

MAINTENANCE MANUAL

INTEGRATED MULTISITE & CONSOLE CONTROLLER CONVENTIONAL CONCENTRATOR CARD 19D904337P1

TABLE OF CONTENTS

DESCRIPTION	1
GENERAL	1
CONVENTIONAL CONCENTRATOR CARD	1
Specifications	1
Description	1
CONFIGURATION NOTES	3
Standard Configuration	3
Main/Standby Configuration	6
Remote Enable/Disable Configuration	9
Power Connections	12
OUTLINE DIAGRAM	13
SCHEMATIC DIAGRAM	14

DESCRIPTION

GENERAL

Concentrator cards simplify connections to the Integrated Multisite & Console (IMC) Controller. By installing the cards in the audio and data paths between the IMC and other pieces of equipment, interfacing between a site or console and the switch requires fewer kinds of cables. The cards, mounted on the rear of the cabinet, route many of the signals from the IMC. Most of the cards concentrate the signals from several backplane connectors into one or two large connectors that interface to the site, console, etc.

Most of the concentrator cards make it possible to make IMC connections at punch-blocks. With the exception of the card for the MOM PC, each converts the signal arrangement on the backplane connectors to the arrangement on the punch-blocks. The concentrators perform a conversion from two-row, 24-pin connectors to 50-pin Champ connectors. Cables with the same two-row, 24-pin connectors on both ends carry signals between the backplane and the concentrators. 25-pair cables carry the signals between the concentrators and punch-blocks or other signal break-out devices.

CONVENTIONAL CONCENTRATOR CARD

Specifications

Height:	5 inches
Width:	8.562 inches
Thickness:	0.093 inches

Description

This card connects audio and E&M signals from conventional RF base stations to the IMC/CEC. It also provides support for the main/standby and remote enable/disable functions.

The card can be used in three ways:

- standard configuration,
- main/standby configuration, and
- parallel remote enable/disable configuration.

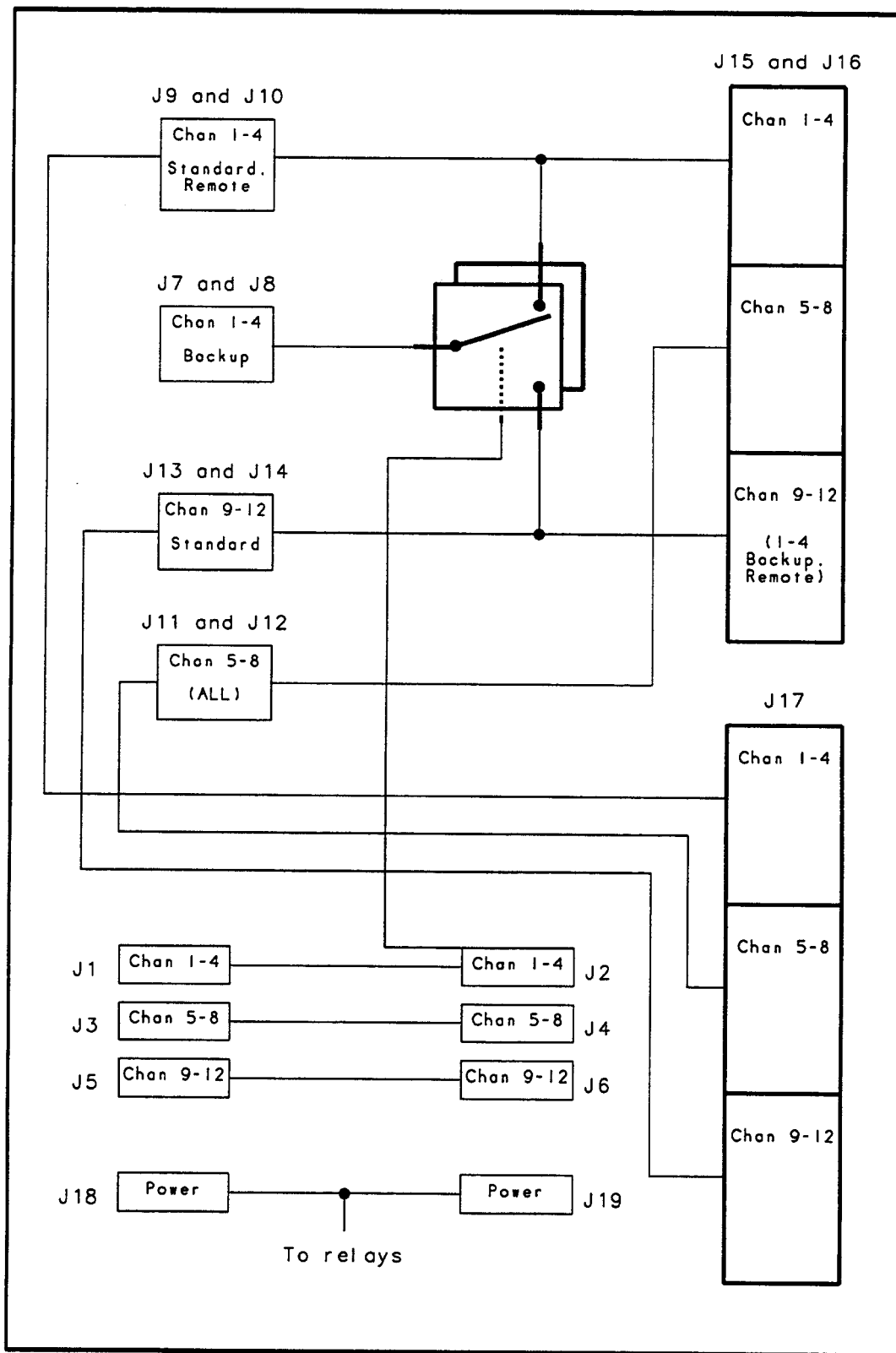


Figure 1 - Block Diagram

When neither main/standby nor remote enable/disable is required, the concentrator card can support up to twelve channels of audio and E&M signals. When either main/standby or remote enable/disable is required, the concentrator can support no more than eight channels. This is because main/standby and remote enable/disable require additional connections. A single concentrator card can support either main/standby or remote enable/disable, but not both simultaneously.

COR inputs and audio connect to the CI board via 24-pin, two-row connectors. The CI board signals used for dry-contact keying and receive disable connect to the card via 24-pin, single-row connectors. There are additional two-row connectors used to connect audio between the Conventional Interface Board and the VMIM audio board.

