Signal Distribution Panels

Models 858X

Technical Manual

May 1986

Publication Order Number: 303-000960-100

GOULD
Electronics

This manual is supplied without representation or warranty of any kind. Gould Inc., Computer Systems Division therefore assumes no responsibility and shall have no liability of any kind arising from the supply or use of this publication or any material contained herein.

HISTORY

The Signal Distribution Panels (Model 858X) Technical Manual, Publication Order Number **303-000960-000,** was printed February, 1983.

The Signal Distribution Panels (Model 858X) Technical Manual, Publication Order Number **303-000960-100** (Revision 1), was printed May, 1986.

This manual contains the following pages:

Title page
Copyright page
iii (iv Blank) through vii (viii Blank)
1-1 through 1-5 (1-6 Blank)
2-1 through 2-6
3-1 through 3-7 (3-8 Blank)
4-1 through 4-6
5-1 through 5-8
6-1 through 6-5 (6-6 Blank)
GL-1 through GL-2

TABLE OF CONTENTS

Chapter Page

List of Illustrations vii
List of Tables vii

1 GENERAL DESCRIPTION

1.1 Introduction 1-1
1.2 General Description 1-1
1.3 Standard Features 1-1
1.3.1 Power Cable Assembly 1-2
1.3.2 RS-449 Loopback Connector Assembly 1-2
1.3.3 RS-449 Cable Assembly 1-4

2 RS-232 DISTRIBUTION PANEL

2.1 Introduction 2-1
2.2 Applicability 2-1
2.3 General Description 2-1
2.3.1 Physical Description 2-1
2.3.1.1 Model 8580 2-1
2.3.1.2 Model 8585 2-1
2.3.1.3 Model 8586 2-2
2.3.2 Power Requirements 2-2
2.4 Functional Description 2-2
2.4.1 Configuration 2-2
2.4.2 Pin Allocation 2-3
2.4.3 Test Equipment 2-3
2.4.4 Panel Interconnects 2-4

3 RS-423 DISTRIBUTION PANEL

3.1 Introduction 3-1
3.2 Applicability 3-1
3.3 General Description 3-1
3.3.1 Physical Description 3-1
3.3.2 Power Requirements 3-2
3.4 Functional Description 3-2
3.4.1 Configuration 3-3
3.4.2 Pin Allocation 3-3
3.4.3 Test Equipment 3-3
3.4.4 Panel Interconnects 3-3

4 20ma CURRENT LOOP PANEL

4.1 Introduction 4-1
4.2 Applicability 4-1
4.3 General Description 4-1
4.3.1 Physical Description 4-1

4.3.2 Power Requirements 4-1
4.4 Functional Description 4-1
4.4.1 Configuration 4-2
4.4.2 Pin Allocation 4-2
4.4.3 Test Equipment 4-2
4.4.4 Panel Interconnects 4-2

5 RS-423/RS-422 CONVERSION PANEL

5.1 Introduction 5-1
5.2 Applicability 5-1
5.3 General Description 5-1
5.3.1 Physical Description 5-1
5.3.2 Power Requirements 5-1
5.4 Functional Description 5-3
5.4.1 Configuration 5-3
5.4.2 Pin Allocation 5-3
5.4.3 Test Equipment 5-3
5.4.4 Panel Interconnects 5-3

6 IEEE-488 DISTRIBUTION PANEL

6.1 Introduction 6-1
6.2 Applicability 6-1
6.3 General Description 6-1
6.3.1 Physical Description 6-1
6.3.2 Power Requirements 6-1
6.4 Functional Description 6-1
6.4.1 Configuration 6-1
6.4.2 Pin Allocation 6-1
6.4.3 Test Equipment 6-5
6.4.4 Panel Interconnects 6-5

GLOSSARY GL-1

LIST OF ILLUSTRATIONS

Figure	Title	Page
1-1	Signal Distribution Panel (Typical)	1-2
1-2	RS-449 Loopback Connector Jumper Configuration	1-4
2-1	RS-232 Distribution Panel Circuit Board (Typical)	2-2
2-2	RS-232 Turnaround Plug Assembly Jumper Configuration	2-6
3-1	RS-423 Distribution Panel Circuit Board	3-2
4-1	20ma Current Loop Panel Circuit Board	4-4
4-2	20ma Turnaround Plug Assembly Jumper Configuration	4-6
5-1	RS-423/RS-422 Conversion Panel Circuit Board	5-2
5-2	RS-423/RS-422 Conversion Panel Configurations	5-4
6-1	IEEE-488 Distribution Panel	6-2
6-2	IEEE-488 Distribution Panel Configurations	6-3

LIST OF TABLES

Table	Title	Page
1-1	Signal Distribution Panel Models	1-1
1-2	Distribution Panel Power Cable Assembly Wire Chart	1-3
1-3	RS-449 Loopback Connector Assembly Jumpers	1-3
1-4	RS-449 Cable Assembly Pin Allocation	1-5
2-1	RS-232 Distribution Panel Specifications	2-3
2-2	Backplane Connectors Cables (J9 and J10) Pin Allocation	2-4
2-3	RS-232 Distribution Panel Pin Assignments	2-5
2-4	RS-232 Turnaround Plug Assembly Jumpers	2-6
3-1	RS-423 Distribution Panel Specifications	3-2
3-2	Backplane Connectors Cables (J9 and J10) Pin Allocaton	3-4
3-3	Distribution Panel Ports (J1-J8) Pin Allocation	3-5
4-1	20ma Current Loop Panel Specifications	4-2
4-2	Backplane Connectors Cables (J9 and J10) Pin Allocation	4-3
4-3	20ma Current Loop Distribution Panel (J1-J8) Pin Assignments	4-5
4-4	20ma Turnaround Plug Assembly Jumpers	4-5
5-1	RS-423/RS-422 Conversion Panel Specification	5-2
5-2	Backplane Connectors Cables (J9 and J10) Pin Allocation	5-5
5-3	Conversion Panel Port (J1-J8) Pin Allocation	5-6
6-1	IEEE-488 Distribution Panel Specifications	6-4
6-2	IEEE-488 Bus Cable Pin Allocation Chart	6-4

CHAPTER 1

GENERAL DESCRIPTION

1.1 Introduction

This manual describes the various signal distribution panels available to interface the Gould computer systems controllers to external devices. The manual is designed to document a single product per chapter. This allows for easy insertion of new information when a new product becomes available.

The primary supporting document for the Signal Distribution Panel Technical Manual is the Signal Distribution Panel Drawings Manual, Publication Order Number, 304-000960-000.

1.2 General Description

Some of the products described in this manual are optional equipment. If the unit is an option, it is so indicated in the beginning of the chapter for that product.

Certain interfaces such as the Synchronous Communications Multiplexer (SCM) require a distribution panel for external connection. However, more than one type of distribution panel will interface with the SCM. This manual will assist the user in determining the appropriate panel for their particular application. Table 1-1 lists the panels described in this manual. A typical signal distribution panel is illustrated in Figure 1-1 (physical dimensions and number of connectors may vary).

1.3 Standard Features

The distribution panels are used to either convert a physical characteristic of a cable, or an electrical characteristic, or both, and/or provide ease of connection for the user.

The following paragraphs describe additional cables and test equipment common to several of the distribution panel models. Appropriate references to the following descriptions is provided in each of the individual chapters. Additional requirements peculiar to individual panels are discussed in the appropriate chapters.

Table 1-1. Signal Distribution Panel Models

Panel Nomenclature	Model Number
RS-232 Distribution Panel	8580, 8585, 8586
RS-423 Distribution Panel	8581, 8587
20ma. Current Loop Panel	8582
RS-423/RS-422 Conversion Panel	8583, 8588
IEEE-488 Distribution Panel	8584

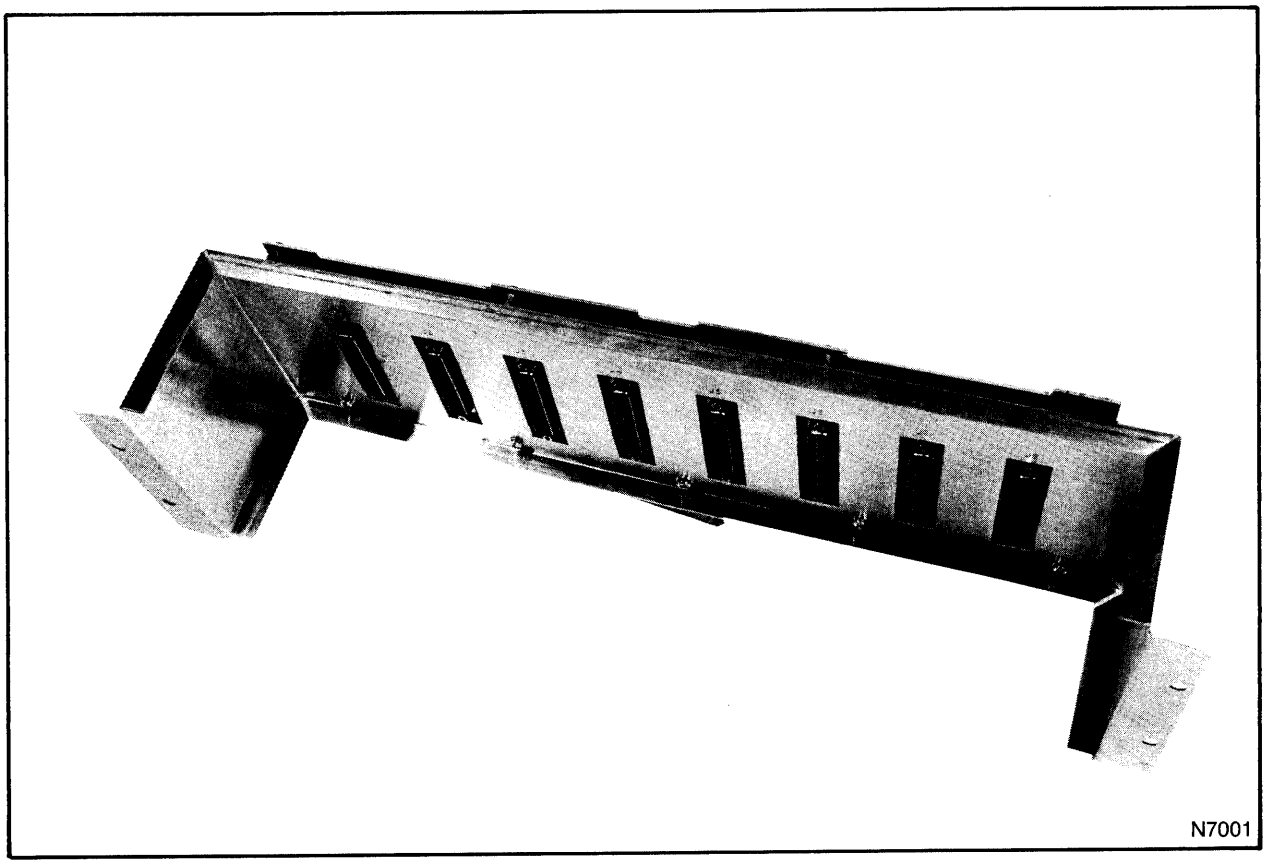


Figure 1-1. Signal Distribution Panel (Typical)

1.3.1 Power Cable Assembly

Power requirements are determined by each panel application. The distribution panels requiring external power utilize the power cable described in Drawing Number 144-103437. Table 1-2 lists the power cable pin allocation, wire color coding, and signal nomenclature.

