



MAINTENANCE MANUAL
SIMULCAST CROSS CONNECTS

TABLE OF CONTENTS	
	<u>Page</u>
INTRODUCTION	front cover
MODULE IDENTIFICATION	1
PUNCH BLOCK CONNECTIONS TO SIMULCAST SYSTEM	1
Control Point Connections	3
Transmit Site Connections	4
MODULE LOCATION IN SHELF	4
SIMULCAST CABLE REQUIREMENT	5
Connection To Digital Cross Connect	5
Connection To Analog Cross Connect	6
Connection To Control Panel Cross Connect	7
Connection To Transmit Site Cross Connect	8
CONNECTOR FUNCTIONS	9
Universal Sync. Shelf	9
Analog Processing Shelf	9
Modem Shelf	9
Delay Shelf #1	9
Delay Shelf #2	10

INTRODUCTION

This manual presents an overview of **CROSS CONNECT PANELS** and how these panels are employed in the Ericsson GE Simulcast System. Each panel is identified with an explanation of its function and how it connects in the system. There are four (4) **CROSS CONNECT PANELS** used in the Simulcast System. These panels are identified as follows:

- © Digital Cross Connect panel (**B400**) located at the control point
- © Analog Cross Connect panel (**B401**) located at the control point
- © Control Cross Connect panel (**B402**) located at the control point
- © Transmit Cross Connect panel (**B404**) located at the transmit site

These **CROSS CONNECT PANELS** interconnect the modules located in the shelves used in the system (see Figures 1 & 2). These shelves and associated modules are as follows:

- © **Universal Sync Shelf**
 - Sub-Alarm Module
 - Digital Selector Module
 - Tone Interface Module
 - FSK Modem Module
 - Universal Sync Module
- © **Modem Shelf**
 - Modem Interface Module
 - Modem Module
- © **Analog Processing Shelf #1 (Equalizer)**
 - Compressor Module
 - Audio Bridge Module
 - Equalizer Module
- © **Analog Processing Shelf #2**
 - Multi-Tone Interface Module
 - Audio Bridge Module
- © **Delay Shelf**
 - Digital Delay Module
 - Analog Delay Module



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MODULE IDENTIFICATION

Each module in the Simulcast has an identifying four digit number, like **T509** in the example below. Each digit in the four digit number defines the module as follows:

- First Digit = Defines Cross Connect Panel.
 - Second Digit = Defines Module Type.
 - Third /Fourth Digit = Defines Channel Number or Site Number.
- A** = Connects to Analog Cross Connect Panel
C = Connects to Control Cross Connect Panel
D = Connects to Digital Cross Con nect Panel
T = Connects to Transmit Site Cross Connect Panel

- 100** Modem Shelf
- 200** Analog Delay Shelf
- 300** Digital Delay Shelf
- 400** Audio Processing Shelf #1 (Equalizer)
- 500** GETC I/F
- 600** Jackfield
- 700** Audio Processing Shel f #2
- 800** Universal Sync Shelf
- 900** Control Panel

for example, **T509** - connects to the Transmit site Cross Connect, is a **GETC I/F**, and is channel number **09**.

- B400** Digital Cross Connect - D
- B401** Analog Cross Connect - A
- B402** Control Panel Cross Connect -C
- B404** Transmit Site Cross Conne ct -T

PUNCH BLOCK CONNECTIONS TO SIMULCAST SYSTEM

All **Punch Block (PB)** numbers ending with an "**A**" connect to the analog cross connect panel.

All PB numbers ending with a "**C**" connect to the control cross connect panel.

All PB numbers ending with a "**D**" connect to the digital cross connect panel.

All PB numbers ending with a "**T**" connect to the transmit site cross connect.

