

DIMENSION® PBX
CHANNEL REPEATER CONNECTION

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1. GENERAL

- 1.1 There are two situations in which data channel repeaters (J58879KC) are required. The first case is when range extension of a data channel is necessary. That is, the peripheral device using the data channel is located more than 1000 feet away from the PBX. The second case is when the peripheral device and PBX are within 1000 feet of each other but are not located in the same building. Here the repeaters are used to provide lightning protection.
- 1.2 The repeaters that provide range extension (and lightning protection) come equipped with two AE48 ckt packs per data channel and a AE49 ckt pack powered by a 28D1 power unit.
- 1.3 Repeaters that are used to provide only lightning protection come equipped with two WJ3 ckt packs per channel. These repeaters do not require any power. Maximum distance possible between PBX and peripheral device is 1000 feet.
- 1.4 Whenever a data channel cable run is exposed (i.e. the cable run is not wholly contained in one building), standard protection such as carbon blocks must be provided where the cable exits and enters a building.
- 1.5 The repeaters used with attendant consoles are not covered in this section. Refer to Handbook 281, Section 260 for connection of console repeaters (J58879KD).
- 1.6 The peripheral devices that can use the data channel repeater (J58879KC) are ECTS controllers, PIC units, 102-type display units, and selector consoles. All of these use low-speed data channels.

PRIVATE

THE INFORMATION CONTAINED HEREIN SHOULD NOT BE DISCLOSED TO UNAUTHORIZED PERSONS. IT IS MEANT SOLELY FOR USE BY AUTHORIZED BELL SYSTEM EMPLOYEES.

2. DOCUMENTATION

- 2.1 The Dual Data Channel Assignments section of COD is required.
- 2.2 When the data channel repeater is used with a PIC unit, ECTS, or 102-type display unit, Handbook 282 section 250.32, 250.09, or 250.12, respectively is required.
- 2.3 BSP #554-010-101 is a helpful reference.

3. PROCEDURE

3.1 Mount repeaters:

- 3.1.1 Locate the sites where the data channel repeaters are to be mounted per local instructions. In doing so, make sure these sites meet the following constraints:
 - 1.) Repeaters must be located in an unexposed area (i.e. inside a building).
 - 2.) When the PBX and peripheral device are in different buildings, the first repeater (i.e. the repeater nearest the PBX) must be located within the PBX building and the last repeater (i.e. the repeater nearest the peripheral device) must be located within the peripheral device building.
 - 3.) Repeaters are designed to be mounted on a flat surface such as a wall.
 - 4.) When using WJ3 ckt pack (lightning protection only) repeaters, the distance between the PBX and peripheral device cannot exceed 1000 feet.
 - 5.) When using AE48 ckt pack (range extension) repeaters, the PBX to repeater distance and the repeater to peripheral distance shall each not exceed 1000 feet, while the repeater to repeater maximum separation is 3000 feet (using 24 AWG wire). No more than 4 repeaters can be connected in series so as to obtain a maximum separation of 11,000 feet between PBX and peripheral device.
 - 6.) If the repeaters are for range extension, a 120Vac source must be within reach of the repeater power cord. If the Uninterruptible Power Service (UPS) feature is provided, a 250 Volt-Amp UPS outlet must be dedicated to a repeater.
 - 7.) The maximum allowable repeater to repeater distance varies according to the wire size of the connecting cable. See Table A.

TABLE A

DISTANCE CHANGE PER (TWISTED PAIR) WIRE SIZE

WIRE SIZE		REPEATER TO REPEATER MAXIMUM DISTANCE		PERCENT CHANGE*
DIAMETER	AWG	METERS	FEET	
0.40 mm	26	731	2400	-20
0.51 mm	24	914	3000	0
0.64 mm	22	1097	3600	+20
0.91 mm	19	1463	4800	+60

