

MODEL 213400 MULTI-CHANNEL DIGITAL ANNOUNCER

INSTALLATION

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1. GENERAL

1.01 The Cook Electric Model 213400 Multi-Channel Digital Announcer is designed for either relay rack mounting or table top use. The equipment consists of two chassis, the Control Processor (C.P.) Chassis and the Multi-Channel (M.C.) Chassis. These two chassis must be connected together with a ribbon cable assembly during installation. Central office connections must be made to wire-wrap terminals on the rear panel of each chassis.

1.02 This section provides the installation procedures for Model 213400 Multi-Channel Digital Announcer.

1.03 References.

- 756-0224-100 Model 213400 Multi-Channel Digital Announcer, Equipment Description
- 756-0224-300 Model 213400 Multi-Channel Digital Announcer, Operating Procedures
- 756-0224-400 Model 213400 Multi-Channel Digital Announcer, Maintenance

For additional information, contact:

Northern Telecom Inc.
Cook Electric Division
6201 Oakton Street
Morton Grove, IL 60053
Telephone 312-967-6600
Telex 72-4472
TWX 910-223-3654
Cable "Cookpro".

2. INSTALLATION PROCEDURES

PRE-INSTALLATION CHECKS

2.01 Observe the following checks and precautions before installing the digital announcer.

- (a) When opening shipping cartons, carefully inspect equipment for shipping damage.
- (b) Until installation, store equipment in shipping cartons in a dry location. Do not leave on loading dock or other outside locations where equipment will be exposed to the weather.
- (c) Do not remove equipment from protective cartons until ready for installation.
- (d) Use care when unpacking from shipping cartons to avoid damage to equipment or loss of hardware included.
- (e) Two toggle switches (located on the C.P. Chassis rear panel) are shipped covered with protective brackets, attached to rear panel. DO NOT remove protective bracket until after installation, since these switches must remain in the OFF position (as shipped) until ready to power up the equipment.

MOUNTING

2.02 The digital announcer is available with side bracket hardware for mounting the two chassis in 19-inch (483 mm), 23-inch (584 mm), 26-inch (660 mm), or 28-inch (711 mm) relay racks. (Models ordered for table top use do not include this hardware.) A side bracket kit consists of two side brackets and four mounting screws. Two kits are included with the digital announcer, one kit with each chassis.

2.03 On both chassis, four tapped mounting holes are provided on each side panel. The brackets require only two holes for mounting. The extra pair of holes are provided as alternates, permitting the two chassis to be moved forward

or toward the rear on the rack, aiding in the lineup of equipment on the rack.

2.04 Install side brackets by lining up holes on the brackets with either the front two or rear two mounting holes on the side panels. (The brackets' mounting flanges can be positioned either toward the front or the rear of the chassis, as desired.) Thread mounting screws into tapped holes until tight (see figure 1).

2.05 When installing the digital announcer in the rack, the Control Processor Chassis must be located in the rack space just above the Multi-Channel Chassis. Then the two chassis must be connected together by installing a ribbon cable assembly between connectors on the rear panels, per paragraphs 2.06 and 2.07.

RIBBON CABLE INSTALLATION

2.06 A ribbon cable assembly, packed with the Multi-Channel Chassis, is used for connecting the two chassis together. The assembly consists of a section of ribbon cable, terminated at both ends with connectors.

