



05202

SMALL CENTRAL OFFICE MASTER ALARM SYSTEM

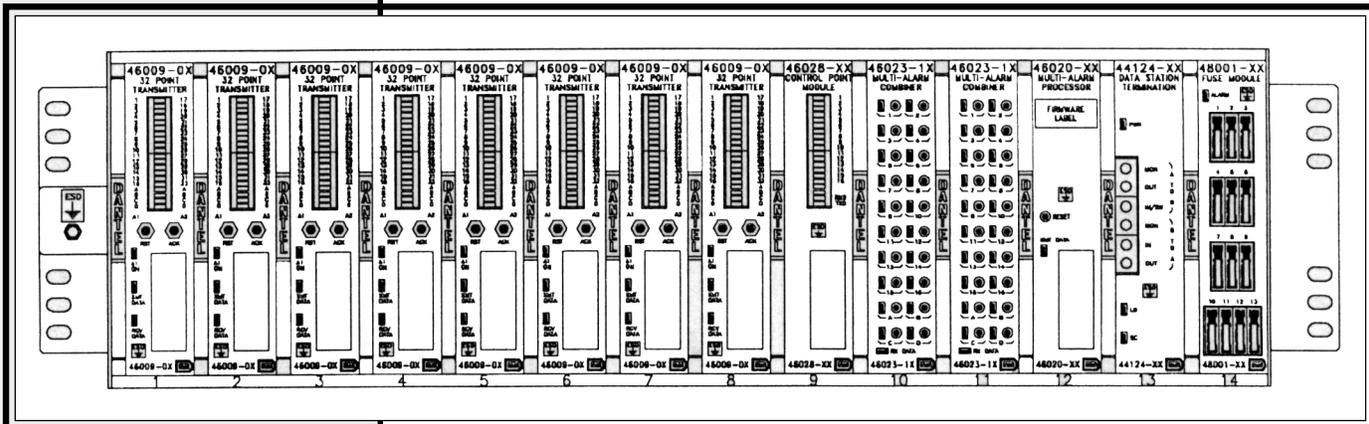


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About this Practice:

This practice has been reissued to:

- Update to reflect Y2K compliance.

Reissued Practices: Updated and new content can be identified by a banner in the right margin.

Issue date: February 1999

UPDATED

CAUTION

- Install or remove modules from the shelf only when the power is off. If you install a module in the shelf with the power on, the internal circuitry may suffer damage and the product warranty will be void.
- Remove and install circuit boards only in a static-safe environment (use antistatic wrist straps, smocks, footwear, etc.).
- Keep circuit boards in their antistatic bags when they are not in use.
- Do not ship or store circuit boards near strong electrostatic, electromagnetic, magnetic, or radioactive fields.
- For more complete information on electrostatic discharge safety precautions, refer to Bellcore™ Technical Reference # TR-NWT-000870.

ORDERING INFORMATION

NOTE: This section lists the different options available for this product. To order any of the available options, contact Dantel Inside Sales through our toll-free number, **1-800-432-6835**.

OPTION NUMBER	FEATURES
A18-05202-30	256 Discrete Alarm Points, 16 Control Points, 15 TBOS Ports, Writing Shelf
A18-05202-31	128 Discrete Alarm Points, 16 Control Points, 15 TBOS Ports, Writing Shelf
A18-05202-32	128 Discrete Alarm Points, 16 Control Points, 7 TBOS Ports, Writing Shelf
A18-05202-33	96 Discrete Alarm Points, 16 Control Points, 7 TBOS Ports, Writing Shelf
A18-05202-34	160 Discrete Alarm Points, 16 Control Points, 7 TBOS Ports, Writing Shelf
A18-05202-35	256 Discrete Alarm Points, 16 Control Points, 15 TBOS Ports

The DJ05202 drawings provide information for ordering the various components of the Small Central Office Master Assembly. All the above options include a 256K Status Monitor w/ keyboard, 41071 Alarm Display Unit, and 3 Terminal Block Assemblies.

INTRODUCTION

This system manual provides information on how to order, install, and operate the Small Central Office Master Alarm Assembly. The manual is divided into three main sections, as outlined below.

Application

A brief description is provided of how the shelf operates and interfaces with external equipment.

Installation

Follow this section for step-by-step details on installing the equipment. This section is divided into five parts: equipment mounting, wiring, switch and strap settings for modules, turn-up procedure and troubleshooting. The turn-up procedure provides instructions for getting the system operating.

Support Documentation

This section consists of individual practices on the different components of the system. The practices provide in-depth information on the operation of the system components, functional schematics, and technical specifications. The operating instructions in the practices will provide a useful reference to the user who needs more details than given in the turn-up procedure in the Installation section.

INTRODUCTION

APPLICATION INFORMATION

For a functional schematic of the Small Central Office Master Alarm System Shelf, refer to sheet 2 of the DJ05202 drawing that follows this page.

Operation of the shelf is controlled by 46020 Multiple Alarm Processor (MAP) in slot 12. The MAP polls for alarms and issues commands to operate control points through the Smart MACs in slots 10 and 11. The 46009 Multiple Alarm Transmitters (MATs) in slots 1 through 8 accept ground inputs. The 46028 Control Point Module (CPM) in slot 9 has normally-open relays for operating controls.

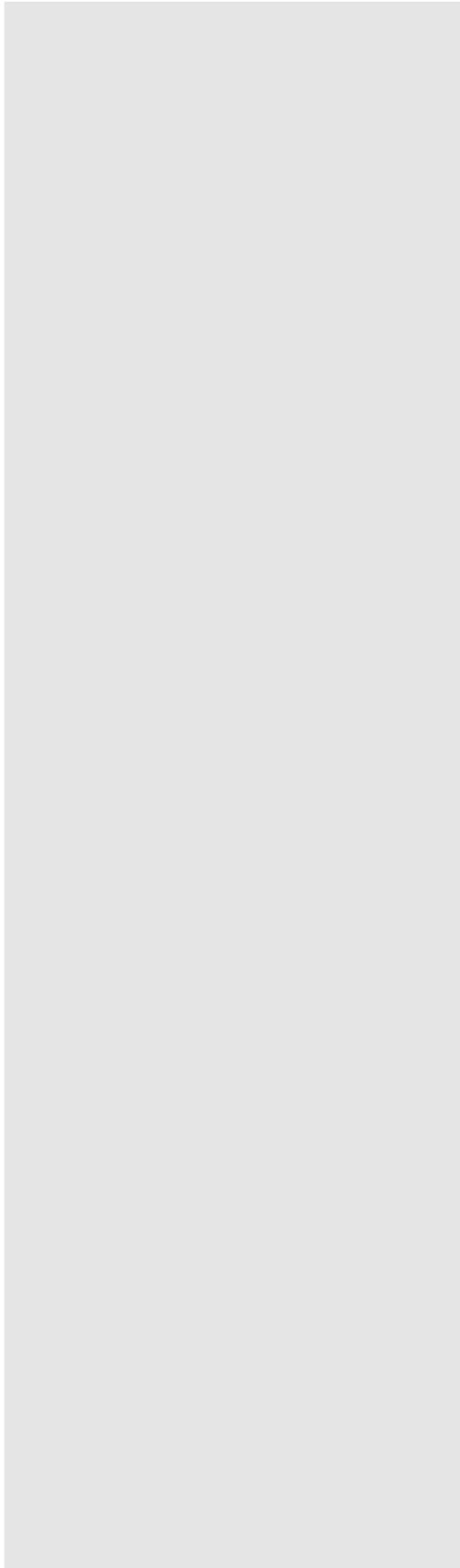
Alarms received by the MAP are reported locally to the 46001 Status Monitor and 41071 Alarm Display Unit.

The MAP also communicates with the alarm center through the 44124 Data Station Termination module in slot 13.

The MAP and Status Monitor require a database to operate. These databases are configured using a computer running T/Shell software and downloaded to the modules from the computer.

The Fuse Module provides fused power to each slot of the shelf.

APPLICATION INFORMATION



INSTALLATION

This section consists of five parts, as explained below.

EQUIPMENT MOUNTING

- ◆ 41060 Writing Shelf
- ◆ 41071 Alarm Display Unit
- ◆ 46001 Status Monitor
- ◆ 05202 Equipment Shelf

WIRING

- ◆ A18-05202-XX Block Diagram
- ◆ DT-05202-30 Master Alarm System Interconnection drawings

SWITCH AND STRAP SETTINGS

- ◆ 44124-00 Data Channel Termination Module
- ◆ 46001-03 Status Monitor
- ◆ 46009-02 Multiple Alarm Transmitter
- ◆ 46020-41 Multiple Alarm Processor

NOTE: *This shelf is Y2K compliant if it is equipped with a D11-46020-41 or later Multiple Alarm Processor*

- ◆ 46023-14 Smart Multiple Alarm Combiner
- ◆ 46028-01 Control Point Module
- ◆ 49008-00 Current Loop Subassembly
- ◆ 49013-00 Tone Modem Subassembly