A block diagram of the Conventional Concentrator Card is shown in figure 1.

CONFIGURATION NOTES

Standard Configuration

In this configuration, the concentrator card can support up to twelve channels.

The audio for the twelve channels (three CI boards) is connected from the PA1xx connector on the CIA backplane to J9, J11, and J13 using cable 19B802568P1, P2, or P3 (see figure 2). J9 is for the first four channels, J11 for the next four, and J13 for the last four. All of the audio signals map to the 50-pin connector J15. (There are other signals on J9, J11, and J13, discussed below.) The signals on the first pair of lines on J15 (or punch-block) is channel 1 audio to the CI, and the second pair carries channel 1 audio from the CI. This is consistent with the orientation of audio signals to/from trunking sites. However, **this is not the same signal arrangement that an Audio Concentrator Card would give when connected to a CI board.**

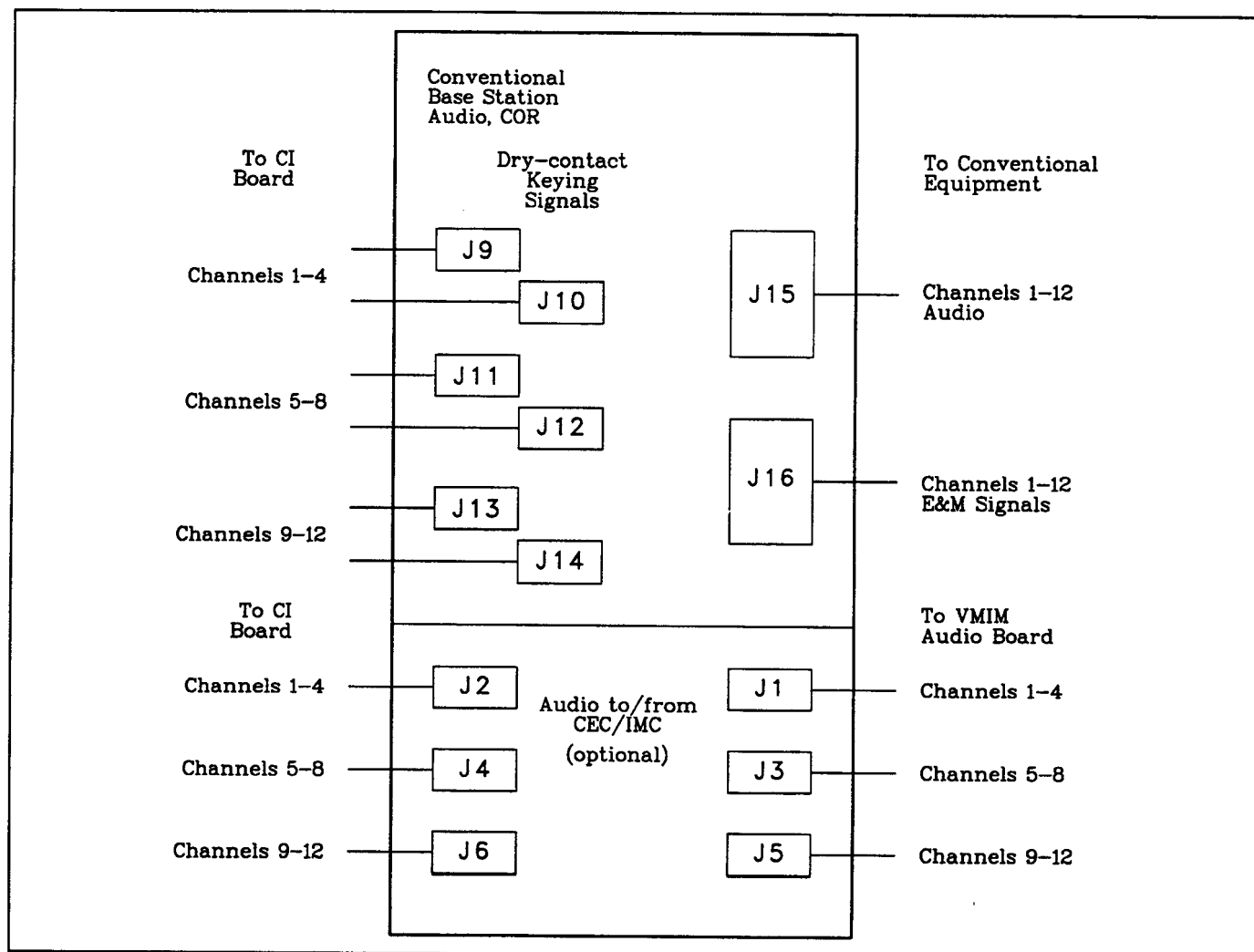


Figure 2 - Standard Configuration Usage

If E&M signalling is used, additional signals must be taken from the JPxxx connector on the CIA backplane to J10, J12, and J14 using cable 19B802555P1, P2, or P3. J10 is for the first four channels, J12 for the next four, etc. The E&M signals are mapped to 50-pin connector J16 as shown in table 1 below. Like the audio signals, the first pair on J16 carries (COR) signals to the CI, and the second pair carries (relay) signals from the CI.

Table 1

J15 - STANDARD		
1	J9-18	Chn Duplex H1
2	J9-15	Sim Aud IO H1
3	J9-17	Chn Duplex H2
4	J9-11	Sim Aud IO H2
5	J9-21	Chn Duplex H3
6	J9-7	Sim Aud IO H3
7	J9-24	Chn Duplex H3
8	J9-3	Sim Aud IO H4
9	J11-18	Chn Duplex H5
10	J11-15	Sim Aud IO H5
11	J11-17	Chn Duplex H6
12	J11-11	Sim Aud IO H6
13	J11-21	Chn Duplex H7
14	J11-7	Sim Aud IO H7
15	J11-24	Chn Duplex H8
16	J11-3	Sim Aud IO H8
17	J13-18	Chn Duplex H9
18	J13-15	Sim Aud IO H9
19	J13-17	Chn Duplex H10
20	J13-11	Sim Aud IO H10
21	J13-21	Chn Duplex H11
22	J13-7	Sim Aud IO H11
23	J13-24	Chn Duplex H12
24	J13-3	Sim Aud IO H12
25	Unused	

J17 contains the receive disable inputs to the CI board, as well as optocoupler inputs that are presently unused. In most cases, J17 will be unused, so it is not shown in the diagram.