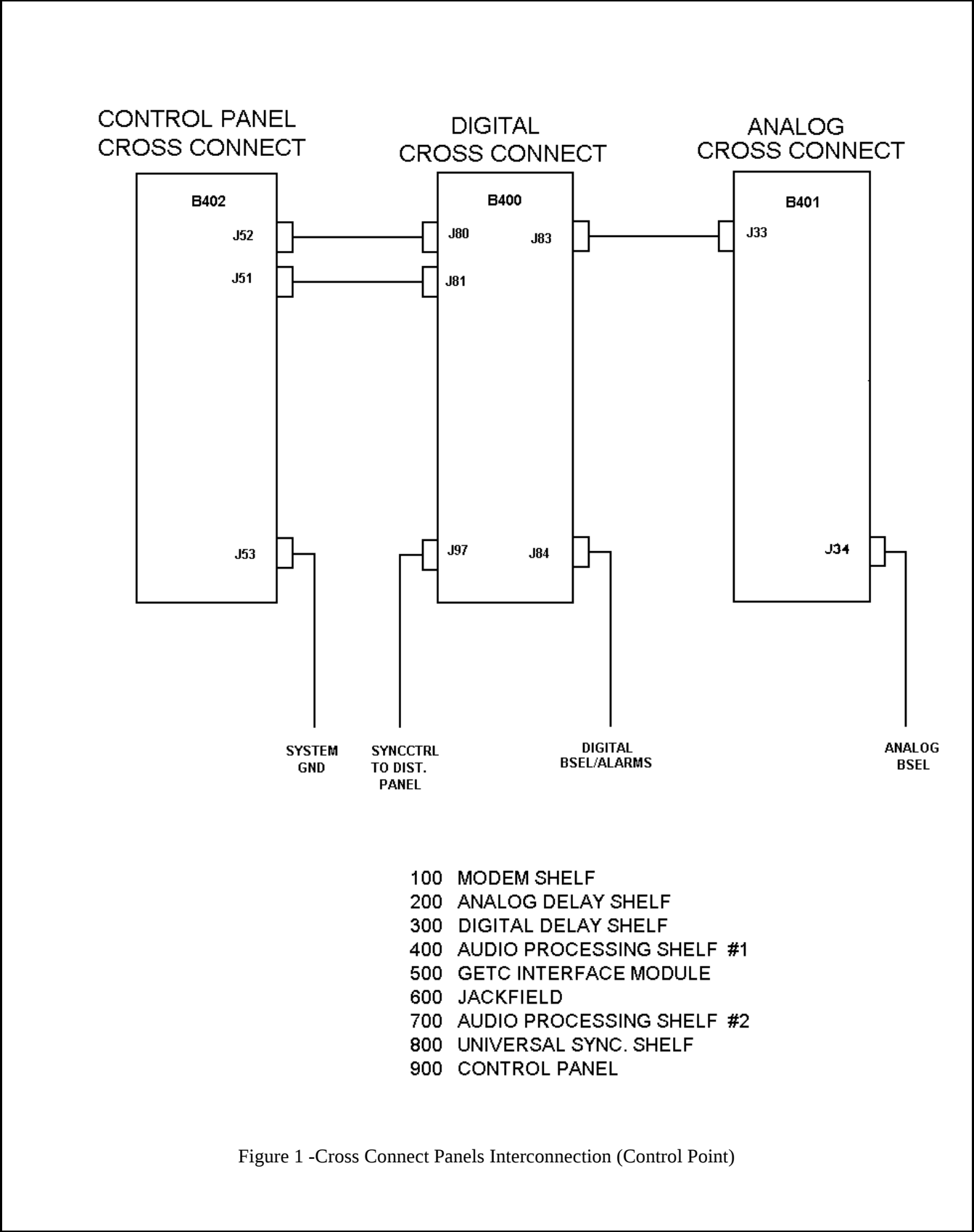
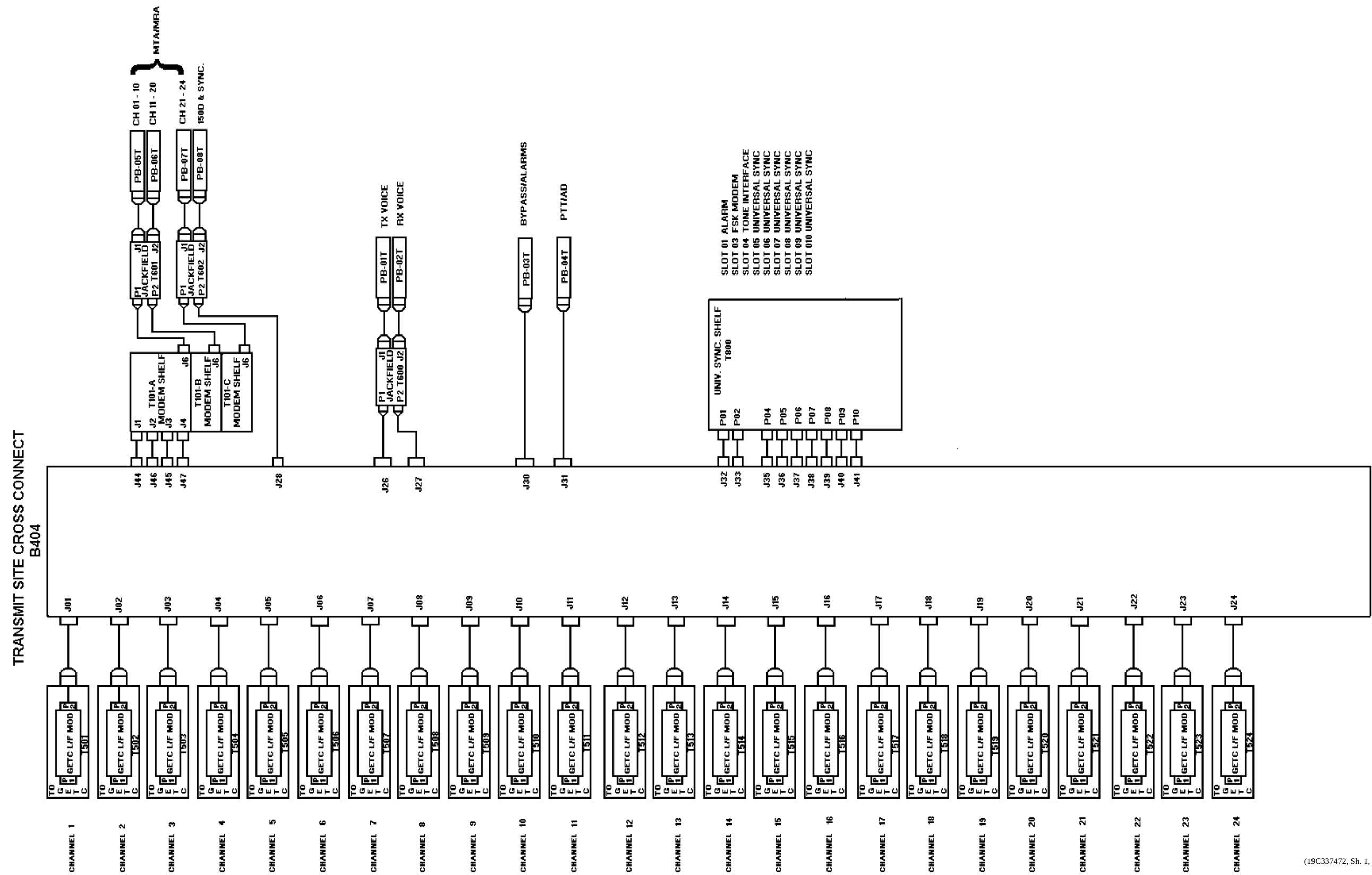


Figure 1 -Cross Connect Panels Interconnection (Control Point)



(19C337472, Sh. 1, Rev. 2)