2.07 Ribbon cable connectors, for the installation of the ribbon cable assembly, are

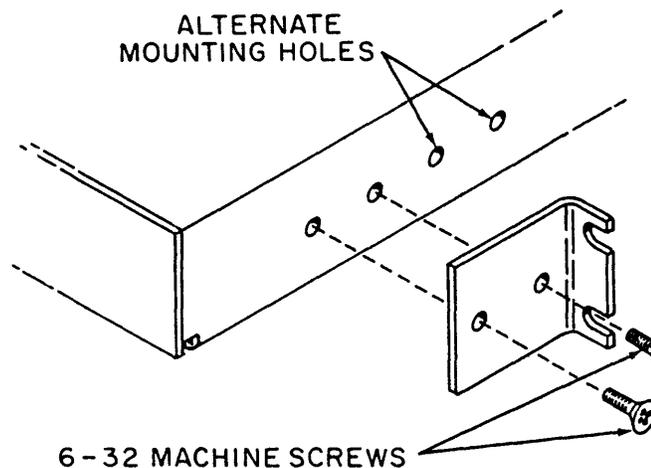


Fig. 1 - Mounting Bracket Installation

located on the rear panel of each chassis (see figure 2). (Note that Pin No. 1 is marked on the rear panel, and matching No. 1 wire position of the ribbon cable is indicated by molded triangle on the cable connectors.) Properly position ribbon cable connectors and plug into rear panel connectors, connecting the two chassis together.

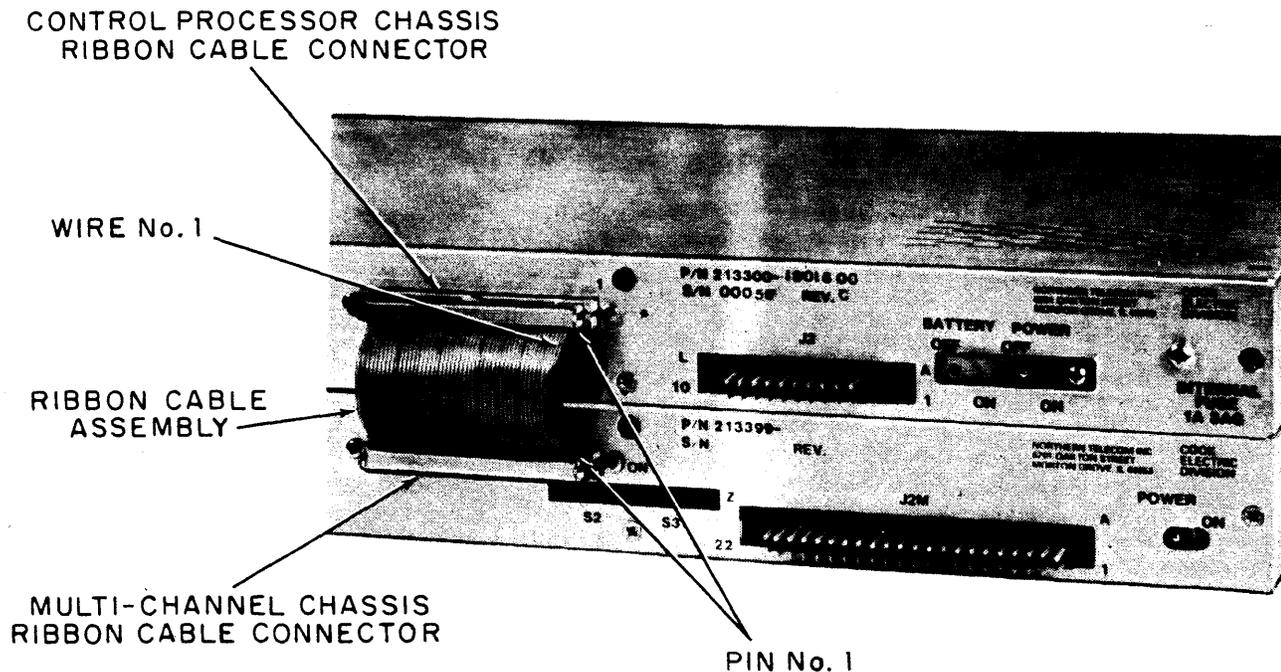


Fig. 2 - Connecting Ribbon Cable Assembly (Rear Panel)

CENTRAL OFFICE CONNECTIONS

2.08 Two card edge connectors are furnished with the digital announcer, one packed with the Control Processor Chassis, one packed with the Multi-Channel Chassis. These connectors are used as the signal I/O interfaces for the four announcer channels and for power connections to the two chassis. The socket side of edge connectors provides two rows of spring contacts for installation over the top and bottom edges of a circuit board. The pin side of edge connectors provides two rows of wire-wrap pins for connection of central office equipment.