J15 - STANDARD		
26	J9-19	Chn Duplex L1
27	J9-13	Sim Aud IO L1
28	J9-20	Chn Duplex L2
29	J9-9	Sim Aud IO L2
30	J9-22	Chn Duplex L3
31	J9-5	Sim Aud IO L3
32	J9-23	Chn Duplex L4
33	J9-1	Sim Aud IO L4
34	J11-19	Chn Duplex L5
35	J11-13	Sim Aud IO L5
36	J11-20	Chn Duplex L6
37	J11-9	Sim Aud IO L6
38	J11-22	Chn Duplex L7
39	J11-5	Sim Aud IO L7
40	J11-23	Chn Duplex L8
41	J11-1	Sim Aud IO L8
42	J13-19	Chn Duplex L9
43	J13-13	Sim Aud IO L9
44	J13-20	Chn Duplex L10
45	J13-9	Sim Aud IO L10
46	J13-9	Chn Duplex L11
47	J13-5	Sim Aud IO L11
48	J13-23	Chn Duplex L12
49	J13-1	Sim Aud IO L12
50	Unused	

J16 - STANDARD

1	J9-14	Opt in B1
2	J10-1	Rly A1
3	J9-10	Opt in B2
4	J10-3	Rly A2
5	J9-6	Opt in B3
6	J10-5	Rly A3
7	J9-2	Opt in B4
8	J10-7	Rly A4
9	J11-14	Opt in B6
10	J12-1	Rly A5
11	J11-10	Opt in B6
12	J12-3	Rly A6
13	J11-6	Opt in B8
14	J12-5	Rly A7
15	J11-2	Opt in B8
16	J12-7	Rly A8
17	J13-14	Opt in B9
18	J14-1	Rly A9
19	J13-10	Opt in B10
20	J14-3	Rly A10
21	J13-6	Opt in B11
22	J14-5	Rly A11
23	J13-2	Opt in B12
24	J14-7	Rly A12
25		Unused

J17 - STANDARD

1	J10-10	Opt in B1 spare
2	J10-9	RX Dis 1
3	J10-12	Opt in B2 spare
4	J10-20	RX Dis 2

J16 - STANDARD

26	J9-16	Opt in A1
27	J10-2	Rly B1
28	J9-12	Opt in A2
29	J10-4	Rly B2
30	J9-8	Opt in A3
31	J10-6	Rly B3
32	J9-4	Opt in A4
33	J10-9	Rly B4
34	J11-16	Opt in A5
35	J12-2	Rly B5
36	J11-12	Opt in A6
37	J12-4	Rly B6
38	J11-8	Opt in A7
39	J12-6	Rly B7
40	J11-4	Opt in A8
41	J11-4	Rly B8
42	J13-16	Opt in A9
43	J14-2	Rly B9
44	J13-12	Opt in A10
45	J14-4	Rly B10
46	J13-8	Opt in A11
47	J14-6	Rly B11
48	J13-4	Opt in A12
49	J14-9	Rly B12
50		Unused

J17 - STANDARD

26	J10-11	Opt in A1 spare
27	J10-23	V-ext 1
28	J10-13	Opt in A2 spare
29	J10-23	V-ext 1

J17 - STANDARD		
5	J10-14	Opt in B3 spare
6	J10-21	RX Dis 3
7	J10-16	Opt in B4 spare
8	J10-22	RX Dis 4
9	J12-10	Opt in B5 spare
10	J12-19	RX Dis 5
11	J12-12	Opt in B6 spare
12	J12-20	RX Dis 6
13	J12-14	Opt in B7 spare
14	J12-21	RX Dis 7
15	J12-16	Opt in B8 spare
16	J12-22	RX Dis 8
17	J14-10	Opt in B9 spare
18	J14-19	RX Dis 9
19	J14-12	Opt in B10 spare
20	J14-20	RX Dis 10
21	J14-14	Opt in B11 spare
22	J14-21	RX Dis 11
23	J14-16	Opt in B12 spare
24	J14-22	RX Dis 12
25		Unused

J17 - STANDARD		
30	J10-15	Opt in A3 spare
31	J10-23	V-ext 1
32	J10-17	Opt in A4 spare
33	J10-23	V-ext 1
34	J12-11	Opt in A5 spare
35	J12-23	V-ext 5
36	J12-13	Opt in A6 spare
37	J12-23	V-ext 5
38	J12-15	Opt in A7 spare
39	J12-23	V-ext 5
40	J12-23	Opt in A8 spare
41	J12-23	V-ext 5
42	J14-11	Opt in A9 spare
43	J14-23	V-ext 9
44	J14-13	Opt in A10 spare
45	J14-23	V-ext 9
46	J14-15	Opt in A11 spare
47	J14-23	V-ext 9
48	J14-17	Opt in A12 spare
49	J14-23	V-ext 9
50		Unused

Main/Standby Configuration

In this configuration, only eight channels can be supported by a single concentrator card. Four of those support main/standby (channels 1 through 4). The audio for channels 1 through 4 is connected from the PA1xx connector on the CIA backplane to J7 using cable 19B802568P1, P2, or P3 (see figure 3). The audio for channels 5 through 8 is also connected from a PA1xx connector on the CIA backplane to J11 using cable 19B802568P1, P2, or P3.

If E&M signalling is used, additional signals must be taken from the JPxxx connector on the CIA backplane to J8 and J12 using cable 19B802555P1, P2, or P3. J8 is for the first four channels, and J12 is for the next four.

The E&M signals are mapped to 50-pin connector J16 as shown in table 2 below. Like the audio signals, the first pair on J16 carries (COR) signals to the CI, and the second pair carries (relay) signals from the CI.

The audio between the CI board and the VMIM audio board must be passed through the concentrator card. The VMIM audio is routed from CEC/IMC backplane connector PA2xx to J1 using cable 19D903628P11, P12, or P13. The audio is routed to the CIA backplane connector PA2xx from J2 with cable 19B802568P1, P2, or P3. This is necessary because the outputs from the CI that control the relays on the concentrator are on the cable that goes to J2. Audio for channels 5 through 8 may be passed through the card as well with J3 and J4. This is not required, but makes the interface to the switch uniform.