CONTROL POINT CONNECTIONS

PUNCH BLOCKS -DIGITAL CROSS CONNECT		
PB01D	VRXD -VOTED RECEIVED DATA from voter	
PB02D	150 BAUD DATA -300HZ SYNC TONE -2400HZ FREQ REF TONE to MUX	
PB03D	RXMD -DATA OUTPUT FROM MODEM TO VOTER	SITE #1
PB04D	MTA & MRA -MODEM TRANSMIT / RECEIVE DATA - CH 1-10	SITE #1
PB05D	MTA & MRA -MODEM TRANSMIT / RECEIVE DATA - CH 11-20	SITE #1
PB06D	MTA & MRA - MODE M TRANSMIT / RECEIVE DATA -CH 21-24	SITE #1
PB07D	RXMD - DATA OUTPUT FROM MODEM TO VOTER	SITE #2
PB08D	MTA & MRA -MODEM TRANSMIT / RECEIVE DATA -CH 1-10	SITE #2
PB09D	MTA & MRA -MOD EM TRANSMIT / RECEIVE DATA -CH 11-20	SITE #2
PB10D	MTA & MRA - MODEM TRANSMIT / RECEIVE DATA -CH 21-24	SITE #2
PB11D	RXMD - DATA OUTPUT FROM MODEM TO VOTER	SITE #3
PB12D	MTA & MRA -M ODEM TRANSMIT / RECEIVE DATA -CH 1-10	SITE #3
PB13D	MTA & MRA -MODEM TRANSMIT / RECEIVE DATA - CH 11-20	SITE #3
PB14D	MTA & MRA - MODEM TRANSMIT / RECEIVE DATA -CH 21-24	SITE #3
PB15 D	RXMD - DATA OUTPUT FROM MODEM TO VOTER	SITE #4
PB16D	MTA & MRA -MODEM TRANSMIT / RECEIVE DATA -CH 1-10	SITE #4
PB17D	MTA & MRA -MODEM TRANSMIT / RECEIVE DATA - CH 11-20	SITE #4
PB18D	MTA & MRA - MO DEM TRANSMIT / RECEIVE DATA -CH 21-24	SITE #4
PB19D	RXMD - DATA OUTPUT FROM MODEM TO VOTER	SITE #5
PB20D	MTA & MRA -MODEM TRANSMIT / RECEIVE DATA - CH 1-10	SITE #5
PB21D	MTA & MRA -M ODEM TRANSMIT / RECEIVE DATA -CH 11-20	SITE #5
PB22D	MTA & MRA - MODEM TRANSMIT / RECEIVE DATA -CH 21-24	SITE #5
PB23D	RXMD - DATA OUTPUT FROM MODEM TO VOTER	SITE #6
PB24D	MTA & MRA -MODEM TRANSMIT / RECEIVE DATA - CH 1-10	SITE #6
PB25D	MTA & MRA -MODEM TRANSMIT / RECEIVE DATA - CH 11-20	SITE #6
PB26D	MTA & MRA - MODEM TRANSMIT / RECEIVE DATA -CH 21-24	SITE #6
PB27D	RXMD - DATA OUTPUT FROM MODEM TO VOTER	SITE #7
PB28D	MTA & MRA - MODEM TRANSMIT / RECEIVE DATA -CH 1-10	SITE #7
PB29D	MTA & MRA -MODEM TRANSMIT / RECEIVE DATA - CH 11-20	SITE #7
PB30D	MTA & MRA -MODEM TRANSMIT / RECEIVE DATA -CH 21-24	SITE #7
PB31D	RXMD - DATA OUTPUT FROM MODEM TO VOTER	SITE #8
PB32D	MTA & MRA -MODEM TRANSMIT / RECEIVE DATA -CH 1-10	SITE #8
PB33D	MTA & MRA -MODEM TRANSMIT / RECEIVE DATA - CH 11-20	SITE #8
PB34D	MTA & MRA - MODEM TRANSMIT / RECEIVE DATA -CH 21-24	SITE #8
PB35D	RXMD - DATA OUTPUT FROM MODEM TO VOTER	SITE #9
PB36D	MTA & MRA -MODEM TRANSMIT / RECEIVE DATA - CH 1-10	SITE #9
PB37D	MTA & MRA -MODEM TRANSMIT / RECEIVE DATA - CH 11-20	SITE #9

PB38D	MTA & MRA - MODEM TRANSMIT / RECEIVE DATA -CH 21-24	SITE #9
PB39D	RXMD - DATA OUTPUT FROM MODEM TO VOTER	SITE #10
PB40D	MTA & MRA - MODEM TRANSMIT / RECEIVE DATA - CH 1-10	SITE #10
PB41D	MTA & MRA - MODEM TRANSMIT / RECEIVE DATA -CH 11-20	SITE #10
PB42D	MTA & MRA - MODEM TRANSMIT / RECEIVE DATA -CH 21-24	SITE #10
PUNCH BLOCK -ANALOG CROSS CONNECT		
PB01A	VVRX -VOTED VOICE -CHANNEL 1 - 24	
PB02A	TXV - TRANSMIT VOICE TO MUX CH 1 - 20	SITE #1
PB03A	TXV -TRANSMIT VOICE TO MUX CH 1 -20	SITE #2
PB04A	TXV -TRANSMIT VOICE TO MUX CH 1 - 20	SITE #3
PB05A	TXV -TRANSMIT VOICE TO MUX CH 1 - 20	SIT E #4
PB06A	TXV -TRANSMIT VOICE TO MUX CH 1 - 20	SITE #5
PB07A	TXV -TRANSMIT VOICE TO MUX CH 21 - 24	SITE #1
	TXV -TRANSMIT VOICE TO MUX CH 21 - 24	SITE #2
	TXV -TRANSMIT VOICE TO MUX CH 21 - 24	SITE #3
	150 BAUD DATA TO SITE #1, #2, #3	
PB08A	TXV -TRANSMIT VOICE TO MUX CH 23 -24	SITE #3
	TXV -TRANSMIT VOICE TO MUX CH 21 -24	SITE #4
	TXV - TRANSMIT VOICE TO MUX CH 21 -24	SITE #5
	150 BAUD DATA TO SITE #4, #5	
PB09A	TXV -TRANSMIT VOICE TO MUX CH 1 -20	SITE #6
PB10A	TXV -TRANSMIT VOICE TO MUX CH 1 -20	SITE #7
PB11A	TXV -TRANSMIT VOICE TO MUX CH 1 -20	SITE #8
PB12A	TXV -TRANSMIT VOICE TO MUX CH 1 -20	SITE #9
PB13A	TXV -TRANSMIT VOICE TO MUX CH 1 - 20	SITE #10
PB14A	TXV -TRANSMIT VOICE TO MUX CH 21 - 24	SITE #6
	TXV -TRAN SMIT VOICE TO MUX CH 21- 24	SITE #7
	TXV -TRANSMIT VOICE TO MUX CH 21 - 24	SITE #8
	150 BAUD DATA TO SITE #6, #7, #8	
PB15A	TXV - TRANSMIT VOICE TO MUX CH 23 -24	SITE #8
	TXV - TRANSMIT VOICE TO MUX CH 21 -24	SITE #9
	TXV - TRANSMIT VOICE TO MUX CH 21- 24	SITE #10
	150 BAUD DATA TO SITE #9, #10	
PUNCH BLOCK -CONTROL PANEL		
PB01C	PTT & A/D TO MUX -CH 1 -24	SITE #1
PB02C	PTT & A/D TO MUX -CH 1 -24	SITE #2
PB03C	PTT & A/D TO MUX -CH 1 -24	SITE #3
PB04C	PTT & A/D TO MUX -CH 1- 24	SITE #4
PB05C	PTT & A/D TO MUX -CH 1 -24	SITE #5
PB06C	PTT & A/D TO MUX -CH 1- 24	SITE #6
PB07C	PTT & A/D TO MUX -CH 1- 24	SITE #7
PB08C	PTT & A/D TO MUX -CH 1- 24	SITE #8
PB09C	PTT & A/D TO MUX -CH 1- 24	SITE #9
PB10C	PTT & A/D TO MUX -CH 1- 24	SITE #10
PB11C	PTT & A/D SYSTEM GROUND	

