

**CUSTOMER PREMISES FACILITY TERMINAL  
FOR METALLIC FACILITY TERMINAL PLUG-IN EQUIPMENT  
MAINTENANCE AND TESTING INFORMATION**

CONTENTS	PAGE
1. GENERAL . . . . .	1
2. TEST EQUIPMENT . . . . .	1
3. POWER SUPPLY AND ALARM TESTS . . . . .	3
A. Power Supply . . . . .	3
B. Alarm Test . . . . .	3
4. PRESCRIPTION SETTINGS AND TOUCH-UP ADJUSTMENTS . . . . .	6
5. TRANSMISSION TESTS . . . . .	6
A. General . . . . .	6
B. MFT Transmission Units . . . . .	7
C. Impedance Compensator Networks . . . . .	7
6. SIGNALING TESTS . . . . .	7
7. CPFT MAINTENANCE . . . . .	7
8. REFERENCES . . . . .	7

**1. GENERAL**

**1.01** This section contains maintenance and testing information for the Customer Premises Facility Terminal (CPFT) J99380( ).

**1.02** This section is reissued to include reference to recent developments in the CPFT family. Arrows normally used to denote changes have been omitted.

**1.03** The CPFT is a standard arrangement which uses Metallic Facility Terminal (MFT) plug-in units and terminal balancing arrangements to terminate metallic facilities at customer premises. The CPFT, which will supply all of the transmission and signaling functions required, was designed to replace the V4 and DLL families of equipment which were previously installed at customer premises.

**1.04** This section should be used in conjunction with Sections 332-610-100, CPFT Description, and 332-610-200, CPFT Installation. Other documents containing helpful information are listed in Part 8 of this section.

**2. TEST EQUIPMENT**

**2.01** The MFT transmission and signaling units used for CPFT have no permanent testing jacks for access to the transmission and signaling paths.

**2.02** The J99380TA (MFR DISC) CPFT test extender, when installed between the MFT transmission unit and the mounting shelf, supplies jack access to the transmission leads for monitoring, transmission testing, and circuit termination purposes.

**2.03** The J99380TB test extender (Fig. 1) replaces the J99380TA test extender. In addition to the functions possible with the J99380TA test extender, the J99380TB also permits proper alignment of those MFT transmission units equipped with precision balance networks.

**2.04** To use the J99380TA or TB test extender, the MFT transmission unit is removed from its mounting and inserted into the 928A connector of the test extender. The jack assembly of the test extender is then clipped to the face of the MFT unit and the entire assembly is inserted into the CPFT shelf mounting slot. Fig. 4 of Section

**NOTICE**

Not for use or disclosure outside the  
Bell System except under written agreement

