

4-4 WIRE TRANSMISSION UNITS (J99343BD)

SD-1C359-01

INSTALLATION AND TESTING

METALLIC FACILITY TERMINAL

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1. GENERAL

1.01 This section describes the installation and testing of the 4-4 wire passive transmission units (J99343BD) which are designed for use in the Metallic Facility Terminal (MFT) on 4-wire facilities. The J99343BD transmission unit is the preferable alternative to the MFT 4-4 Terminal Repeater J99343SA (from the perspective of cost)

to provide simplex signaling access on 4-wire facilities where gain and additional equalization are not required.

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

1.03 The J99343BD transmission unit is described in Section 332-912-104. General application information may be found in Section 332-910-180. In addition, the J99343BD unit has applications in the Customer premise Facilities Terminal (CPFT). The CPFT is described in Sections 332-610-100, -200 and -500.

2. CHARACTERISTICS

A. General

2.01 The J99343BD 4-4 wire passive transmission unit is designed to provide simplex signaling access on 4-wire circuits in applications which don't require gain or equalization. The J99343BD which is shown in Fig. 1 provides three basic functions which are as follows:

- (a) Adjustable transmission loss from 1.0 dB (Note) to 24.5 dB for each direction of transmission. The total adjustable transmission loss provided is the input sum of adjustable attenuators (see paragraph 2.02) and switchable pads (see paragraph 2.03).

Note: The J99343BD unit has a fixed 1 dB (min) transmission loss for each direction of transmission.

- (b) The derivation of simplex (SX) leads for signaling inputs to a companion MFT signaling

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unit or for connections to an external signaling source.

- (c) Impedance matches 600-ohm office equipment on the A side to 600- or 1200-ohm facilities on the B side.

B. Attenuator Switches

2.02 The transmission level at the 4-wire transmit ports on the A and B sides of the transmission unit can be varied by a 49A and 49B attenuator in each transmission path. The 49A can be adjusted from 0.0 dB to 1.5 dB attenuation in 0.1 dB steps. The 49B attenuator can be adjusted from 0.0 dB to 15.0 dB attenuation in 1.0 dB steps. The attenuators are shown in Fig. 1. The slide switches which set the adjustments of the 49A attenuator are labeled 0.1, 0.2, 0.4, & 0.8 (-dB) and the switches of the 49B attenuator are labeled 1.0, 2.0, 4.0 & 8.0 (-dB). The label value associated with each switch of the 49A and 49B attenuator corresponds to the loss (dB) that will be inserted when the label value of the switch is visible.

C. 7dB Pad Switches

2.03 Located in each transmission path is a 7 dB pad controlled by slide switches labeled PAD A for the transmit path and PAD B for the receive path. Additional attenuation of 7 dB for each direction of transmission may be switched in or out as required (see Fig. 1). The pads are "in" when their respective switches are operated toward their designation.

D. Impedance Switch (600/1200)

2.04 Transformers which interface the 4-wire cable facility are arranged such that the impedance presented to the 4-wire facility is either 600 or 1200 ohms. A slide switch located on the printed wiring board labeled 600/1200 selects the proper termination (see Fig. 1). The 600-ohm setting is generally used for nonloaded cable facilities and the 1200 ohm for loaded cable facilities.

3. SIGNALING

A. General

3.01 The J99343BD provides simplex signaling access on 4-wire facilities (B side) and connections to AS1 and AS2 signaling leads on the

equipment side (A-side). The line sides of the transmit and receive B-side transformer are center tapped to derive the SX and SX1 leads which may be reversed at the user's option. Also external access to SX and SX1 leads via the distributing frame is provided as a user's option (see paragraph 3.04).

3.02 Information concerning the wiring arrangements for the MFT distributing frames may be found in Section 332-910-101. Compatibility of the J99343BD transmission units with MFT signaling units may be found in Section 332-910-180.

B. Signaling Control Switches

3.03 Two slide switches labeled NOR-SX REV and NOR-EXT SX, control the signaling functions of the J99343BD transmission unit (see Note). The NOR-SX REV switch permits reversing of the SX and SX1 leads. Operating the switch to the SX REV position reverses the leads. This function serves to properly orient the SX and SX1 leads with certain types of connecting circuitry on signaling units.

Note: The J99343BD has no RV or RV/T switches for reverse (A side to B side and B side to A side) or through signaling modes.

3.04 The NOR-EXT SX switch allows the SX and SX1 leads to be connected to a companion MFT signaling unit or to be connected externally at the distributing frame. When the switch is in the NOR position, the SX and SX1 leads are connected to the MFT signaling unit. In the EXT SX position, the SX and SX1 leads are extended to the distributing frame as the BS1 and BS2 leads.

4. APPLICATION

4.01 The J99343BD transmission unit performs all the functions supplied by the 4182B 4-wire extension unit of the V4 equipment except for 150 ohm B-side impedance matching. It is intended for use with DX and similar type trunks. The J99343BD unit may also be used to extend carrier on 4-wire circuits when additional equalization is not required. Simplex access will also allow application of "sealing current" on data circuits not requiring dc current supervision.