Continued

TRANSMIT SITE CONNECTIONS

PUNCH BLOCK -TRANSMIT SITE	
PB01T	TXV -TRANSMIT VOICE FROM MUX CH 1 -24
PB02T	RXV -RECEIVE VOICE MUX CH 1 -24
PB03T	CHANNEL BYPASS - ALARM INPUT - ALARM OUTPUT
PB04T	PTT & A/D FROM MUX CH 1 - 24
PB05T	MTA & MRA -MODEM TRANSMIT / RECEIVE DATA - CH 1 - 10
PB06T	MTA & MRA -MODEM TRANSMIT / RECEIVE DATA - CH 11 - 20
PB07T	MTA & MRA -MODEM TRANSMIT / RECEIVE DATA - CH 21 -24
PB08T	150 BAUD DATA -300HZ SYNC TONE -2400 HZ REF TONE FROM MUX

MODULE LOCATION IN SHELF

AUDIO PROCESSING SHELF #1 (EQUALIZER) (Jumpers on the audio shelf determine configuration)	
SITE = 1 - 10	
	SLOT #1 COMPRESSOR SLOT #2-AUDIO BRIDGE SLOT #3-EQUALIZER SITE 1 SLOT #4-EQUALIZER SITE 2 SLOT #5-EQUALIZER SITE 3 SLOT #6-EQUALIZER SITE 4 SLOT #7-EQUALIZER SITE 5 SLOT #8-EQUALIZER SITE 6 SLOT #9-EQUALIZER SITE 7 SLOT #10-EQUALIZER SITE 8 SLOT #11-EQUALIZER SITE 9 SLOT #12-EQUALIZER SITE 10
SITE = 1 - 4	
	SLOT #1 COMPRESSOR SLOT #2-AUDIO BRIDGE SLOT #3-EQUALIZER SITE 1 SLOT #4-EQUALIZER SITE 2 SLOT #5-EQUALIZER SITE 3 SLOT #6-EQUALIZER SITE 4 SLOT #7 COMPRESSOR SLOT #8-AUDIO BRIDGE SLOT #9-EQUALIZER SITE 1 SLOT #10-EQUALIZER SITE 2 SLOT #11-EQUALIZER SITE 3 SLOT #12-EQUALIZER SITE 4

AUDIO PROCESSING SHELF #2

SLOT #1-AUDIO BRIDGE - 150 BAUD DATA FROM FSK MODEM TO 10 SITE SLOT #2-MULTI-TONE-INTERFACE -SITE 1-4 SLOT #3-MULTI-TONE-INTERFACE -SITE 5-8 SLOT #4-MULTI-TONE-INTERFACE -SITE 9-10 SLOT #5-not used SLOT #6-not used SLOT #7-not used SLOT #8-not used SLOT #9-not used SLOT #10-not used SLOT #11-not used SLOT #12-not used SLOT #13-not used
DELAY SHELF #1
DIGITAL DELAY - 1ST.HALF
SLOT #1 DATA DELAY SITE 1 & 2 CH 1-10 + 300HZ REF TONE + CLK SLOT #2 DATA DELAY SITE 3 & 4 CH 1-10 + 300HZ REF TONE + CLK SLOT #3 DATA DELAY SIT E 5 & 6 CH 1-10 + 300HZ REF TONE + CLK SLOT #4 DATA DELAY SITE 7 & 8 CH 1-10 + 300HZ REF TONE + CLK SLOT #5 DATA DELAY SITE 9 & 10 CH 1-10 + 300HZ REF TONE +CLK SLOT #6 DATA DELAY SITE 1 & 2 CH 11 -20 + CLK SLOT #7 DATA DELAY SITE 3 & 4 CH 11-20 + CLK SLOT #8 DATA DELAY SITE 5 & 6 CH 11-20 + CLK SLOT #9 DATA DELAY SITE 7 & 8 CH 11-20 + CLK SLOT #10 DATA DELAY SITE 9 & 10 CH 11-20 + CLK
AUDIO DELAY -2 ND.HALF
SLOT #1 AUDIO DELAY SITE 1 CH 1-10 +150 BAUD DATA +CH21/22 SLOT #2 AUDIO DELAY SITE 1 CH 11-20 +CH23/24 SLOT #3 AUDIO DELAY SITE 2 CH 1-10 +150 BAUD DATA +CH21/22 SLOT #4 AUDIO DELAY SITE 2 CH 11-20 +CH23/24 SLOT #5 AUDIO DELAY SITE 3 CH 1-10 +150 BAUD DATA +CH21/22 SLOT #6 AUDIO DELAY SITE 3 CH 11-20 +CH23/24 SLOT #7 AUDIO DELAY SITE 4 CH 1-10 +150 BAUD DATA +CH21/22 SLOT #8 AUDIO DELAY SITE 4 CH 11-20 +CH23/24 SLOT #9 AUDIO DELAY SITE 5 CH 1-10 +150 BAUD DATA +CH21/22 SLOT #10 AUDIO DELAY SITE 5 CH 11-20 +CH23/24
DELAY SHELF #2
DIGITAL DELAY - 1ST HALF
SLOT #1 DATA DELAY SITE 1 CH 21-24 +CLK SLOT #2 DATA DELAY SITE 2 CH 21-24 +CLK