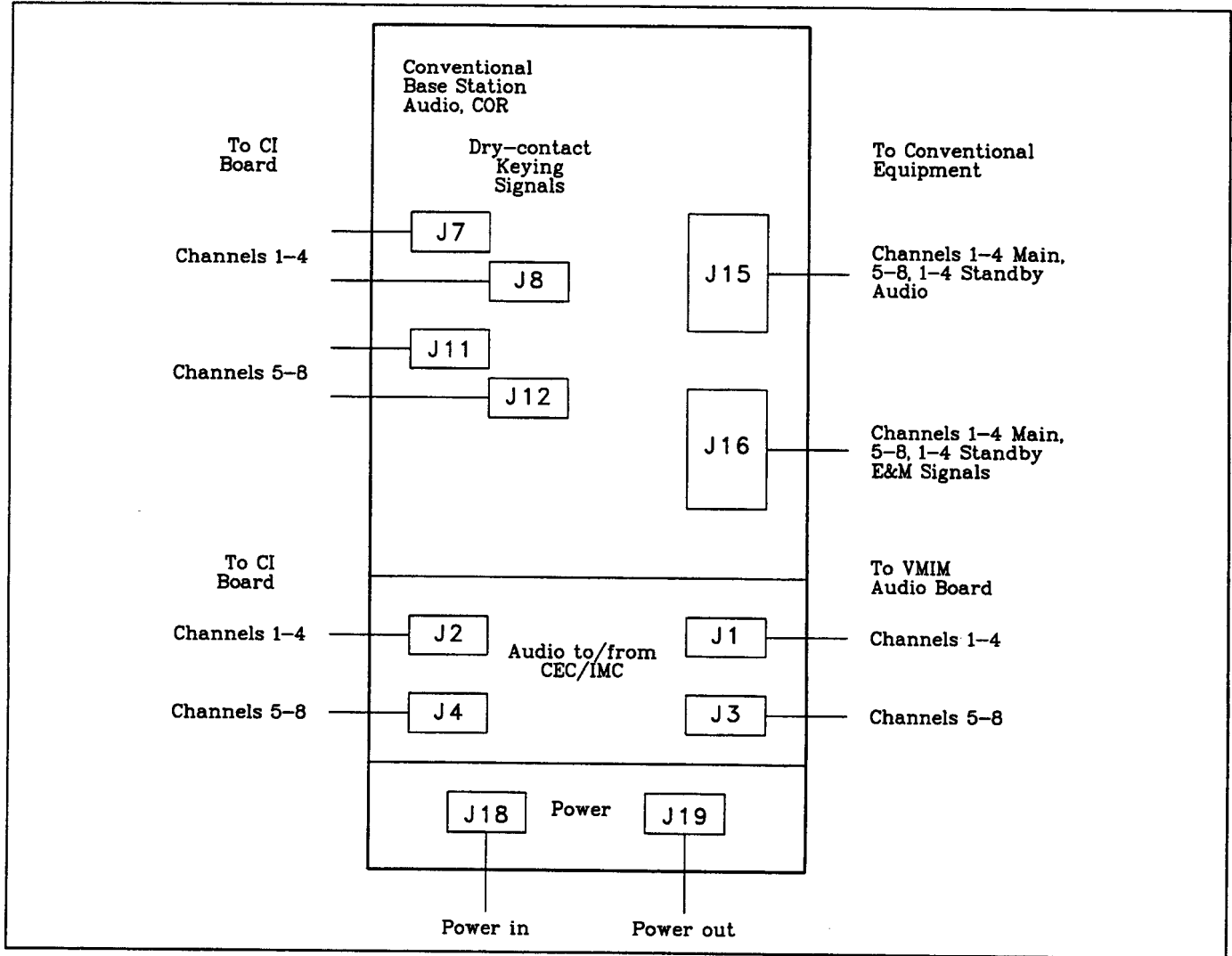


Figure 3 - Main/Standby Usage

Table 2

J15 - MAIN/STANDBY			
1	J7-18	Chn Duplex H1 main	Connections made through relays.
2	J7-15	Sim Aud IO H1 main	
3	J7-17	Chn Duplex H2 main	
4	J7-11	Sim Aud IO H2 main	
5	J7-21	Chn Duplex H3 main	
6	J7-7	Sim Aud IO H3 main	
7	J7-24	Chn Duplex H4 main	
8	J7-3	Sim Aud IO H4 main	

J15 - MAIN/STANDBY			
26	J7-19	Chn Duplex L1 main	Connections made through relays.
27	J7-13	Sim Aud IO L1 main	
28	J7-20	Chn Duplex L2 main	
29	J7-9	Sim Aud IO L2 main	
30	J7-22	Chn Duplex L3 main	
31	J7-5	Sim Aud IO L3 main	
32	J7-23	Chn Duplex L4 main	
33	J7-1	Sim Aud IO L4 main	

J15 - MAIN/STANDBY		
9	J11-18	Chn Duplex H5
10	J11-15	Sim Aud IO H5
11	J11-17	Chn Duplex H6
12	J11-11	Sim Aud IO H6
13	J11-21	Chn Duplex H7
14	J11-7	Sim Aud IO H7
15	J11-24	Chn Duplex H8
16	J11-3	Sim Aud IO H8
17	J7-18	Chn Duplex H1 stdby
18	J7-15	Sim Aud IO H1 stdby
19	J7-17	Chn Duplex H2 stdby
20	J7-11	Sim Aud IO H2 stdby
21	J7-21	Chn Duplex H3 stdby
22	J7-7	Sim Aud IO H3 stdby
23	J7-24	Chn Duplex H4 stdby
24	J7-3	Sim Aud IO H4 stdby
25	Unused	

J15 - MAIN/STANDBY		
34	J11-19	Chn Duplex L5
35	J11-13	Sim Aud IO L5
36	J11-20	Chn Duplex L6
37	J11-19	Sim Aud IO L6
38	J11-22	Chn Duplex L8
39	J11-5	Sim Aud IO L7
40	J11-23	Chn Duplex L8
41	J11-1	Sim Aud IO L8
42	J7-19	Chn Duplex L1 stdby
43	J7-13	Sim Aud IO L1 stdby
44	J7-20	Chn Duplex L2 stdby
45	J7-9	Sim Aud IO L2 stdby
46	J7-22	Chn Duplex L3 stdby
47	J7-5	Sim Aud IO L3 stdby
48	J7-23	Chn Duplex L4 stdby
49	J7-1	Sim Aud IO L4 stdby
50	Unused	