1.3.2 RS-449 Loopback Connector Assembly

The RS-449 Loopback Connector Assembly is required to perform diagnostic testing of several of the distribution panel models. Individual port to controller testing is accomplished by removing the device cable and attaching the connector assembly to the port and running the appropriate diagnostic test. The connector assembly described in Drawing Number 144-103455, contains the pin assignments listed in Table 1-3. Figure 1-2 illustrates the connector jumper configuration.

Table 1-2. Distribution Panel Power Cable Assembly Wire Chart

From	To	Signal	Color
P1-1	P2-1	Ground	Black
P1-2	P2-2	+5vdc	Red
P1-3	P2-3	No connection	
P1-4	P2-4	No connection	
P1-5	P2-5	-5vdc	Violet
P1-6	P2-6	+15vdc	Yellow
P1-7	P2-7	-5vdc	White
P1-8	P2-8	+15vdc	Green
P1-9	P2-9	No connection	
P1-10	P2-10	No connection	
P1-11	P2-11	Ground	Brown
P1-12	P2-12	+5vdc	Orange
P1-13	P2-13	Ground	Blue
P1-14	P2-14	No connection	

Table 1-3. RS-449 Loopback Connector Assembly Jumpers

From Pin	Mnemonic	To Pin	Mnemonic
4	HSD-Send Data	6	HRD-Receive Data
7	HRS-Request to Send	13	HRR-Receiver Ready
12	HTR-Terminal Ready	9	HCS-Clear to Send
9	HCS-Clear to Send	11	HDM-Data Mode
20	RC-Receive Common	37	SC-Send Common
22	LSD-Send Data Low	24	LRD-Receive Data Low
23	LST-Send Timing Low	26	LRT-Receive Timing Low
26	LRT-Receive Timing Low	35	LTT-Terminal Timing Low
25	LRS-Request to Send Low	31	LRR-Receiver Ready Low
27	LCS-Clear to Send Low	30	LTR-Terminal Ready Low
30	LTR-Terminal Ready Low	29	LDM-Data Mode Low
17	HTT-Terminal Timing	8	HRT-Receive Timing
8	HRT-Receive Timing	5	HST-Send Timing

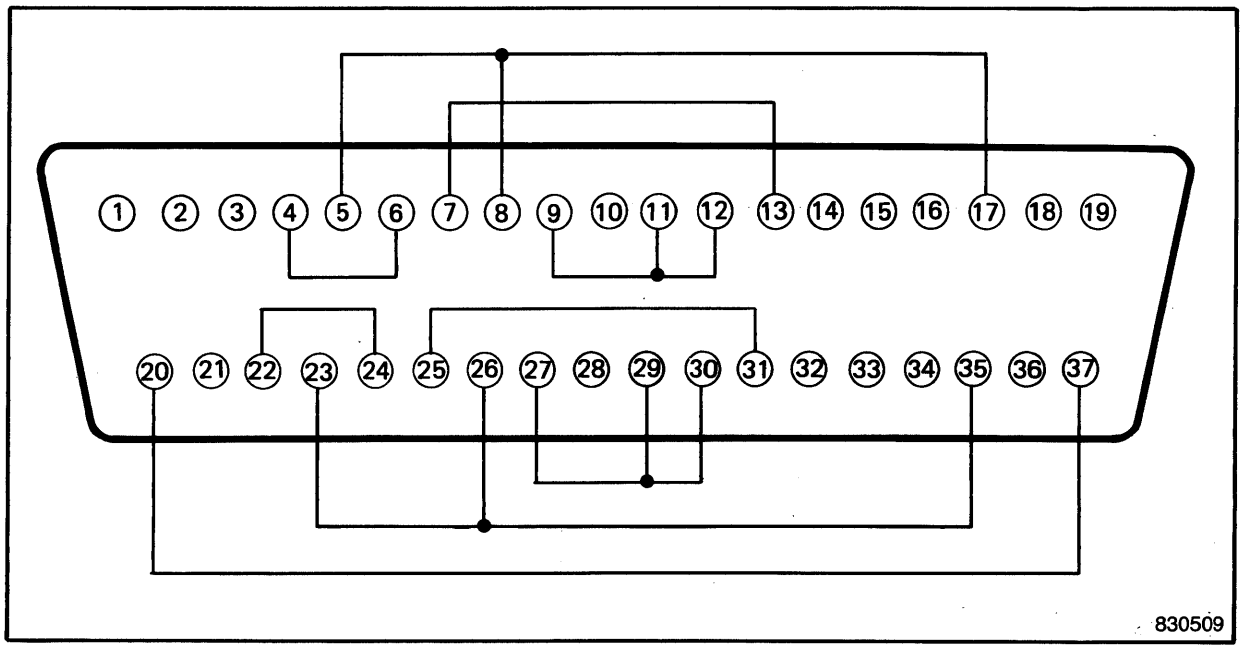


Figure 1-2. RS-449 Loopback Connector Jumper Configuration

1.3.3 RS-449 Cable Assembly

The RS-449 Cable Assembly is used by several of the distribution panel models for port to port testing and when more than one distribution panel is required in the system. The RS-449 Cable Assembly contains 15 twisted pairs of color coded 24-gauge wires. Table 1-4 lists the pin assignments of the cable assembly. Refer to Cable Drawing Number 145-103026 for additional details.

Table 1-4. RS-449 Cable Assembly Pin Allocation

Pair	Color Code	Cable Wire From	To			Jumper Wires From	To	
1	Black	HRC	P1-20	P2-37	HSC			
	Red	HSC	P1-37	P2-20	HRC			
2	Black		NOT USED					
	White	SG	P1-19	P2-19	SG			
3			NOT USED					
4			NOT USED					
5	Black	HRT	P1-8	P2-27	HTT	HTT	P2-17	P2-5HST
	Yellow	LRT	P1-26	P2-35	LTT	LTT	P2-35	P2-23LST
6	Black	HTT	P1-17	P2-8	HRT	HTT	P1-17	P1-5HST
	Brown	LTT	P1-35	P-2-26	LRT	LTT	P1-35	P1-23LST
7	Black	HRS	P1-7	P2-13	HRR			
	Orange	LRS	P1-25	P2-31	LRR			
8	Red	HRR	P1-13	P2-7	HRS			
	White	LRR	P1-31	P2-25	LRS			
9	Red	HTR	P1-12	P2-9	HCS	HCS	P2-9	P2-11HDM
	Green	LTR	P1-30	P2-27	LCS	LCS	P2-27	P2-29LDM
10	Red	HCS	P1-9	P2-12	HTR	HCS	P1-9	P1-11HDM
	Blue	LCS	P1-27	P2-30	LTR	LCS	P1-27	P1-29LDM
11			NOT USED					
12			NOT USED					
13			NOT USED					
14	Green	HSD	P1-4	P2-6	HRD			
	White	LSD	P1-22	P2-24	LRD			
15	Green	HRD	P1-6	P2-4	HSD			
	Blue	LRD	P1-24	P2-22	LSD			

CHAPTER 2

RS-232 DISTRIBUTION PANEL

2.1 Introduction

This chapter describes the RS-232 Distribution Panels as manufactured by Gould Inc., Computer Systems Division, Fort Lauderdale, Florida.

2.2 Applicability

The RS-232 Distribution Panel is designed to be used where the transfer of communication signals requires converting the RS-423 signals to the signal protocol specified by EIA Standard RS-232-C.

NOTE

RS-232 is the nomenclature assigned to identify the distribution panel. However, the signal protocol it supports is the RS-232-C protocol as described in the EIA Standard RS-232-C.

2.3 General Description

The RS-232 Distribution Panel is a multiple port connection link that acts as an interface to external devices. It is a passive device and contains no active components.

2.3.1 Physical Description

The Distribution Panels are functionally identical; however, differences in the construction of the printed circuit boards and the total number of connectors available vary. These differences are detailed in the following paragraphs.

Refer to Table 2-1 for the panel hardware specifications. Figure 2-1 illustrates a typical RS-232 Distribution Panel printed circuit board.

2.3.1.1 Model 8580

The Model 8580 Distribution Panel consists of eight male 25-pin D-subminature connectors mounted on a single printed circuit board and housed in an industry standard 19 inch wide metal rack assembly.

2.3.1.2 Model 8585

The Model 8585 Distribution Panel consists of eight male 25-pin D-subminature connectors mounted on a single printed circuit board that attaches directly to the system chassis.

Table 2-1. RS-232 Distribution Panel Specifications

Characteristic	Specifications
Physical	
Model 8580	
Height	3.50 in. (8.90 cm)
Width	19.0 in. (48.30 cm)
Depth	4.0 in. (10.16 cm)
Mounting	Industry Standard, 19-inch panel width with EIA standard hole spacing.
Model 8585	
Height	3.0 in. (7.60 cm)
Width	9.0 in. (22.90 cm)
Depth	.50 in. (1.30 cm)
Mounting	Direct mounting to system chassis.
Model 8586	
Height	10.0 in. (25.40 cm)
Width	19.0 in. (48.30 cm)
Depth	4.75 in. (12.00 cm)
Mounting	Industry Standard, 19-inch panel width with EIA standard hole spacing.
Environmental	
Operating	
Temperature	0^{o} to 40^{o} C (32^{o} to 104^{o} F)
Humidity	20% to 40%, noncondensing
Heat Dissipation	None
Storage	
Temperature	-25^{o}_{o} to 70^{o} C (-12.8^{o} to 158 F)
Humidity	5% to 95%, noncondensing
Electrical	No Electrical requirements

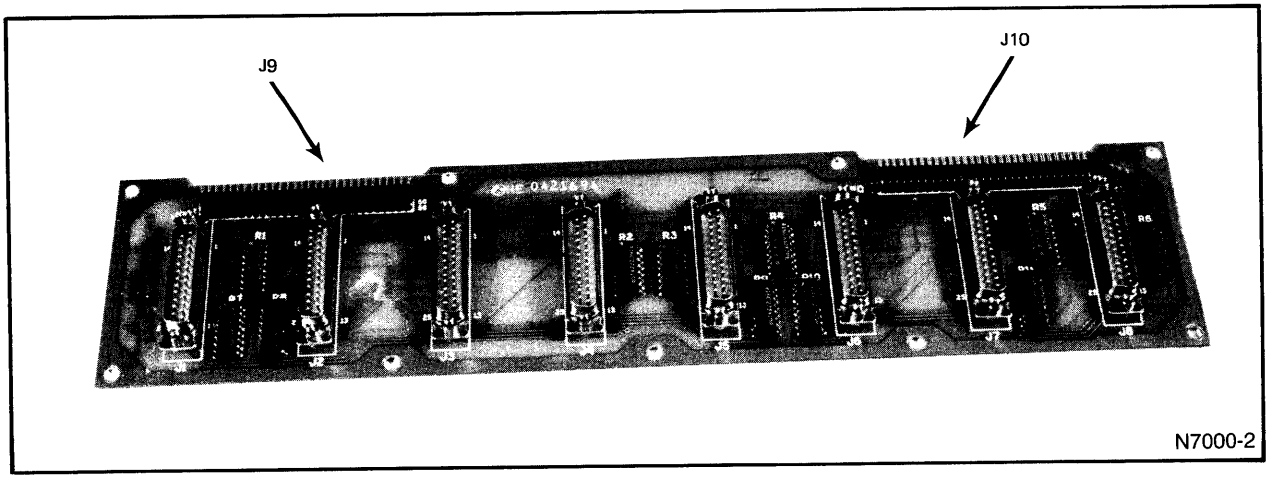


Figure 2-1. RS-232 Distribution Panel Circuit Board (Typical)

2.3.1.3 Model 8586

The Model 8586 Distribution Panel consists of four printed circuit boards housed in an industry standard 19 inch wide metal rack assembly. Each circuit board contains eight male 25-pin D-subminature connectors for a total of thirty-two available connectors.