TURN-UP PROCEDURE

TROUBLESHOOTING

UPDATED

INSTALLATION

INSTALLATION

EQUIPMENT MOUNTING

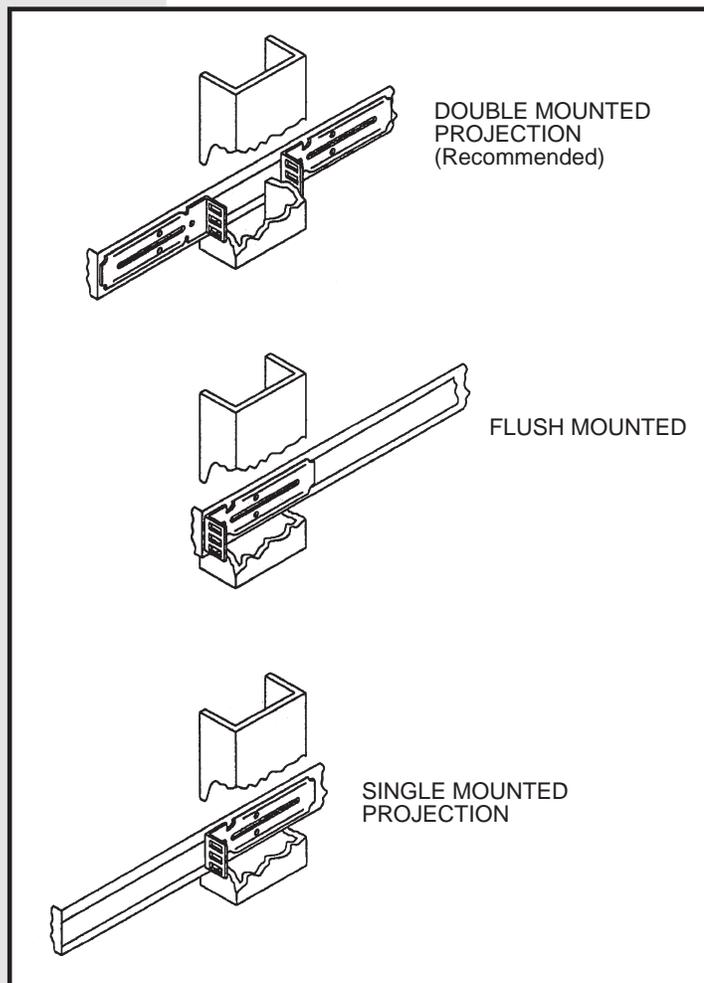
41060 WRITING SHELF

Tools Required

- ◆ Phillips Screwdriver

1. The 41060 can be mounted three ways. Refer to Fig. 1. For maximum stability, the double mounted projection is recommended. Units come with brackets in the flush mount position. Additional brackets are included for double mounting.
2. If not mounting flush, remove the slides from the shelf to reposition the brackets. Fully extend the slide to access the slide mounting screws from the outside of the shelf. Remove the front bracket mounting screws by lining them up with the holes in the slide. Make sure that the bracket positions match the rack before reattaching the slides to the shelf.

FIG. 1 - MOUNTING CONFIGURATIONS, 41060 WRITING SHELF



INSTALLATION

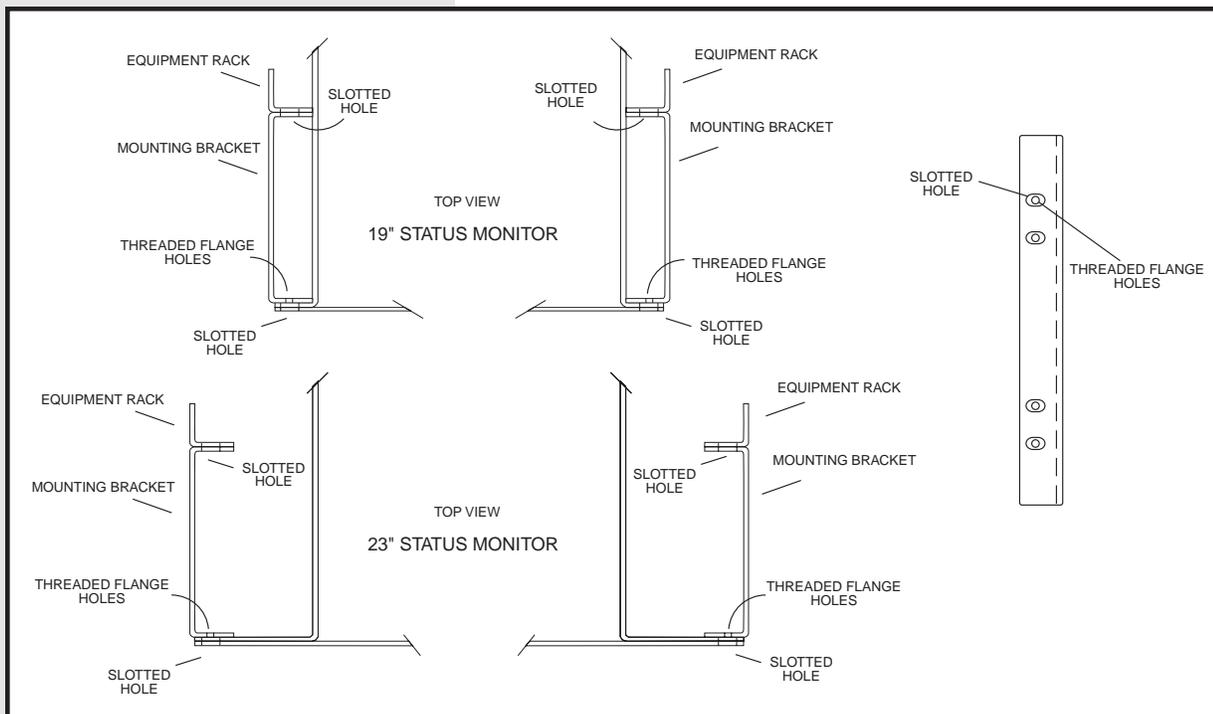
41071 ALARM DISPLAY UNIT

1. Mount the light display box using the two mounting holes on the rear or left side. Use #6 hardware (not provided).
2. Remove the cover from the remote switch unit and mount as required using the two mounting holes on the rear. Use #6 hardware (not provided).
3. Refer to the 41071 practice for information on wiring this unit.

46001 STATUS MONITOR

1. Verify that the equipment rack has at least 8 3/4 inches of vertical clearance (five rack units) to mount the 46001. Mount the 46001 by placing it in position in the equipment rack and then installing the bolts shipped with the unit. If extension brackets were ordered, they must be installed on the equipment rack prior to mounting the Status Monitor. Refer to Fig. 2.
2. Mount the brackets to the equipment rack using the slotted holes, with the base located away from the Status Monitor. Mount the Status Monitor to the brackets using the threaded holes.
3. Install the ESD studs.

Fig. 2 - MOUNTING BRACKET, 46001 STATUS MONITOR



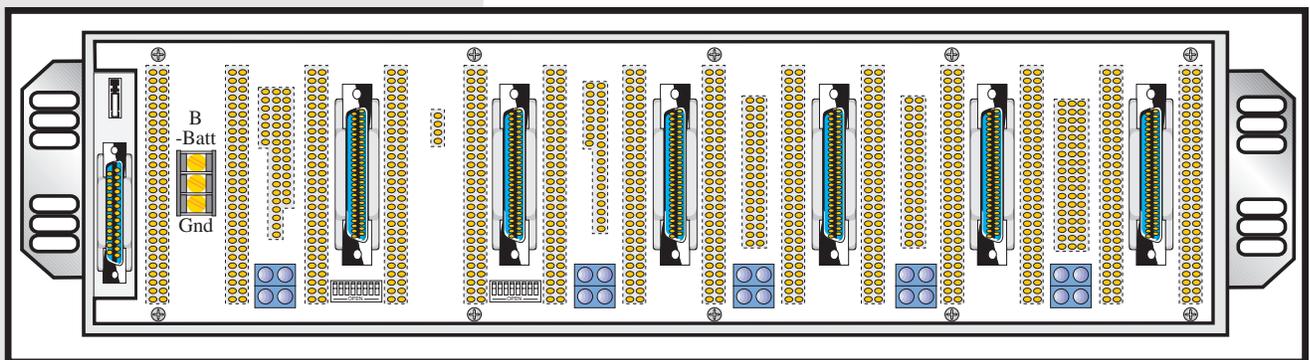
INSTALLATION

05202 EQUIPMENT SHELF

Tools Required:

- ◆ Ohmmeter
 - ◆ Phillips screwdriver
1. Visually inspect shelf for obvious damage.
 2. Use ohmmeter to check for a short across power input at B (-DC) and (GND) at the left end of the rear of the shelf (refer to Fig. 3).

FIG. 3 - REAR VIEW OF 05202 EQUIPMENT SHELF



If the shelf is damaged or the power is shorted, the faulty unit is to be replaced and returned to the factory. For repairs and emergency replacements, obtain a "Return Material Authorization" (RMA) number by calling **1-800-4DANTEL** (1-800-432-6835) and asking for the Customer Return Representative.

NOTE: *To avoid further damage, use the original shipping materials when returning the shelf.*

To ensure expedient processing for your order, provide a purchase order number and shipping and billing information when requesting an RMA number. Also, when the units are returned to Dantel, include a description of the failure symptoms for each unit returned.

Send returned materials to:

Dantel, Inc.
2991 N. Argyle Ave.
Fresno, CA 93727-1388

CONTINUED . . .

INSTALLATION

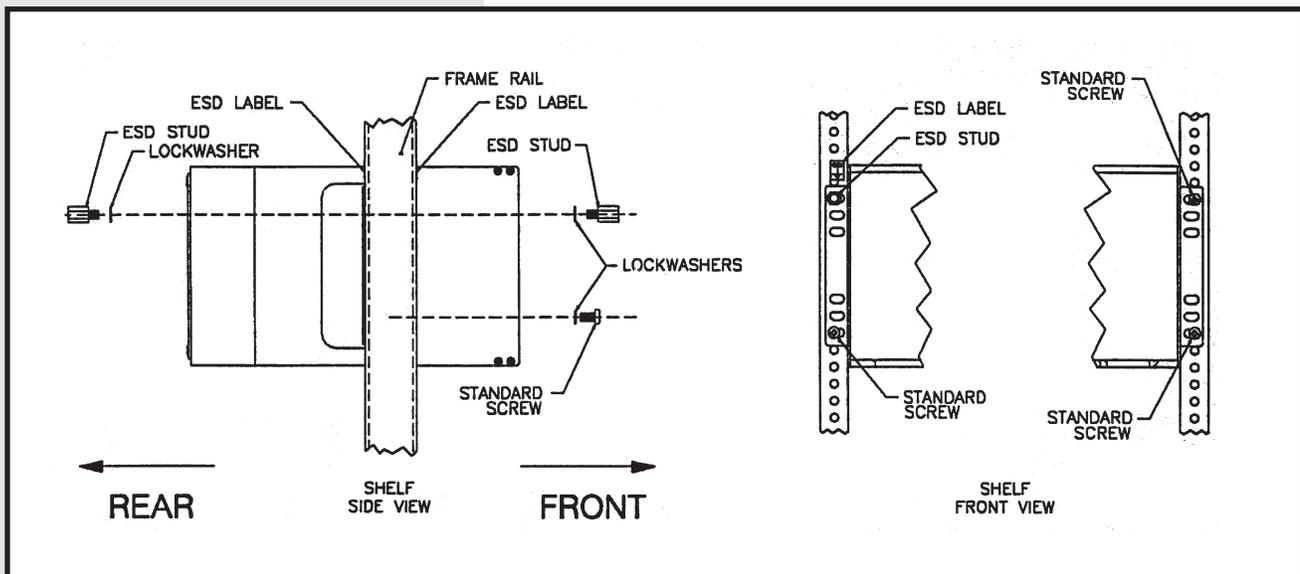
3. With a Phillips screwdriver, mount the shelf in an equipment rack using the screws and lockwashers supplied in a bag attached to the side of the shelf.