J16 - MAIN/STANDBY		
1	J7-14	Opt in B1 main
2	J8-1	Rly A1 main
3	J7-10	Opt in B2 main
4	J8-3	Rly A2 main
5	J7-6	Opt in B3 main
6	J8-5	Rly A3 main
7	J7-2	Opt in B4 main
8	J8-7	Rly A4 main
9	J11-14	Opt in B5
10	J12-1	Rly A5
11	J11-10	Opt in B6
12	J12-3	Rly A6
13	J11-6	Opt in B7

J16 - MAIN/STANDBY		
26	J7-16	Opt in A1 main
27	J8-2	Rly B1 main
28	J7-12	Opt in A2 main
29	J8-4	Rly B2 main
30	J7-8	Opt in A3 main
31	J8-6	Rly B3 main
32	J7-4	Opt in A4 main
33	J8-9	Rly B4 main
34	J11-16	Opt in A5
35	J12-2	Rly B5
36	J11-12	Opt in A6
37	J12-4	Rly B6
38	J11-8	Opt in A7

J16 - MAIN/STANDBY			
14	J12-5	Rly A7	
15	J11-2	Opt in B8	
16	J12-7	Rly A8	
17	J7-14	Opt in B1 stdby	Connections made through relays.
18	J8-1	Rly A1 stdby	
19	J7-10	Opt in B2 stdby	
20	J8-3	Rly A2 stdby	
21	J7-6	Opt in B3 stdby	
22	J8-5	Rly A3 stdby	
23	J7-2	Opt in B4 stdby	
24	J8-7	Rly A4 stdby	
25		Unused	

Power must be supplied to the relays on the concentrator card. The relays are used to switch the audio and signalling lines between the main and standby stations. Power is applied to J18 or J19. See "Power Connections" section.

Remote Enable/Disable Configuration

In this configuration, only eight channels can be supported by a single concentrator card. Four of those support remote enable/disable (channels 1 through 4). The audio for channels 1 through 4 is connected from the PA1xx connector on the CIA backplane to J9 using cable 19B802568P1, P2, or P3 (see figure 4). The audio for channels 5 through 8 is also connected from a PA1xx connector on the CIA backplane to J11 using cable 19B802568P1, P2, or P3.

If E&M signalling is used, additional signals must be taken from the JPxxx connector on the CIA backplane to J10 and J12 using cable 19B802555P1, P2, or P3. J10 is for the first four channels, and J12 is for the next four. The E&M signals are mapped to 50-pin connector J16 as shown in table 3 below. Like the audio signals, the first

J16 - MAIN/STANDBY			
39	J12-6	Rly B7	
40	J11-4	Opt in A8	
41	J12-9	Rly B8	
42	J7-16	Opt in A1 stdbu	Connections made through relays.
43	J8-2	Rly B1 stdby	
44	J7-12	Opt in A2 stdby	
45	J8-4	Rly B2 stdby	
46	J7-8	Opt in A3 stdby	
47	J8-6	Rly B3 stdby	
48	J7-4	Opt in A4 stdby	
49	J8-9	Rly B4 stdby	
50		Unused	

pair on J16 carries (COR) signals to the CI, and the second pair carries (relay) signals from the CI.

The remotes are connected to the bottom one-third of J15 and J16. These are pairs 17,42 through 24,49. These audio inputs must be jumpered to the poles of the relays by using cables between J13 and J7. If dry-contact keying is used, then J14 and J8 must be connected.

The audio between the CI board and the VMIM audio board must be passed through the concentrator card. The VMIM audio is routed from CEC/IMC backplane connector PA2xx to J1 using cable 19D903628P11, P12, or P13. The audio is routed to the CIA backplane connector PA2xx from J2 with cable 19B802568P1, P2, or P3. This is necessary because the outputs from the CI that control the relays on the concentrator are on the cable that goes to J2. Audio for channels 5 through 8 may be passed through the card as well with J3 and J4. This is not required, but makes the interface to the switch uniform.

Power must be supplied to the relays on the concentrator card. The relays are used to connect or disconnect the remotes from the audio lines. Power is applied to J18 or J19. See "Power Connections" section.