CAUTION: An edge connector socket is not keyed and can be installed either way on a circuit board. The connector must be installed as indicated in the following instructions, or the pin numbers will not indicate the proper connections to the circuit boards.

2.09 The 20-pin edge connector, packed with the Control Processor Chassis, is to be installed in the rectangular opening labeled "J2" on the rear panel of the C.P. Chassis (see figure 3). Edge connector pin numbers, molded into the plastic base just next to the pins, identify the two rows of 10 pins each. One row is labeled (from right to left) "A" through "L", the other row labeled (from right to left) "1" through "10". The edge connector must be positioned with the "A" through "L" row at the top, the "1" through "10" row at the bottom, as illustrated, so that the proper pins line up with the letters "A" and "L" and the numbers "1" and "10" printed next to the "J2" opening on the chassis rear panel.

2.10 The 44-pin edge connector, packed with the Multi-Channel Chassis, is to be installed in the rectangular opening labeled "J2M" on the rear panel of the M.C. Chassis (see figure 4). Edge connector pin numbers, molded into the plastic base next to the pins, identify the two rows of 22 pins each. One row is labeled (from right to left) "A" through "Z", the other row labeled (from right to left) "1" through "22". The edge connector must be positioned with the "A" through "Z" row at the top, the "1" through "22" row at the bottom, as illustrated, so that the proper pins line up with the letters "A" and "Z" and the numbers "1" and "22" printed next to the "J2M" opening on the chassis rear panel.

2.11 When installing an edge connector, position as previously instructed and insert the socket side into the properly labeled rectangular opening on the chassis' rear panel, making sure that the plated connectors on the edge of the circuit board are centered in the socket slot. Then carefully press edge connector in until edge of circuit board is fully seated in spring contacts in socket.

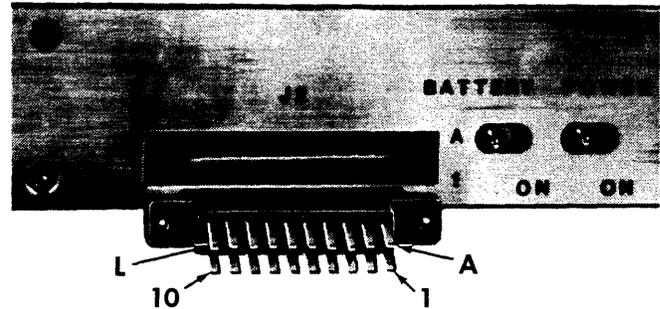


Fig. 3 - Position of 20-Pin Edge Connector for Installation on Control Processor Chassis

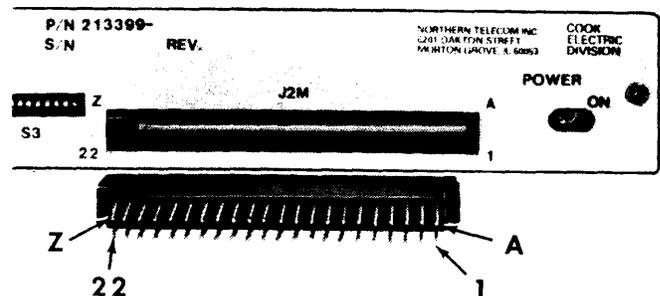


Fig. 4 - Position of 44-Pin Edge Connector for Installation on Multi-Channel Chassis

2.12 The wire-wrap pins of the "J2" edge connector on the Control Processor Chassis provide the signal I/O interface to the user control circuits for Channel No. 1, plus the power connection to the C.P. Chassis. The "J2" interface diagram is shown in figure 5.