* Using 24 AWG wire as standard

- 3.1.2 Remove the cover of the repeater. Verify, by visual inspection, that the AE48 and AE49 ckt packs and 28D1 power unit are provided if the repeater is to be used for range extension. If lightning protection only is required, then only the WJ3 ckt packs are provided. See Fig. 1 for the positions of these packs.
- 3.1.3 Using the template provided with unit, mark and drill 4 holes at the desired mounting location.
- 3.1.4 Mount the repeater using locally provided hardware.
- 3.1.5 Attach the power cord to repeater, if not already done. Do not plug the power cord into the 120Vac outlet yet.
- 3.1.6 Repeat steps 3.1.2 thru 3.1.5 for the other repeater(s).
- 3.2 Install repeater to repeater wiring:
- 3.2.1 Using an acceptable wire size (see Table A) long enough to connect one repeater to the next, punch down a wire on each of the 1B, 2B, 3B, and 4B terminals of connecting block TB1 on the repeater closest to the PBX.
- 3.2.2 Route these 4 wires to the next repeater in the data channel, and punch them down on the 1A, 2A, 3A, and 4A terminals of this repeater, as shown in Fig. 2.
- 3.2.3 If more than 2 repeaters are being used to construct the data channel, connect the second repeater to the third and so on by connecting the 1B, 2B, 3B and 4B terminals of a repeater to the 1A, 2A, 3A, and 4A terminals of the next repeater.

3.2.4 If the repeaters are being used to connect 2 peripheral devices to the PBX (thru 2 individual data channels), channel no. 2 is constructed by connecting the 1D, 2D, 3D, and 4D terminals of a repeater to the 1E, 2E, 3E, and 4E terminals of the next repeater, respectively. See Figs 2 and 4.

3.3 Install standard protection:

3.3.1 If the PBX and peripheral device are located in different buildings and the data channel wiring is exposed, install carbon blocks or equivalent protection at the points where the cable run leaves and enters a building.