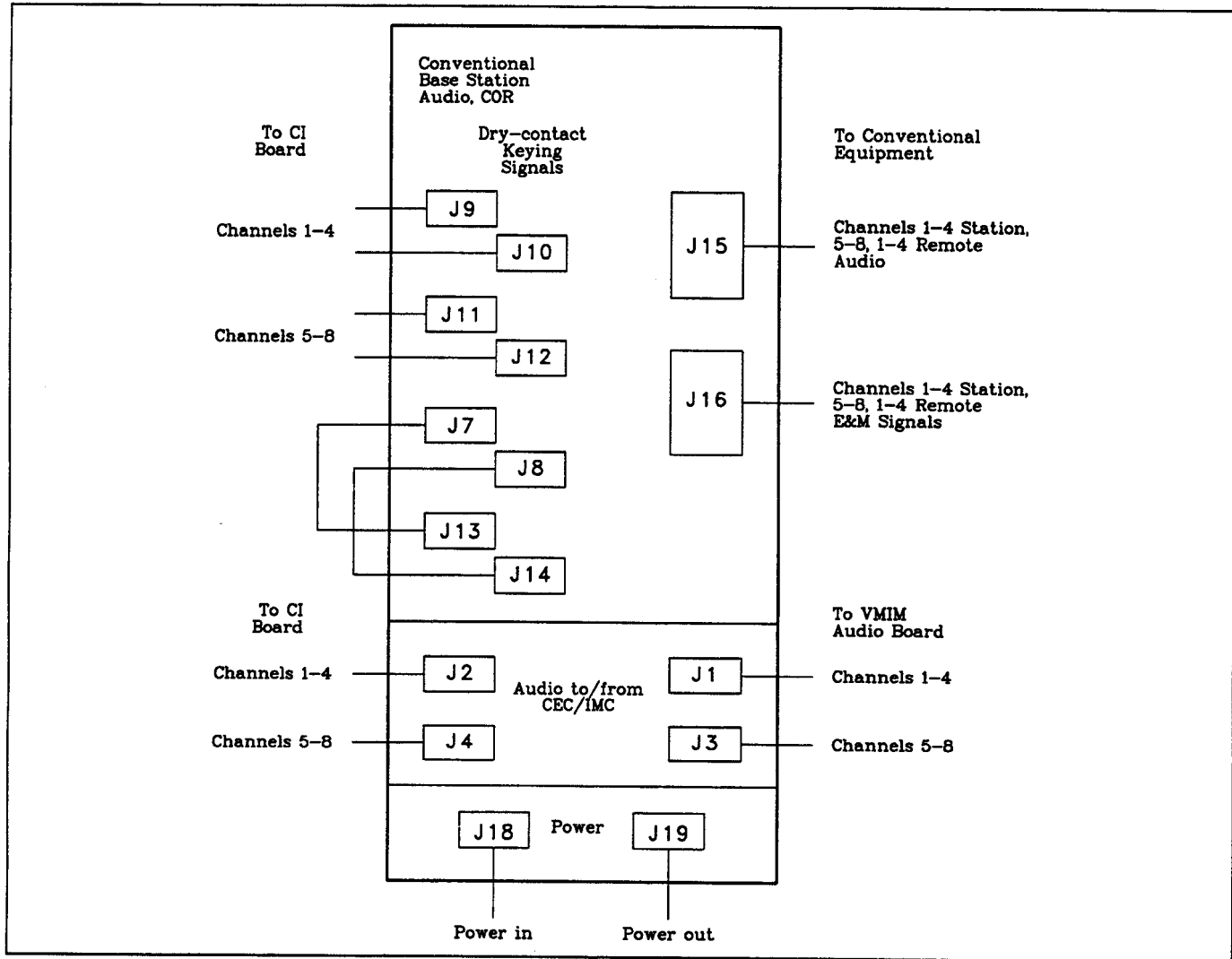


Figure 4 - Remote Enable/Disable Usage

Table 3

J15 - REMOTE ENABLE/DISABLE		
1	J9-18	Chn Duplex H1 station
2	J9-15	Sim Aud IO H1 station
3	J9-17	Chn Duplex H2 station
4	J9-11	Sim Aud IO H2 station
5	J9-21	Chn Duplex H3 station
6	J9-7	Sim Aud IO H3 station
7	J9-24	Chn Duplex H4 station
8	J9-8	Sim Aud IO H4 station

J15 - REMOTE ENABLE/DISABLE		
26	J9-19	Chn Duplex L1 station
27	J9-13	Sim Aud IO L1 station
28	J9-20	Chn Duplex L2 station
29	J9-9	Sim Aud IO L2 station
30	J9-22	Chn Duplex L3 station
31	J9-5	Sim Aud IO L3 station
32	J9-23	Chn Duplex L4 station
33	J9-1	Sim Aud IO L4 station

J15 - REMOTE ENABLE/DISABLE		
9	J11-18	Chn Duplex H5
10	J11-15	Sim Aud IO H5
11	J11-17	Chn Duplex H4 station
12	J11-11	Sim Aud IO H6
13	J11-21	Chn Duplex H7
14	J11-7	Sim Aud IO H7
15	J11-24	Chn Duplex H8
16	J11-3	Sim Aud IO H8
17	J13-18	Chn Duplex H1 remote
18	J13-15	Sim Aud IO H1 remote
19	J13-17	Chn Duplex H2 remote
20	J13-11	Sim Aud IO H2 remote
21	J13-21	Chn Duplex H3 remote
22	J13-7	Sim Aud IO H3 remote
23	J13-24	Chn Duplex H4 remote
24	J13-3	Sim Aud IO H4 remote
25		Unused

J15 - REMOTE ENABLE/DISABLE		
34	J11-19	Chn Duplex L5
35	J11-13	Sim Aud IO L5
36	J11-20	Chn Duplex L6
37	J11-9	Sim Aud IO L6
38	J11-22	Chn Duplex L7
39	J11-5	Sim Aud IO L7
40	J11-23	Chn Duplex L8
41	J11-1	Sim Aud IO L8
42	J13-19	Chn Duplex L1 remote
43	J13-13	Sim Aud IO L1 remote
44	J13-20	Chn Duplex L2 remote
45	J13-9	Sim Aud IO L2 remote
46	J13-22	Chn Duplex L3 remote
47	J13-5	Sim Aud IO L3 remote
48	J13-23	Chn Duplex L4 remote
49	J13-1	Sim Aud IO L4 remote
50		Unused

J16 - REMOTE ENABLE/DISABLE		
1	J9-14	Opt in B1 station
2	J10-1	Rly A1 station
3	J9-10	Opt in B2 station
4	J10-3	Rly A2 station
5	J9-6	Opt in B3 station
6	J10-5	Rly A3 station
7	J9-2	Opt in B4 station
8	J10-7	Rly A4 station
9	J11-14	Opt in B5
10	J12-1	Rly A5
11	J11-10	Opt in B5
12	J12-3	Rly A6

J16 - REMOTE ENABLE/DISABLE		
26	J9-16	Opt in A1 station
27	J10-2	Rly B1 station
28	J9-12	Opt in A2 station
29	J10-4	Rly B2 station
30	J9-8	Opt in A3 station
31	J10-6	Rly B3 station
32	J9-4	Opt in A4 station
33	J10-9	Rly B4 station
34	J11-16	Opt in A5
35	J12-2	Rly B5
36	J11-12	Opt in A6
37	J12-4	Rly B6

J16 - REMOTE ENABLE/DISABLE		
	J11-6	Opt in B7
14	J12-5	Rly A7
15	J11-2	Opt in B8
16	J12-7	Rly A8
17	J13-14	Opt in B1 remote
18	J14-1	Rly A1 remote
19	J13-10	Opt in B2 remote
20	J14-3	Rly A2 remote
21	J13-6	Opt in B3 remote
22	J14-5	Rly A3 remote
23	J13-2	Opt in B4 remote
24	J14-7	Rly A4 remote
25		Unused

J16 - REMOTE ENABLE/DISABLE		
38	J11-8	Opt in A7
39	J12-6	Rly B7
40	J11-4	opt in A8
41	J12-9	Rly B8
42	J13-16	Opt in A1 remote
43	J14-2	Rly B1 remote
44	J13-12	Opt in A2 remote
45	J14-4	Rly B2 remote
46	J13-8	Opt in A3 remote
47	J14-6	Rly B3 remote
48	J13-4	Opt in A4 remote
49	J14-9	Rly B4 remote
50		Unused