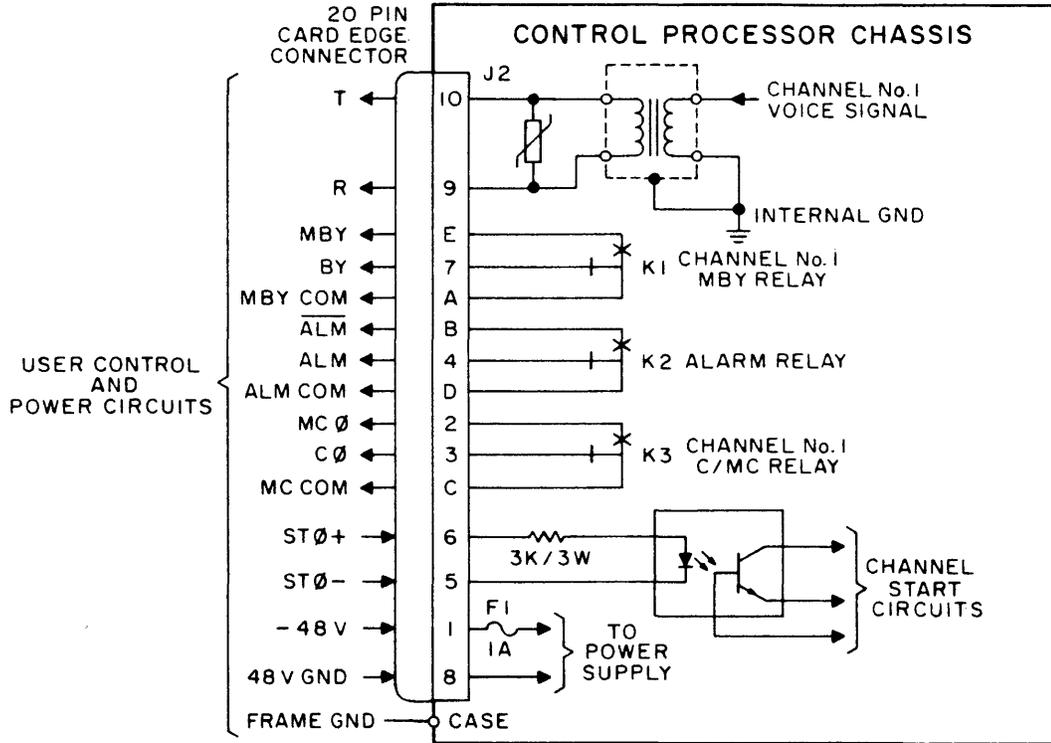
2.13 The wire-wrap pins of the "J2M" edge connector on the Multi-Channel Chassis provide the signal I/O interface to the user control circuits for Channels No. 2, No. 3, and No. 4, plus the power connection to the M.C. Chassis. The "J2M" interface diagram is shown in figure 6.

2.14 Explanations of the interface signal input/output circuits shown in figures 5 and 6 are given in table 1.

2.15 The REC/MON (record/monitor) jack on the C.P. Chassis accepts a standard telephone modular plug with the lead connections as specified in figure 7.

NORTHERN TELECOM SL-1 SWITCH CONNECTIONS

2.16 The multi-channel digital announcer may be used with the Northern Telecom SL-1



NOTE:

IF CONTINUOUS OPERATION IS DESIRED, STRAP PIN 1 TO PIN 5 AND PIN 6 TO PIN 8. SET ANNOUNCER TO "LEVEL START" MODE (S6-7).

