Wayne PIB/Plus™ Auxiliary Controller Interface

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Wayne PIB/Plus™
Auxiliary Controller Interface
Installation Manual

TABLE OF CONTENTS

Table Of Contents

USER RESPONSE SHEET

WARRANTY AND LIMITATION OF REMEDY AND LIABILITY........................Inside Back Cover

FCC WARNING...Back Cover

LIST OF FIGURES

LIST OF TABLES

INTRODUCTION

1.1. PURPOSE OF THIS MANUAL

This manual describes the installation and testing of the Wayne® Peripheral Interface Board (PIB/Plus). The information is this manual is intended to be used by service representatives installing the system and by maintenance personnel.

For additional information about the Wayne 2400/Plus™ Management Control System (2400/Plus), refer to the following publication:

* *Operation and Programming, Wayne 2400/Plus Management Control System*, part number 917434

1.2. PIB/PLUS OVERVIEW

Installing the PIB/Plus board, part number 839134-01/XXX, in the site controller, allows the 2400/Plus system to communicate with auxiliary controllers (AC). Auxiliary controllers are then able to operate in place of the Wayne 2400 Control console when controlling Wayne dispensers. Auxiliary controllers, such as the NCR 2950™ or the Datarol 7100™, interface with the 2400/Plus system with one of two types of cable installations. The two types of cable installations are:

* OCIA (Optically Coupled Interface Adapter), part number 830151-XX.

* RS-232, part number 840193-01.

1.2. PIB/PLUS OVERVIEW, continued

The type of auxiliary controller in use at the station site determines which type of cable installation is required.

1.3. REQUIRED TOOLS

The tools listed in Table 1-1 are required to install the PIB/Plus board and the interface cables.

TABLE 1-1. REQUIRED TOOLS

Part Number	Description
#1	Phillips Head Screwdriver
916962	Anti-Static Wrist Strap

SITE PREPARATION

2.1. INTRODUCTION

The following paragraphs explain how to verify the software ID for the 2400/Plus CPU board.

2.2. VERIFYING THE 2400/PLUS CPU SOFTWARE ID

Before installing the PIB/Plus board in the site controller, verify the 2400/Plus CPU software is compatible with the PIB/Plus software. Use a Wayne® 2400 Control console to check the 2400/Plus software ID level.

To verify the 2400/Plus CPU software ID level, perform the following steps.

1. Connect the 2400 console to the through-wall connector located on the site controller. Refer to Figure 2-1.

2.2. VERIFYING THE 2400/PLUS CPU SOFTWARE ID, continued

DJR-FH-386-A

Through-wall connector
for the 2400 console connection.
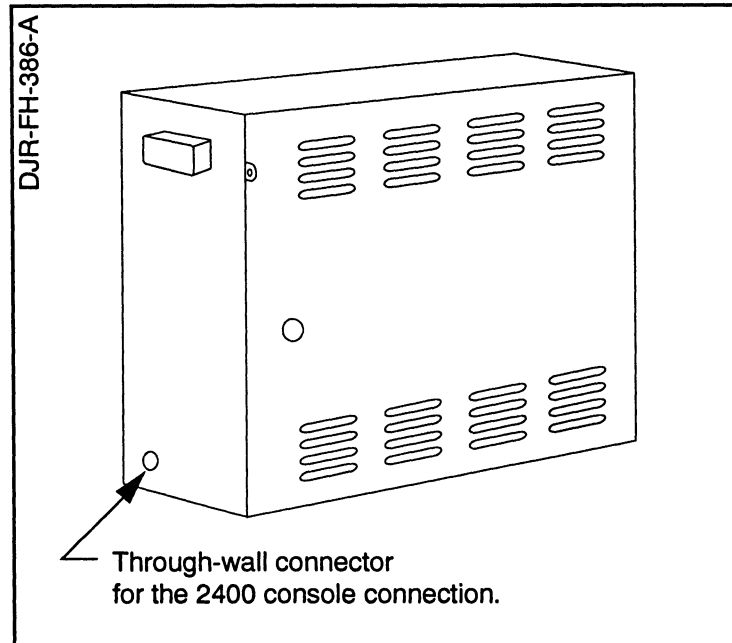
FIGURE 2-1. 2400 CONSOLE THROUGH-WALL CONNECTION

2.   Press the **Mode** key on the console.

3.   Enter prime mode 90 on the console keypad. The console screen displays the
following information: 90, 0.

4.   Enter submode 8 on the keypad. The console screen displays the following
information: 90, 08, 000.

5.   Press the **Prnt/Entr** key.

The console screen displays a series of numbers in the following format: 90, 08,
NNXXXXXX. "NN" represents the 2400/Plus software ID number. For a successful PIB/Plus
installation, the 2400/Plus must have a software ID of 49. Replace the 2400/Plus CPU
board firmware if the software ID is not 49. Refer to Figure 2-2.