Power Connections

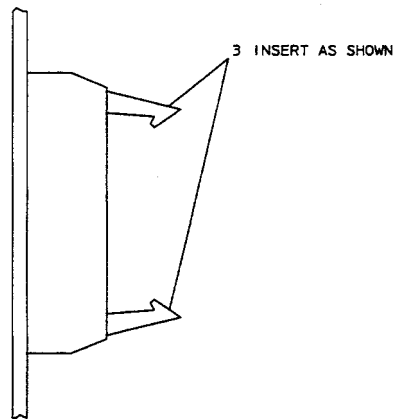
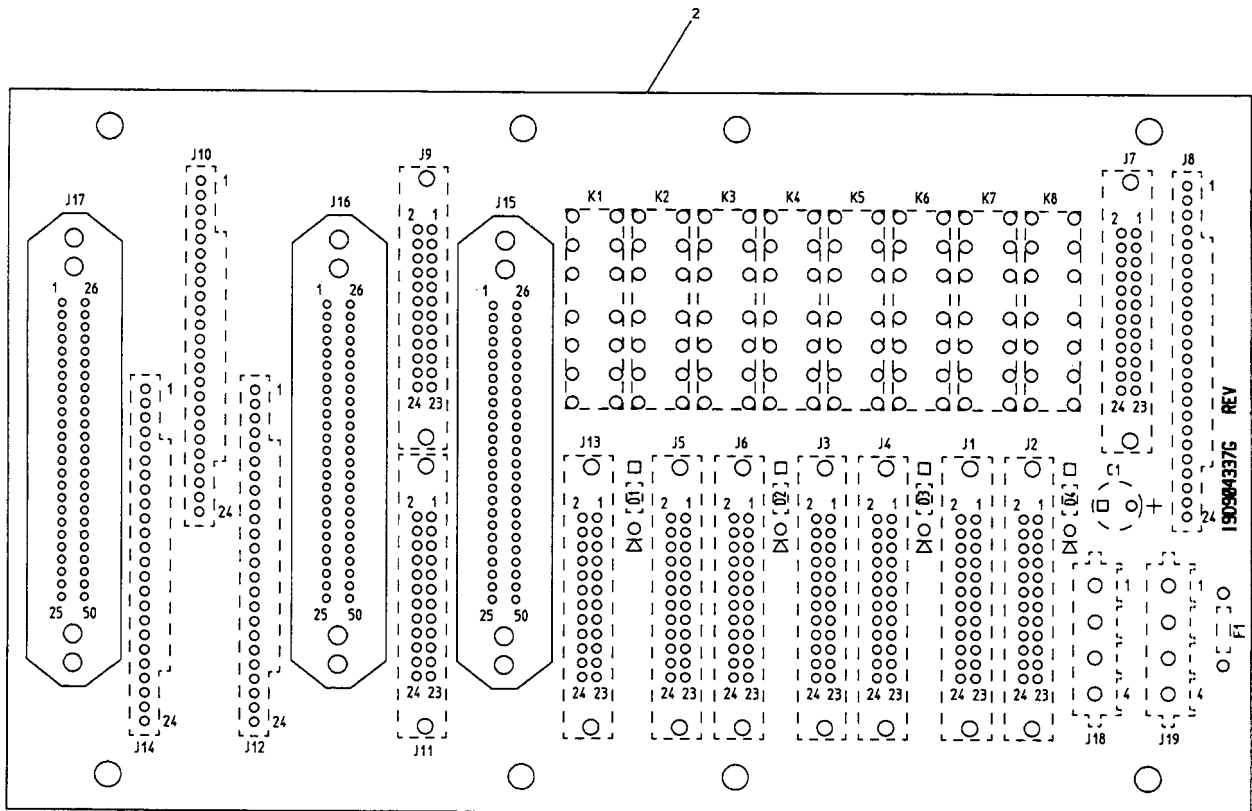
J18 and J19 are used to provide power to the relays. Power is only required if standby or remote functionality is used. Two connectors are provided so that up to eight concentrator cards can be "daisy-chained" together.

Power is provided by the harness supplying power to the card cage; remove one of the two-wire connections from the rack and plug it into J18 or J19. Up to seven additional cards may be powered by using cable 19B801358P19 or P20 between the power connector of one card and a power connector of the next card.



Ericsson GE Mobile Communications Inc.
Mountain View Road • Lynchburg, Virginia 24502

Printed in U.S.A.