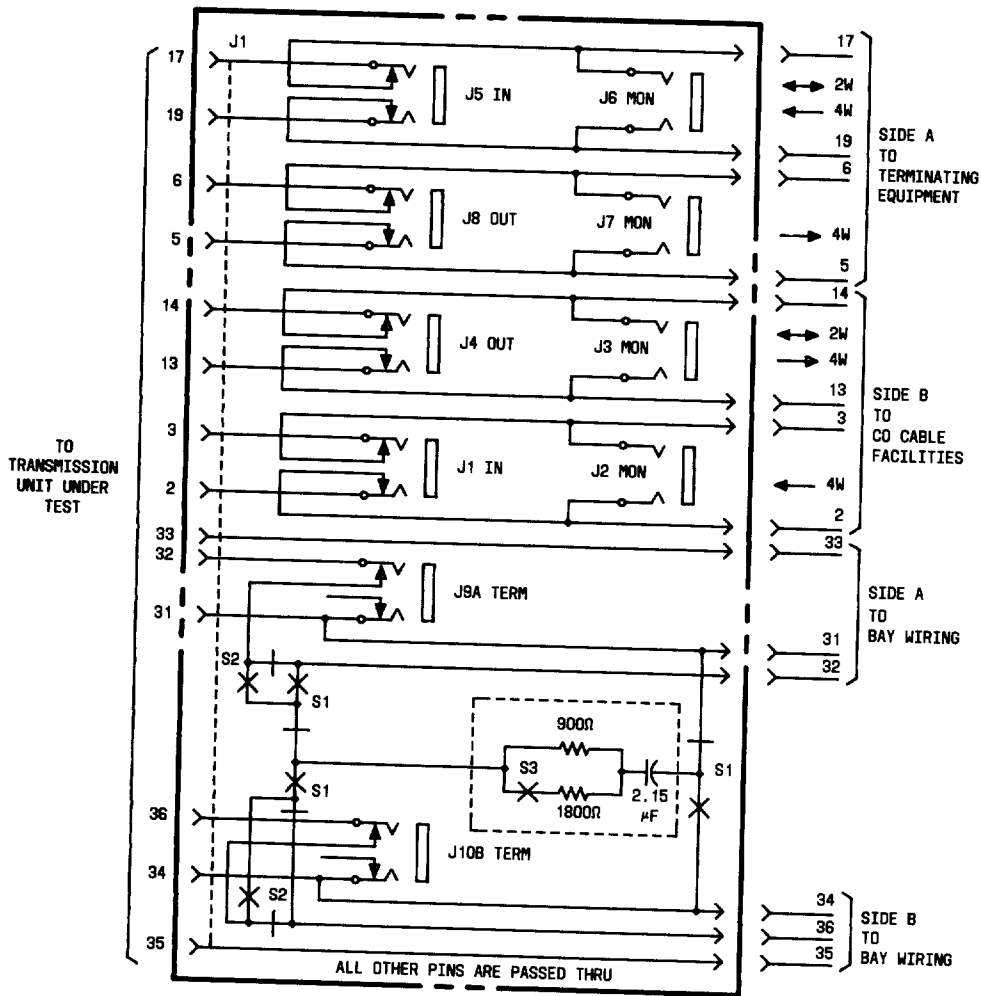


Fig. 1—J99380TB CPFT Test Extender Schematic

332-610-100 shows the test extender/MFT transmission unit assembly.

2.05 With either test extender installed, the MFT transmission unit is extended out of the shelf far enough to allow access to the gain and equalization controls.

2.06 The J99380TA and TB test extenders were designed to permit essentially all lineup and checking of equalization and gain levels as well as maintenance access.

2.07 When installed, the J99380TA or TB test extender is between, and in series with, the MFT transmission unit and the MFT mounting slot.

2.08 Jacks J1 I, J2 M, J3 M, and J4 O of the test extenders are associated with the B side (facility) of the MFT unit. Jacks J5 I, J6 M, J7 M, and J8 O are associated with the A side (terminal) of the MFT unit.

2.09 The CPFT test extender jacks J1 I, J4 O, J5 I, and J8 O allow transmission testing toward the MFT transmission unit. Jacks J2 M, J3 M, J6 M, and J7 M may be used for:

(a) High impedance monitoring

(b) Terminated transmission measurements toward the facility and terminal equipment when J1 I, J4 O, J5 I, and J8 O have plugs inserted into them

(c) Terminating the facility toward the central office (CO) during testing of the MFT transmission unit.

**2.10** The J99380TB test extender has additional features which permit built-in compromise balancing networks or external balancing networks to be substituted for the Precision Balancing Networks (PBN) contained in certain MFT units.

**2.11** The J99380TB test extender contains a compromise balancing network of either 600 ohms or 900 ohms, in series with 2.15- $\mu$ F impedance. The impedance is determined by the position of a switch (S3) designated 600/900. Switch (S1) designated A IN/B IN determines which side of the MFT unit the compromise balancing network is connected. Switch (S2) designated TEST/NORMAL in the TEST position connects the network selected by switches S3 and S1 to the MFT unit.

**2.12** Jacks J9A TERM and J10B TERM may be used to connect external networks such as 4066 types in place of the PBNs in the MFT units. Jack J9A is used to replace the MFT A side PBN and J10B is used to replace the MFT B side PBN.

**Note:** Switches S1 and S3 have no affect on the A side when J9A is used and no affect on the B side when J10B is used.

**2.13** Figures 2 and 3 show the J99380TB test extender circuit when used with 2-2 wire and 4-4 wire MFT transmission units, respectively.

**2.14** When dc continuity is required in the transmission path, an external holding arrangement must be supplied by the test equipment.