2.3.2 Power Requirements

The RS-232 Distribution Panel does not contain any active components, therefore, does not require external power.

2.4 Functional Description

The RS-232-C standard requires a 25-pin D-subminature connector. The Models 8580 and 8585 Distribution Panels can each accommodate eight connectors interfaced to communication equipment requiring RS-232-C protocol. The Model 8586 Distribution panel can accommodate a maximum of thirty-two connectors. The standard recommends that the cable length be limited to less than 50 feet (15 meters).

2.4.1 Configuration

The RS-232 Distribution Panel is designed to provide an interface for communication equipment which implements the RS-232-C signal protocol. It supports asynchronous and synchronous serial data transmissions at transfer rates up to 19.2K bits per second (bps) in full or half-duplex modes. Refer to Drawing Number 118-103564 (Model 8580) or Drawing Number 118-103662 (Models 8585 and 8586) for detailed installation requirements and configuration.

2.4.2 Pin Allocation

Table 2-2 lists the circuit pin assignments of the 60-pin flat ribbon cable used to interface the MP Bus I/O backplane to the distribution panel backplane connectors J9 and J10.

Table 2-3 contains the industry standard pin assignments used throughout RS-232-C interfacing. The eight ports (0 through 7) on the Models 8580 and 8585, and thirty-two ports (0 through 31) on the Model 8586 distribute the signal levels to the various types of communication equipment that may be connected to the panel.

2.4.3 Test Equipment

The 20ma/RS232 Turnaround Plug Assembly as described in Drawing Number 144-103420 is used to perform diagnostic testing of the distribution panel ports. Table 2-4 lists the pin assignments of the plug assembly. Figure 2-2 illustrates the jumper configuration.

Table 2-2. Backplane Connectors Cables (J9 and J10) Pin Allocation

Pin	Mnemonic	Pin	Mnemonic
1	HP0TXDAT	31	HP3TXDAT
2	HP0RTS	32	HP3RTS
3	HP0DTR	33	HP3DTR
4	HP0RXDAT	34	HP3RXDAT
5	HP0CTS	35	HP3CTS
6	HP0DSR	36	HP3DSR
7	HP0DCD	37	HP3DCD
8	HP0RING	38	HP3RING
9	HP0RECCOM	39	HP3RECCOM
10	GND	40	GND
11	HP1TXDAT	41	LP3TXDAT
12	HP1RTS	42	LP3TXCLK
13	HP1DTR	43	LP3RXDAT
14	HP1RXDAT	44	LP3RTS
15	HP1CTS	45	LP3RXCLK
16	HP1DSR	46	LP3CTS
17	HP1DCD	47	LP3DSR
18	HP1RING	48	LP3DTR
19	HP1RECCOM	49	LP3DCD
20	GND	50	LP2/3INTCLK
21	HP2TXDAT	51	HP0TXCLK
22	HP2RTS	52	HP0RXCLK
23	HP2DTR	53	HP0/1INTCLK
24	HP2RXDAT	54	HP1TXCLK
25	HP2CTS	55	HP1RXCLK
26	HP2DSR	56	HP2TXCLK
27	HP2DCD	57	HP2RXCLK
28	HP2RING	58	HP2/3INTCLK
29	HP2RECCOM	59	HP3TXCLK
30	GND	60	HP3RXCLK

NOTE

Mnemonics listed above are for cable J9. The numeral identifies the applicable port. J9 provides signals for ports 0 through 3 and J10 provides signals for ports 4 through 7. Therefore, for J10 the numerals in the mnemonic will be 4 through 7.

2.4.4 Panel Interconnects

Panel interconnections from the distribution panel are illustrated on the kit drawings, Drawing Number 118-103564 (Model 8580) and Drawing Number 118-103662 (Models 8585 and 8586). Cable requirements for device connection to the panel are described on Drawing Number 145-103020.

Table 2-3. RS-232 Distribution Panel Pin Assignments

Pin	Circuit	Description
1	AA	Protective Ground
2	BA	Transmit Data
3	BB	Receive Data
4	CA	Request to Send
5	CB	Clear to Send
6	CC	Data Set Ready
7	AB	Signal Ground
8	CF	Received Line Signal Detector
9		Data Set Testing
10		Data Set Testing
11		Unassigned
12	SCF	Secondary Received Line Signal Detector (Not implemented)
13	SCB	Secondary Clear to Send (Not implemented)
14	SBA	Secondary Transmit Data (Not implemented)
15	DB	Transmission Signal Element Timing (from DCE)
16	SBB	Secondary Receive Timing (Not implemented)
17	DD	Receiver Signal Element Timing (from DCE)
18		Unassigned
19	SCA	Secondary Request to Send (Not implemented)
20	CD	Data Terminal Ready
21	CG	Signal Quality Detect (Not implemented)
22	CE	Ring Indicator
23	CH/CI	Data Signal Rate Selector (from DTE/DCE) (Not implemented)
24	DA	Transmit Signal Element Timing (from DTE)
25		Unassigned

Table 2-4. RS-232 Turnaround Plug Assembly Jumpers

From Pin	Mnemonic	To Pin	Mnemonic
2	BA - Transmit Data	3	BB - Receive Data
4	CA - Request to Send	8	CF - Received Line Signal Detector
6	CC - Data Set Ready	5	CB - Clear to Send
5	CB - Clear to Send	20	CD - Data Terminal Ready
15	DB - Transmission Signal Element Timing	17	DD - Receiver Signal Element Timing
17	DD - Receiver Signal Element Timing	24	DA - Transmit Signal Element Timing

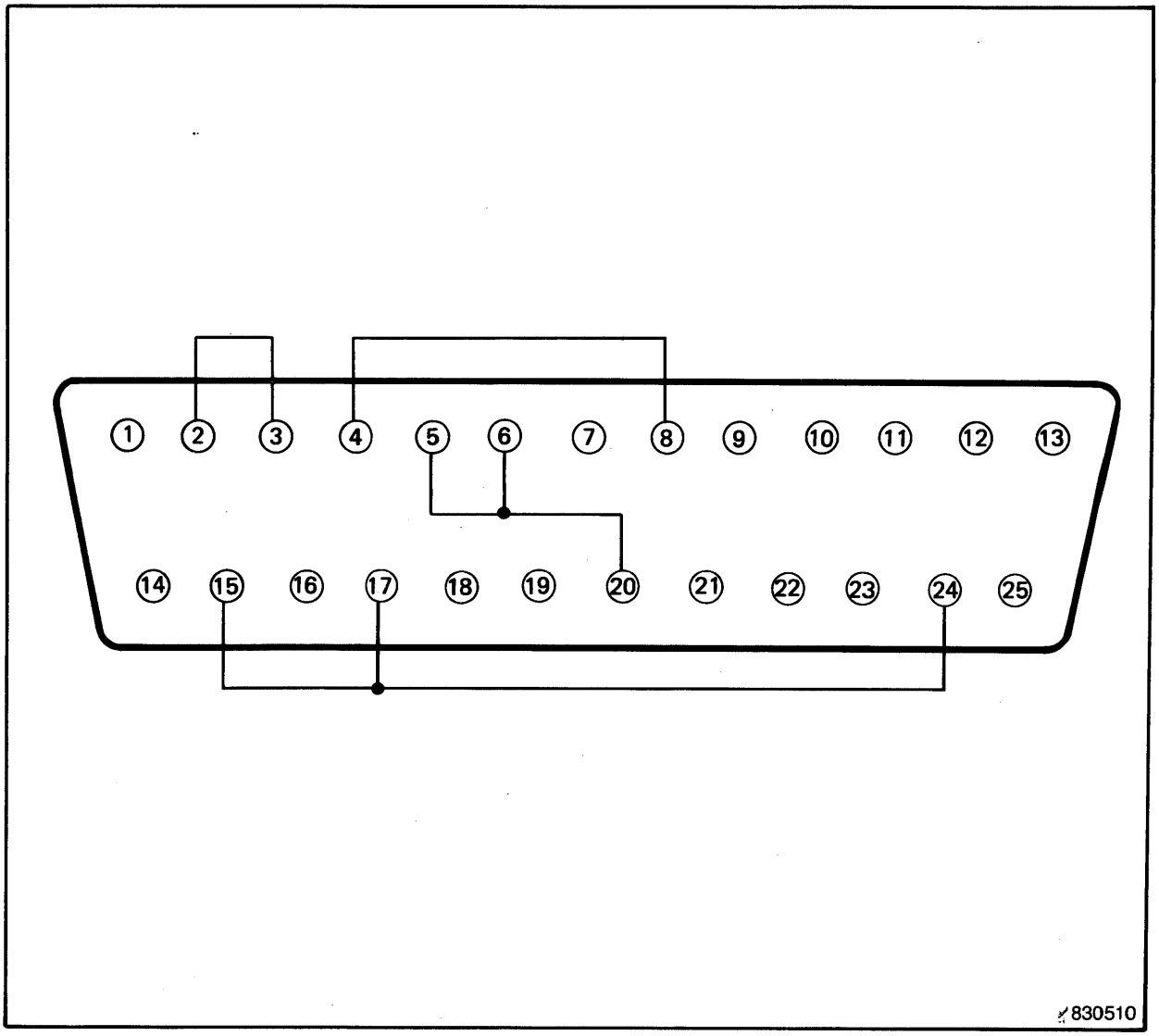


Figure 2-2. RS-232 Turnaround Plug Assembly Jumper Configuration

CHAPTER 3

RS-423 DISTRIBUTION PANEL

3.1 Introduction

This chapter describes the RS-423 Distribution Panel as manufactured by Gould Inc., Computer Systems Division, Fort Lauderdale, Florida.

3.2 Applicability

The RS-423 Distribution Panel is the connection link between Data Terminal Equipment (DTE) and Data Communications Equipment (DCE). This connection link supports both asynchronous and synchronous data transmission at transfer rates up to 19.2K bits per second (bps). It can be used where signal transfers do not require cable protocol conversion.

3.3 General Description

CAUTION

Do not interconnect the RS-423 Distribution Panel to a RS-423/RS-422 Conversion Panel or the RS-423/RS-422 Conversion Panel to the RS-423 Distribution Panel.