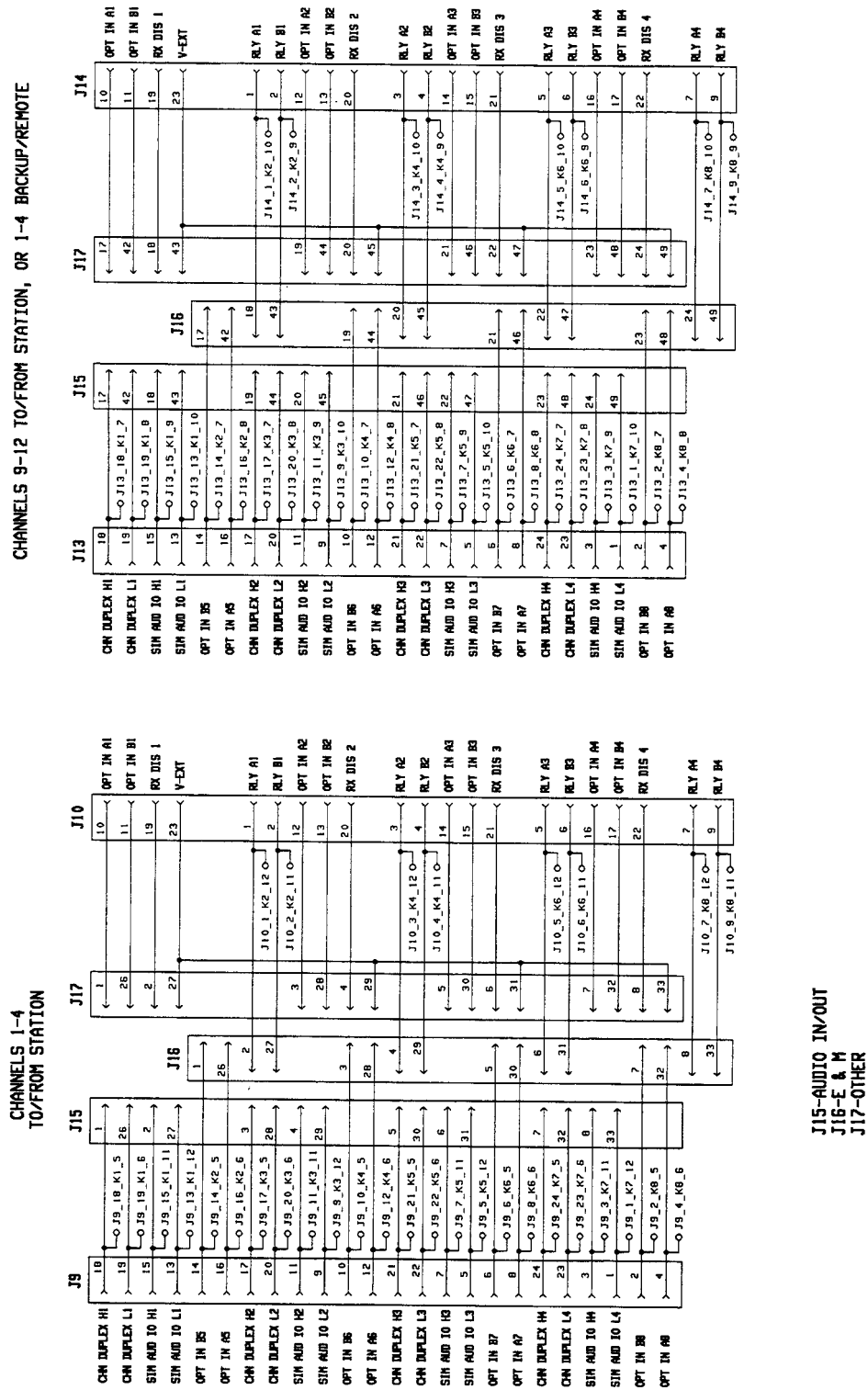
DETAIL A

TYPICAL FOR J1-J7, J9, J11 & J13

(19D904337, Rev. 0)

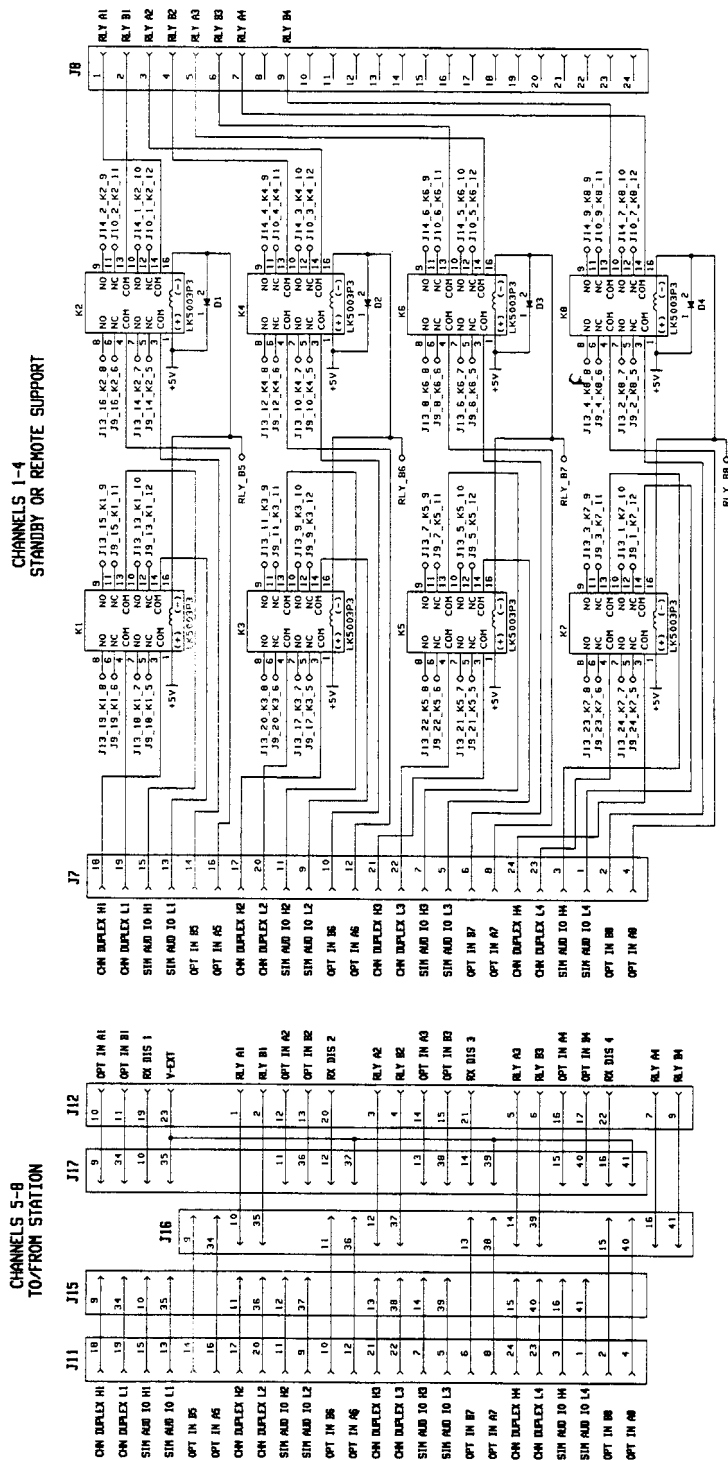
CONVENTIONAL CONCENTRATOR CARD
19D904337P1

SCHEMATIC DIAGRAM



CONVENTIONAL CONCENTRATOR CARD
19D904337P1

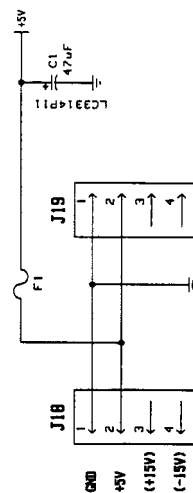
(19D904335, Sh.1, Rev. 0)



CONVENTIONAL CONCENTRATOR CARD

19D904337P1

(19D904335, Sh.2, Rev. 0)



(19D904335, Sh.3, Rev. 0)