### 3. POWER SUPPLY AND ALARM TESTS

#### A. Power Supply

**3.01** At large installations, the power for the MFT plug-in units is obtained from sources external to the CPFT. In DIMENSION® PBX installations, the required -48 volt dc talk battery and 20-Hz ringing current are taken from the PBX power supplies. In other large installations, the power may be obtained from presently available sources or auxiliary power supplies.

**3.02** At small installations, the power may be obtained from existing supplies where available

or from optional CPFT apparatus which converts 117 volts 60 Hz to the potentials required for the MFT equipment. The various options available and their applications are covered in Section 332-610-200.

**Note:** The J99380K Circuit Pack Carrier (CPC) **should not** have power connections to both the -48V and -24V inputs but to only one or the other. Should the MFT unit power regulators appear to be having excessive failures or be operating at higher temperatures than normal, the diodes in the J99380K CPC base should be checked.

**3.03** Table A gives the various power supply voltages and limits applicable to CPFT.

#### B. Alarm Test

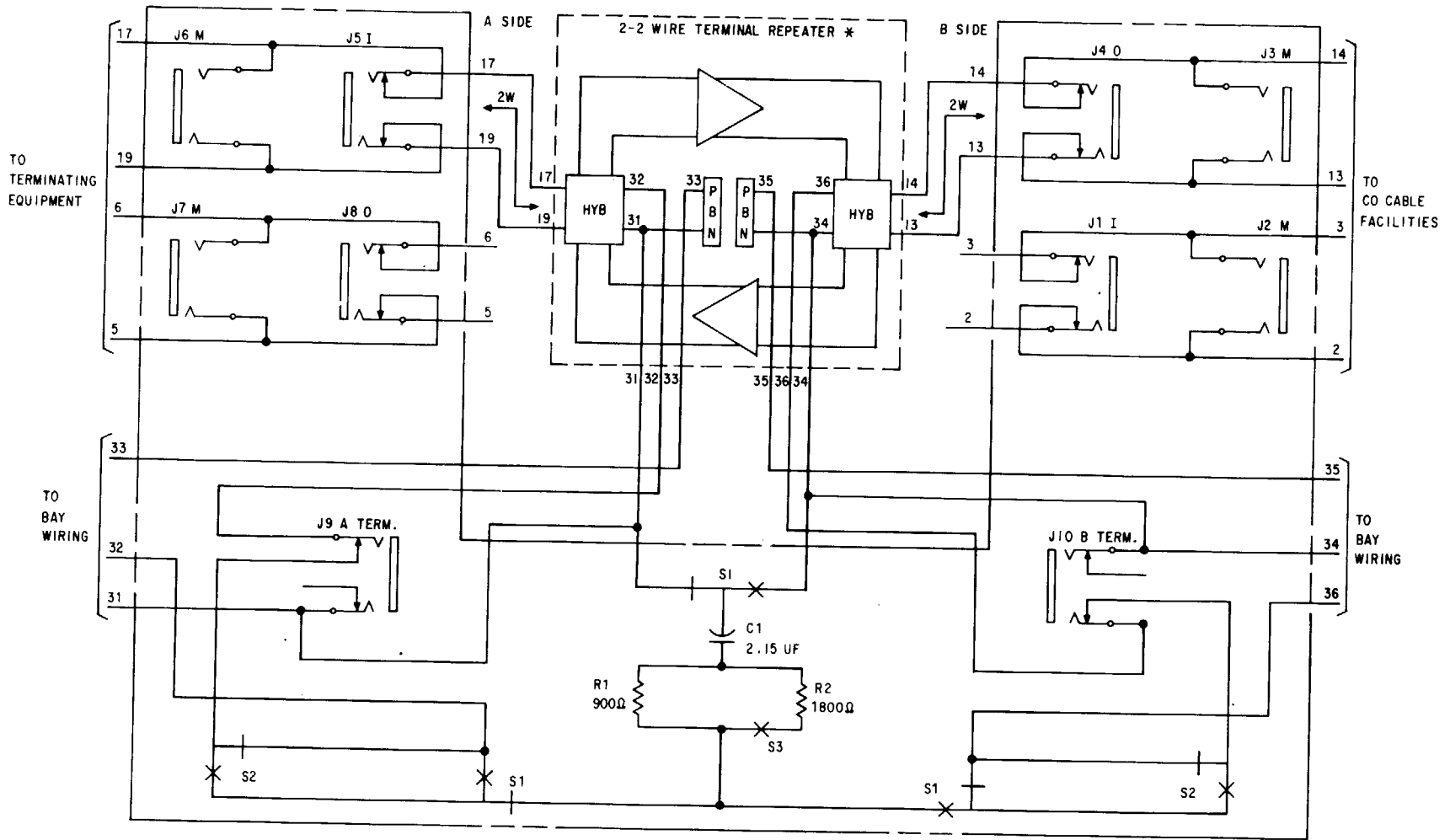
**3.04** Fuse and power supply alarms are the only alarms associated with CPFT equipment. Those installations not using the J99380H or J feature panel supply only fuse alarm indications. The J99380H and J feature panels supply alarm indications for operated fuses and power supply failures.