2.2. VERIFYING THE 2400/PLUS CPU SOFTWARE ID, continued
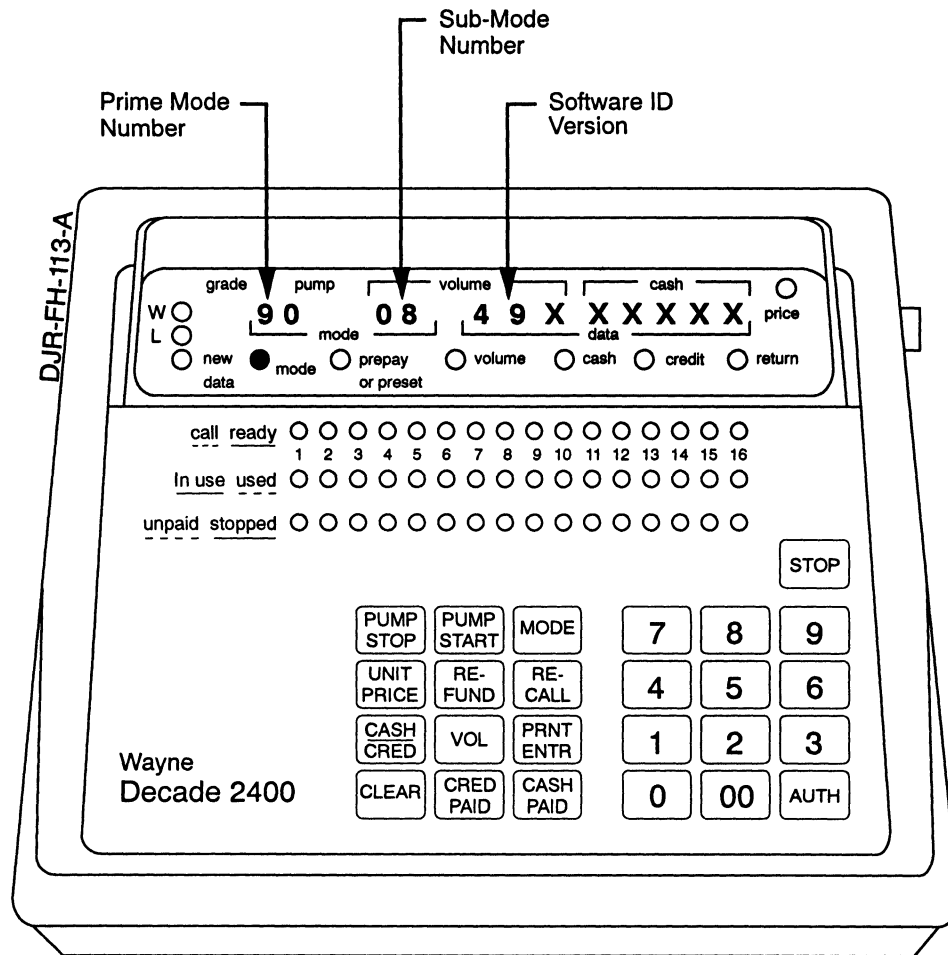
FIGURE 2-2. WAYNE 2400 CONTROL CONSOLE

6. Press the **Recall** key. The console screen displays the following information: 90, 09, 000.

7. Press the **Prnt/Entr** key.

The console screen displays a series of numbers in the following format: 90, 09, RRR. "RRR" represents the 2400/Plus sub-version software number. For correct installation, confirm the 2400/Plus software sub-version number is compatible with the PIB/Plus software version number.

IMPORTANT: Because of possible software upgrades to both the 2400/Plus and PIB/Plus software, it may be necessary to call the Wayne Product Support Help Desk at 1-800-289-2963 (1-800-AT-WAYNE) for assistance in determining the 2400/Plus and PIB/Plus software compatibility.

INSTALLATION

3.1. INTRODUCTION

This chapter describes how to install the PIB/Plus board, the OCIA cable interface, and the RS-232 cable interface in the site controller.

3.2. UNPACKING AND INSPECTION

1. Before opening any cartons, count the number of cartons and verify the carton count against the supplied packing list.

2. Inspect the cartons for damage made during transit.

3. File claim information with the carrier on the bill of lading.

4 Retain cartons suspected of damage for future claim purposes.

CAUTION: To remove electronic components from static packages, you must wear an anti-static wrist strap, part number 916962. The wrist strap must be securely attached to an earth grounding point to prevent possible damage from static electricity.

5. Remove all equipment from the shipping cartons and carefully inspect for damage.

3.2. UNPACKING AND INSPECTION, continued

NOTE: Any damage should be brought to the attention of the carrier and claims made immediately. Return all equipment to the respective cartons for protection until actual installation is made. Save all cartons until it is certain that return shipments are not required.

3.3. RETURNING DAMAGED COMPONENTS

Parts or components returned to the factory under warranty or for repair are subject to damage if not packaged properly. Complete the following steps to return parts or components to the factory.

1. Place electronic components in an anti-static bag and in the original shipping cartons for return shipment to the factory.

NOTE: If original shipping cartons are not available use a sturdy cardboard container and suitable packing materials such as anti-static polyethylene foam or bubble pack, to ensure the component is firmly packed.

2. Include a Return Parts Tag with the defective component describing the particular problem with the part.

3. Make sure that adequate insurance is provided when returning parts to the factory.

WARNING: If the parts or components arrive at our factory in a damaged condition and it is determined that the damage is a direct result of inadequate or improper packaging, the damage will not be covered under the original warranty and the customer or distributor will be held responsible for the cost of repairs necessary to correct or replace the damaged parts.