Continued

SLOT #3 DATA DELAY SITE 3 CH 21-24 +CLK SLOT #4 DATA DELAY SITE 4 CH 21-24 +CLK SLOT #5 DATA DELAY SITE 5 CH 21-24 +CLK SLOT #6 DATA DELAY SITE 6 CH 21-24 +CLK SLOT #7 DATA DELAY SITE 7 CH 21-24 +CLK SLOT #8 DATA DELAY SITE 8 CH 21-24 +CLK SLOT #9 DATA DELAY SITE 9 CH 21-24 +CLK SLOT #10 DATA DELAY SITE 10 CH 21-24 +CLK
AUDIO DELAY - 2ND.HALF
SLOT #1 AUDIO DELAY SITE 6 CH 1-10 +150 BAUD DATA +CH21/22 SLOT #2 AUDIO DELAY SITE 6 CH 11-20 +CH23/24 SLOT #3 AUDIO DELAY SITE 7 CH 1-10 +150 BAUD DATA +CH21/22 SLOT #4 AUDIO DELAY SITE 7 CH 11-20 +CH23/24 SLOT #5 AUDIO DELAY SITE 8 CH 1-10 +150 BAUD DATA +CH21/22 SLOT #6 AUDIO DELAY SITE 8 CH 11-20 +CH 23/24 SLOT #7 AUDIO DELAY SITE 9 CH 1-10 +150 BAUD DATA +CH21/22 SLOT #8 AUDIO DELAY SITE 9 CH 11-20 +CH23/24 SLOT #9 AUDIO DELAY SITE 10 CH 1-10 +150 BAUD DATA +CH21/22 SLOT #10 AUDIO DELAY SITE 10 CH 11-20 +CH23/24
UNIVERSAL SYNC SHELF
SLOT #1 SUB-SYSTEM ALARM SLOT #2 DATA SELECTOR-150 BAUD SLOT #3 FSK MODEM-150 BAUD DATA SLOT #4 TO NE INTERFACE (TX-SITE) SLOT #5 UNIVERSAL SYNC CH 1-4 SLOT #6 UNIVERSAL SYNC CH 5-8 SLOT #7 UNIVERSAL SYNC CH 9-12 SLOT #8 UNIVERSAL SYNC CH 13-16 SLOT #9 UNIVERSAL SYNC CH 17-20 SLOT #10 UNIVERSAL SYNC CH 21-24 SLOT #12 DATA SELECTOR - master 9.6 clock reference SLOT #13 not used
MODEM SHELF
SLOT #1 MODEM INTERFACE SLOT #2 MODEM SLOT #3 MODEM INTERFACE SLOT #4 MODEM SLOT #5 MODEM INTERFACE SLOT #6 MODEM SLOT #7 MODEM INTERFACE SLOT #8 MODEM SLOT #9 MODEM INTERFACE SLOT #10 MODEM

SLOT #11 MODEM INTERFACE
SLOT #12 MODEM
SLOT #13 MODEM INTERFACE
SLOT #14 MODEM
SLOT #15 MODEM INTERFACE
SLOT #16 MODEM
SLOT #17 MODEM INTERFACE
SLOT #18 MODEM
SLOT #19 MODEM INTERFACE
SLOT #20 MODEM

SIMULCAST CABLE REQUIREMENT

CONNECTION TO DIGITAL CROSS CONNECT PANELS

GETC	J1 - 25	QTY = number of channels
VRXD INPUT	J26	(voted received data -connects to JF D600 & PB01D) always required
DIGITAL DELAY	J27	Site 1 channels 1-10
	J28	Site 2 channels 1-10
	J29	Site 3 channels 1-10
	J30	Site 4 channels 1-10
	J31	Site 5 channels 1-10
	J32	Site 6 channels 1-10
	J33	Site 7 channels 1-10
	J34	Site 8 channels 1-10
	J35	Site 9 channels 1-10
	J36	Site 10 channels 1-10
	J37	Site 1 channels 11-20
	J38	Site 2 channels 11-20
	J39	Site 3 channels 11-20
	J40	Site 4 channels 11-20
	J41	Site 5 channels 11-20
	J42	Site 6 channels 11-20
	J43	Site 7 channels 11-20
	J44	Site 8 channels 11-20
	J45	Site 9 channels 11-20
	J46	Site 10 channels 11-20
	J47	Site 1 channels 21-24
	J48	Site 2 channels 21-24
	J49	Site 3 channels 21-24
	J50	Site 4 channels 21-24
	J51	Site 5 channels 21-24
	J52	Site 6 channels 21-24
	J53	Site 7 channels 21-24

Continued

J54 Site 8 channels 21-24
J55 Site 9 channels 21-24
J56 Site 10 channels 21-24

TO JACKFIELD

J85 9.6 DATA OUT OF GETC - always required
J86 9.6 DATA OUT OF GETC AFTER JACKFIELD - always required
J98 9.6 DATA OUT OF GETC -always required
J99 9.6 DATA OUT OF GETC AFTER JACKFIELD -always required

TO DISTRIBUTION PANEL

J97 SYNCTRL - always required to distribution panel

MODEM SHELF

(J57-J66 DATA INPUT)
J57 Site 1 channels 1-24
J58 Site 2 channels 1-24
J59 Site 3 channels 1-24
J60 Site 4 channels 1-24
J61 Site 5 channels 1-24
J62 Site 6 channels 1-24
J63 Site 7 channels 1-24
J64 Site 8 channels 1-24
J65 Site 9 channels 1-24
J66 Site 10 channels 1-24

(J87-J96 CLOCK INPUT)
J87 Site 1 channels 1-24
J88 Site 2 channels 1-24
J89 Site 3 channels 1-24
J90 Site 4 channels 1-24
J91 Site 5 channels 1-24
J92 Site 6 channels 1-24
J93 Site 7 channels 1-24
J94 Site 8 channels 1-24
J95 Site 9 channels 1-24
J96 Site 10 channels 1-24

UNIVERSAL SYNC SHELF

J67 alarms -always required
J68 alarms -always required
J69 150 baud data -always required
J70 FSK modem - always required
J71 UNIVERSAL SYNC -channels 1-4
J72 UNIVERSAL SYNC -channels 5-8
J73 UNIVERSAL SYNC -channels 9-12
J74 UNIVERSAL SYNC -chann els 13-16
J75 UNIVERSAL SYNC -channels 17-20
J76 UNIVERSAL SYNC -channels 21-24
J78 9.6 clock out - always required

AUDIO SHELF = 2

J79 150 baud/300HZ -always required
J82 9.6 delayed clock/150 baud - always required

TO CONTROL PANEL CROSS CONNECT

J 80 PTT - A/D - always required to J52 control panel
J81 PTT - A/D GND -always required to J51 control panel

TO AUDIO CROSS CONNECT

J83 150 BAUD DATA (FSK) -always required to J33 analog cross connect

TO PUNCHBLOCK

J84 DATA BSEL / ALARMS -specified by system design

CONNECTION TO ANALOG CROSS CONNECT

FROM AUDIO PROCESSING SHELF #1 (EQUALIZER)
(jumper on shelf determines configuration)

SITE 1-4

J1	SITE 1 - 4	CHANNEL 1 & 2
J2	SITE 1 - 4	CHANNEL 3 & 4
J3	SITE 1 - 4	CHANNEL 5 & 6
J4	SITE 1 - 4	CHANNEL 7 & 8
J5	SITE 1 - 4	CHANNEL 9 & 10
J6	SITE 1 - 4	CHANNEL 11 & 12
J7	SITE 1 - 4	CHANNEL 13 & 14
J8	SITE 1 - 4	CHANNEL 15 & 16
J9	SITE 1 - 4	CHANNEL 1 7 & 18
J10	SITE 1 - 4	CHANNEL 19 & 20
J11	SITE 1 - 4	CHANNEL 21 & 22
J12	SITE 1 - 4	CHANNEL 23 & 24