**3.05** The fuse alarm may be tested by placing an operated fuse in one or more fuse holders and observing that the red ALARM lamp lights and that an indication is received by the PBX or other connected alarm system.

**Note:** At small installations, no provisions are made for connecting CPFT alarms to system alarm circuits.

**3.06** When the J99380H or J feature panel is used, momentary removal of the -48 volts dc should cause an alarm condition to be transmitted to the connected alarm system; however, the red ALARM lamp will not light under this condition.

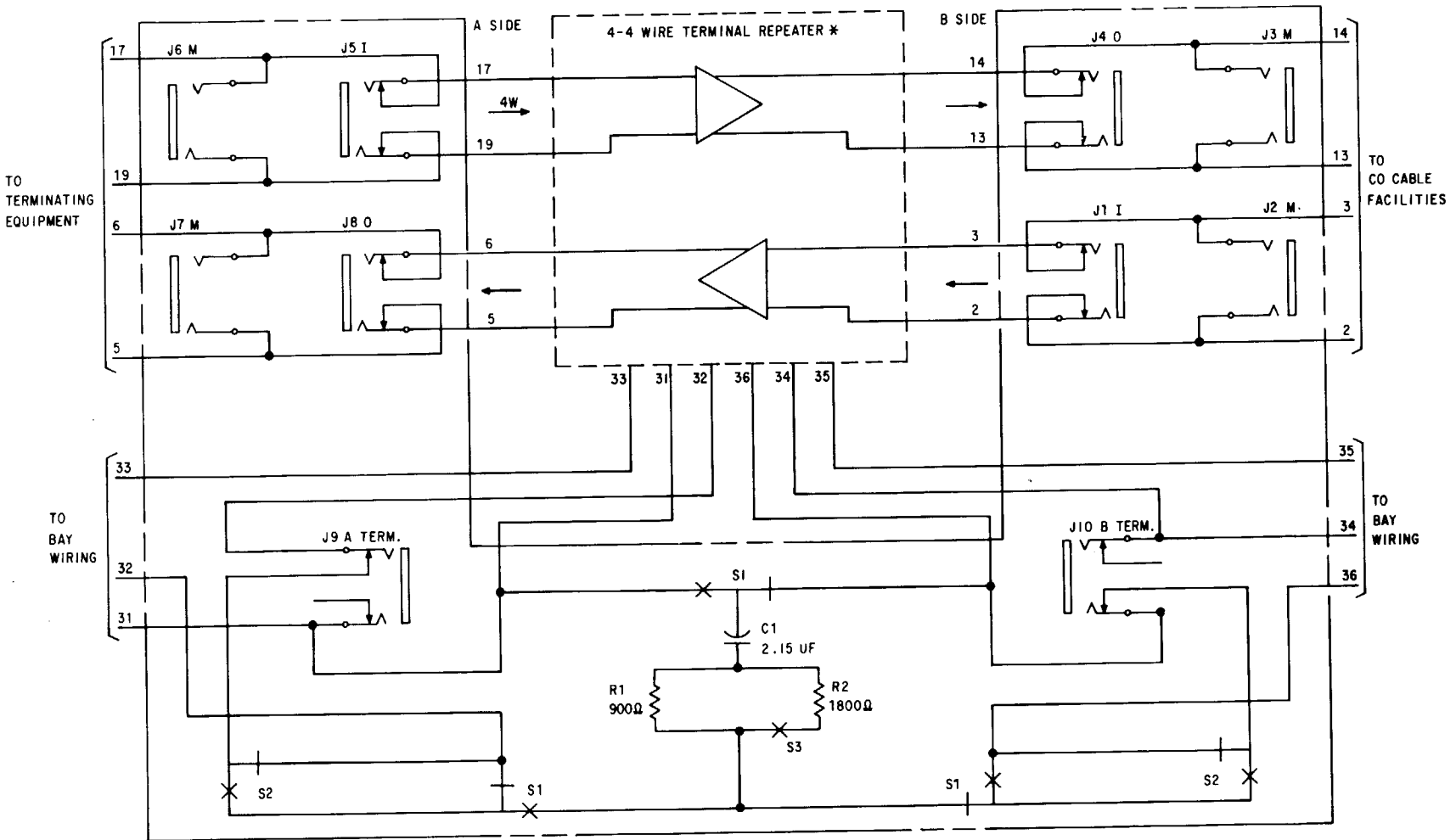
**3.07** When the J99380J feature panel is used to supply -72 volts dc to the CPFT shelves, momentary interruption of the -72 volt talk battery or the  $\pm$ 24 volt floating talk battery should cause an alarm indication. The red ALARM lamp should also light.