3.4 Connect repeaters to PBX and peripheral device:

3.4.1 For detailed information on cross-connecting of peripheral to PBX, refer to the following sections:

<u>PERIPHERAL</u>	<u>DOCUMENTATION</u>
PIC	HB 282, Sec 250.32
ECTS	HB 282, Sec 250.09
DISPLAY UNITS	HB 282, Sec 250.12

3.5 Power up:

3.5.1 Attach covers to repeaters.

3.5.2 Plug repeater power cord into 120 Vac (range extension repeaters).

3.5.3 Lightning protection only repeaters do not require power.

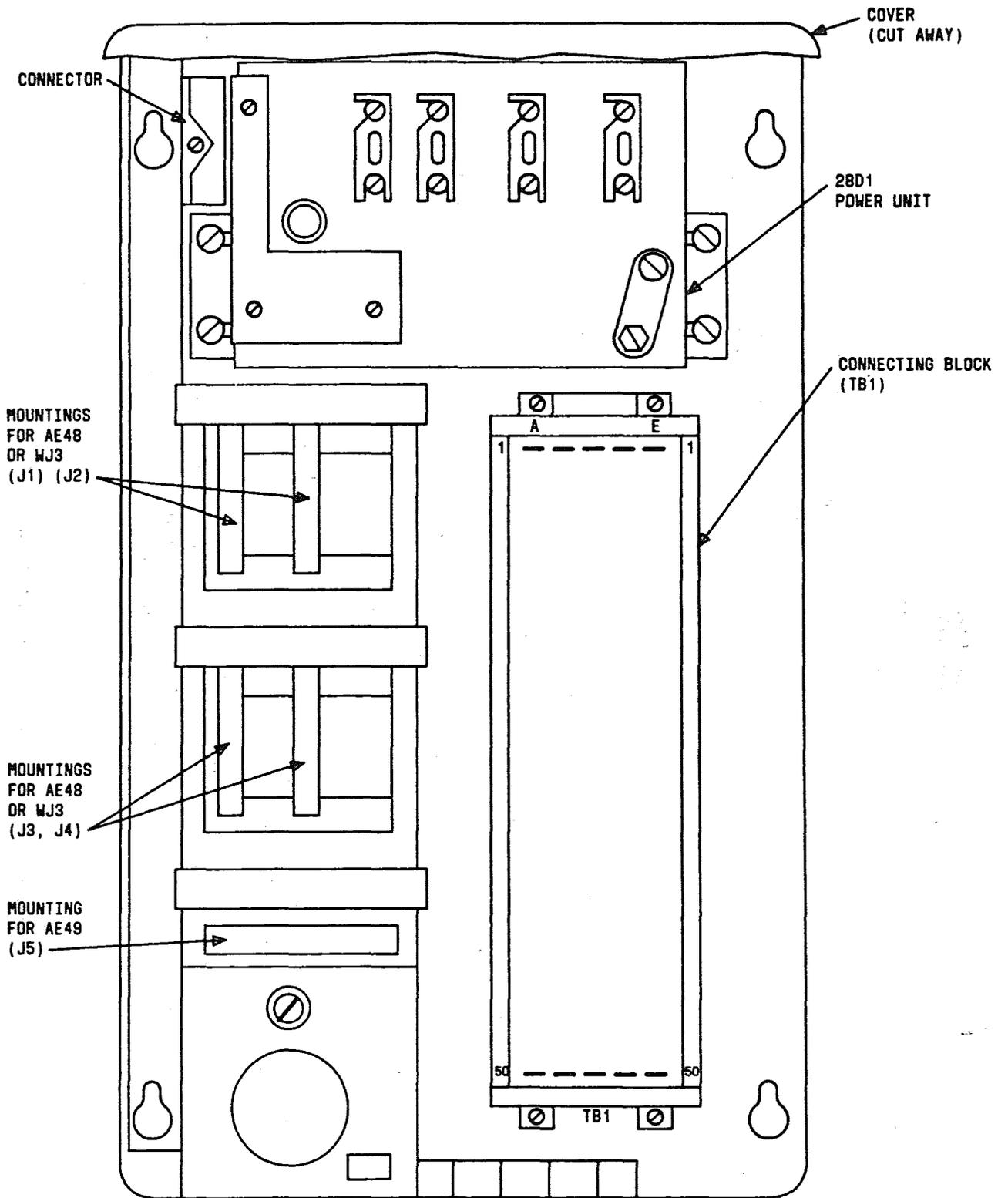
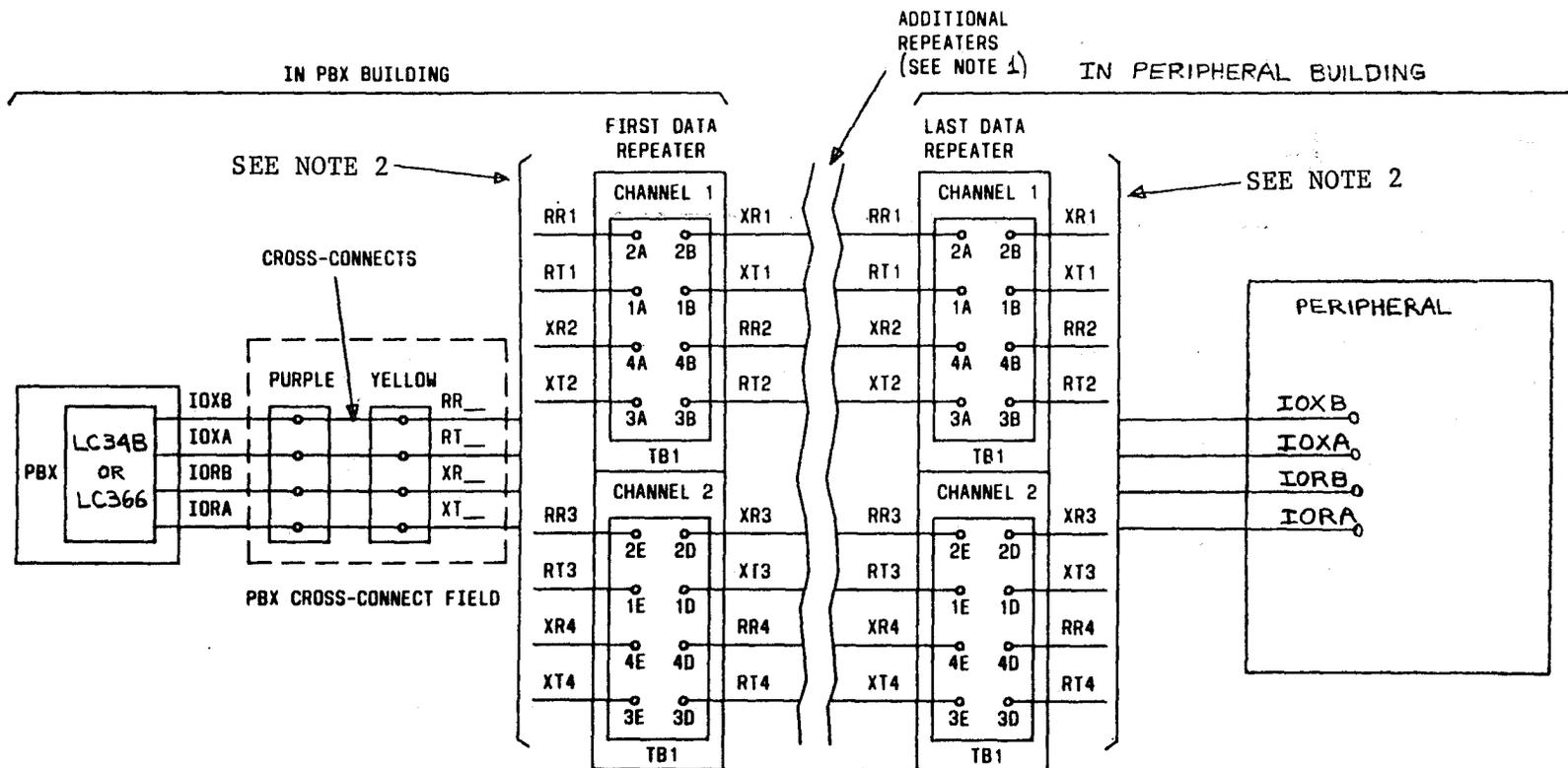