Mounting hardware is supplied in a bag attached to the side of the shelf. Refer to Figure 4.

Facing the frame rail, place the equipment shelf in the rack in the desired location. Secure with three Phillips-head screws and lockwashers - two on the right side, top and bottom, and one on the lower left side.

4. Install one ESD stud, with lockwasher, in the upper left location.
5. Secure all fasteners tightly, ensuring proper grounding between ESD stud and frame rail.
6. Place ESD label next to the ESD stud.
7. From the rear of the bay, install the other ESD stud and lockwasher into the frame rail next to the equipment shelf. Secure tightly, ensuring proper grounding of the ESD stud. Place ESD label next to the ESD stud.

FIG. 4 - MOUNTING CONFIGURATION, 41075 400-TYPE MOUNTING



INSTALLATION

WIRING

Wire the Small Central Office Master Alarm System to external equipment as required. Use the A18-05202-XX and DT-05202-30 drawings as references for making connections to the Dantel equipment.

INSTALLATION

INSTALLATION

SWITCH AND STRAP SETTINGS

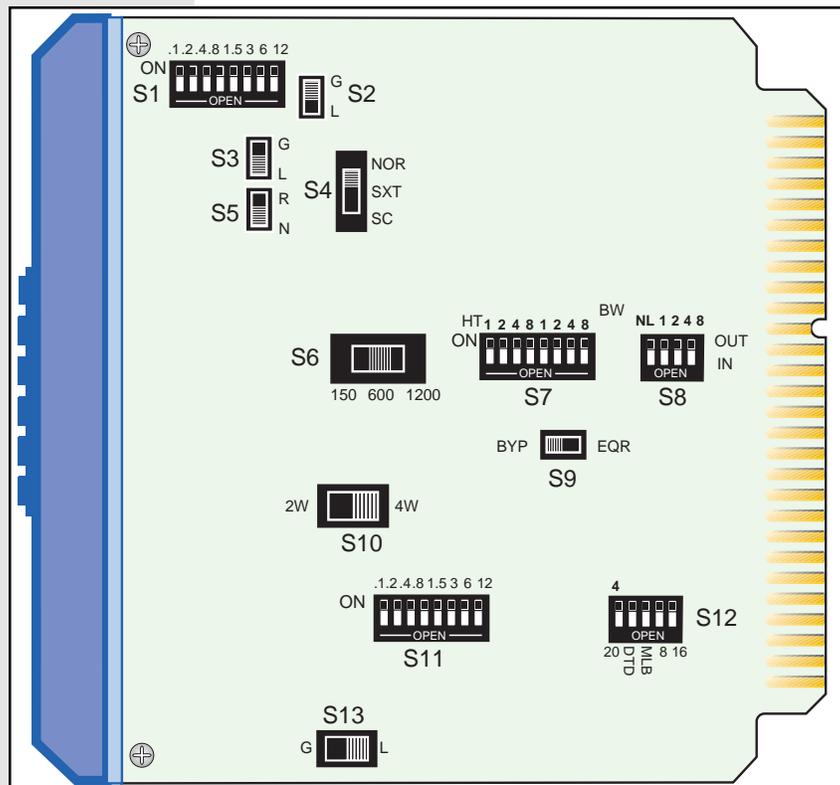
44124 DATA STATION TERMINATION MODULE

Refer to Fig. 6. Recommended switch settings:

- S1-1 through S1-8 All OFF
- S2 - place in G Position
- S3 - place in L position
- S4 - place in NOR position
- S5 - place in N position
- S6 - place in 600 position
- S7-1 through S7-8 All OFF
- S8-1 through S8-5 All ON (OUT)
- S9 - place in BYP position
- S10 - place in 4W position
- S11-1 through S11-8 All OFF
- S12-1 place in 4 position
- S12-2 place in ON (unmarked) position
- S12-3 place in OFF (disable) position
- S12-4 and S12-5 OFF
- S13 - place in L position

NOTE: For details about the switch settings, refer to the 44124 Data Station Termination Module Practice.

Fig. 6 - SWITCH LOCATIONS, 44124 MODUJLE



INSTALLATION

46001 STATUS MONITOR

Refer to Fig. 7. Recommended switch and strap settings:

Power Supply and Relay Card

S1 - DOWN (Global)

This switch sets the audible alarm relays to operate on GLOBAL alarms.

CRT Control Card

S1-1 through S1-8 UP (OFF)

This switch sets the CRT card data rate to 9600 baud.

NOTE: *This setting must match the data rate of the GPP printer port.*

General Purpose Processor

S1-1 through S1-6 All UP (OFF)

S1-7 and S1-8 DOWN (ON)

S2-1 through S2-8 All UP (OFF)

S3-1 through S3-8 All UP (OFF)

See Fig. 8 for factory strap settings

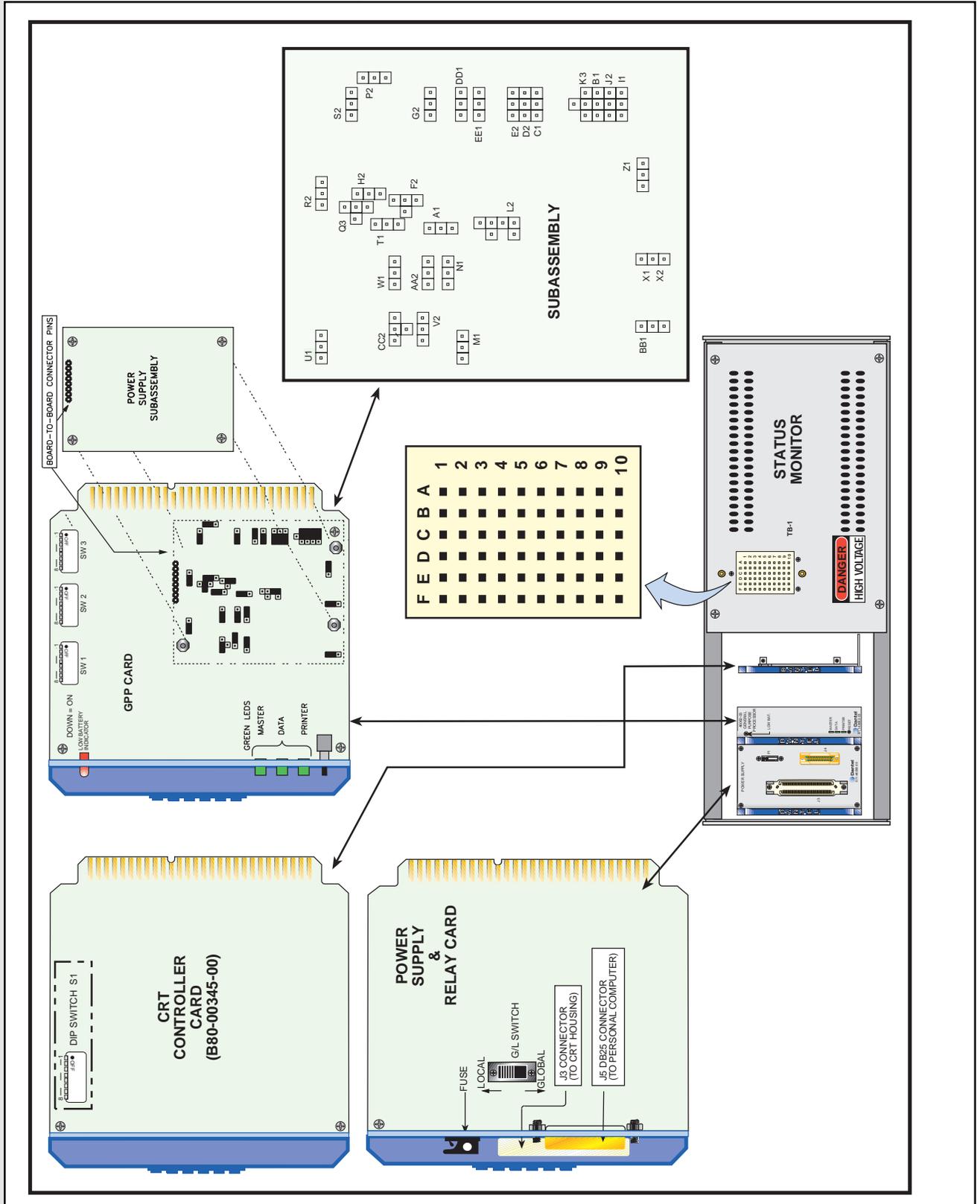
These switches set the data rate for the master and printer ports for 9600 baud. The address for the Status Monitor is 1. Also the switches are set so that neither Global or Local alarms can be masked.

The data rate for the data port defaults to 1200 baud. The data rate can be changed to 9600 baud using printer syntax commands.