The RS-423 Distribution Panel provides an eight port interface for RS-423 type data exchange. The panel contains no active logic and is therefore, a passive device. Power is necessary only to make available the dummy signals required when modems are connected to the device.

3.3.1 Physical Description

The distribution panel is rack-mountable and contains eight RS449, 37-pin male, D-subminiature connectors. The panel provides signal transfer capabilities for up to eight RS-423 serial communication lines. The panel is capable of transfer rates up to a maximum of 19.2K bps. Refer to Table 3-1 for the panel hardware specifications. The distribution panel printed circuit board is illustrated in Figure 3-1.

NOTE

Although the RS-423 Distribution Panel is designed to support the RS-423 signal protocol, Ports 3 and 7 (J4 and J8) are capable of supporting either the RS-423 protocol or the RS-422 protocol and will operate at transfer speeds up to 56k bps in the RS-422 mode.

Table 3-1. RS-423 Distribution Panel Specifications

Characteristic	Specifications
Physical	
Height	5.22 in. (13.26 cm)
Width	19.0 in. (48.30 cm)
Depth	3.50 in. (8.90 cm)
Mounting	Industry Standard, 19-inch panel width with EIA Standard hole spacing.
Environmental	
Operating	
Temperature	0^{o} to 40^{o} C (32^{o} to 104^{o} F)
Humidity	20% to 80%, noncondensing
Heat dissipation	7.2 BTU/Hour
Storage	
Temperature	-25^{o} to 70^{o} C (-12.8^{o} to 158^{o} F)
Humidity	5% to 95%, noncondensing
Electrical	
Voltages	+5.0vdc and -5.0vdc
Current	212ma at +5vdc,212ma at -5vdc
Power	2.11 Watts

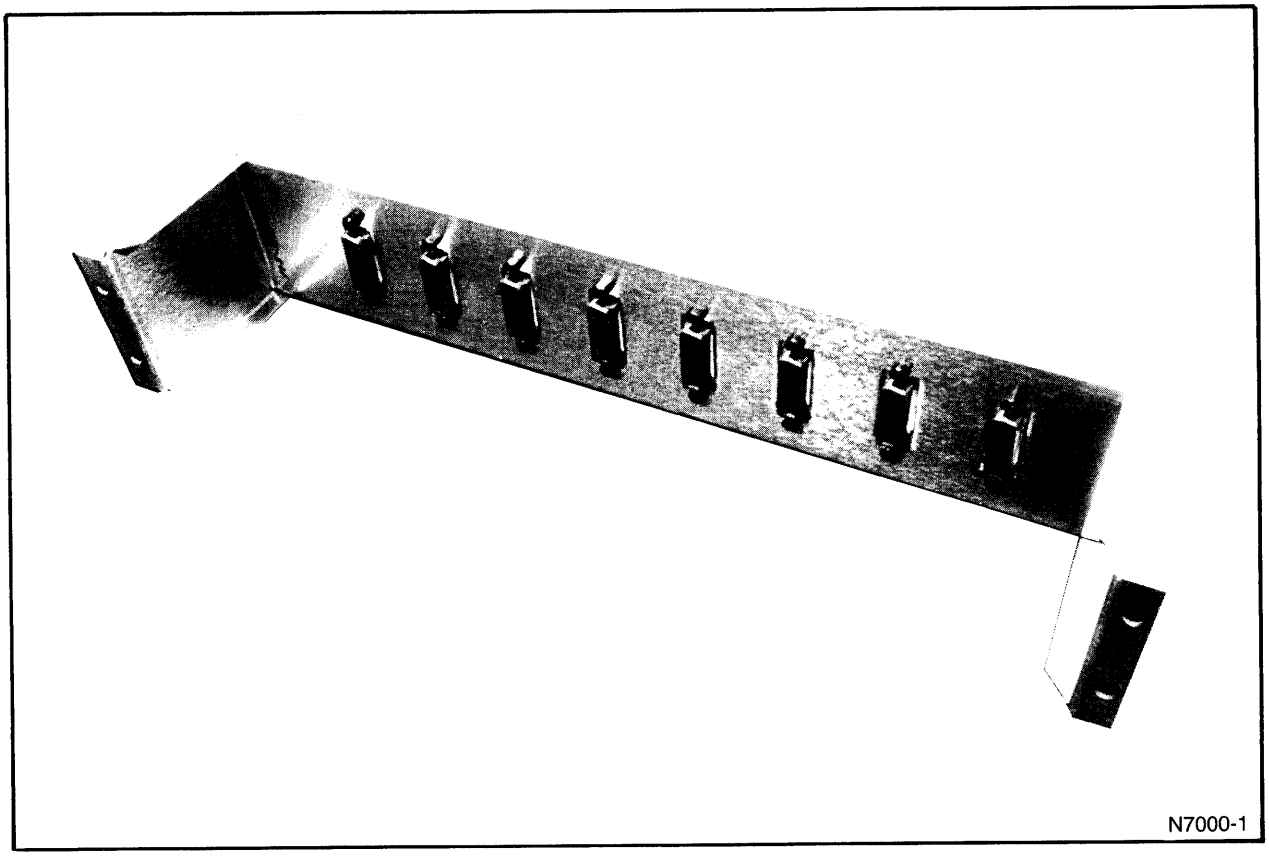


Figure 3-1. RS-423 Distribution Panel Circuit Board

3.3.2 Power Requirements

The RS-423 Distribution Panel uses power obtained from the MP Bus backplane through the distribution panel backplane connector J11. Power is necessary only to provide the dummy signals required when modems are connected to the device. The maximum power cable length is 4 feet. Refer to Paragraph 1.3.1 for detailed description of the power cable.

3.4 Functional Description

The RS-423 Distribution Panel is designed to provide an interface for communications equipment which implement the electrical characteristics of unbalanced voltage digital interface circuits as specified by EIA Standard RS-423-A.

3.4.1 Configuration

The panel can accommodate eight connectors (J1 - J8) interfaced to communications devices supporting the RS-423 protocol.

NOTE

Panel connectors J4 and J8 are configured to support RS-422 protocol in addition to the RS-423 protocol. Any I/O device requiring a balanced voltage interface should be connected to either J4 or J8.

3.4.2 Pin Allocation

Table 3-2 lists the pin allocations for the 60-pin flat ribbon cable (Drawing Number 144-103004) used to interface the I/O backplane to the distribution panel connectors J9 and J10. Table 3-3 lists the pin allocation for the distribution panel connectors J1 through J8.

CAUTION

Signal mnemonics listed in Table 3-3 starting with the letter L are present on ports 3 and 7 (J4 and J8) only. These ports are available to support devices requiring RS-422 protocol.

3.4.3 Test Equipment

The RS-449 Loopback connector assembly is required in order to perform diagnostic testing with the distribution panel ports. Refer to Paragraph 1.3.2 for details concerning loopback testing.

3.4.4 Panel Interconnects

The RS-449 Cable Assembly is required to interconnect two RS-423 Distribution Panels together. Refer to Paragraph 1.3.3 for a detailed description of the cable assembly. Cable requirements for panel connections to modems are described on Drawing Number 145-103036.

Table 3-2. Backplane Connectors Cables (J9 and J10) Pin Allocation

Pin	Mnemonic	Pin	Mnemonic
1	HP0TXDAT	31	HP3TXDAT
2	HP0RTS	32	HP3RTS
3	HP0DTR	33	HP3DTR
4	HP0RXDAT	34	HP3RXDAT
5	HP0CTS	35	HP3CTS
6	HP0DSR	36	HP3DSR
7	HP0DCD	37	HP3DCD
8	HP0RING	38	HP3RING
9	HP0RECCOM	39	HP3RECCOM
10	GND	40	GND
11	HP1TXDAT	41	LP3TXDAT
12	HP1RTS	42	LP3TXCLK
13	HP1DTR	43	LP3RXDAT
14	HP1RXDAT	44	LP3RTS
15	HP1CTS	45	LP3RXCLK
16	HP1DSR	46	LP3CTS
17	HP1DCD	47	LP3DSR
18	HP1RING	48	LP3DTR
19	HP1RECCOM	49	LP3DCD
20	GND	50	LP2/3INTCLK
21	HP2TXDAT	51	HP0TXCLK
22	HP2RTS	52	HP0RXCLK
23	HP2DTR	53	HP0/1INTCLK
24	HP2RXDAT	54	HP1TXCLK
25	HP2CTS	55	HP1RXCLK
26	HP2DSR	56	HP2TXCLK
27	HP2DCD	57	HP2RXCLK
28	HP2RING	58	HP2/3INTCLK
29	HP2RECCOM	59	HP3TXCLK
30	GND	60	HP3RXCLK

NOTE

Mnemonics listed above are for cable J9. The numeral identifies the applicable port. J9 provides signals for ports 0 through 3 and J10 provides signals for ports 4 through 7. Therefore, for J10 the numerals in the mnemonic will be 4 through 7.

Table 3-3. Distribution Panel Ports (J1-J8) Pin Allocaton (Sheet 1 of 3)

Pin	Mnemonic (x = Port #)	Description
1	CGx	Shield ground. Provides a chassis ground to the internal cable shield.
2	SI	Signaling Rate Indicator (SI) line. Not supported
3		Spare
4,22	HSDx,LSDx	Send data (SD) line. Contains serial data from the controller (DTE) to the device (DCE).
5,23	HSTx,LSTx	Send timing (ST) line. Clock signals from the connected device. Used by the controller to transmit data on the send data line. This clock determines the transmit baud rate for the DTE.
6,24	HRDx,LRDx	Receive data (RD) line. Contains serial data from the device (DCE) to the controller (DTE).
7,25	HRSx,LRSx	Request to send (RS) line. Asserted by the controller to indicate that it is ready to transmit data to the device (DCE).
8,26	HRTx,LRTx	Receive timing (RT) line. Clock signals from the DCE used by the controller to register receive data on the receive data line. This clock synchronizes the controller with the baud rate of the incoming data.
9,27	HCSx,LCSx	Clear to send (CS) line. Asserted by the device (DCE) to indicate that a transmission from the controller may proceed.
10	LLx	Local loopback (LL) line. Tied to negative voltage generator.
11,29	HDMx,LDMx	Data mode (DM) line. Asserted by the device (DCE) to indicate a 'ready to transfer data' condition exists.