3.4. PIB/PLUS INSTALLATION WITH OCIA INTERFACE

3.4.1. Required Parts For OCIA Interface

Verify the items listed in Figure 3-1 are available before attempting to install the PIB/Plus board for OCIA operation.

3.4.1. Required Parts For OCIA Interface, continued

DJR-FH-476-A

PIB/Plus Board, part number 839134-01/XXX

OCIA Cable Interface, part number 830151-XX
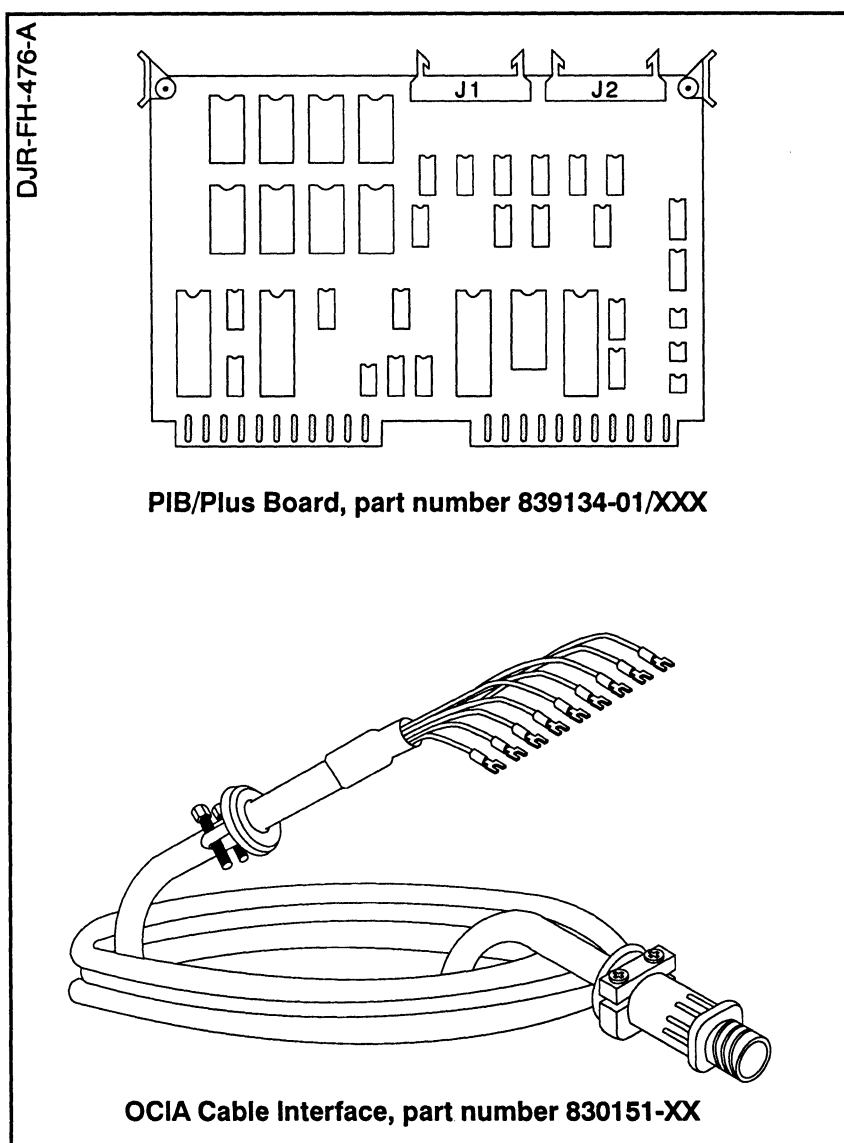
FIGURE 3-1. PIB/PLUS OCIA INSTALLATION PARTS

3.4.2. PIB/Plus Board and OCIA Cable Installation

The PIB/Plus OCIA cable interface is currently used with the NCR 2950™ auxiliary controller. Installing the the OCIA cable, part number 830151-XX, allows the NCR 2950™ to communicate with the PIB/Plus board.

The following steps demonstrate how to install a PIB/Plus board equipped with an OCIA interface cable. Refer to Figure 3-2.

1. Turn power **Off** to the site controller.

2. Place a wrist strap, part number 916962 or equivalent, on your wrist and clip the grounding end to the chassis of the power supply located in the site controller.