NOTE: *For additional information regarding this and other printer syntax commands, or for further details about switch settings, refer to the 46001 Status Monitor Practice.*

INSTALLATION

Fig. 7 - BOARD LAYOUT, 46001 STATUS MONITOR



INSTALLATION

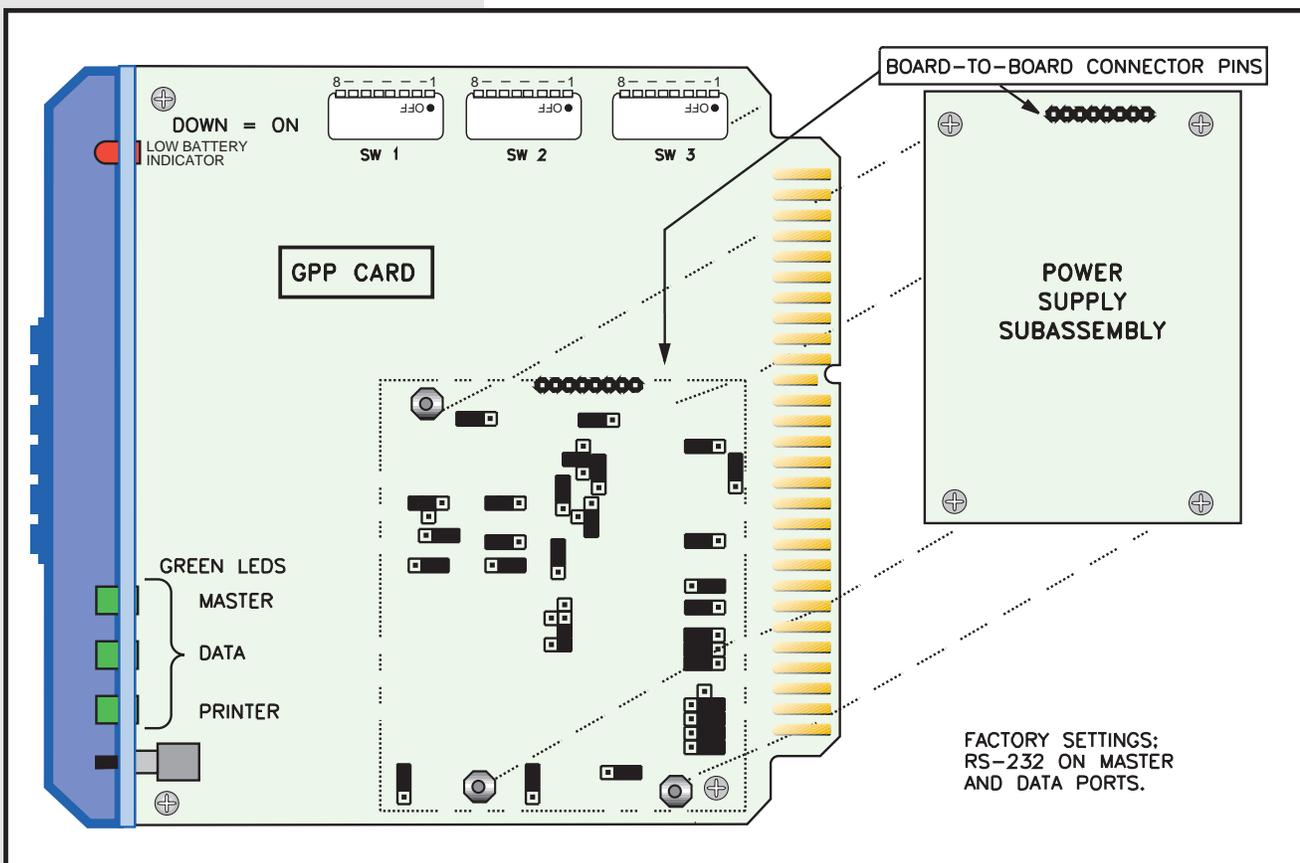
The GPP Module has been strapped at the factory for RS-232 communications on both the master and data ports. To change or verify the strap positions the power supply subassembly board must be removed from the module. This is accomplished by the following steps:

1. Remove power from the 46001 (if not already removed).
2. Remove the GPP card from the rear of the 46001.
3. Refer to Fig. 8. Carefully remove the power supply subassembly, exposing the straps located on the main circuit board below the subassembly.
4. Verify the strapping and make changes as required.

NOTE: Refer to the 46001 Status Monitor Practice for additional information.

5. Reinstall the power supply subassembly board, insuring that each pin of the board to board connector is in the proper position. Reinstall the module into the 46001 housing.

FIG. 8 - SWITCH AND STRAP LOCATIONS, 46062



INSTALLATION

46009 MULTIPLE ALARM TRANSMITTER

Recommended switch and strap settings:

NOTE: *Switch settings are the same for all MATs unless specified otherwise. Refer to Fig. 9 for switch locations and Fig. 10 for addresses.*

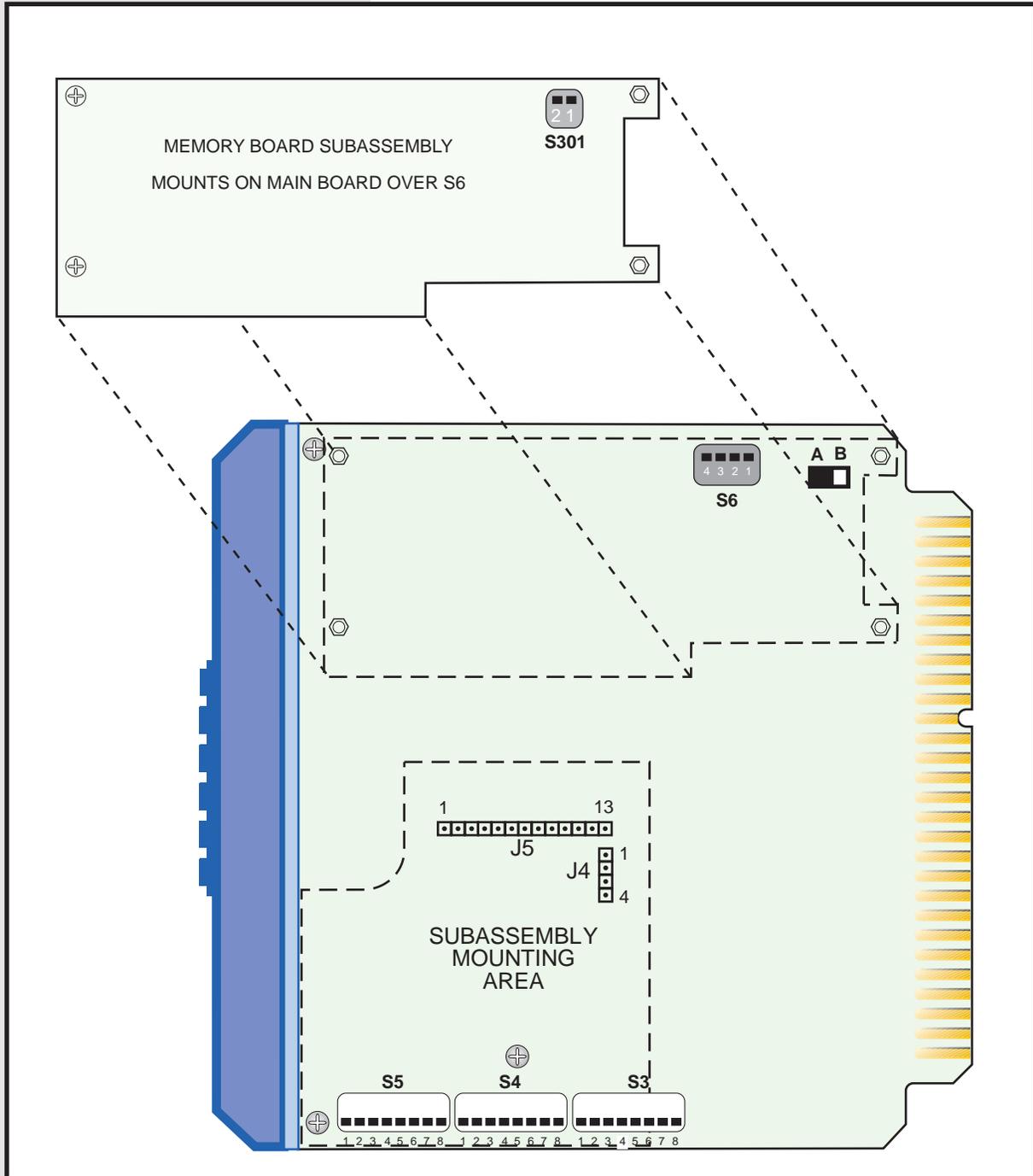
S3 - All UP (OFF)
S4 - 1 and 2 UP (OFF)
S4 - 3, 4, and 5 DOWN (ON)
S4 - 6, 7, and 8 UP (OFF)
S5 - See Figure 10
S6 - All UP (OFF)
S301 - 1 DOWN (ON) and 2 UP (OFF)
A/B mini-jumper - A position

These switches set the data rate for the MATs at 1200 baud and the protocol for DCM. The address is 1 for the MAT in slot 1; 3 for the MAT in slot 2; 5 for the MAT in slot 3 and so on.