Table 3-3. Distribution Panel Ports (J1-J8) Pin Allocation (Sheet 2 of 3)

Pin	Mnemonic (x = Port #)	Description
12,30	HTRx,LTRx	Terminal ready (TR) line. Asserted by the controller (DTE) when it is ready to transmit and receive data.
13,31	HRRx,LRRx	Receiver ready (RR) line. Asserted by the connected device to indicate valid data on the receive data line. This is the RS-232 DCD line.
14	RLx	Remote loopback (RL) line. Tied to negative voltage generator.
15	HICx	Incoming call (IC) line. Asserted by the connected device to announce an incoming call. The controller will respond by asserting terminal ready to respond.
16	SFx,SRx	Select frequency (SF) or signaling rate selector (SR) line. Tied to negative voltage generator.
17,35	HTTx,LTTx	Terminal timing (TT) line. Generated by the controller and used by the device (DCE) as a receive timing clock. Ports (0,1), (2,3), (4,5), and (6,7) are pairs that generate one clock that is divided into eight individual clocks by the panel.
18	TM	Test mode (TM) line. Not supported.
19	SGx	Signal ground (SG) line. Signal ground.
20	RCx	Receive common (RC) line. Used by the RS-423 receivers on the controller (DTE) as the return path for incoming signals.
21		Spare

Table 3-3. Distribution Panel Ports (J1-J8) Pin Allocation (Sheet 3 of 3)

Pin	Mnemonic (x = Port #)	Description
28	ISx	Terminal in service (IS) line. Tied to positive voltage generator.
32	SSx	Select standby (SS) line. Tied to negative voltage generator.
33	SQ	Signal quality (SQ) line. Not supported.
34	NSx	New signal (NS) line. Tied to negative voltage generator.
36	SB	Standby indicator (SB) line. Not supported.
37	SCx	Send common (SC) line. Provides the receive common to the device (DCE). See (RC).

CHAPTER 4

20ma CURRENT LOOP DISTRIBUTION PANEL

4.1 Introduction

This chapter describes the 20ma Current Loop Distribution Panel as manufactured by Gould Inc., Computer Systems Division, Fort Lauderdale, Florida.

4.2 Applicability

The Current Loop Panel is the connection link between Data Terminal Equipment (DTE) and Data Communications Equipment (DCE). It converts RS-423 signals to 20ma Current Loop signal for use by the external devices. This connection link supports asynchronous data transmission at transfer rates up to 19.2K bits per second (bps).

4.3 General Description

The following paragraphs describe the physical hardware specifications and features of the conversion panel.

4.3.1 Physical Description

The distribution panel is rack-mountable and contains eight 25-pin D-subminature male connectors. Refer to Table 4-1 for the panel hardware specifications. The distribution panel printed circuit board is illustrated in Figure 4-1.

4.3.2 Power Requirements

The 20ma Current Loop Distribution Panel uses power obtained through a cable (Drawing Number 144-103437) connecting from the MP Bus backplane to the panel at J11. The maximum power cable length is 4 feet. Refer to Chapter 1 for detailed description of the power cable.

4.4 Functional Description

The 20ma Current Loop Distribution Panel is designed to provide an interface between communication equipment where the RS-423 signals from the DTE require conversion to 20ma current loop signals at the DCE. The conversion of the RS-423 signals at the controller (DTE) is accomplished at the distribution panel with optically isolated drivers and receivers for maximum noise immunity.

Table 4-1. 20ma. Current Loop Panel Specifications

Characteristic	Specifications
Physical	
Height	3.50 in. (8.90 cm)
Width	19.0 in. (48.30 cm)
Depth	3.50 in. (8.90 cm)
Mounting	Industry Standard, 19-inch panel width with EIA Standard hole spacing.
Environmental	
Operating	
Temperature	0^{o} to 40^{o} C (32^{o} to 104^{o} F)
Humidity	20% to 80%, noncondensing
Heat dissipation	48.23 BTU/Hour
Storage	
Temperature	-25^{o} to 70^{o} C (-12.8^{o} to 158^{o} F)
Humidity	5% to 95%, noncondensing
Electrical	
Voltages (Power supply only)	+5.0vdc, -5.0vdc, +15.0vdc
Current (Power supply only)	970ma total at +5vdc, 480ma at +15vdc
Power	14.13 Watts

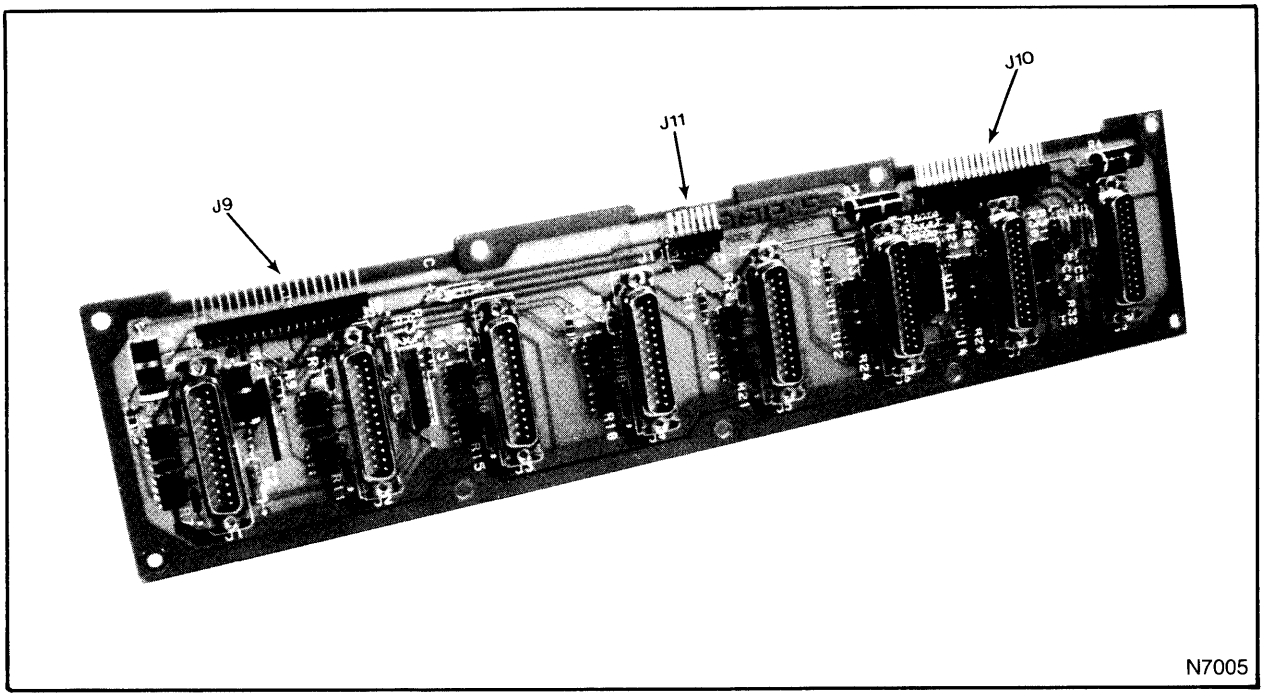


Figure 4-1. 20ma. Current Loop Panel Circuit Board

4.4.1 Configuration

The 20ma Current Loop Distribution Panel can accommodate eight connectors (J1-J8) interfaced to communications equipment requiring a 20ma current loop signal protocol.

4.4.2 Pin Allocation

Table 4-2 lists the pin allocations for the 40-pin flat ribbon cable (Drawing Number 144-103004) used to interface the I/O backplane to the distribution panel connectors J9 and J10. Table 4-3 lists the pin allocation for the distribution panel connectors J1 through J8.

4.4.3 Test Equipment

The 20ma/RS232 Turnaround Plug Assembly as described in Drawing Number 144-103420 is used to perform diagnostic testing of the distribution panel ports.

4.4.4 Panel Interconnects

Panel interconnections from the distribution panel are illustrated on the kit drawing, Drawing Number 118-103564. Cable requirements for device connection to the panel are described on Drawing Number 145-103020.

Table 4-2. Backplane Connectors Cables (J9 and J10) Pin Allocation (Sheet 1 of 2)

Pin	Mnemonic	Description
1	HP0TXDAT	Transmit Data
2	HP0RTS	Request to Send
3	HP0DTR	Data Terminal Ready
4	HP0RXDAT	Receive Data
5	HP0CTS	Clear to Send. Tied to a +5v dummy generator.
6	HP0DSR	Data Set Ready. Tied to a +5v dummy generator.
7	HP0DCD	Data Carrier Detect. Tied to a +5v dummy generator.
8	HP0RING	Ring Indicator. Tied to a -5v dummy generator.
9	HP0RECCOM	Receive Common
10	GND	Ground
11	HP1TXDAT	Transmit Data
12	HP1RTS	Request to Send
13	HP1DTR	Data Terminal Ready
14	HP1RXDAT	Receive Data
15	HP1CTS	Clear to Send. Tied to a +5v dummy generator.
16	HP1DSR	Data Set Ready. Tied to a +5v dummy generator.
17	HP1DCD	Data Carrier Detect. Tied to a +5v dummy generator.
18	HP1RING	Ring Indicator. Tied to a -5v dummy generator.
19	HP1RECCOM	Receive Common
20	GND	Ground
21	HP2TXDAT	Transmit Data
22	HP2RTS	Request to Send
23	HP2DTR	Data Terminal Ready
24	HP2RXDAT	Receive Data
25	HP2CTS	Clear to Send. Tied to a +5v dummy generator.
26	HP2DSR	Data Set Ready. Tied to a +5v dummy generator.
27	HP2DCD	Data Carrier Detect. Tied to a +5v dummy generator.
28	HP2RING	Ring Indicator. Tied to a -5v dummy generator.
29	HP2RECCOM	Receive Common
30	GND	Ground
31	HP3TXDAT	Transmit Data
32	HP3RTS	Request to Send
33	HP3DTR	Data Terminal Ready
34	HP3RXDAT	Receive Data

Table 4-2. Backplane Connectors Cables (J9 and J10) Pin Allocation (Sheet 2 of 2)

Pin	Mnemonic	Description
35	HP3CTS	Clear to Send. Tied to a +5v dummy generator.
36	HP3DSR	Data Set Ready. Tied to a +5v dummy generator.
37	HP3DCD	Data Carrier Detect. Tied to a +5v dummy generator.
38	HP3RING	Ring Indicator. Tied to a -5v dummy generator.
39	HP3RECCOM	Receive Common
40	GND	Ground

NOTE

Mnemonics listed above are for cable J9. The numeral identifies the applicable port. J9 provides signals for ports 0 through 3 and J0 provides signals for ports 4 through 7. Therefore, for J10 the numerals in the mnemonic will be 4 through 7.