3.4.2. PIB/Plus Installation With OCIA Interface, continued

3. Install the PIB/Plus board in slot 6 of the site controller. The component side of the PIB/Plus board should face toward the power supply.
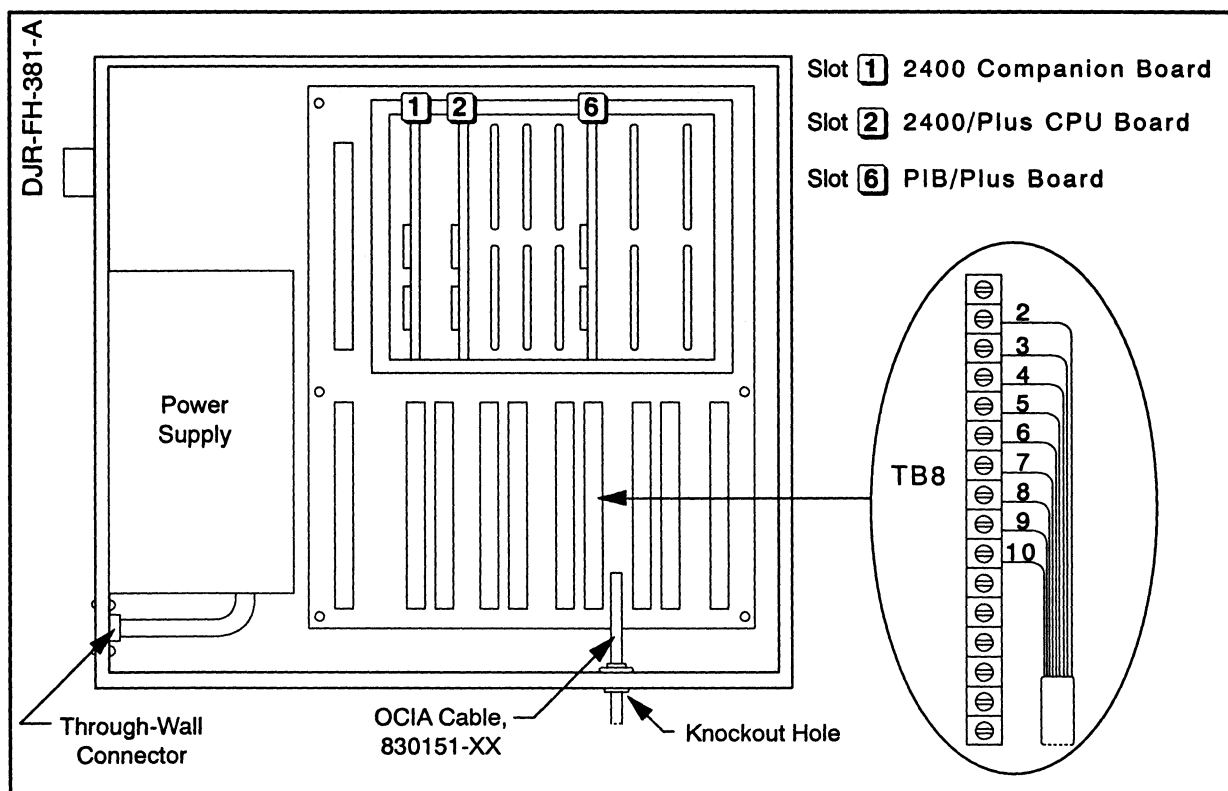

Slot [1] 2400 Companion Board

Slot [2] 2400/Plus CPU Board

Slot [6] PIB/Plus Board

Power Supply

TB8

Through-Wall Connector

OCIA Cable, 830151-XX

Knockout Hole

DJR-FH-381-A

FIGURE 3-2. PIB/PLUS BOARD & OCIA CABLE INSTALLATION

4. Locate a knockout hole in the bottom of the site controller cabinet. The knockout hole is located below and slightly to the right of terminal board TB8.

5. Route the end of the OCIA cable containing lugs labeled 2 through 10, through the knockout hole and into the site controller.

6. Fasten the OCIA cable lugs to the TB8 connector. Each lug on the OCIA cable connects to a corresponding number on the TB8 connector.

7. Verify the cable is securely fastened to the site controller.

8. Turn power **On** to the site controller.

9. To check the PIB/Plus software I.D. level, enter mode 94 and submode 03 on the 2400 console. The console screen displays the PIB/Plus software I.D. in the following format: XX000. "XX" represents the PIB/Plus software I.D. and "000" represents the checksum number.

3.4.2. PIB/Plus Installation With OCIA Interface, continued

If the PIB/Plus software I.D. does not appear on the console screen, the PIB/Plus board is not communicating with the 2400/Plus CPU board. If the checksum does not equal zero, the PIB/Plus firmware or hardware is not operating correctly and must be replaced. Replace the PIB/Plus firmware and/or board to correct the problem.

10. Turn power **Off** to the site controller.

11. Connect the auxiliary controller to the OCIA cable connector.

12. Turn power **On** to the site controller.

13. Configure the auxiliary controller for communication with the PIB/Plus board.

14. Disconnect the 2400 console.

The system is now ready to communicate with the auxiliary controller.

3.5. PIB/PLUS INSTALLATION WITH RS-232 INTERFACE

3.5.1. Required Parts For RS-232 Interface

Verify the items listed in Figure 3-3 are available before attempting to install the PIB/Plus board for RS-232 operation.