NOTE: *For additional details about the switch and strap settings, refer to the 46009 Multiple Alarm Transmitter Practice in the Appendix.*

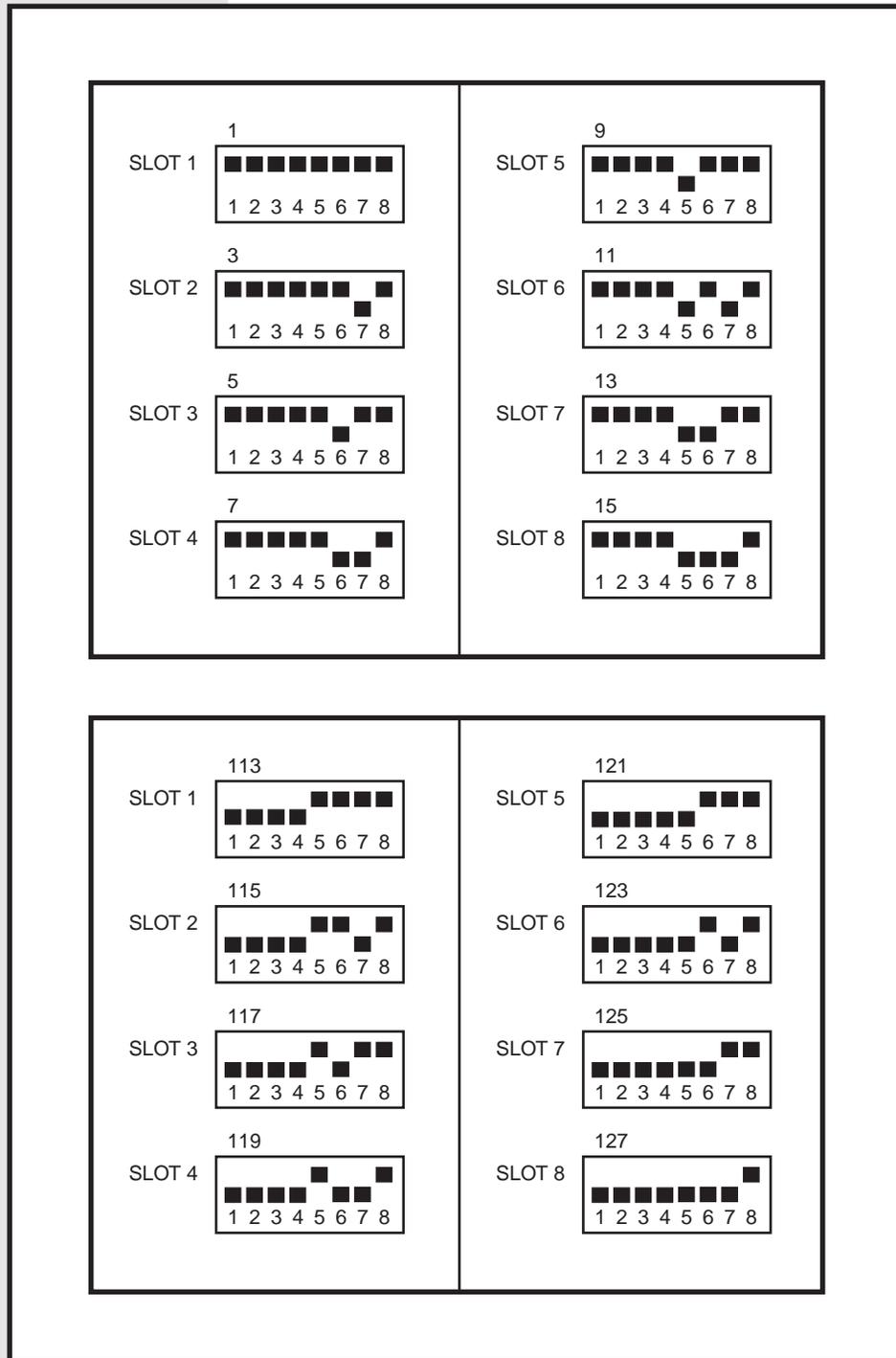
INSTALLATION

FIG. 9 - SWITCH AND STRAP LOCATIONS, 46009 MODULE



INSTALLATION

FIG. 10 - 46009 ADDRESS SELECTION



NOTE: Fig. 10 shows two typical addressing schemes. For further addressing options, refer to the 46009 Operations Manual.

INSTALLATION

46020-41 MULTIPLE ALARM PROCESSOR

Refer to Fig. 11. Recommended switch settings:

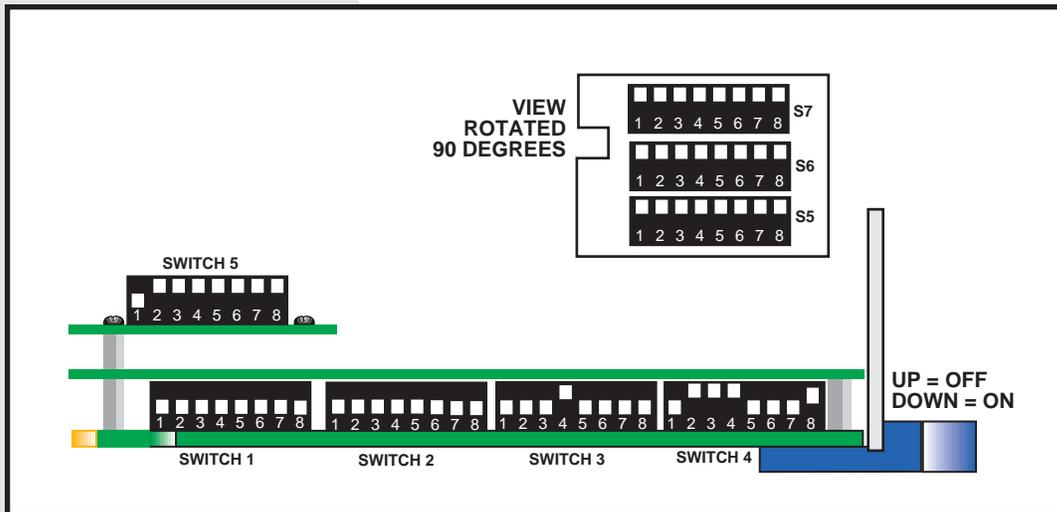
- S1 - All DOWN (ON)
- S2 - All DOWN (ON)
- S3 - 1, 2, and 3 DOWN (ON)
- S3 - 4 UP (OFF)
- S3 - 5, 6, and 7 DOWN (ON)
- S3 - 8 UP (OFF)
- S4 - 1 DOWN (ON)
- S4 - 2,3, 4 UP (OFF)
- S4 - 5, 6, and 7 DOWN (ON)
- S4 - 8 UP (OFF)
- S5 - 1 DOWN (ON)
- S5 - 2 through 8 all UP (OFF)
- S6 - 1 through 4 DOWN (ON)
- S6 - 5 and 6 UP (OFF)
- S6 - 7 and 8 (DOWN) ON
- S7 - All UP (OFF)

NOTE:

For additional details about the switch settings, refer to the 46020-40 Multiple Alarm Processor Practice.

These switches set the master and printer port addresses at 1. The data rate for the master port is 1200 baud. The data rate for the printer port is 9600 baud. The protocol is DCP for the master port and DCPF for the printer port.

FIG. 11 - SWITCH LOCATIONS, 46020-41 MAP



INSTALLATION

46023-14 SMART MULTIPLE ALARM COMBINER

Refer to Fig. 12. Recommended switch and strap settings:

NOTE: *Switch settings are the same for both Smart MACs unless specified otherwise.*

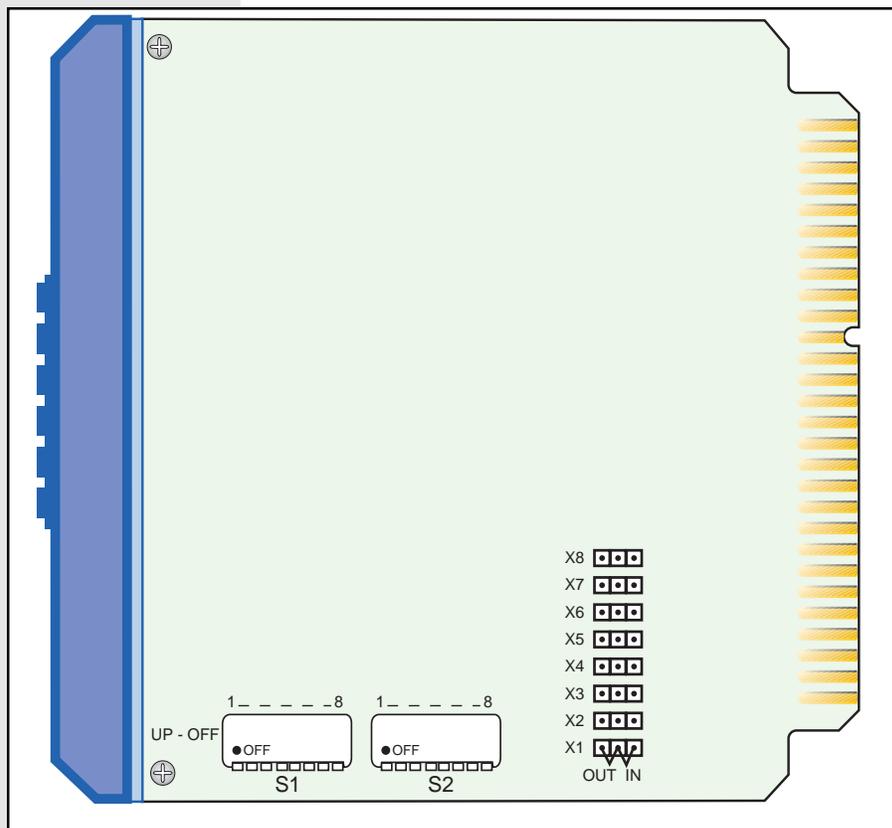
NOTE:

For additional details about the switch and strap settings, refer to the 46023-14 Smart MAC Practice.

- X1 through X8 straps - All IN
- S1 - 1, 2, and 3 UP (OFF) for the Smart MAC in slot 10
- S1 - 1 DOWN (ON), and 2 and 3 UP (OFF) for the Smart MAC in slot 11
- S1 - 4 and 5 UP (OFF)
- S1 - 6 through 8 DOWN (ON)
- S2 - All UP (OFF)

The straps terminate all the receive ports with 120 ohms. The switches set the address at 1 for the Smart MAC in slot 10 and the address at 2 for the Smart MAC in slot 11. The Smart MAC will communicate with the MAP at 9600 baud using DCPF protocol.