TO AUDIO DELAY

J26	SITE 1	CHANNEL 1-20
J27	SITE 2	CHANNEL 1-20
J28	SITE 3	CHANNEL 1-20
J29	SITE 4	CHANNEL 1-20
J30	not used	
J31	SITE 1 - 4 150 BAUD DATA	CHANNEL 21-24
J32	SITE 1 - 4 150 BAUD DATA	CHANNEL 21-24
J33	150 BAUD DATA -always required -to data connect J83	
J34	audio BSEL -system design specification	

Continued

FROM AUDIO PROCESSING SHELF #1 (EQUALIZER)

SITE 1-10

J1	SITE 1 - 10	CHANNEL 1
J2	SITE 1 - 10	CHANNEL 2
J3	SITE 1 - 10	CHANNEL 3
J4	SITE 1 - 10	CHANNEL 4
J5	SITE 1 - 10	CHANNEL 5
J6	SITE 1 - 10	CHANNEL 6
J7	SITE 1 - 10	CHANNEL 7
J8	SITE 1 - 10	CHANNEL 8
J9	SITE 1 - 10	CHANNEL 9
J10	SITE 1 - 10	CHANNEL 10
J11	SITE 1 - 10	CHANNEL 11
J12	SITE 1 - 10	CHANNEL 12
J13	SITE 1 - 10	CHANNEL 13
J14	SITE 1 - 10	CHANNEL 14
J15	SITE 1 - 10	CHANNEL 15
J16	SITE 1 - 10	CHANNEL 16
J17	SITE 1 - 10	CHANNEL 17
J18	SITE 1 - 10	CHANNEL 18
J19	SITE 1 - 10	CHANNEL 19
J20	SITE 1 - 10	CHANNEL 20
J21	SITE 1 - 10	CHANNEL 21
J22	SITE 1 - 10	CHANNEL 22
J23	SITE 1 - 10	CHANNEL 23
J24	SITE 1 - 10	CHANNEL 24
J26 - J32	not used in SITE 1 - 10	
J33	150 BAUD DATA -always required	
J34	audio BSEL -system design specification	
J35	not used	

TO AUDIO DELAY

J36	SITE 1	CHANNEL 1-20
J37	SITE 2	CHANNEL 1-20
J38	SITE 3	CHANNEL 1-20
J39	SITE 4	CHANNEL 1-20
J40	SITE 5	CHANNEL 1-20
J41 - J42	SITE 1 - 5 150 BAUD DATA	CHANNEL 21-24
J43	SITE 6	CHANNEL 1-20
J44	SITE 7	CHANNEL 1-20
J45	SITE 8	CHANNEL 1-20
J46	SITE 9	CHANNEL 1-20
J47	SITE 10	CHANNEL 1-20
J48 - J49	SITE 5 -10 150 BAUD DATA	CHANNEL 21-24
J50	not used	

CONNECTION TO CONTROL PANEL CROSS CONNECT PANEL

TO MUX PUNCHBLOCK

J1	SITE 1 - PTT & A/D OUTPUT	CHANNEL 1-24
J2	SITE 2 - PTT & A/D OUTPUT	CHANNEL 1-24
J3	SITE 3 - PTT & A/D OUTPUT	CHANNEL 1-24
J4	SITE 4 - PTT & A/D OUTPUT	CHANNEL 1-24
J5	SITE 5 - PTT & A/D OUTPUT	CHANNEL 1-24
J6	SITE 6 - PTT & A/D OUTPUT	CHANNEL 1-24
J7	SITE 7 - PTT & A/D OUTPUT	CHANNEL 1-24
J8	SITE 8 - PTT & A/D OUTPUT	CHANNEL 1-24
J9	SITE 9 - PTT & A/D OUTPUT	CHANNEL 1-24
J10	SITE 10 - PTT & A/D OUTPUT	CHANNEL 1-24
J53	SITE 1-10 PTT & A/D GROUND (This is the only place that the common is tied to ground)	

TO PTT CONTROL PANELS

J11	PTT	SITE 1	CHANNEL 1-5
	PTT	SITE 2	CHANNEL 1-5
	PTT	SIT E 3	CHANNEL 1-5
J12	PTT	SITE 1	CHANNEL 6-10
	PTT	SITE 2	CHANNEL 6-10
	PTT	SITE 3	CHANNEL 6-10
J13	PTT	SITE 1	CHANNEL 11-15
	PTT	SITE 2	CHANNEL 11-15
	PTT	SITE 3	CHANNEL 11-15
J14	PTT	SITE 1	CHANNEL 16-20
	PTT	SITE 2	CHANNEL 16-20
	PTT	SITE 3	CHANNEL 16-20
J15	PTT	SITE 1	CHANNEL 21-24
	PTT	SITE 2	CHANNEL 21-24
	PTT	SITE 3	CHANNEL 21-24
J21	PTT	SITE 4	CHANNEL 1-5
	PTT	SITE 5	CHANNEL 1-5
	PTT	SITE 6	CHANNEL 1-5
J22	PTT	SITE 4	CHANNEL 6-10
	PTT	SITE 5	CHANNEL 6-10
	PTT	SITE 6	CHANNEL 6-10
J23	PTT	SITE 4	CHANNEL 11-15
	PTT	SITE 5	CHANNEL 11-15
	PTT	SITE 5	CHANNEL 11-15
J24	PTT	SITE 4	CHANNEL 16-20
	PTT	SITE 4	CHANNEL 16-20
	PTT	SITE 5	CHANNEL 16-20
J25	PTT	SITE 4	CHANNEL 21-24
	PTT	SITE 5	CHANNEL 21-24
	PTT	SITE 6	CHANNEL 21-24