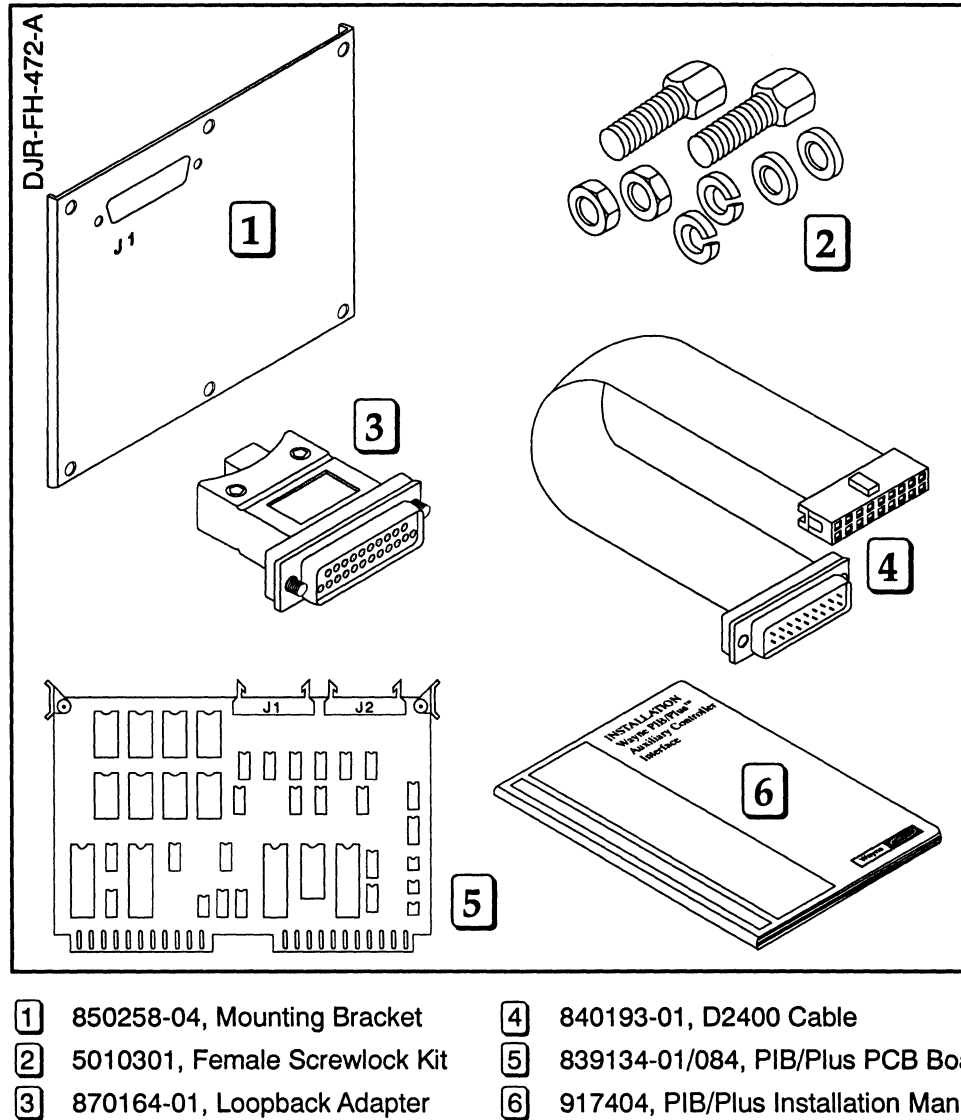|			
1	850258-04, Mounting Bracket	4	840193-01, D2400 Cable
2	5010301, Female Screwlock Kit	5	839134-01/084, PIB/Plus PCB Board
3	870164-01, Loopback Adapter	6	917404, PIB/Plus Installation Manual

FIGURE 3-3. PIB/PLUS RS-232 INSTALLATION PARTS

3.5.2. Baud Rate Verification

The PIB/Plus board provides a RS-232 interface that allows auxiliary controllers, such as the Datarol 7100™, to control Wayne dispensers. The RS-232 interface uses a DB-25 connector with pin definitions listed in Table 3-1.

3.5.2. Baud Rate Verification, continued

TABLE 3-1. RS-232 (DB-25) PIN DEFINITIONS

Pin Number	Signal Direction	Definition
1	<--->	FG - Frame Ground
2	---->	TX - Transmit
3	<----	RX - Receive
4	---->	RTS - Request To Send
5	<----	CTS - Clear To Send
7	<--->	SG - Signal Ground
8	<----	CD - Carrier Detect
20	---->	DTR - Data Terminal Ready

Before installing the PIB/Plus board in the site controller, verify the PIB/Plus board RS-232 baud rate matches the auxiliary controller. The PIB/Plus baud rate is hard wired to 1200 baud at the factory. If this rate does not match the auxiliary controller, the PIB/Plus baud rate must be changed as described in the following steps.

NOTE: When using mode 82 and the soft baud feature, disconnect the auxiliary controller when changing the baud rate.

The baud rate for the PIB/Plus board RS-232 channel may be set in one of two ways. The baud rate can be hard wired or soft programmable. Each of these options requires specific settings on the PIB/Plus board.

The following steps demonstrate how to hard wire the baud rate. Refer to Figure 3-4.

1. Determine the baud rate required by the auxiliary controller.

2. Connect a jumper wire from JP3 pin 12 to the pin on JP3 that corresponds to the desired baud rate.

The following steps demonstrate how to complete a soft programmable baud rate. Refer to Figure 3-4.