Table 4-3. 20ma Current Loop Distribution Panel (J1-J8) Pin Assignments

Pin No.	Mnemonic	Description
1	GND	Chassis ground
2		Not connected
3		Not connected
4		Not connected
5		Not connected
6		Not connected
7	GND	Signal ground
8		Not connected
9		Not connected
10		Not connected
11		Not connected
12		Not connected
13		Not connected
14		Not connected
15	TXBIAS	Transmit Bias
16		Not connected
17	RXBIAS	Receive Bias
18	LINP	In Positive
19	LINN	In Negative
20		Not connected
21	LOUTP	Out Positive
22		Not connected
23		Not connected
24		Not connected
25	LOUTN	Out Negative

Table 4-4. 20ma Turnaround Plug Assembly Jumpers

From Pin	Mnemonic	To Pin	Mnemonic
15	TXBIAS - Transmit Bias	21	LOUTP - Out Positive
18	LINP - In Positive	25	LOUTN - Out Negative
19	LINN - In Negative	7	GND - Ground

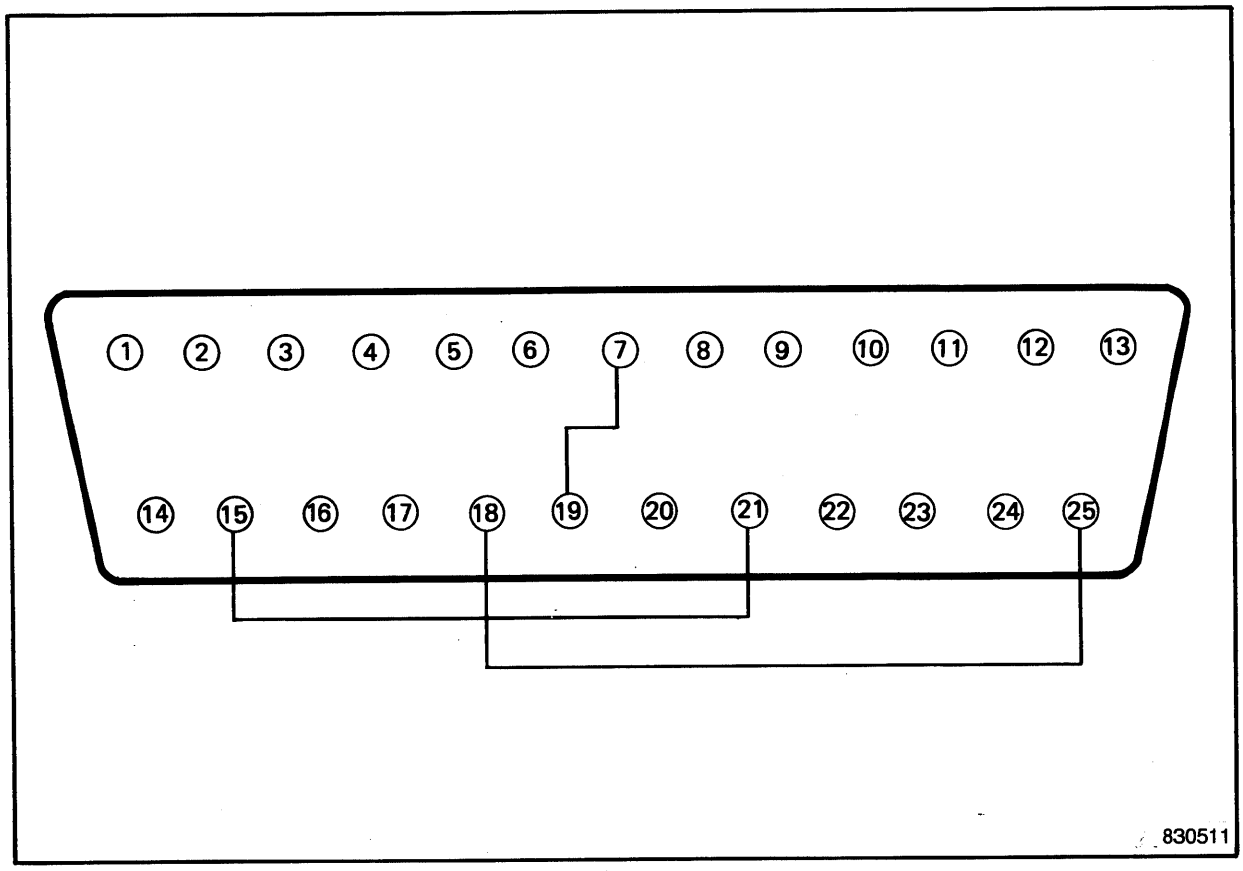


Figure 4-2. 20ma Turnaround Plug Assembly Jumper Configuration

CHAPTER 5

RS-423/RS-422 CONVERSION PANEL

5.1 Introduction

This chapter describes the RS-423/RS-422 Conversion Panel as manufactured by Gould Inc., Computer Systems Division, Fort Lauderdale, Florida.

5.2 Applicability

The RS-423/RS-422 Conversion Panel is to be used where the transfer of I/O signals from Gould equipment requires a protocol conversion from RS-423-A to RS-422-A electrical specifications. The panel provides signal conversion capabilities for up to eight serial communication lines.

5.3 General Description

CAUTION

Do not interconnect the RS-423/RS-422 Conversion Panel to a RS-423 Distribution Panel or the RS-423 Distribution Panel to a RS-423/RS-422 Conversion Panel.

The following paragraphs describe the physical hardware specifications and features of the conversion panel.

5.3.1 Physical Description

The conversion panel is rack-mountable and contains eight RS-449, 37-pin D-subminature male connectors. The panel provides signal conversion capabilities for up to eight RS-422-A serial communication channels. The panel is capable of supporting transfer rates up to a maximum of 19.2K bits per second (bps). Refer to Table 5-1 for the panel hardware specifications. The conversion panel printed circuit board is illustrated in Figure 5-1.

5.3.2 Power Requirements

The RS-423/RS-422 Conversion Panel uses power obtained through a cable (Drawing Number 144-103437) connecting from the MP Bus backplane to the panel at J11. The maximum power cable length is 4 feet. Refer to Paragraph 1.3.1 for detailed description of the power cable.

Table 5-1. RS-423/RS-422 Conversion Panel Specifications

Characteristic	Specifications
Physical	
Height	5.22 in. (13.26 cm)
Width	19.0 in. (48.30 cm)
Depth	3.50 in. (8.90 cm)
Mounting	Industry Standard, 19 inch rack width with EIA Standard hole spacing.
Environmental	
Operating	
Temperature	0^{o} to 40^{o} C (32^{o} to 104^{o} F)
Humidity	20% to 80%, noncondensing
Heat dissipation	16.9 BTU/Hour
Storage	
Temperature	-25^{o} to 70^{o} C (-12.8^{o} to 158^{o} F)
Humidity	5% to 95%, noncondensing
Electrical	
Voltages	+5.0vdc and -5.0vdc
Current	920ma at +5vdc, 72ma at -5vdc
Power	4.96 Watts

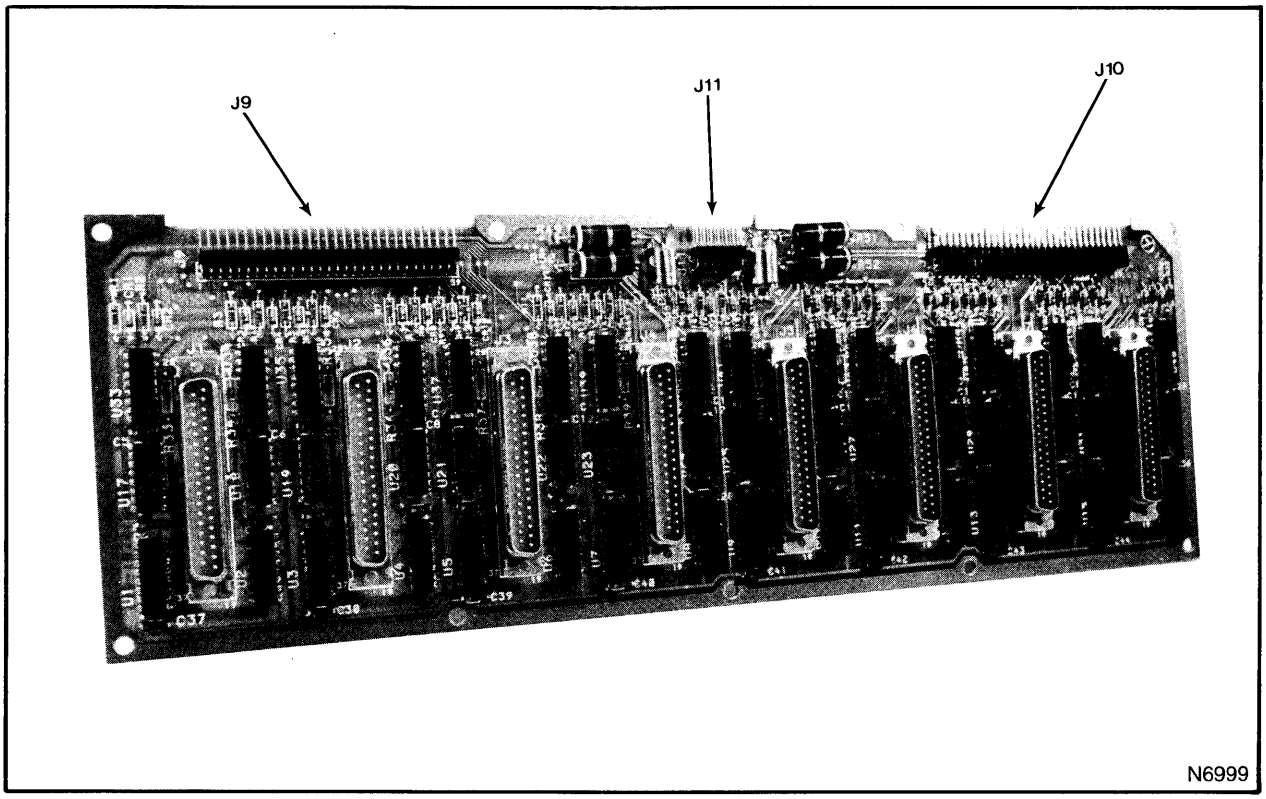


Figure 5-1. RS-423/RS-422 Conversion Panel Circuit Board

5.4 Functional Description

The RS-423/RS-422 Conversion Panel is designed to provide an interface between communication equipment which implement the electrical characteristics of an unbalanced voltage digital interface as specified by EIA Standard RS-423-A to equipment which implement the electrical characteristics of a balanced voltage digital interface as specified by EIA Standard RS-422-A.

5.4.1 Configuration

The Conversion Panel is designed to support controllers with either four-line or eight-line capabilities. Each conversion panel will support two four-line, one eight-line or one four-line and half of an eight-line controller. Refer to Figure 5-2 for possible configurations. Cabling connections from the I/O Expansion Chassis Backplane are made through J9 and/or J10 on the Conversion Panel backplane. Output ports J1 through

J4 connect to the I/O through J9 while ports J5 through J8 connect through J10. Refer to Drawing Numbers 118-103556 and 118-103729 for detailed cable installation requirements and supported configurations.

5.4.2 Pin Allocation

Table 5-2 lists the pin allocations for the 60-pin flat ribbon cable (Drawing Number 144-103416) used to interface the I/O backplane to the conversion panel connectors J9 and J10. Table 5-3 lists the pin allocation for the conversion panel connectors J1 through J8.

5.4.3 Test Equipment

The RS-449 Loopback connector assembly is required in order to perform diagnostic testing with the conversion panel. Refer to Paragraph 1.3.2 for additional details concerning the connector.

5.4.4 Panel Interconnects

The RS-449 Cable Assembly is used to interconnect two RS-423/RS-422 Conversion Panels together. Refer to Paragraph 1.3.3 for a detailed description of the cable assembly. Cable requirements for panel connections to modems are described on Drawing Number 145-103036.

