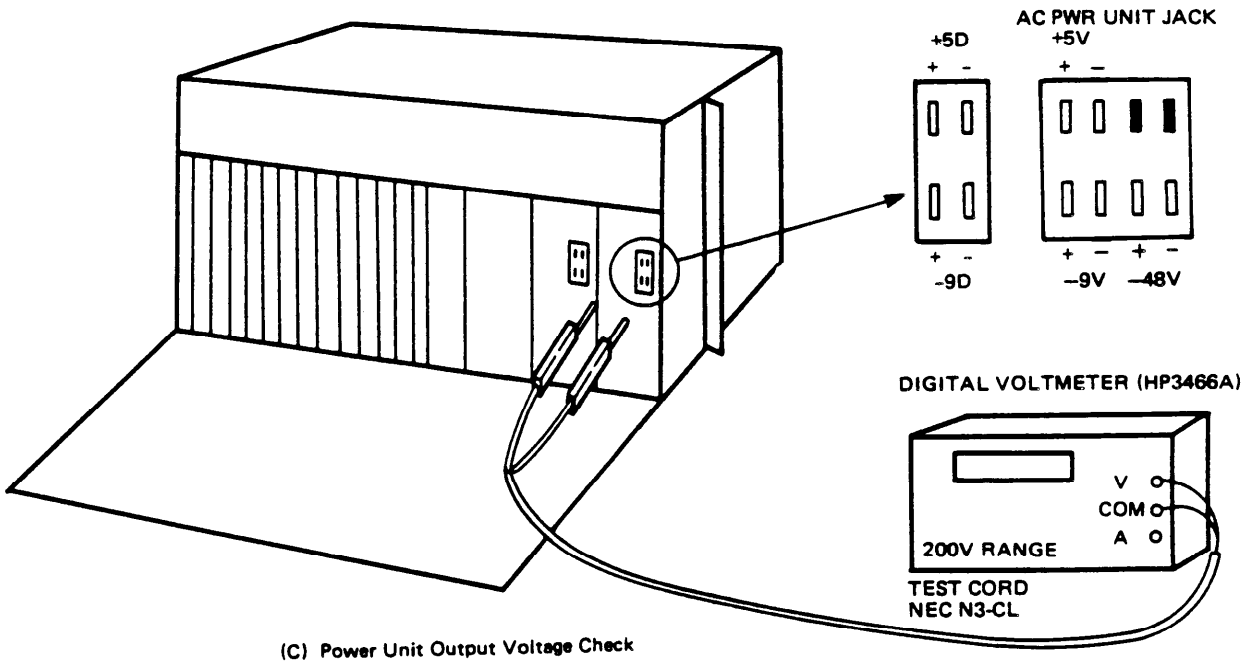
2.03 Use a digital voltmeter and voltage test cord to measure the power unit output voltages. The voltages should be within the ranges listed in Table 2-2.



(A) DC (-) Supply Voltage Check



(B) AC Supply Voltage Check



(C) Power Unit Output Voltage Check

Figure 2-1 Power Voltage Check Setup

Table 2-1
Station Power Supply Voltage Ranges

POWER UNIT TYPE	TEST POINT	ALLOWABLE RANGE
-24 vdc	MAIN 1 [X5, DC(-)-SG] MAIN 2 [X5, DC(-)-SG]	-21 to -27 Vdc
-48 vdc	MAIN 1 [X5, DC(-)-SG] MAIN 2 [X5, DC(-)-SG]	-42 to -56 Vdc
117 vac	MAIN 2 [X6 AC]	90 to 129 Vac

Table 2-2
Power Unit Output Voltage Ranges

OUTPUT VOLTAGE	TEST POINT	ALLOWABLE RANGE	REMARKS
+5V	+5D	+5.4 ±0.45V	DC PWR
-9V	-9D	-9.4 ±0.65V	
+5V	+5V	+5.0 ±0.30V	AC PWR
-9V	-9V	-9.0 ±0.55V	
-48V	-48V	-48.0 ±2.40V	

3. REMOVAL OF DUST AND DIRT

3.01 Follow standard shop practices for removal of dust and dirt from electronic equipment. Do not use compressed air to clean the equipment because this tends to circulate as much dust as it removes.