1. Connect a jumper wire from JP3 pin 12 to JP3 pin 11 only.

2. Determine the baud rate required by the auxiliary controller.

3. To soft program the baud rate, enter prime mode 82, submode 03 and 0X. "X" is used as a placeholder to represent a numerical value for the desired baud rate listed in Table 3-2.
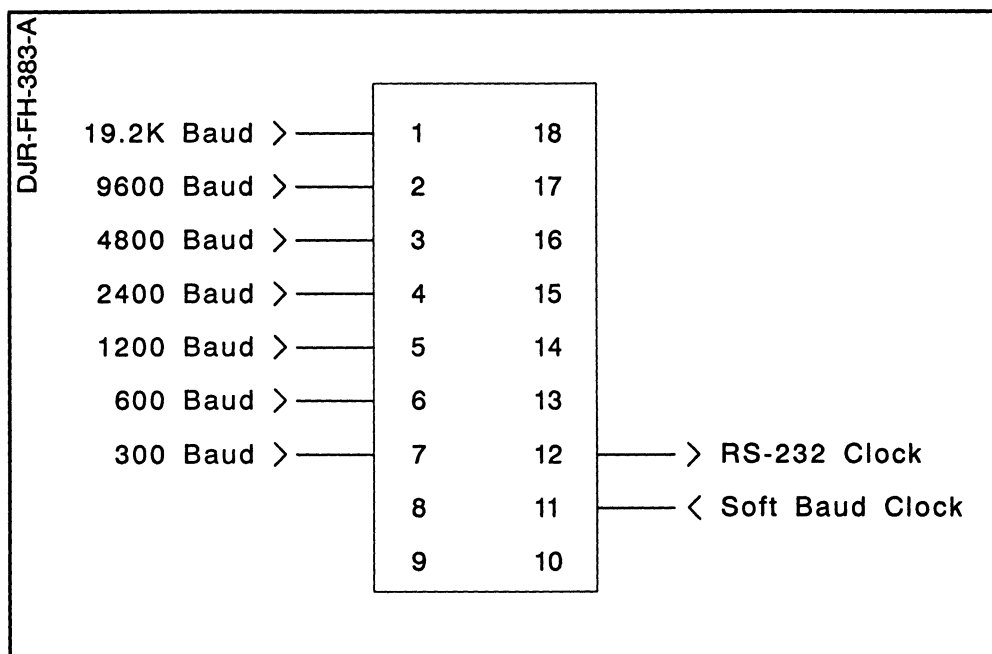
3.5.2. Baud Rate Verification, continued

FIGURE 3-4. JP3 PIN DEFINITIONS

WARNING: Following a RAM (Random Access Memory) clear of the 2400 MCPU board, mode 82-03 defaults to a numerical value of "00" as the baud rate selection value. This causes the baud rate on the PIB/Plus board to set at 1200 baud if the soft baud clock is connected to JP3 pin 12.

TABLE 3-2. SOFT PROGRAMMABLE BAUD RATE SELECTIONS

Selection Value	Baud Rate
0	1200
1	300
2	600
3	1200
4	2400
5	4800
6	9600
7	9600
8	9600
9	9600

3.5.3. PIB/Plus Board and RS-232 Cable Installation

To install the PIB/Plus board for RS-232 operation, perform the following steps.

1. Turn power **Off** to the site controller.

2. Connect the RS-232 cable, part number 840193-01, to the mounting bracket, part number 850258-04. To securely fasten the cable to the bracket, use the female screwlock kit, part number 5010301.

NOTE: Older site controller cabinets may have knockout mounting holes instead of a removable plate. In this case, connect the RS-232 cable in the uppermost knockout mounting hole and skip steps 3 and 4.

3. Remove the six screws securing the metal plate to the hinge side of the site controller. Discard the metal plate.

4. With the RS-232 cable connected to the mounting bracket, place the cable through the opening and secure the mounting bracket to the site controller with the six screws removed earlier.

5. Place a wrist strap, (Wayne part number 916962, 3M charge Guard 2213, or equivalent), on your wrist and clip the grounding end to the chassis of the power supply in the site controller.

6. Install the PIB/Plus board in slot 6 of the site controller. Refer to Figure 3-5. Place the PIB/Plus board with the component side facing toward the power supply.

7. Connect the DB-25 connector on the RS-232 cable to the connector marked J2 on the PIB/Plus board. Refer to Figure 3-5.

8. Check the site controller cabinet for loose tools or parts.

9. Remove the grounding end of the wrist strap from the power supply and close the cabinet door.

10. Turn power **On** to the site controller.

11. To check the PIB/Plus software I.D. level, enter mode 94 and submode 03 on the 2400 console. The console screen displays the PIB/Plus software I.D. in the following format: XX000. "XX" represents the PIB/Plus software I.D. and "000" represents the checksum number.

If the PIB/Plus software I.D. does not appear on the console screen, the PIB/Plus board is not communicating with the 2400/Plus CPU board. If the checksum does not equal zero, the PIB/Plus firmware or hardware is not operating correctly and must be replaced. Replace the PIB/Plus firmware and/or board to correct the problem.

3.5.3. PIB/Plus Board and RS-232 Cable Installation, continued

DJR-FH-385-A

PIB/Plus Board
Slot #6

J1

J2

RS-232 adapter cable, part number
840193-01, connects to J2 on the
PIB/Plus board.