FIG. 12 - SWITCH AND STRAP LOCATIONS, 46023-14 SMAC



INSTALLATION

46028-01 CONTROL POINT MODULE

Refer to Fig. 13. Recommended switch and strap settings:

S1 - 1, 2, and 3 UP (OFF), and 4 through 8 DOWN (ON)

S2 - All UP (OFF)

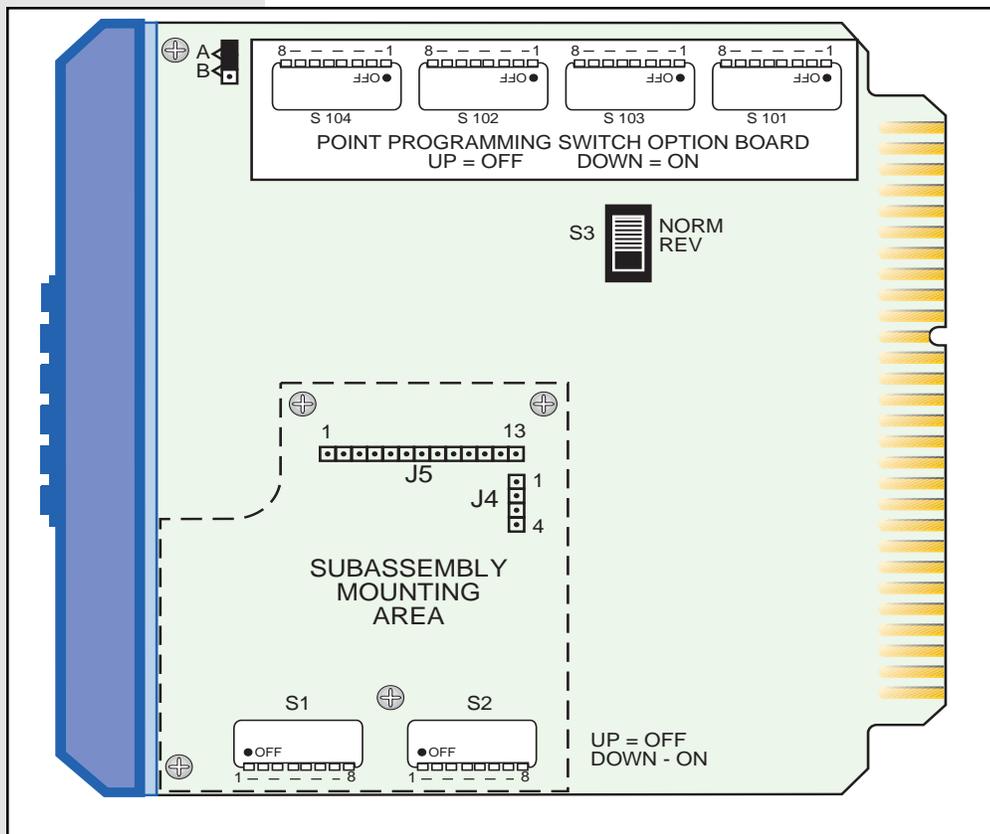
S3 - NORM

A/B mini-jumper - A position

These switches set the address of the CPM at 1. The data rate is 1200 baud. Control point output relays operate for three seconds.

NOTE: For additional details about the switch and strap settings, refer to the 46028 Control Point Module Practice.

FIG. 13 - SWITCH AND STRAP LOCATIONS, 46028 CPM



INSTALLATION

49008-00 CURRENT LOOP SUBASSEMBLY

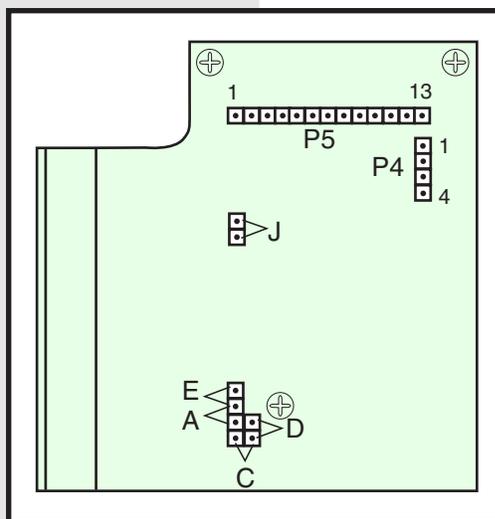
Refer to Fig. 14. Recommended strap positions:

Straps - A, C, and J positions

The module will operate as an RS-422 interface.

NOTE: For additional details about the strap settings, refer to the 49008 Current Loop Interface Subassembly Practice.

FIG. 14 - SWITCH AND STRAP LOCATIONS, 49008 CURRENT LOOP



49013-00 TONE MODEM SUBASSEMBLY

Refer to Fig. 15.

S2 - NOR

Master/Slave Straps - Leave open (remove straps or place on one pin).

Set the receive and transmit pads as required. Refer to Table A.

NOTE: For additional details about the switch and strap settings, refer to the 49013 202 Tone Modem Subassembly Practice.

INSTALLATION

FIG. 15 - SWITCH AND STRAP LOCATIONS, 49013 TONE MODEM

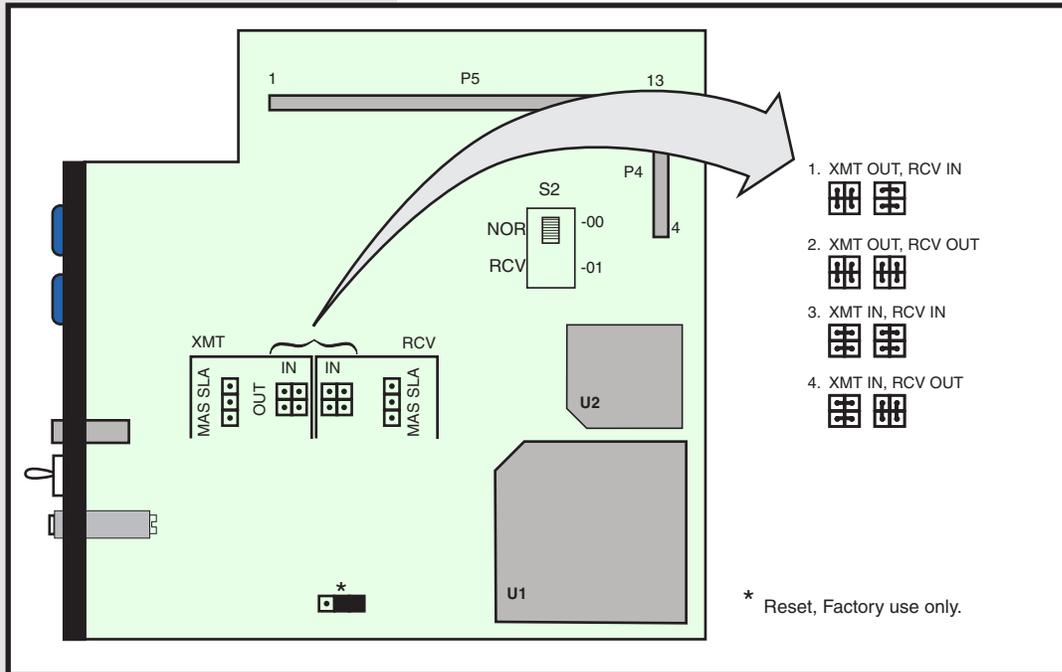


TABLE A - STRAP OPTIONS, 49013 TONE MODEM

OPTION	INSTALL STRAP
MODE	
Single Modem (no Master/Slave) Store straps in non-operative position or remove.	XMT and RCV open (no straps)
RCV PAD	
RCV Pad IN (input level between 0 and -20 dBm)	Jumpers parallel to P5 (See Fig. 15)
RCV Pad OUT (input level between -20 and -40 dBm)	Jumpers perpendicular to P5 (See Fig. 15)
XMT PAD	
XMT Pad IN (output adjustable from -20 to -40 dBm)	Jumpers parallel to P5 (See Fig. 15)
XMT Pad OUT (output adjustable from -1 to -20 dBm)	Jumpers perpendicular to P5 (See Fig. 15)
S2	
Normal Operation	NOR

INSTALLATION

TURN-UP PROCEDURE

The following is a step-by-step procedure for turning-up the shelf after it has been mounted in an equipment rack, all wiring has been completed, and switch and strap settings have been made.

Step 1

1. Insert all the modules in the shelf, starting at slot 1. When the Fuse Module is installed in slot 14, power will be applied to the shelf.
2. Once the shelf has power, LEDs on the shelf should light or blink. The modules will not operate properly as the MAP and GPP modules have not yet been configured. If no LEDs come on, check the office fuse bay or power to the shelf.

Step 2

The procedure below will erase any memory in the MAP.

1. Remove power from the shelf.
2. Remove the MAP in slot 12 and place levers 2 and 3 of switch S5 in the DOWN (ON) position. Reinsert the MAP into the shelf.
3. Restore power. Wait 10 seconds and then remove the power again.
4. Remove the MAP and return levers 2 and 3 of switch S5 to the UP (OFF) position. Reinsert the MAP into the shelf.
5. Restore power.

INSTALLING T/SHELL

To configure the database of the 46020 Multiple Alarm Processor (MAP) requires a T/Shell software program with the -41 MAP Editor Module (Dantel part number A22-46512-XX). The software programs are not supplied with the shelf.

To use the software the minimum requirements are an IBM PC/XT/AT/386/486 compatible computer equipped with the following features:

- 640K of memory
- CGA/EGA/VGA color (recommended), monochrome, or LCD monitor
- 1 serial port
- 1 parallel port
- 1 floppy disk drive
- 1 hard disk drive
- DOS version 3.0 or greater

If T/Shell and the -41 MAP Editor Module are installed on your computer, go to the next section, Configuring the MAP Database.

INSTALLATION

To install the T/Shell program with the -41 MAP Editor Module, do the following:

Step 1

1. Turn on the power to your computer and monitor. Wait for the DOS prompt to appear.

Note: *If your computer boots straight into Windows, double-click on the MS DOS icon to get your DOS prompt. When you are finished installing the T/Shell program, type EXIT <CR> to return to Windows.*

Step 2

You can install the T\Shell program in any directory you wish on your computer, but it is recommended that you make a separate directory named T/SHELL. Make sure you are in the hard disk drive (normally C:) where you want to make the directory.

1. At the prompt, type MD TSHELL and press the ENTER key.
2. At the prompt type CD TSHELL and press the ENTER key to change to the TSHELL directory.

Step 3

Type COPY A:*. * and press the ENTER key to copy all the files into your TSHELL directory from the disk in your floppy drive. This assumes that the disk is in drive A. If it is in a different drive, type the letter of that drive.

Step 4

After the software has been copied into your TSHELL directory, store the disk in a safe place.

Step 5

To start the program, make sure you are in the TSHELL directory. Type TSHELL and press the ENTER key.

CONFIGURING THE MAP DATABASE

NOTE: *The following procedure provides basic steps for configuring the MAP's database. For additional information, refer to the -41 MAP Editor Module documentation.*

Step 1

Turn on the power to your computer and monitor. Wait for the DOS prompt (such as C:\) to appear.