4. ALARM LED INDICATION CHECK

4.01 When ALM unit TST switch is activated, all unit and display panel LEDs are lit. When TST switch is released, alarm LED goes out. Use the following procedures to check the FD-2240A LED indicators and character display:

(1) Check that CTRL unit SEL switch is set to middle (automatic switching) position.

(2) Set ALM unit MAINT switch to ON position. MAINT LED is lit.

(3) Depress and hold ALM unit TST switch. All FD-2240A indicators (except SOURCE and PWR ON LED) are lit. See Table 4-1.

(4) Release TST switch and verify all alarm indicators are cleared.

(5) Set MAINT switch to OFF position. MAINT LED goes out.

Table 4-1

Alarm LED Indications

UNIT	INDICATION	LED	STATUS	
			NORMAL OPERATION	ALM TST
ALM	CPU	red	OFF	ON
	UNUSED*	amber	OFF	ON
	MAINT	red	OFF	ON
	SOURCE	green	ON	ON**
CTRL	FAIL	red	OFF	ON
	LOCK	red	OFF	ON
	CH1	red	OFF	ON
	CH2	red	OFF	ON

NOTE: * mark is installed only on the Grp: 0A00 unit. On Grp: 0A01 and AA00, this LED is not mounted.

Table 4-1

Alarm LED Indications (Cont'd)

UNIT	INDICATION	LED	STATUS	
			NORMAL OPERATION	ALM TST
CTRL (cont'd)	CH3	red	OFF	ON
	CH4	red	OFF	ON
	SELF	red	OFF	ON
	OFF LINE	red	OFF	ON
DS2 INF	ON LINE	green	ONLINE ON OFF LINE OFF	ON
	FAIL	red	OFF	ON
	AIS	amber	OFF	ON
DMUX	ON LINE	green	ONLINE ON OFF LINE OFF	ON
	FAIL	red	OFF	ON
	RMT ALM	amber	OFF	ON
	RLB DET CH1	red	OFF	ON
	RLB DET CH2	red	OFF	ON
	RLB DET CH3	red	OFF	ON
	RLB DET CH4	red	OFF	ON

Table 4-1

Alarm LED Indications (Cont'd)

UNIT	INDICATION	LED	STATUS	
			NORMAL OPERATION	ALM TST
Display Panel	ACO	amber	OFF	ON
	LOCAL MAJ	red	OFF	ON
	LOCAL MIN	amber	OFF	ON
	REMOTE MAJ	red	OFF	ON
	REMOTE MIN	amber	OFF	ON
	LOCAL DISP	red	OFF	ON
	REMOTE DISP	red	OFF	ON
	LOCAL DISPLAY		no inidcation	**NEC***
	REMOTE DISPLAY		no indication	FD-2240A
MUX	ON LINE	green	ONLINE ON OFFLINE OFF	ON
	FAIL	red	OFF	ON
	RLB SET	red	OFF	ON
6M OPT INF	ON LINE	green	ONLINE ON OFFLINE OFF	ON
	FAIL	red	OFF	ON

Table 4-1

Alarm LED Indications (Cont'd)

UNIT	INDICATION	LED	STATUS	
			NORMAL OPERATION	ALM TST
6M OPT INF (cont'd)	MAJ ERR	red	OFF	ON
	RLB DET	red	OFF	ON
	RLB SET	red	OFF	ON
	LD CURR ALM	amber	OFF	ON
PWR	PWR ON	green	ON	ON**
SV	RCV 1 FAIL	red	OFF	ON
	RCV 2 FAIL	red	OFF	ON
	RCV 3 FAIL	red	OFF	ON
	RCV 4 FAIL	red	OFF	ON
	XMT 1 FAIL	red	OFF	ON
	XMT 2 FAIL	red	OFF	ON
	XMT 3 FAIL	red	OFF	ON
	XMT 4 FAIL	red	OFF	ON

**Not controlled by test switch.

5. LD CURRENT CHECK

5.01 LD current check is required when the 6M OPT INF unit is of LD type (X0307).

5.02 To do this check, measure output voltage by connecting a voltmeter to the LD CURR MON terminal on the unit front and convert the measured voltage into LD current value. The measurement procedure is as follows. Refer to Figure 5-1.

(1) Connect a digital voltmeter to the LD CURR MON terminals and read the measured voltage.