Fig. 5 - J2 Interface Connections on Control Processor Chassis

Table 1. Interface Input/Output Circuit Descriptions

NOTE: Interface to the Control Processor (C.P.) Chassis is J2; interface to the Multi-Channel (M.C.) Chassis is J2M. Refer to figures 5 and 6 for J2 and J2M interface pin numbers associated with the following circuits.	
CIRCUIT SYMBOLS	CIRCUIT DESCRIPTIONS
-48 V TEL GND	Provides DC voltage input to the power supplies in the C.P. Chassis (J2 interface) and the M.C. Chassis (J2M interface).
T R	Provides low impedance output (4 ohms) for each channel. C.P. Chassis provides output for Channel No. 1; M.C. Chassis provides output for Channels No. 2, No. 3, and No. 4.
ST+ ST-	Start leads. Used to start announcement of message. Start commands can be either -BATT or GND start. C.P. Chassis provides interface for Channel No. 1 (ST0+, ST0-); M.C. Chassis provides interface for Channels No. 2 (ST1+, ST1-), No. 3 (ST2+, ST2-), and No. 4 (ST3+, ST3-).
MBY BY	Indicates that digital announcer channels are available for intercept service. (Announcer must be ON LINE.) C.P. Chassis provides interface for Channel No. 1, associated with Relay K1 in that chassis; M.C. Chassis provides interface for Channels No. 2, No. 3, and No. 4, associated, respectively, with Relay K2, K4, and K6 in that chassis.

Table 1. Interface Input/Output Circuit Descriptions (contd)

CIRCUIT SYMBOLS	CIRCUIT DESCRIPTIONS
C MC	Provides on each channel a 250 millisecond pulse at beginning and end of message, used to seize trunk circuits and synchronize disconnect. C.P. Chassis provides interface for Channel No. 1, associated with Relay K3 in that chassis; M.C. Chassis provides interface for Channels No. 2, No. 3, and No. 4, associated, respectively, with Relays K1, K3, and K5 in that chassis.
<u>ALM</u> ALM	Indicates that digital announcer is in an Alarm Mode. Type of alarm is shown on digital display. Interface associated with Relay K2 in P.C. Chassis only.

Digital Switch, using the connections shown in figure 8. Since the SL-1 Digital Switch provides a pulsed start, the digital announcer must be placed in the "pulse start" mode by placing DIP switch S6-7 (on P.C. Chassis rear panel) in the ON (up) position (see Section 756-0224-300, paragraph 8.10).

2.21 For best audio quality, keep audio output leads (T and R connections at J2 and J2M edge connectors) separate from signal and power leads. Use twisted pairs for audio output leads.