Continued

J31	PTT	SITE 7	CHANNEL 1-5
	PTT	SITE 8	CHANNEL 1-5
	PTT	SITE 9	CHANNEL 1-5
J32	PTT	SITE 7	CHANNEL 6-10
	PTT	SITE 8	CHANNEL 6-10
	PTT	SITE 8	CHANNEL 6-10
J33	PTT	SITE 7	CHANN EL 11-15
	PTT	SITE 8	CHANNEL 11-15
	PTT	SITE 9	CHANNEL 11-15
J34	PTT	SITE 7	CHANNEL 16-20
	PTT	SITE 8	CHANNEL 16-20
	PTT	SITE 9	CHANNEL 16-20
J35	PTT	SITE 7	CHANNEL 21-24
	PTT	SITE 8	CHANNEL 21-24
	PTT	SITE 9	CHANNEL 21-24
J41	PTT	SITE 10	CHANNEL 1-5
J42	PTT	SITE 10	CHANNEL 6-10
J43	PTT	SITE 10	CHANNEL 11-15
J44	PTT	SITE 10	CHANNEL 16-20
J45	PTT	SITE 10	CHANNEL 21-24
TO A/D CONTROL PANELS			
J16	A/D	SITE 1	CHANNEL 1-5
	A/D	SITE 2	CHANNEL 1-5
	A/D	SITE 3	CHAN NEL 1-5
J17	A/D	SITE 1	CHANNEL 6-10
	A/D	SITE 2	CHANNEL 6-10
	A/D	SITE 3	CHANNEL 6-10
J18	A/D	SITE 1	CHANNEL 11-15
	A/D	SITE 2	CHANNEL 11-15
	A/D	SITE 3	C HANNEL 11-15
J19	A/D	SITE 1	CHANNEL 16-20
	A/D	SITE 2	CHANNEL 16-20
	A/D	SITE 3	CHANNEL 16-20
J20	A/D	SITE 1	CHANNEL 21-24
	A/D	SITE 2	CHANNEL 21-24
	A/D	SITE 3	CHANNEL 21-24
J26	A/D	SITE 4	CHANNEL 1-5
	A/D	SITE 5	CHANNEL 1-5
	A/D	SITE 6	CHANNEL 1-5
J27	A/D	SITE 4	CHANNEL 6-10
	A/D	SITE 5	CHANNEL 6-10
	A/D	SITE 6	CHANNEL 6-10
J28	A/D	SITE 4	CHANNEL 11-15
	A/D	SITE 5	CHANNEL 11-15
	A/D	SITE 6	CHANNEL 11-15
J29	A/D	SITE 4	CHANNEL 16-20
	A/D	SITE 5	CHANNEL 16-20
	A/D	SITE 6	CHANNEL 16-20

J30	A/D	SITE 4	CHANNEL 21-24
	A/D	SITE 5	CHANNEL 21-24
	A/D	SITE 6	CHANNEL 21-24
J36	A/D	SITE 7	CHANNEL 1-5
	A/D	SITE 8	CHANNEL 1-5
	A/D	SITE 9	CHANNEL 1-5
J37	A/D	SITE 7	CHANNEL 6-10
	A/D	SITE 8	CHANNEL 6-10
	A/D	SITE 9	CHANNEL 6-10
J38	A/D	SITE 7	CHANNEL 11-15
	A/D	SITE 8	CHANNEL 11-15
	A/D	SITE 9	CHANNEL 11-15
J39	A/D	SITE 7	CHANNEL 16-20
	A/D	SITE 8	CHANNEL 16-20
	A/D	SITE 9	CHANNEL 16-20
J40	A/D	SITE 7	CHANNEL 21-24
	A/D	SITE 8	CHANNEL 21-24
	A/D	SITE 9	CHANNEL 21-24
J46	A/D	SITE 10	CHANNEL 1-5
J47	A/D	SITE 10	CHANNEL 6-10
J48	A/D	SITE 10	CHANNEL 11-15
J49	A/ D	SITE 10	CHANNEL 16-20
J50	A/D	SITE 10	CHANNEL 21-24
TO DATA CROSS CONNECT PANEL			
J51	GROUND CONNECTION FROM DATA CROSS CONNECT J81		
J52	PTT & A/D CONNECTION FROM DATA CROSS CONNECT J80		

CONNECTION TO TX SITE CROSS CONNECT PANEL

GETC			
J1-J25	QTY = number of channels		
TO MUX			
J26	always required from MUX	-tx audio	
J27	always required to MUX	-rx audio	
J28	always required from MUX	-150/300/2400	
J30	always required to PB	-bypass/alarms	
J31	always required from MUX	-ptt a/d input	
TO UNIVERSAL SYNC SHELF			
J32	always required	-alarms	
J33	always required	-alarms	
J34	not used		
J35	always required	-FSK modem	
J36	universal sync	-channel 1 - 4	
J37	universal sync	-channel 5 - 8	
J38	universal sync	channel 9 - 12	

Continued

J39	universal sync	-channel 13 - 16
J40	universal sync	-channel 17 - 20
J42	universal sync	-channel 21 - 24
MODEM		
J44	always required	-tx data to modem
J45	always required	-9.6 clock from modem
J46	always required	-clock to modem
J47	always required	-9.6 data from modem

SHELF CONNECTOR FUNCTION

UNIVERSAL SYNC SHELF

CONNECTOR	FUNCTION
P1	ALARM INPUTS
P2	ALARM OUTPUT FOR SUB-ALARM MODULE
P3	150 BAUD DATA IN FROM GETC’S
P4	150 BAUD DATA TO GETC’S 300/2400/SYNCTRL
P5	UNIVERSAL SYNC CHANNEL 1-4
P6	UNIVERSAL SYNC CHANNEL 5-8
P7	UNIVERSAL SYNC CHANNEL 9-12
P8	UNIVERSAL SYNC CHANNEL 13-16
P9	UNIVERSAL SYNC CHANNEL 17-20
P10	UNIVERSAL SYNC CHANNEL 21-24
P12	DATA SELECTOR #2 (9.6K CLOCK CONTROL POINT ONLY)
P13	NOT USED

ANALOG PROCESSING SHELF

ANALOG PROCESSOR SHELF #1 (AUDIO EQUALIZER)		
J1	VOTED RECEIVED VOICE (VVRX CH-) (input)	
J2	same as J1 for connection to other audio shelves (input)	
J3	EQUALIZERED AUDIO OUTPUT TO ANALOG CROSS CONNECT	
J4	TWO JUMPERS MUST BE PLACED ON J4 TO SELECT THE AUDIO TIP AND RING IN SYSTEMS WITH SITE GREATER THAN 4 (one audio processor per shelf). FOUR JUMPERS MUST BE PLACED ON J4 TO SELECT THE AUDIO TIP AND RING IN SYSTEM WITH EQUAL OR LESS THAN 4 (two audio processor per shelf).	
ANALOG PROCESSOR SHELF #2		
MODULE LOCATION		
SLOT 1	AUDIO BRIDGE (150 DATA)	
SLOT 2	MULTI-TONE INTERFACE MODULE SITE 1-4	
SLOT 3	MULTI-TONE INTERFACE MODUL E SITE 5-8	
SLOT 4	MULTI-TONE INTERFACE MODULE SITE 9-10	

J1	CONNECTION TO DATA CROSS CONNECT (J79)
J2	CONNECTION TO JACKFIELD/PUNCHBLOCK 300HZ/2400HZ SYNC/REF SIGNALS (external connection to MUX)
J3	CONNECTION TO DATA CROSS CONNECT (J82)