(2) Convert the measured voltage into LD current using the following formula:

$$\text{LD current (mA)} = \frac{\text{Measured voltage (mV)}}{10\ \text{ohm}}$$

5.03 The LD current in normal operation should be within the range 5mA to 120mA (measured voltage 0.05V to 1.2V). LD CURR ALM LED is lit if the bias current exceeds 120mA.

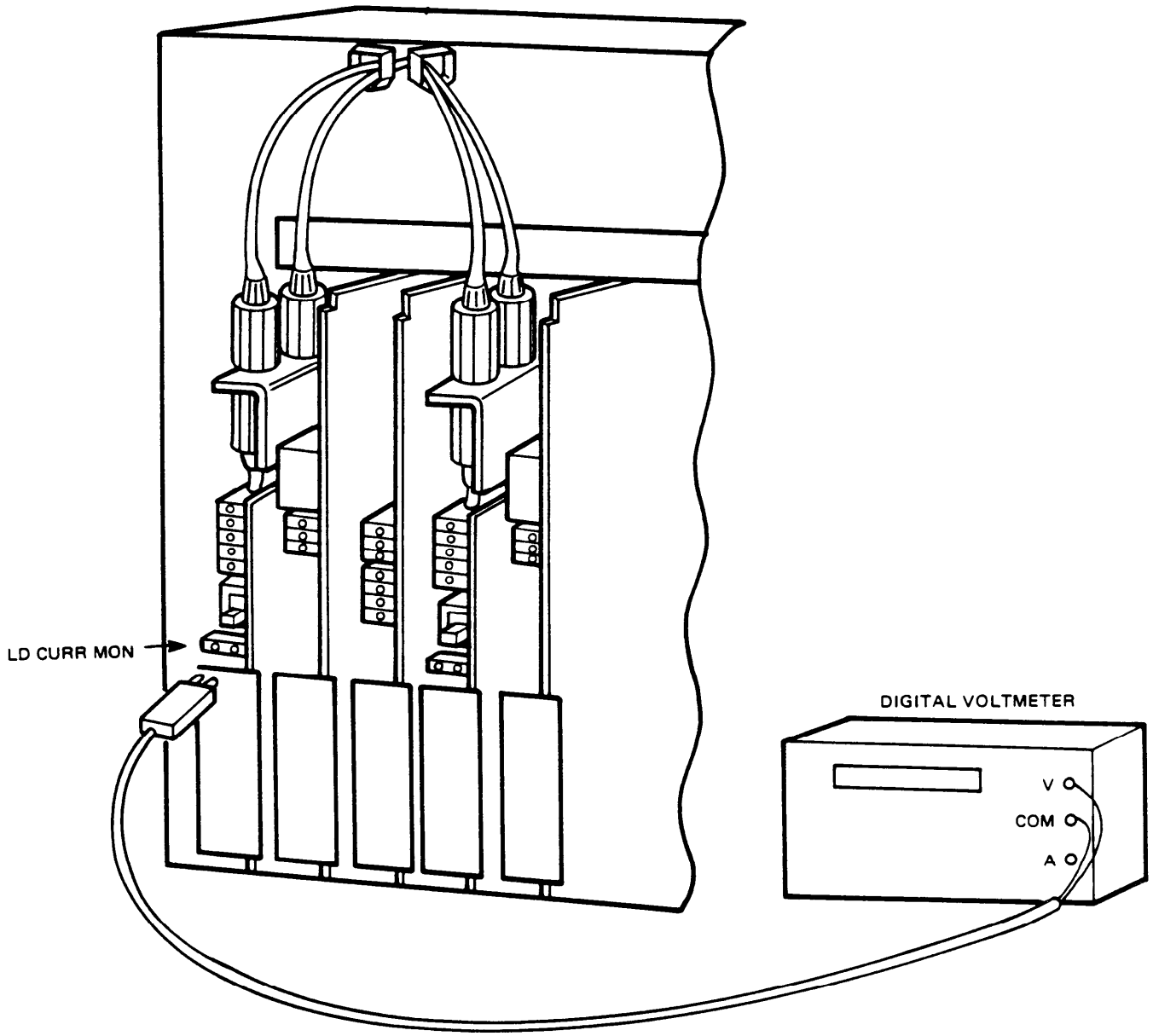


Figure 5-1 LD Current Check Setup