\* NOTE: 2-2 REPEATER USED ONLY TO ILLUSTRATE TEST-ARRANGEMENT.

S1 IN A SIDE POSITION  
 S2 IN NORMAL (NOR) POSITION  
 S3 IN 900Ω POSITION

Fig. 2—J99380TB Test Extender as Used With 2-2 Wire MFT Transmission Unit



\* NOTE: 4-4 REPEATER USED ONLY TO ILLUSTRATE TEST-ARRANGEMENT.

S1 IN B SIDE POSITION  
 S2 IN NORMAL (NOR) POSITION  
 S3 IN 900Ω POSITION

Fig. 3—J99380TB Test Extender as Used With 4-4 Wire MFT Transmission Unit

TABLE A  
CPFT POWER SUPPLY LIMITS

VOLTAGE	LIMITS
-24 Vdc	-22.5 to -26 Vdc
±24 Vdc (floating)	22.5 to 26 Vdc
-48 Vdc	-42.5 to -52 Vdc
-72 Vdc	-67.5 to -78 Vdc
20-Hz (SRS) Superimposed Ringing Supply	20±3 HZ (84 to 88V RMS) superimposed on -37 to -52 Vdc
117 Vac 60 HZ	105 to 129 Vac at 60±3 HZ

#### 4. PRESCRIPTION SETTINGS AND TOUCH-UP ADJUSTMENTS

**4.01** The MFT unit and impedance compensator network options and adjustments are initially adjusted according to prescription settings supplied by the circuit layout records (CLR). The prescription settings supplied by the CLR are usually sufficient to meet circuit order requirements; however, touch-up adjustments may be necessary in some instances.

**4.02** There may be occasions when complete prescription settings are not supplied by the CLR, in which case they must be developed in the field. Manual adjustment procedures, based on cable make-up data, may be found in the following sections.

SECTION	TITLE
332-912-2Z1	MFT Transmission Units
332-206-254	837D Networks
332-206-255	837E Networks
332-206-257	837G Networks
332-206-254	J99380AA Circuit Packs
332-206-255	J99580AB Circuit Packs

332-206-257 J99380AC Circuit Packs

**4.03** Equalizer and PBN adjustments must be completed before gain adjustments and net loss tests are performed. The 1000-Hz gain or loss will be affected by the MFT equalizer and impedance compensator network adjustments.

**4.04** Touch-up adjustments of the MFT equalizers, MFT NBOCs, and impedance compensator networks are made as necessary based on transmission test data.

**4.05** Instructions for the test and adjustment of impedance compensator networks are covered in Section 332-205-500.

#### 5. TRANSMISSION TESTS

##### A. General

**5.01** When making transmission measurements and performing return loss tests, attention must be given to the impedances at the selected test points. Test equipment impedance must match that of the test point for accurate and meaningful measurements.

**5.02** The transmission level points (TLP) given on the CLR are the test levels to be used for adjusting and testing the CPFT equipment. These levels should not be exceeded as higher

levels may cause crosstalk on other circuits sharing common facilities.