CONTINUED . . .

INSTALLATION

Step 2

Make sure the DOS prompt is on the drive (normally C) where the T/Shell program is installed.

1. Go to the directory where the program was installed (normally T/Shell).
2. Type **CD TSHELL** and press the ENTER key.
3. The prompt now will be C:\TSHELL (or the drive and directory you are using, if different).
4. Type **TSHELL** and press the ENTER key.

Step 3

A Master Menu will appear. If you are using a color monitor, go to the next step. If you are using a monochrome monitor or a laptop computer with an LCD display, do the following:

1. Make sure System Parameters is selected (use the up/down arrow keys) and press ENTER.
2. A second window will appear for selecting LCD mode. Use the Tab key to select **YES, USE LCD MODE**. Press ENTER. Press F8 to save the change.
3. You must exit the T/Shell program to activate the LCD Mode change. Press any key to continue. Type **Q** to exit. At the prompt **Exit Program?** type **Y** and press ENTER. Type TSHELL to restart the program.

Step 4

Use the up/down arrow keys to select the 41 MAP EDITOR option and press the ENTER key.

Step 5

The 41 EDIT MODULE window will appear. MAP SYSTEM DEFINITION will be highlighted. Press ENTER to select it.

Step 6

The MAP MENU window will appear. SELECT MAP will be highlighted. Press ENTER to select it.

Step 7

The 41 EDIT window will appear. The cursor will be located at the MAP NAME.

1. Enter a name and press the ENTER key. At the bottom of the screen, a message will appear asking **Not there. Wish to add (Y/N)?** Type **Y**.
2. A window will appear to select the number of alarm and control displays the 46020 MAP can have.

CONTINUED . . .

INSTALLATION

3. Use the Tab key to select either 64 or 128 displays and press ENTER.

NOTE: *The MAP name can be a string of up to eight alphanumeric characters. If MAP names already exist, use the TAB key to select one and press ENTER. The program will then ask for a password. Type the password if there is one and press ENTER. If there is no password, press ENTER.*

Step 8

1. In the MAP MENU window, use the arrow keys to highlight **MAP PORT DEFINITION** and press ENTER. This refers to the MAP's data port for communicating with the Smart MACs.
2. The MAP PORT MENU will appear. Press ENTER to select **DEFINE MAP PORT**.
3. Press ENTER to select DCPF protocol. Baud, parity, stop bits, and word length will be set automatically at 9600, N, 1, and 8.
4. Highlight **QUIT** and press ENTER.

Step 9

From the MAP MENU window highlight **RESPONDER DEFINITION** and press ENTER.

Step 10

1. The RESPONDER MENU window will appear on the screen. SELECT MASTER RESPONDER will be highlighted. Press ENTER to select. The master port of the MAP communicates with the alarm center via the Data Station Termination module.
2. Use the TAB key to select **DCP** and press ENTER. A cursor will appear at the address for displays 1-64. Type an address for the Master Port and press ENTER.

NOTE: *Switch S1, on the MAP, was set for 1 earlier in this installation procedure.*

3. Type an address for displays 65-128 if used or type **N** if not used. Press ENTER
4. Press ENTER to select **No, do not disable point 64 device failures**.

Step 11

1. Highlight **EDIT RESPONDER PORT** and press ENTER to select.
2. Highlight **EDIT BAUD** and press ENTER.

CONTINUED . . .

INSTALLATION

3. Use the TAB key to select **1200** and press ENTER.
4. Highlight **QUIT** and press ENTER.

Step 12

1. In the RESPONDER MENU window, choose **SELECT PRINTER RESPONDER** and press ENTER. The printer port of the MAP is used for downloading this database to the module and then to communicate with the Status Monitor.
2. Use the TAB key to select **DCPF** protocol and press ENTER. A cursor will appear at the address for displays 1-64.
3. Type an address for the printer port and press ENTER.

NOTE: *In order to download this database to the MAP, the address entered here must be the same as switch S2, which was set for 1 earlier in this installation procedure, and it must be the same as the address in the 41 EDIT window.*

4. Type an address for displays 65-128 if used or type **N** if not used. Press ENTER.
5. Press ENTER to select **No, do not disable point 64 device failures.**

Step 13

1. Highlight **EDIT RESPONDER PORT** and press ENTER to select.
2. Highlight **EDIT BAUD** and press ENTER.
3. Use the TAB key to select **9600** and press ENTER.
4. Highlight **QUIT** and press ENTER.

Step 14

In the RESPONDER MENU window, highlight **QUIT** and press ENTER.

Step 15

In the MAP MENU window, highlight **DATA PORT DEFINITION** and press ENTER.

Step 16

In the DATA PORT MENU window, press ENTER to choose **SELECT DATA PORT**. You are now going to configure each of the ports of the Smart MAC.

NOTE: *Steps 17 through 20 only apply to port 1 of the Smart MAC in slot 10.*

CONTINUED . . .

INSTALLATION

Step 17

1. For PORT ID press ENTER, selecting data port 1.
2. Press ENTER again to select DCM protocol. The baud, parity, stop bits, and word length will default to 1200, E, 1, 8.

Step 18

In the DATA PORT MENU window, highlight **EDIT DEVICES** and press ENTER.

Step 19

1. In the DCM window, FIND will be highlighted. Press ENTER to select.
2. Enter the DCM ADDRESS (address of the MAT or CPM module) and press ENTER.
3. Enter DEV ID (MAT or CPM) and press ENTER. Type **Y** in response to **Address not there. Wish to add?** at bottom of screen.
4. Per instructions from your Engineering Department, enter the MAP DSP (MAP display) number and press ENTER. The DCM window will reappear.

Step 20

Repeat Step 19 until all DCM addresses are entered. When all the addresses are entered, select **QUIT** in the DCM window and press ENTER.

Step 21

1. In the DATA PORT MENU, highlight **SELECT DATA PORT** and press ENTER.
2. At PORT ID type the port number and press ENTER.
3. Use the TAB key to select the protocol desired and press ENTER.

Step 22

1. In the DATA PORT MENU window, highlight **EDIT DEVICES** and press ENTER. Follow the editing steps to configure the port per instructions from your Engineering Department.
2. When all the displays for the port have been entered, press F8. Return to the DATA PORT MENU window.

Step 23

Repeat Steps 21 and 22 until all ports are entered. When all the addresses are entered, select **QUIT** in the DATA PORT MENU window and press ENTER.

CONTINUED . . .

INSTALLATION

NOTE: *Do not define more than eight ports if there is one Smart MAC wired to the MAP or more than 16 ports if there are two Smart MACs wired to the MAP.*

Step 24

1. In the MAP MENU window, highlight **EXTENDED PROVISIONING** and press ENTER.
2. From the EXTENDED PROVISIONING window, configure SLC 96 and Series 5 devices according to your Engineering Department.
3. When finished, return to the MAP MENU window.

Step 25

Connect a cable from the RS-232 (COM 1) port of your computer to the printer port of the MAP in the Dantel master shelf (connector C). Disconnect, temporarily, any wiring from the MAP Printer Port to the Status Monitor.

Step 26

1. In the MAP MENU window, highlight **TRANSFER** and press ENTER.
2. Hold down the **ALT** key and press the **F9** key. Verify the communications port is 1, the baud is 9600, and the mode is DCPF.
3. Press the **F10** key to return to the TRANSFER window.
4. Type **D** for the option and press ENTER.
5. Type **D** for the mode and press ENTER.
6. Enter the password if there is one and press ENTER. The database will start to download to the MAP.
7. After the transfer is completed, press F10 to exit.
8. Reconnect wiring from the MAP Printer Port to the Status Monitor.

Step 27

1. Highlight **QUIT** in the MAP MENU window and press ENTER.
2. In the 41 EDIT MODULE window, highlight **QUIT** and press ENTER.
3. Select **QUIT** in the Master Menu and press ENTER.

INSTALLATION

INSTALLATION

FINAL TURN-UP PROCEDURE

The shelf should be operational at this time. The XMT and RCV LEDs on the modules will blink, indicating data transmission.

On the MATs, when the A1 ON LED is lit, the red LED display on the front panel is showing alarms 1-16. When the A1 ON LED is off, alarm points 17-32 are shown.

Check the level of the tones to and from the tone modem subassembly mounted on the MAP in slot 12. Use a 600-ohm db meter (bridging) at the front panel XMT and RCV test points on the subassembly. The front panel switch on the subassembly, when placed in the TEST position, activates the carrier detect of the distant end modem. Consequently, each of the modems is used to verify the presence of the data carrier. This allows level adjustment without the presence of data. The XMT LVL potentiometer on the front of the subassembly is used to adjust the transmit level. There is no adjustment of the receive level as it is adjusted by the transmit level of the distant end modem.

Refer to the checkout procedure (Table B) and Tables C through F for set-up of the 44124 Data Station Termination module.

Generate alarms and verify each is reported correctly.

Operate control points and verify proper operation.