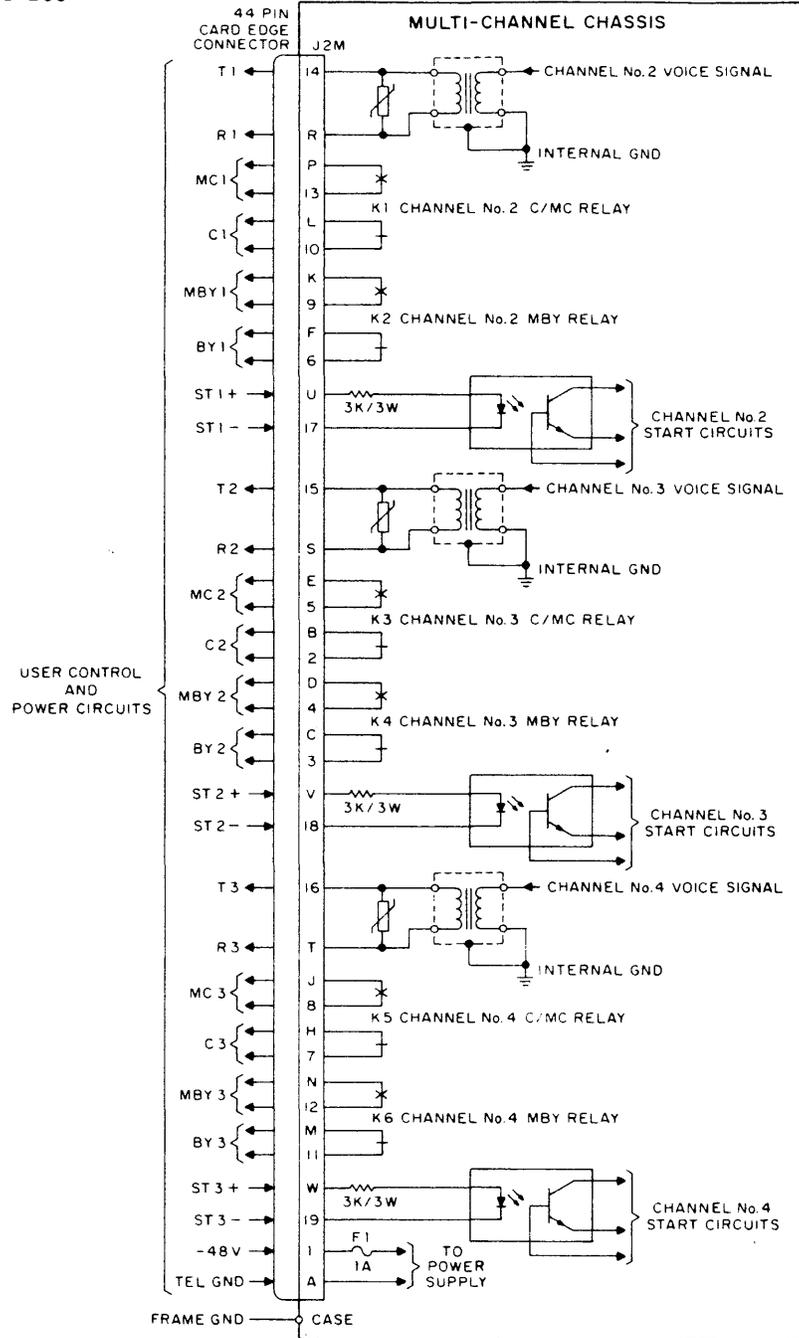
INSTALLATION PRECAUTIONS

2.17 Connect the -48 Vdc power to the Multi-Channel Digital Announcer as shown in figure 9. The -48 Vdc input pins of the J2 and J2M edge connectors (pin 1 or both connectors) should be jumpered together and connected (at either chassis) to the -48 Vdc line. (the -48 Vdc input line to the announcer must be fused externally.) The ground pins (pin 8 of J2 and pin A of J2M edge connectors) should be jumpered together and connected (at either chassis) to the +48V return line.

2.18 Be sure -48 Vdc and ground are connected in the proper polarity. The announcer will not operate or give any response when connected to a reverse polarity voltage.

2.19 If more than one Multi-Channel Digital Announcer is to be installed in the same rack, each announcer must be wired individually to the -48 Vdc supply, and each -48 Vdc input line fused separately.

2.20 Be sure that the cases of the two digital announcer chassis are grounded, using the self-tapping screws on the rear panels. Jumper the two case ground screws together, as shown in figure 9, and connect to frame or rack ground bus bar.



NOTE:
IF CONTINUOUS OPERATION IS DESIRED, STRAP PIN 1 TO PIN 17, PIN 18, AND PIN 19. ALSO STRAP PIN A TO PIN U, PIN V, AND PIN W.