**5.03** Transmission tests on CPFT equipment will necessitate removal of the affected circuit from service. Releases on circuits should be obtained in accordance with existing practices.

#### B. MFT Transmission Units

**5.04** Jack access to the transmission path is gained by the use of the J99380TA or TB CPFT test extender or the J99343TB MFT test extender. The CPFT test extender will be sufficient for most transmission tests required. More elaborate transmission tests and signaling tests may require the MFT test extender which is described in Section 332-910-102.

#### C. Impedance Compensator Networks

**5.05** The 837-type networks and the J99380AA, AB, and AC plug-in circuit packs contain test jacks. These jacks, located on the A (terminal) side of the impedance compensators, permit transmitting and receiving of test frequencies to and from the CO and the performance of return loss tests as specified in Section 332-205-500.

### 6. SIGNALING TESTS

**6.01** Signaling tests, other than operational tests, will require the use of the J99343TB MFT test extender. The description and operation of the MFT test extender are covered in Section 332-910-102 and SD-, CD-1C485-02. These references should be used in connection with Section 332-911-201 which covers MFT signaling unit installation and testing procedures.

### 7. CPFT MAINTENANCE

**7.01** Due to the solid-state design and proven reliability of the MFT transmission and signaling units used in the CPFT, no maintenance of the CPFT should be necessary other than normal routine measurements of the circuits.

**7.02** When a CPFT unit is suspected or found to be in trouble, it should be replaced by another unit of the same type. Before installing the replacement MFT unit or impedance compensator network, all screw switches and slide switches

should be adjusted to correspond to the defective unit.

**7.03** Defective CPFT units should be returned to Western Electric Company for repairs as no repairs should be attempted in the field.

### 8. REFERENCES

**8.01** The following documents contain additional information which should be referred to as necessary.

Document	Subject
SD-, CD-1C359	Metallic Facility Terminal (MFT) Schematic Drawings and Circuit Descriptions
SD-, CD-1C485	MFT Test Extender
SD-, CD-1E441	DIMENSION PBX Power Distribution
SD-, CD-7C010	CPFT Schematic Drawings, Cabling Diagrams, and Circuit Descriptions
ED-7C055	CPFT Fuse and Alarm Assembly Equipment Details
ED-7C131	72-Volt Alarm Assembly
J99343( )	MFT Plug-in Apparatus Specifications
J99380( )	CPFT Specifications
311-100-500	PBX Line and Trunk Circuit Order Testing
311-100-501	PBX Line and Trunk Transmission Testing
311-100-551	Lineup of PBX-CO 2-Wire Links Using E6 Repeaters
332-205-100	Impedance Compensator Description
332-205-500	Impedance Compensator Tests and Adjustments

**SECTION 332-610-500**

332-206-154	837D Network and J99380AA Circuit Pack Description	332-911-201	MFT Signaling Units—Installation and Testing
332-206-155	837E Network and J99380AB Circuit Pack Description	332-912-211	MFT 2-2 Repeaters—Installation and Testing
332-206-157	837G Network and J99380AC Circuit Pack Description	332-912-212	MFT Prescription Settings for 2-2 Repeaters
332-206-254	837D Network and J99380AA Circuit Pack Installation and Prescription Settings	332-912-221	MFT 4-2 Wire and 2-4 Wire Repeaters Installation and Testing
332-206-255	837E Network and J99380AB Circuit Pack Installation and Prescription Settings	332-912-222	MFT Prescription Settings for 4-2 and 2-4 Repeaters
332-206-257	837G Network and J99380AC Circuit Pack Installation and Prescription Settings	332-912-231	MFT 4-Wire Transmission Units Installation and Testing
332-610-100	CPFT Description	332-912-232	MFT Prescription Equalizer Settings for 4-Wire Transmission Units
332-610-200	CPFT Installation	554-101-100	DIMENSION PBX Description
332-910-100	MFT General Description	554-101-101	DIMENSION PBX Pre-Installation
332-910-102	J99343TB MFT Test Extender— Description and Operation	851-300-101	Prescription Design of Switched Special Service Circuits— Transmission and Signaling— General
332-910-180	MFT Application and Cross- Reference Information		