Fig. 1 —Data Channel Repeater Unit



NOTE 1: Up to four repeaters (total) can be connected in series to extend the range of the data channel to 11,000 feet.

NOTE 2: The repeaters can be used to connect one or two peripheral devices to one or two PBX data channels, respectively. Channel 1 goes through the A and B terminals on terminal block 1 (TB1) while Channel 2 goes through the D and E terminals.

Figure 2 - Data Channel Repeater Connections

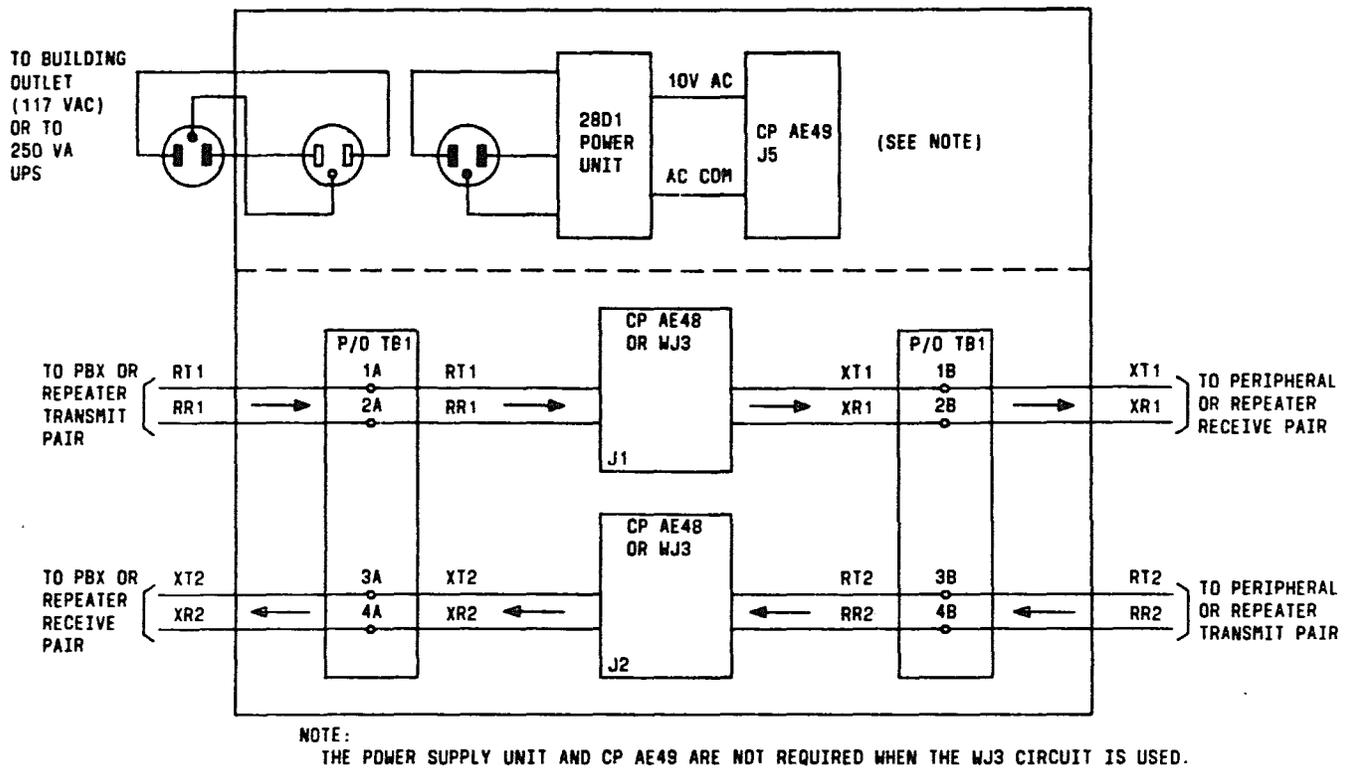
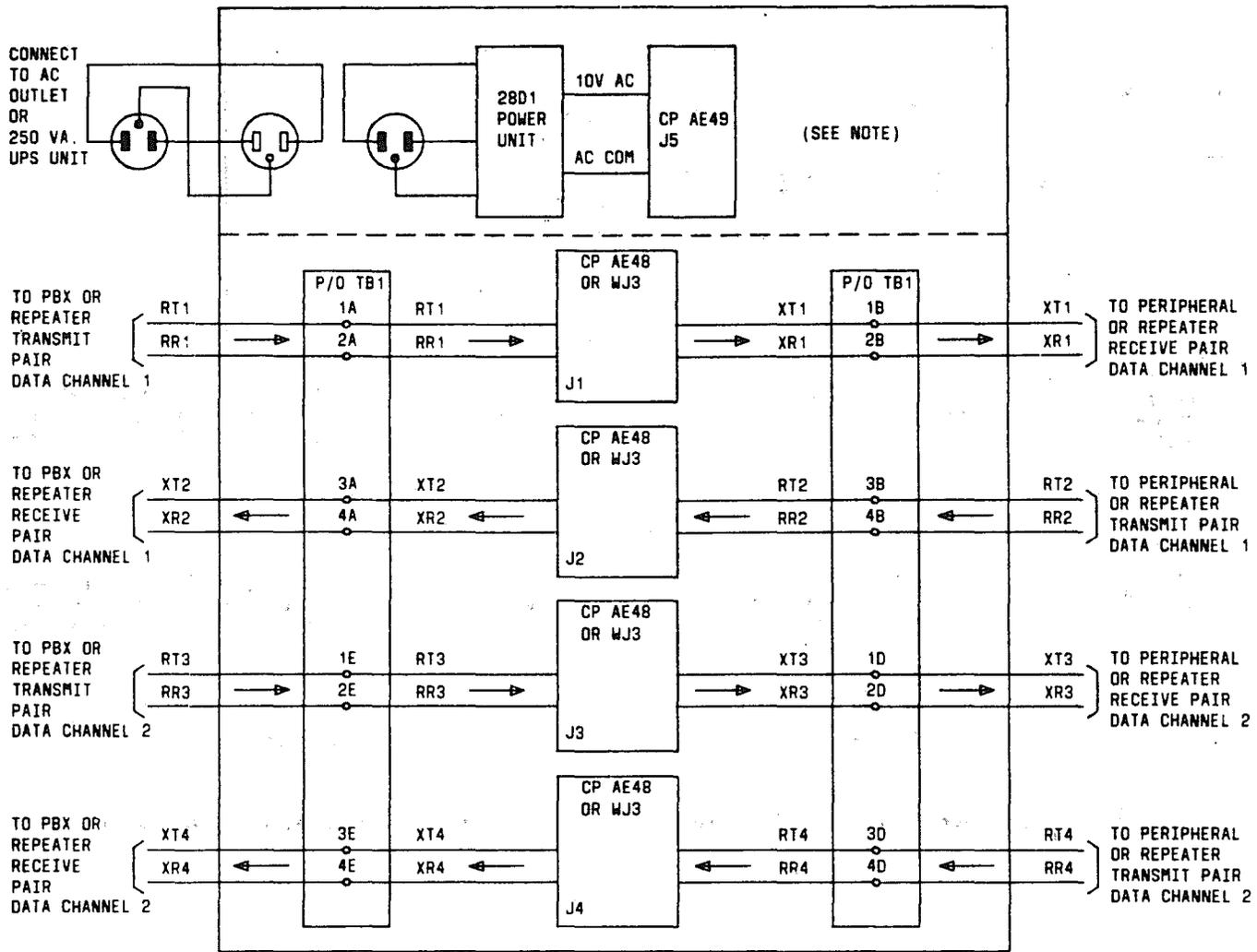


Fig. 3 —Single Channel Repeater With Range Extension (AE48) or Without Range Extension (WJ3)



NOTE: THE POWER SUPPLY UNIT AND AE49 CIRCUIT PACK ARE NOT REQUIRED WHEN THE WJ3 CIRCUIT CARD ^{IS} USED

Fig. 4 —Dual Channel Repeater With Range Extension (AE48) or Without Range Extension (WJ3)

Reason for Issue;
New Section

Manager, Denver PBX PECC