Fig. 6 - J2M Interface Connections on Multi-Channel Chassis

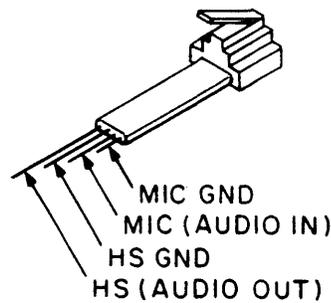


Fig. 7 - Modular Plug Interface Connections

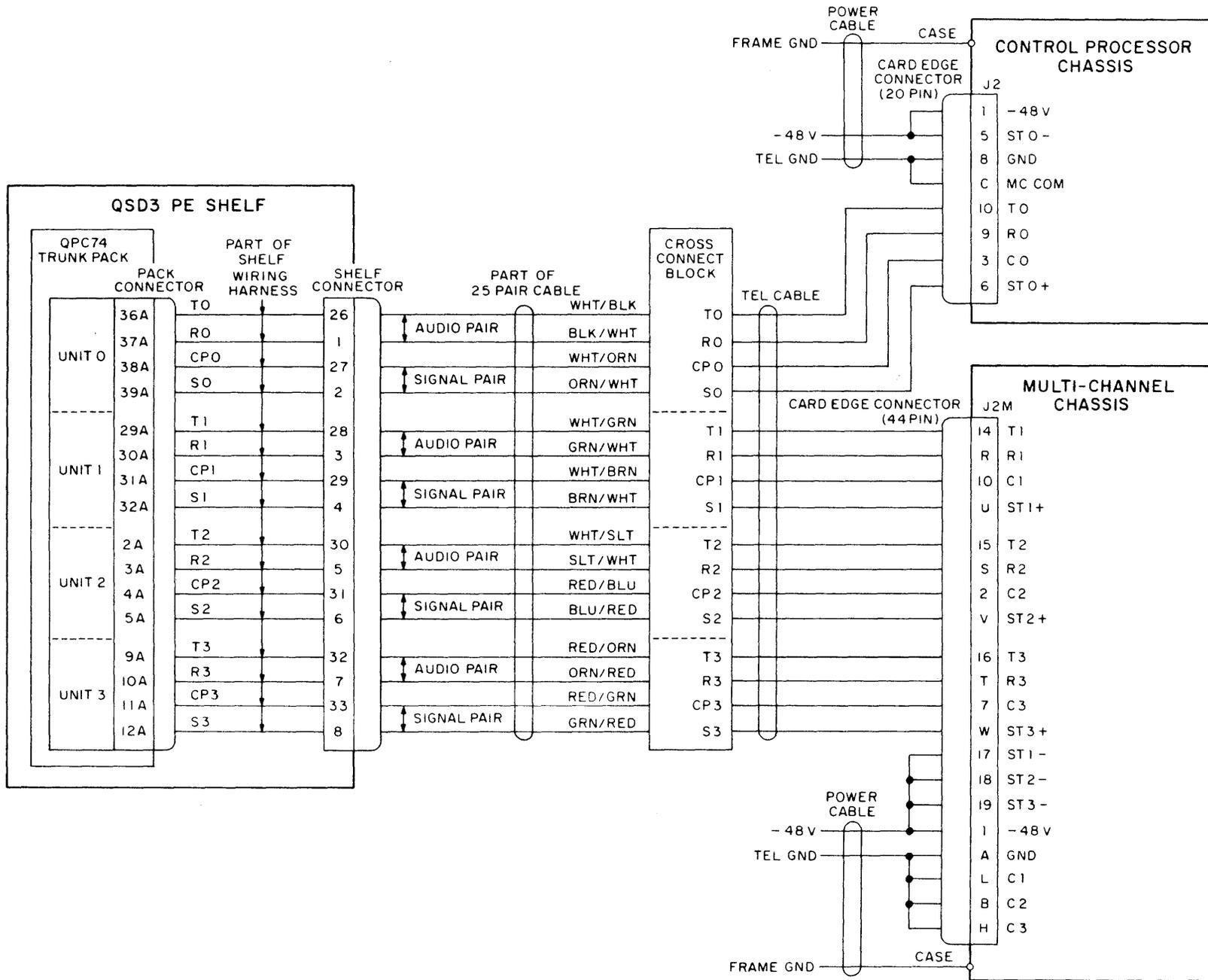
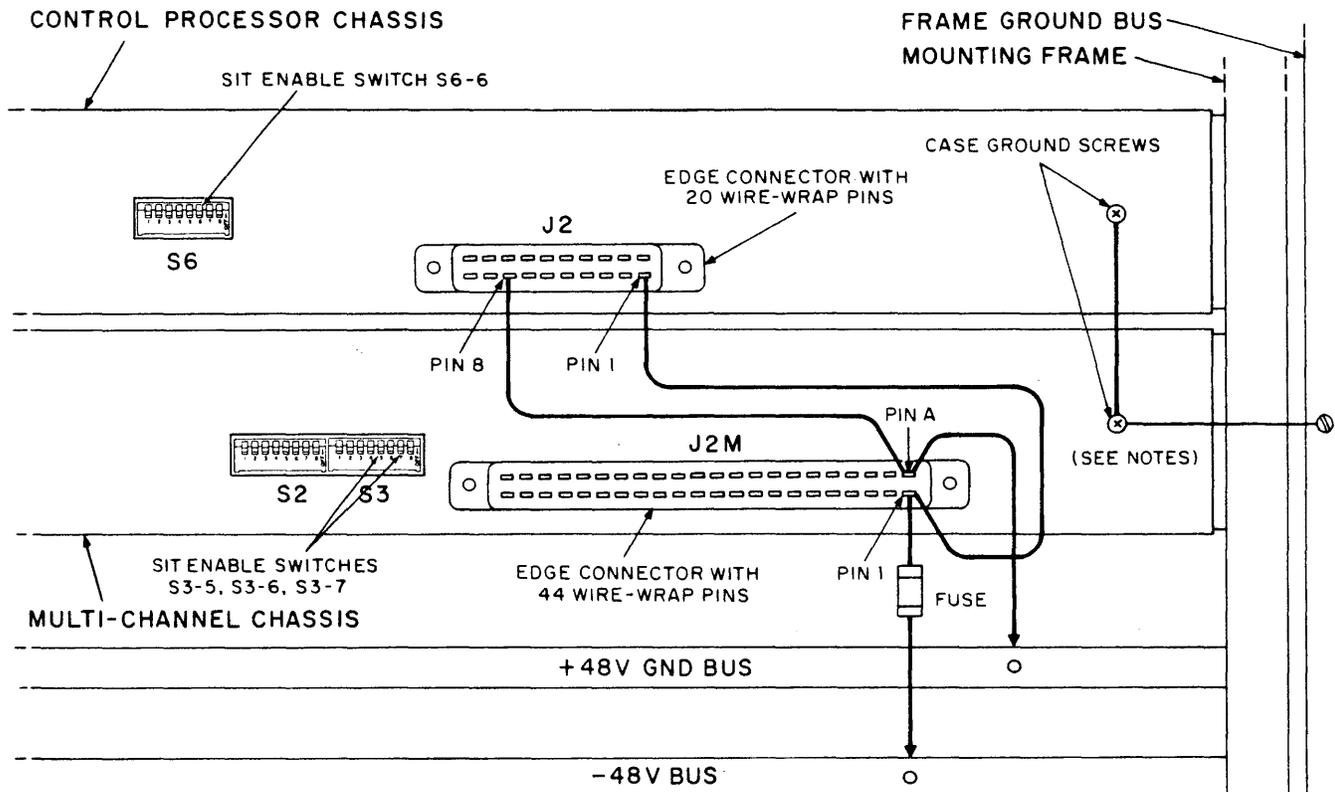


Fig. 8 - J2 and J2M Connections with SL-1 Switch



NOTES:

1. USE 18 GAUGE OR HEAVIER FOR GROUND WIRE.
2. IF FRAME GROUND BUS IS NOT AVAILABLE, A COLD WATER PIPE MAY BE USED FOR A GROUND POINT (SEE LOCAL ELECTRIC CODE).
3. SEVERE NOISE CONDITIONS MAY REQUIRE ISOLATION OF THE DIGITAL ANNOUNCER CHASSIS FROM FRAME GROUND.

Fig. 9 - Power and Ground Connections