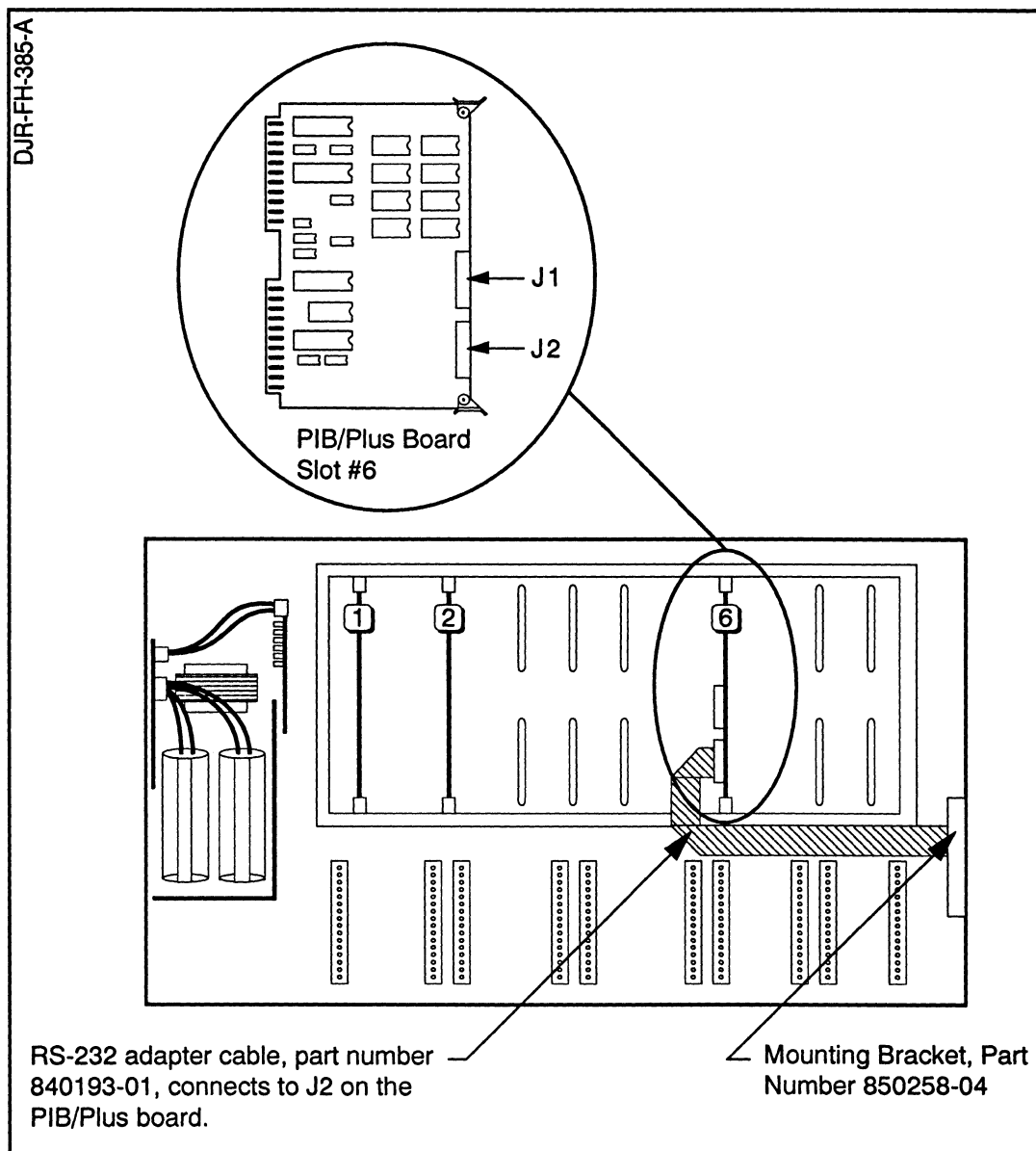Mounting Bracket, Part
Number 850258-04

FIGURE 3-5. PIB/PLUS BOARD AND RS-232 INSTALLATION

3.6. RS-232 LOOPBACK TEST

When the PIB/Plus board is communicating with the 2400/Plus CPU board, the operator is ready to perform the RS-232 loopback test. The loopback test checks the functioning qualities of the RS-232 port hardware on the PIB/Plus board. To perform the loopback test, use a Wayne 2400 Control console, a loopback adapter, and PIB/Plus software I.D. 34 or higher.

3.6 RS-232 LOOPBACK TEST, continued

The loopback test is initiated from the 2400 Control console once the operator enters prime mode 82 and submode 03, and 1X. "X" is used as placeholder to represent a numerical choice from the column heading, "X" Selection Value, shown in Table 3-3.

To further understand how to determine selection values and corresponding baud rates, use the following example with Table 3-3.

EXAMPLE: For systems operating with a 1200 baud rate, 1X becomes 10 and the operator enters 10 on the console. If the system is operating at 4800 baud, 1X becomes 15 and the operator enters 15 on the console.

TABLE 3-3. LOOPBACK TEST SOFT BAUD RATES

"X" Selection Value	Baud Rate	Console Entry
0	1200	10
1	300	11
2	600	12
3	1200	13
4	2400	14
5	4800	15
6	9600	16
7	9600	17
8	9600	18
9	9600	19

When the start instruction is detected for the loopback test, the PIB/Plus sets the soft baud rate according the value selected for "X" and begins the test. The results of the test display on the console screen when the operator enters prime mode 82 and submode 03 on the console. The test results appear in either of the two following forms: 2X represents a successful test and 3X represents a failed test.