MODEM SHELF

J1	DATA INPUT FROM DELAY SHELF (DATA S- CH-) (DATA CROSSCONNECT)
J2	CLOCK INPUT FROM DELAY SHELF (OCLKA-) (DATA CROSS CONNECT
J3	CLOCK OUTPUT FROM RECEIVED DATA (RXMC) (TO PUNCH BLOCK)
J4	DATA OUTPUT FROM RECEIVED DATA (RXMD) (TO PUNCH BLOC K)
J5	CTS & RTS 232 CONTROL LINES
J6	MTA & MRA (MODEM SIGNAL FROM MUX AND TO MUX) (TO PUNCH BLOCK)

A single shelf will house 10 modems and 10 modem interface modules (10 channels). To expand for channels 11-20 add a second Shelf and to expand for channel 21-24 add the third shelf. Connections to these shelves are as follows:

CHANNEL 1-10 SHELF		CHANNEL 11-20 SHELF	
J1A	J1		
J2A	J2		
J3A	J3		
J4A	J4		
CHANNEL 11-20 SHELF		CHANNEL 21-24 SHELF	
J1A	J1		
J2A	J2		
J3A	J3		
J4A	J4		

Connect J6 of each shelf to the proper jackfield/punch block. Only J4 of the first shelf is connected to a jackfield/punch block.

DELAY SHELF #1

DIGITAL DELAY SHELF - 1ST.HALF-		
P1	P2	P3
P4	P5	P6
P7	P8	P9
P10	P11	P12
P13	SITE 7 CH 1-10 + 300HZ REF TONE + CLK	

Continued

P14	DIGITAL DELAY	SITE 7 CH 11-20 + CLK
P15	DIGITAL DELAY	SITE 8 CH 1-10 + 300HZ REF TONE + CLK
P16	DIGITAL DELAY	SITE 8 CH 11-20 + CLK
P17	DIGITAL DELAY	SITE 9 CH 1-10 + 300HZ REF TONE + CLK
P18	DIGITAL DEL AY	SITE 9 CH 11-20 + CLK
P19	DIGITAL DELAY	SITE 10 CH 1-10 + 300HZ REF TONE + CLK
P20	DIGITAL DELAY	SITE 10 CH 11-20 + CLK

ANALOG DELAY-2ND.HALF			
P1	INPUT ANALOG DELAY SITE 1	CH 1-20	
P2	INPUT ANALOG DELAY SITE 2	CH 1-20	
P3	INPUT ANALOG DELAY SITE 3	CH 1-20	
P4	INPUT ANALOG DELAY SITE 4	CH 1-20	
P5	INPUT ANALOG DELAY SITE 5	CH 1-20	
P6	OUTPUT DELAY SITE 1	CH 1-20	
P7	OUTPUT DELAY SITE 2	CH 1-20	
P8	OUTPUT DELAY SITE 3	CH 1-20	
P9	OUTPUT DELAY SITE 4	CH 1-20	
P10	OUTPUT DELAY SITE 5	CH 1- 20	
P11	INPUT 150 BAUD DATA - SITE 1-2-3		
	INPUT ANALOG SIGNAL - SITE 1-2	CH 21-24	
	INPUT ANALOG SIGNAL - SITE 3	CH 21-22	
P12	INPUT 150 BAUD DATA - SITE 4-5		
	INPUT ANALOG SIGNAL - SITE 4-5	CH 21-24	
	INPUT ANALOG SIGNAL - SITE 3	CH 23-24	
P13	OUTPUT 150 BAUD DATA - SITE 1-2-3		
	OUTPUT ANALOG SIGNAL -SITE 1-2	CH 21-24	
	OUTPUT ANALOG SIGNAL -SITE 3	CH 21-22	
P14	OUTPUT 150 BAUD DATA - SITE 4-5		
	OUTPUT ANALOG SIGNAL - SITE 4-5	CH 21-24	
	OUTPUT ANALOG SIGNAL - SITE 3	CH 23-24	

DELAY SHELF #2

DIGITAL DELAY-1ST HALF			
P1	DIGITAL DELAY	SITE 1	CH 21-24 +CLK
P2	DIGITAL DELAY	SITE 2	CH 21-24 +CLK
P3	DIGITAL DELAY	SITE 3	CH 21-24 +CLK
P4	DIGITAL DELAY	SITE 4	CH 21-24 +CLK
P5	DIGITAL DELAY	SITE 5	CH 21-24 +CLK
P6	DIGITAL DELAY	SITE 6	CH 21-24 +CLK
P7	DIGITAL DELAY	SITE 7	CH 21-24 +CLK
P8	DIGITAL DELAY	SITE 8	CH 21-24 +CLK
P9	DIGITAL DELAY	SITE 9	CH 21-24 +CLK
P10	DIGITAL DELAY	SITE 10	CH 21-24 +CLK

ANALOG DELAY--ND.HALF		
P1 INPUT ANALOG DELAY	SITE 6	CH 1-20
P2 INPUT ANALOG DELAY	SITE 7	CH 1-20
P3 INPUT ANALOG DELAY	SITE 8	CH 1-20
P4 INPUT ANALOG DELAY	SITE 9	CH 1-20
P5 INPUT ANALOG DELAY	SITE 10	CH 1-20
P6 OUTPUT DELAY	SITE 6	CH 1-20
P7 OUTPUT DELAY	SITE 7	CH 1-20
P8 OUTPUT DELAY	SITE 8	CH 1-20
P9 OUTPUT DELAY	SITE 9	CH 1-20
P10 OUTPUT DELAY	SITE 10	CH 1-20
P11 INPUT 150 BAUD DATA	SITE 6-7-8	
INPUT ANALOG SIGNAL	SITE 6-7	CH 21-24
INPUT ANALOG SIGNAL	SITE 8	CH 21-22
P12 INPUT 150 BAUD DATA	SITE 9-10	
INPUT ANALOG SIGNAL	SITE 9-10	CH 21-24
INPUT ANALOG SIGNAL	SITE 8	
P13 OUTPUT 150 BAUD DATA	SITE 6-7-8	
OUTPUT ANALOG SIGNAL	SITE 6	CH 21-24
OUTPUT ANALOG SIGNAL	SITE 8	CH 21-22
P14 OUTPUT 150 BAUD DATA	SITE 9-10	
OUTPUT ANALOG SIGNAL	SITE 9-10	CH 21-24
OUTPUT ANALOG SIGNAL	SITE 8	CH 23-24

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