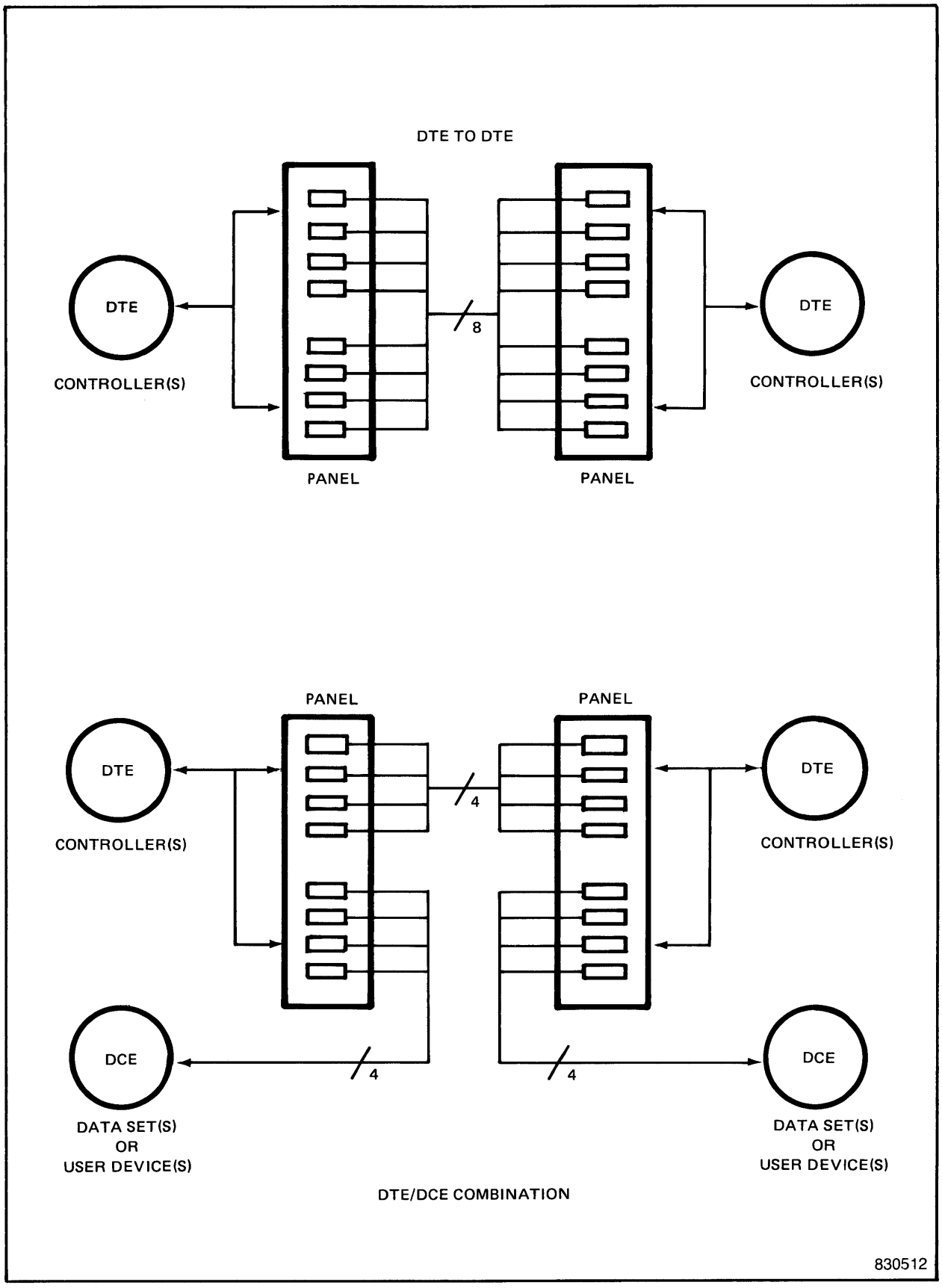


Figure 5-2. RS-423/RS-422 Conversion Panel Configurations

Table 5-2. Backplane Connectors Cables (J9 and J10) Pin Allocation

Pin	Mnemonic	Pin	Mnemonic
1	HP0TXDAT	31	HP3TXDAT
2	HP0RTS	32	HP3RTS
3	HP0DTR	33	HP3DTR
4	HP0RXDAT	34	HP3RXDAT
5	HP0CTS	35	HP3CTS
6	HP0DSR	36	HP3DSR
7	HP0DCD	37	HP3DCD
8	HP0RING	38	HP3RING
9	HP0RECCOM	39	HP3RECCOM
10	GND	40	GND
11	HP1TXDAT	41	LP3TXDAT
12	HP1RTS	42	LP3TXCLK
13	HP1DTR	43	LP3RXDAT
14	HP1RXDAT	44	LP3RTS
15	HP1CTS	45	LP3RXCLK
16	HP1DSR	46	LP3CTS
17	HP1DCD	47	LP3DSR
18	HP1RING	48	LP3DTR
19	HP1RECCOM	49	LP3DCD
20	GND	50	LP2/3INTCLK
21	HP2TXDAT	51	HP0TXCLK
22	HP2RTS	52	HP0RXCLK
23	HP2DTR	53	HP0/1INTCLK
24	HP2RXDAT	54	HP1TXCLK
25	HP2CTS	55	HP1RXCLK
26	HP2DSR	56	HP2TXCLK
27	HP2DCD	57	HP2RXCLK
28	HP2RING	58	HP2/3INTCLK
29	HP2RECCOM	59	HP3TXCLK
30	GND	60	HP3RXCLK

NOTE

Mnemonics listed above are for cable J9. The numeral identifies the applicable port. J9 provides signals for ports 0 through 3 and J10 provides signals for ports 4 through 7. Therefore, for J10 the numerals in the mnemonic will be 4 through 7.

Table 5-3. Conversion Panel Ports (J1-J8) Pin Allocaton (Sheet 1 of 3)

Pin	Mnemonic (x = Port #)	Description
1	CGx	Shield ground. Provides a chassis ground to the internal cable shield.
2	SI	Signaling Rate Indicator (SI) line. Not supported
3		Spare
4,22	HSDx,LSDx	Send data (SD) line. Contains serial data from the controller (DTE) to the device (DCE).
5,23	HSTx,LSTx	Send timing (ST) line. Clock signals from the connected device. Used by the controller to transmit data on the send data line. This clock determines the transmit baud rate for the DTE.
6,24	HRDx,LRDx	Receive data (RD) line. Contains serial data from the device (DCE) to the controller (DTE).
7,25	HRSx,LRSx	Request to send (RS) line. Asserted by the controller to indicate that it is ready to transmit data to the device (DCE).
8,26	HRTx,LRTx	Receive timing (RT) line. Clock signals from the DCE used by the controller to register receive data on the receive data line. This clock synchronizes the controller with the baud rate of the incoming data.
9,27	HCSx,LCSx	Clear to send (CS) line. Asserted by the device (DCE) to indicate that a transmission from the controller may proceed.
10	LLx	Local loopback (LL) line. Tied to negative voltage generator.
11,29	HDMx,LDMx	Data mode (DM) line. Asserted by the device (DCE) to indicate a 'ready to transfer data' condition exists.

Table 5-3. Conversion Panel Ports (J1-J8) Pin Allocaton (Sheet 2 of 3)

Pin	Mnemonic (x = Port #)	Description
12,30	HTRx,LTRx	Terminal ready (TR) line. Asserted by the controller (DTE) when it is ready to transmit and receive data. This line should not be asserted until circuit DM has been turned OFF by the DCE.
13,31	HRRx,LRRx	Receiver ready (RR) line. Asserted by the connected device to indicate valid data on the receive data line. This is the RS-232 DCD line.
14	RLx	Remote loopback (RL) line. Tied to negative voltage generator.
15	HICx	Incoming call (IC) line. Asserted by the connected device to announce an incoming call. The controller will respond by asserting terminal ready to respond.
16	SFx,SRx	Select frequency (SF) or signaling rate selector (SR) line. Tied to negative voltage generator.
17,35	HTTx,LTTx	Terminal timing (TT) line. Generated by the controller and used by the device (DCE) as a receive timing clock. Ports (0,1), (2,3), (4,5), and (6,7) are pairs that generate one clock that is divided into eight individual clocks by the panel.
18	TM	Test mode (TM) line. Not supported.
19	SGx	Signal ground (SG) line. Signal ground.
20	RCx	Receive common (RC) line. Used by the RS-423 receivers on the controller (DTE) as the return path for incoming signals.
21		Spare

Table 5-3. Conversion Panel Ports (J1-J8) Pin Allocaton (Sheet 3 of 3)

Pin	Mnemonic (x = Port #)	Description
28	ISx	Terminal in service (IS) line. Tied to positive voltage generator.
32	SSx	Select standby (SS) line. Tied to negative voltage generator.
33	SQ	Signal Quality (SQ) line. Not supported.
34	NSx	New signal (NS) line. Tied to negative voltage generator.
36	SB	Standby indicator (SB) line. Not supported.
37	SCx	Send common (SC) line. Provides the receive common to the device (DCE). See (RC).

CHAPTER 6

IEEE-488 BUS CONTROLLER DISTRIBUTION PANEL

6.1 Introduction

This chapter describes the IEEE-488 Distribution Panel as manufactured by Gould Inc., Computer Systems Division, Fort Lauderdale, Florida.

6.2 Applicability

The IEEE-488 Distribution Panel is an optional interface compatible with the IEEE-488 Bus Controller (Model 8024).

6.3 General Description

The Distribution Panel provides an eight port bussed interface that contains no logic and does not affect the protocol of the bus.

6.3.1 Physical Description

The distribution panel is rack-mountable and contains eight 24-pin connectors. Refer to Table 6-1 for the panel hardware specifications. The IEEE-488 Distribution Panel is illustrated in Figure 6-1.

6.3.2 Power Requirements

The IEEE-488 Distribution Panel does not contain any active components and, therefore does not require any external power.

6.4 Functional Description

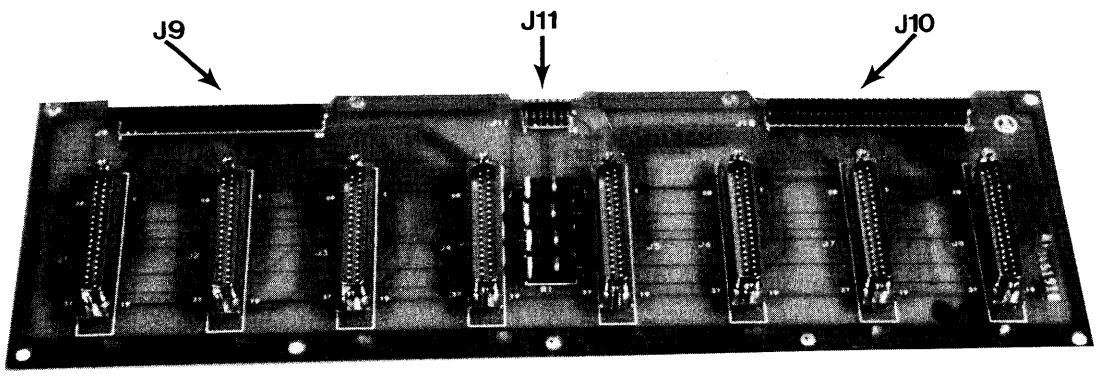
The IEEE-488 Distribution Panel is designed to provide an interface between an IEEE-488 Bus Controller circuit card and up to 14 instruments as specified in ANSI/IEEE Standard 488-1978.