NOTE: Performing a loopback test changes the value of the soft baud rate clock. When the choice of baud rate is not soft, the test performs at the hard wire selected rate.

The loopback test requires a loopback adapter to be placed on the DB-25 connector located on the mounting bracket. Refer to Figure 3-6 for pin connections on the loopback adapter.
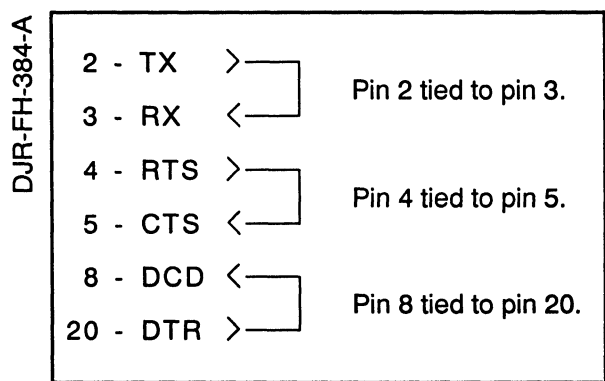
3.6 RS-232 LOOPBACK TEST, continued

FIGURE 3-6. LOOPBACK ADAPTER CONNECTIONS

To perform the loopback test, complete the following steps.

1. Connect the loopback test adapter, part number 870164-01, to the DB-25 ribbon cable connector located on the mounting bracket.

2. Verify the 2400 Console is connected to the through-wall connection located on the site controller.

3. Enter mode **82** and submode **03** on the 2400 Console.

4. Enter **1X** where "X" represents a number corresponding to a particular baud rate. Refer to Table 3-3.

5. Press the **Prnt/Entr** key.

6. To display the loopback test results on the console screen, enter prime mode **82** and submode **03**.

When the PIB/Plus board passes the loopback test, the console screen displays the number 2X.

NOTE: For 2X and 3X test result values, the "'X" is used as a placeholder to represent the numbers listed under the column heading, "X" Selection Value, in Table 3-3. To determine the X value and corresponding baud rate, refer to Table 3-3.

If the PIB/Plus board does not pass the loopback test, the console screen displays the number 3X. If the loopback test is not completed successfully, correct the problem before continuing. The PIB/Plus board may need to be replaced.

7. Remove the loopback test adapter from the mounting bracket and connect the auxiliary controller to the DB-25 connector on the mounting bracket.

8. Disconnect the 2400 console.

The system is now ready to communicate with the auxiliary controller.

INSTALLATION
WAYNE PIB/PLUS™
AUXILLARY CONTROLLER INTERFACE

USER'S RESPONSE SHEET

Manual Title: <u>Installation Wayne PIB/Plus Auxillary Controller Interface, part number 917404</u>

Manual Revision: <u>Revision B</u>   Date of This Letter: _____

User's Name: _____   Telephone: _____

Company: _____   Your Position: _____

Street Address: _____

City/State/Zip Code: _____

How would you rate the quality of this manual:

	Excellent	Good	Fair	Poor
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Organization	_____	_____	_____	_____
Clarity	_____	_____	_____	_____
Completeness	_____	_____	_____	_____
Overall Design	_____	_____	_____	_____
Length	_____	_____	_____	_____
Illustrations	_____	_____	_____	_____
Examples	_____	_____	_____	_____
Index	_____	_____	_____	_____
Binding Method	_____	_____	_____	_____

Please list any discrepancy found in this manual by page, paragraph, figure, or table number in the following space. If there are any other suggestions that you wish to make, feel free to include them. Thank you.

Location in Manual   Comment/Suggestion/Discrepancy

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Upon Buyer's submission of a claim as provided above and its substantiation, Seller shall, at its option either (I) repair or replace its product or work at the original f.o.b. point or location of purchase products and/or parts or (II) refund an equitable portion of the purchase price.

THE FOREGOING IS SELLER'S ONLY OBLIGATION AND BUYER'S EXCLUSIVE REMEDY FOR BREACH OF WARRANTY AND, EXCEPT FOR GROSS NEGLIGENCE, WILLFUL MISCONDUCT AND REMEDIES PERMITTED UNDER THE PERFORMANCE INSPECTION AND ACCEPTANCE AND THE PATENTS CLAUSES HEREOF, THE FOREGOING IS BUYER'S EXCLUSIVE REMEDY AGAINST SELLER FOR ALL CLAIMS ARISING HEREUNDER OR RELATING HERETO WHETHER SUCH CLAIMS ARE BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORIES, BUYER'S FAILURE TO SUBMIT A CLAIM AS PROVIDED ABOVE SHALL SPECIFICALLY WAIVE ALL CLAIMS FOR DAMAGES OR OTHER RELIEF, INCLUDING BUT NOT LIMITED TO CLAIMS BASED ON LATENT DEFECTS. IN NO EVENT SHALL BUYER BE ENTITLED TO INCIDENTAL OR CONSEQUENTIAL DAMAGES. ANY ACTION BY BUYER ARISING HEREUNDER OR RELATING HERETO, WHETHER BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORIES, MUST BE COMMENCED WITHIN ONE (1) YEAR AFTER THE CAUSE OF ACTION ACCRUES OR SHALL BE BARRED.

"NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense."

Wayne (DRESSER)