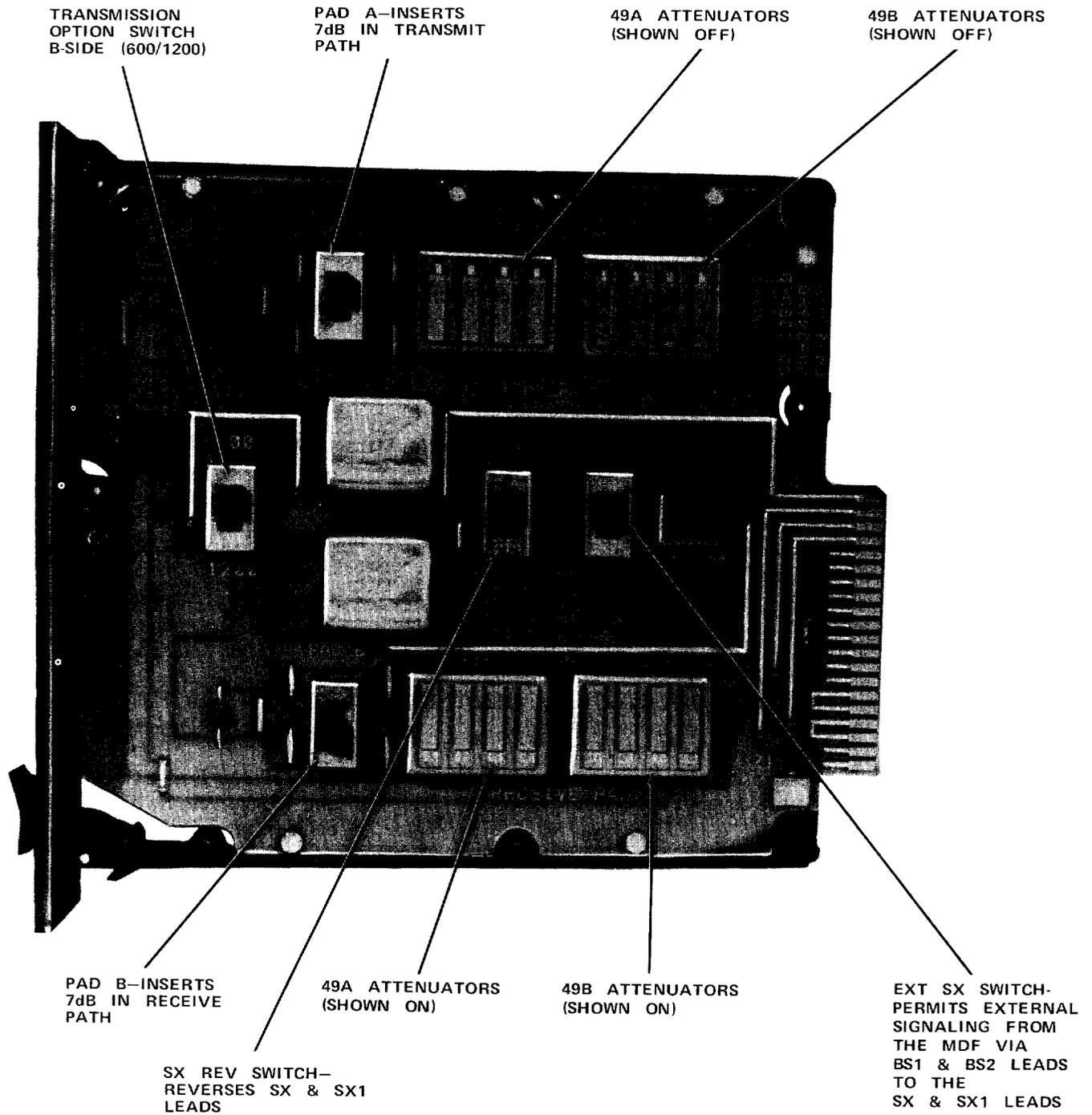


Fig. 1—Component Board Layout--J99343BD

5. INSTALLATION AND TEST

A. Installation

5.01 The J99343BD transmission unit may be installed in the transmission unit slot of MFT bays containing single or double module shelves. Before the J99343BD is installed, the circuit receiving the unit must be turned down from service and the option switches of the transmission unit set per office requirements as shown on the office records. After the BD unit is installed, end-to-end tests should be conducted to determine the quality of the circuit. The transmit and receive paths may be monitored using the jacks labeled MON-T/R located on the faceplate of the J99343BD unit.

B. Test

5.02 The J99343BD 4-4 wire passive transmission units are quite stable and should cause very few problems. If trouble is suspected in a J99343BD unit, particularly during circuit order testing, the switch positions and cross connections should be verified first. If the trouble persists, the suspected unit should be replaced with a unit of the same type known to be in good condition and with the switches properly positioned.

5.03 When the replacement of a unit fails to clear trouble in the MFT, tests using the J99343TB MFT test extender should be conducted to isolate the trouble. The description and operation of the J99343TB test extender are covered in Section 332-910-102.

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5.04 Repairs of MFT units found to be defective should not be attempted in the field. Defective units should be sent to the Western Electric Service Center for repair.

6. REFERENCES

6.01 The following references contain additional information which may be helpful.

SECTION	TITLE
332-610-500	CPFT Maintenance and Testing
332-910-100	General Description of MFT
332-910-101	MFT-Shelf, Frame, Power Panel and Distributing Frame Arrangements—Description
332-910-180	MFT-General Application Information
332-910-102	MFT Test Extender (J99343TB)—Description and Operation
332-912-104	MFT—4-4 Wire Transmission Unit (J99343BD)—Description
851-300-500	Transmission Design Considerations and Objectives, Switched Special Services and PBX