6.4.1 Configuration

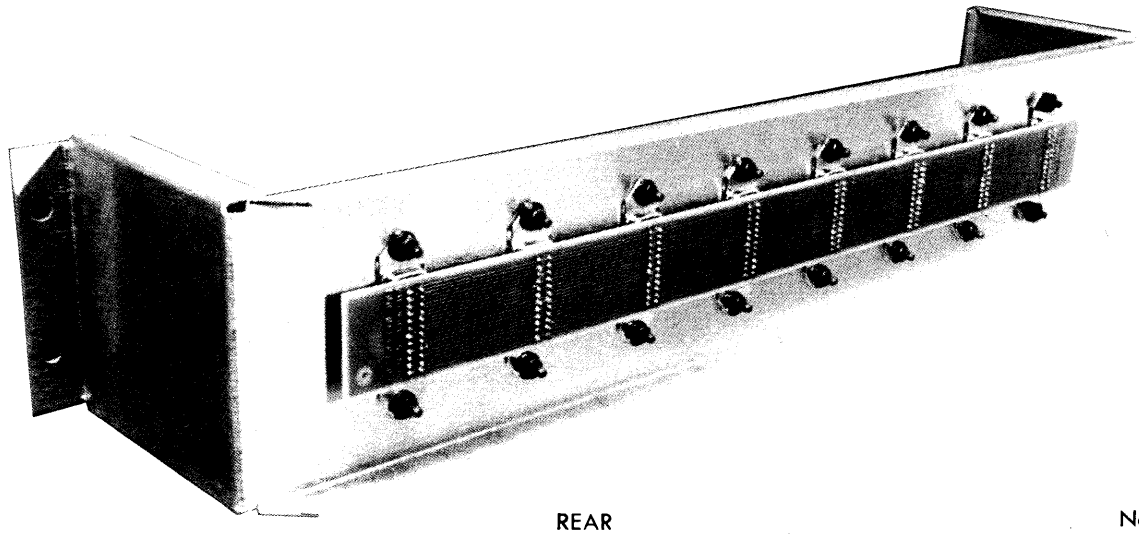
The IEEE-488 Distribution Panel provides eight standard 24-pin IEEE-488 connectors, which allows the devices to be cabled to the panel in a star patterned configuration. Figure 6-2 illustrates possible distribution panel configurations.

6.4.2 Pin Allocation

Table 6-2 contains the IEEE-488 Bus cable pin allocation chart. It lists the pin number, signal mnemonic and wire color coding.



FRONT N6997



REAR N6998

Figure 6-1. IEEE-488 Distribution Panel

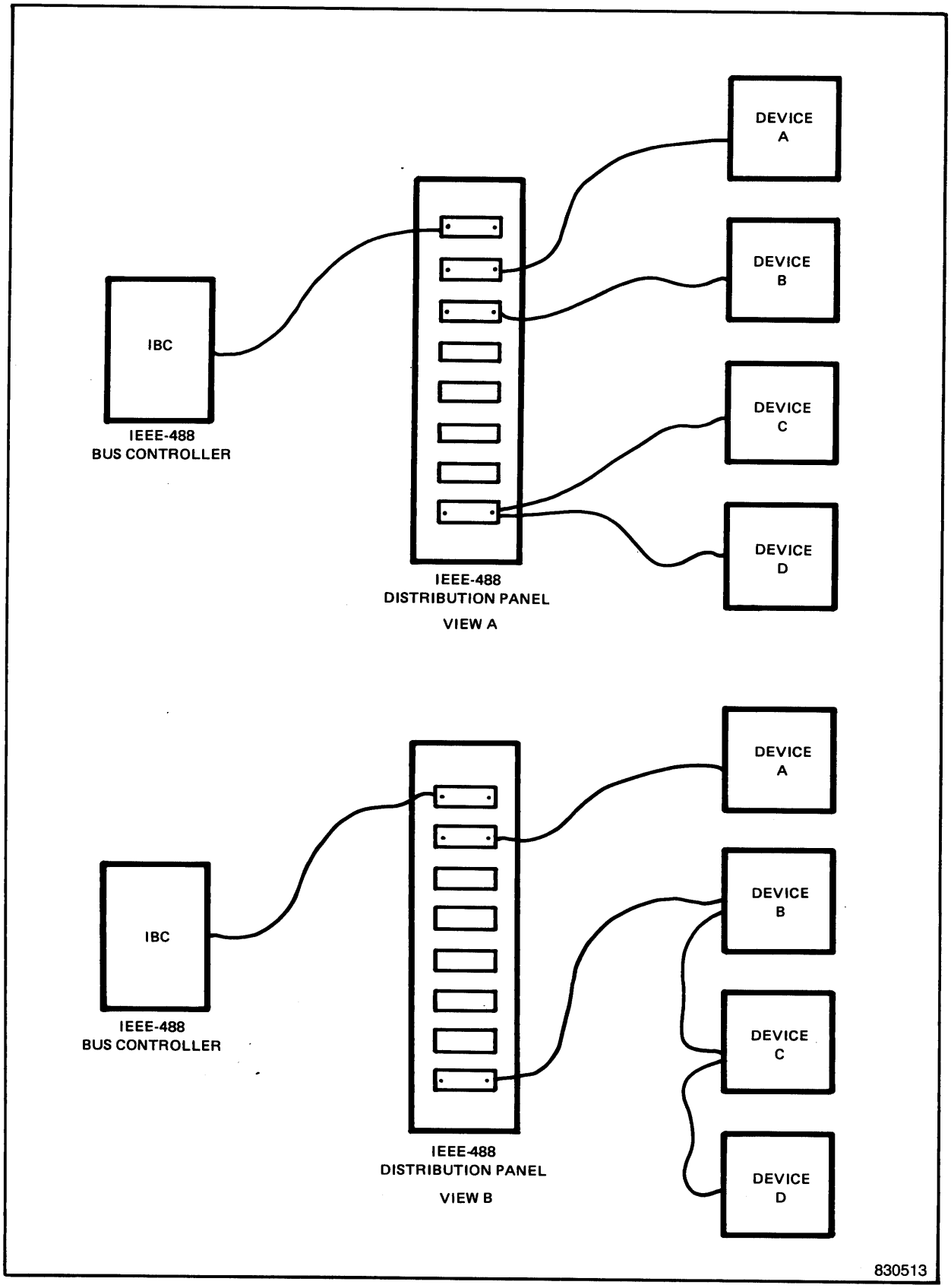


Figure 6-2. IEEE-488 Distribution Panel Configurations

Table 6-1. IEEE-488 Distribution Panel Specifications

Characteristic	Specifications
Physical	
Height	4.00 in. (10.16 cm)
Width	19.0 in. (48.30 cm)
Depth	3.50 in. (8.90 cm)
Mounting	Industry Standard, 19-inch panel width with EIA Standard hole spacing.
Environmental	
Operating	
Temperature	10^{o} to 40^{o} C (50^{o} to 104^{o} F)
Humidity	10% to 90%, noncondensing
Heat dissipation	None
Storage	
Temperature	-25^{o} to 70^{o} C (-12.8^{o} to 158^{o} F)
Humidity	5% to 95%, noncondensing
Electrical	None

Table 6-2. IEEE-488 Bus Cable Pin Allocation Chart

Pin	Mnemonic	Color
1	LDIB01	Brown
2	LDIB02	Red
3	LDIB03	Orange
4	LDIB04	Yellow
5	LEOIB	Green
6	LDAVB	Blue
7	LNRFDB	Violet
8	LNDACB	Gray
9	LFICB	White
10	LSRQB	White/Black
11	LATNB	White/Brown
12	Shield	Bare
13	LDIB05	White/Orange
14	LDIB06	White/Yellow
15	LDIB07	White/Green
16	LDIB08	White/Blue
17	LRENB	White/Violet
18	Ground	White/Gray
19	Ground	White/Black/Brown
20	Ground	White/Black/Red
21	Ground	White/Black/Orange
22	Ground	White/Black/Yellow
23	Ground	White/Black/Green
24	Ground	White/Black/Blue

6.4.3 Test Equipment

Cabling instructions and jumper configuration for diagnostic testing are contained in the Diagnostic Program Description Manual, Publication Order Number 326-003030.

6.4.4 Panel Interconnects

NOTE

The IEEE-488 Distribution Panel is designed to support a single IEEE-488 Bus Controller (IBC). If more than one IBC is used in a system. additional distribution panels may be used. The panel is available in two models. The difference between the two models is that the device connectors are offset which allows cabling as described below without interfering with the cables from the adjacent panel.

The IEEE-488 Bus cable connectors are designed to be stacked vertically, therefore the maximum of 15 devices connected to a single controller can be easily supported on the distribution panel by stacking the connectors only two deep. Refer to IEEE Distribution Panel Kit drawing 118-103449 for details.

GLOSSARY

Active - Components requiring voltages provided by a power source.

ANSI - American National Standards Institute.

Asynchronous transmission - Controlled by start and stop bits which frame each character. Time intervals between characters may be of unequal lengths.

Baud rate - A measure of signaling speed, as in bits per second.

Channel - The connection between message source and sink.

DCE - Data Communications Equipment. A DCE is the equipment that provides a link between the Data Terminal Equipment and the channel or network.

DTE - Data Terminal Equipment. The DTE is the data source and/or sink, and is usually called a controller.

Data Communication - An interchange of data messages over communication channels.

Data Set - See MODEM.

EIA - Electronic Industries Association.

Full duplex - A circuit designed to allow the receiving and transmitting of data simultaneously.

Half duplex - A circuit designed to allow the receiving and transmitting of data, but not simultaneously.

Host computer - A computer providing computational services to local or remote terminals in a network.

IEEE - Institute of Electrical and Electronic Engineers.

Interface - A shared boundary defined by common physical interconnection characteristics, signal characteristics, and types of interchanged signals.

Link - Any specific relationship between two nodes in a network. Synonymous with channel. A link can be made up of many channels.

Loopback - A test condition in which the transmit data is tied back to the receive data on the same port.

MODEM - Modulate/Demodulate (Data Set). A device used to condition signals usually for transmission over telephone lines.

Multiplexing - The sharing of a communication facility by two or more channels.

Network - A chain or dispersion of intersecting communication channels.

Parallel transmission - The method of transmitting data in which all bits are transmitted simultaneously.

Passive - Requiring no assistance, as in power supply.

Port - A communications interface having transmit and/or receive capabilities.

Protocol - A formal set of conventions for format, timing, and error control to facilitate message exchange.

RS - Recommended standard (i.e., RS-232-C). The recommended Level 1 standards for DTE's which dictate the physical link protocol for data communications.

Serial transmission - The method of transmitting data in which the individual bits are transmitted sequentially, as opposed to parallel.

Simplex - Unidirectional communications circuit.

Station - A data link terminal or node.

Synchronous transmission - Characterized by a definite relationship that exists between each bit of data that is transmitted and a timing signal.
Terminal - A device or computer (usually an interactive keyboard terminal) that can be connected to a local or remote host system.