INSTALLATION

TABLE B - CHECKOUT PROCEDURE, 44124 MODULE

STEP	PROCEDURE
1	Mount the 44125 into the extender card and plug the card into the appropriately wired slot
2	Set all the gain and equalization switches to OFF.
3	Request the distand end to transmit a tone at a level of 0 dBm0.
4	Using the transmission test set, programmed for bridged input level measurement, insert the test cord into the RCV MON jack and record the cable losses at the receive line end for the following frequencies: 404 Hz = ? dB 1004 Hz = ? dB 3204 Hz = ? dB
5	Determine the slope of the cable between 404 Hz and 1004 Hz (the difference between the two measurements). LF Slope = ? dB
6	If the LF slope is equal to or greater than 3.0 dB, set S8-1 to the ON position (nonloaded cable). Refer to the LF Slope Switch Settings Table, Nonloaded Cable column, for the LF slope (SL) settings of switches S8-2 through S8-5, and set accordingly.
7	If the LF slope is less than 3.0 dB, set S8-1 to the OFF position (loaded cable). Refer to the LF Slope Switch Settings Table, Loaded Cable column, for the LF slope (SL) settings of switches S8-2 through S8-5, and set accordingly.
8	Determine the height for the cable between 1004 Hz and 2504 Hz (the difference between the two measurements). Height (HT) = ? dB
9	Refer to the Height Switch Settings Table for the height settings of switch S7-1 through S7-4, and set accordingly.
10	Determine the bandwidth for the cable 1004 Hz and 2504 Hz (the difference between the two measurements). Bandwidth (BW) = / dB
11	Refer to the Bandwidth Switch Settings Table and Bandwidth Selection Chart for the bandwidth (BW) settings of S7-5 through S7-8, and set accordingly.
12	To set the input (receive) gain or loss, set the level meter for 600 ohms and plug the test cord into the RCV OUT jack. Have the far end transmit a 1004 Hz tone at 0dBm0. Set switch S13 for gain or loss as appropriate, and set S11-1 through S11-8 for the required level.
13	To set the output (transmit) gain or loss, configure the transmission test set to transmit at 600 ohms impedance. Plug the test sord into the IN/2W jack and send a 1004 Hz tone at 0 dBm0. have the person at the far end measure the received level. Position switch S3 for gain or loss as appropriate, and set switch S1-1 through S1-8 for the required far end receive level.
14	Procedure complete. Unplug all test cords, remove the module from the extender card, and plug the module into its proper slot in the shelf or housing.

INSTALLATION

TABLE C - LF SLOPE (SL) FOR LOADED AND NONLOADED CABLES

LOSS AT 1004 Hz WITH 404 Hz FOR REFERENCE						
LOW FREQUENCY SLOPE (LFSL)						
Loaded Cable (dB values)	Nonloaded Cable (dB values)	Reference Total	S8-2(1)	S8-3(2)	S8-4(4)	S8-5(8)
0.00	0.00	0	ON (OUT)	ON	ON	ON
0.35	0.50	1	OFF (IN)	ON	ON	ON
0.85	1.00	2	ON	OFF	ON	ON
1.35	1.35	3	OFF	OFF	ON	ON
1.65	1.80	4	ON	ON	OFF	ON
1.90	2.10	5	OFF	ON	OFF	ON
2.05	2.60	6	ON	OFF	OFF	ON
2.20	2.90	7	OFF	OFF	OFF	ON
2.35	3.10	8	ON	ON	ON	OFF
2.50	3.25	9	OFF	ON	ON	OFF
2.60	3.60	10	ON	OFF	ON	OFF
2.65	4.00	11	OFF	OFF	ON	OFF
2.70	4.15	12	ON	ON	OFF	OFF
2.75	4.30	13	OFF	ON	OFF	OFF
2.80	4.45	14	ON	OFF	OFF	OFF
2.85	4.60	15	OFF	OFF	OFF	OFF

NOTE: If the calculated values of Slope (SL) fall between settings, use the lower setting indicated by the table.

INSTALLATION

TABLE D - HEIGHT (HT) SWITCH SETTINGS FOR 3204 Hz LOSS

LOSS AT 3204 Hz WITH 1004 Hz FOR REFERENCE					
CALCULATED LOSS (VALUES in dB)	REFERENCE TOTAL	HT SETTING SWITCH			
		S7-1(1)	S7-2(2)	S7-3(4)	S7-4(8)
0.00	OFF	OFF	OFF	OFF	OFF
0.35	1	ON	OFF	OFF	OFF
1.05	2	OFF	ON	OFF	OFF
1.75	3	ON	ON	OFF	OFF
2.45	4	OFF	OFF	ON	OFF
3.15	5	ON	OFF	ON	OFF
3.85	6	OFF	ON	ON	OFF
4.55	7	ON	ON	ON	OFF
5.25	8	OFF	OFF	OFF	ON
5.95	9	ON	OFF	OFF	ON
6.65	10	OFF	ON	OFF	ON
7.35	11	ON	ON	OFF	ON
8.05	12	OFF	OFF	ON	ON
8.75	13	ON	OFF	ON	ON
9.45	14	OFF	ON	ON	ON
10.15	15	ON	ON	ON	ON

NOTE If calculated values of Height (HT) fall between settings, use the lower setting indicated by the table.

INSTALLATION

TABLE E - BANDWIDTH (BW) SETTINGS FOR 2504 Hz Loss

LOSS AT 2504 Hz WITH 1004 Hz FOR REFERENCE				
BW SETTING SWITCH				
REFERENCE TOTAL	S7-5(1)	S7-6(2)	S7-7(4)	S7-8(8)
0	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3	ON	ON	OFF	OFF
4	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF
6	OFF	ON	ON	OFF
7	ON	ON	ON	OFF
8	OFF	OFF	OFF	ON
9	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON
14	OFF	ON	ON	ON
15	ON	ON	ON	ON

NOTE: If calculated values of Bandwidth (BW) fall between settings, use the lower setting indicated by the table.

INSTALLATION

TABLE F - BANDWIDTH (BW) SETTINGS FOR 2504 Hz LOSS

LOSS AT 2504 Hz WITH 1004 Hz FOR REFERENCE

ACCUMULATIVE SWITCH SETTINGS S7-5 THROUGH S7-8

INSTRUCTIONS:

Go down the left hand column to find the number (1 through 15) that matches the reference total amplitude (HT) setting from Table D. Follow that row across until a figure is reached that corresponds to or is greater than the measured bandwidth (BW) ("Checkout" section step number 10). If the BW falls between two numbers on the table, use the lesser number. Follow that column to the top where it is headed by a number from 1 through 15. That is the reference total bandwidth (BW) setting for switches S7-5 through S7-8 as given in Table E.

Total BW Level to be Set	Reference Total Bandwidth (BW)																
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Reference Total Amplitude Setting from CHECKOUT Section and Table D (HT)	1	0.00	0.04	0.05	0.07	0.08	0.11	0.15	0.23	0.27	0.30	0.33	0.35	0.39	0.41	0.43	0.44
	2	0.00	0.08	0.10	0.13	0.16	0.22	0.30	0.46	0.55	0.60	0.67	0.70	0.77	0.83	0.87	0.88
	3	0.00	0.12	0.16	0.20	0.25	0.33	0.46	0.69	0.82	0.90	1.00	1.06	1.16	1.24	1.30	1.32
	4	0.00	0.16	0.21	0.27	0.33	0.44	0.61	0.92	1.09	1.20	1.33	1.41	1.55	1.65	1.73	1.76
	5	0.00	0.20	0.26	0.33	0.41	0.55	0.76	1.15	1.37	1.50	1.67	1.76	1.93	2.06	2.17	2.20
	6	0.00	0.24	0.31	0.40	0.49	0.66	0.91	1.38	1.64	1.80	2.00	2.11	2.32	2.48	2.60	2.64
	7	0.00	0.28	0.36	0.47	0.57	0.77	1.06	1.61	1.91	2.10	2.33	2.46	2.71	2.90	3.03	3.08
	8	0.00	0.32	0.42	0.53	0.66	0.89	1.22	1.84	2.19	2.40	2.67	2.82	3.09	3.30	3.47	3.52
	9	0.00	0.36	0.47	0.60	0.74	1.00	1.37	2.07	2.46	2.70	3.00	3.17	3.48	3.72	3.90	3.96
	10	0.00	0.40	0.52	0.67	0.82	1.11	1.52	2.30	2.73	3.00	3.33	3.52	3.87	4.13	4.33	4.40
	11	0.00	0.44	0.57	0.73	0.90	1.22	1.67	2.53	3.01	3.30	3.67	3.87	4.25	4.55	4.77	4.84
	12	0.00	0.48	0.62	0.80	0.98	1.33	1.82	2.76	3.28	3.60	4.00	4.22	4.64	4.96	5.20	5.28
	13	0.00	0.52	0.68	0.87	1.07	1.44	1.98	2.99	3.55	3.90	4.33	4.58	5.03	5.37	5.63	5.72
	14	0.00	0.56	0.73	0.93	1.15	1.55	2.13	3.22	3.83	4.20	4.67	4.93	5.41	5.79	6.07	6.16
	15	0.00	0.60	0.78	1.00	1.23	1.66	2.28	3.45	4.10	4.50	5.00	5.28	5.80	6.20	6.50	6.60

INSTALLATION

TROUBLESHOOTING

If you experience difficulty with this unit, check the following, as appropriate:

- ◆ Switch and strap settings.
- ◆ Signal levels.
- ◆ Connections between Dantel's equipment and your equipment.
- ◆ Database configuration of the MAP and the Status Monitor.

If there is still a problem with a module, substitute a unit that is known to be good.

NOTE: *Additional assistance is available from Dantel's Field Service Department between 6 a.m. and 5 p.m., Pacific time, Monday through Friday. Call 1-800-4-DANTEL (1-800-432-6835).*

When it is determined that a unit has malfunctioned, the faulty unit may be returned to the factory for repair. For repairs and emergency replacements, obtain a "Returned Material Authorization" (RMA) number by calling Dantel and asking for the Customer Returns Representative. Please to provide a purchase order number, and shipping and billing information when requesting an RMA number. Include a description of the malfunction with the returned equipment. Send defective equipment, with the RMA number clearly written on the outside of the package, to:

Dantel, Inc.
2991 N. Argyle Ave.
Fresno, CA 93727-1388

If a unit is returned and no problem is found, there will be a diagnostic charge for checking the unit, whether it is covered by warranty or not.

INSTALLATION

SUPPORT DOCUMENTATION

41060 Writing Shelf
41071 Alarm Display Unit
44124 Data Station Termination Module
46001 Status Monitor
46009 Multiple Alarm Transmitter
46020-41 Multiple Alarm Processor
46023-14 Smart Multiple Alarm Combiner
46028 Control Point Module
48001 Fuse Module
49008 Current Loop Subassembly
49013 202 Tone Modem Subassembly
T/Shell Application Manager
T/Shell with -41 MAP Editor Module

APPENDIX

NOTES

WARRANTY

LIMITED WARRANTY

The Seller warrants that the standard hardware products sold will be free from defects in material and workmanship and perform to the Seller's applicable published specifications for a period of 18 months for hardware, and 3 months for software, from the date of the original invoice. The liability of the Seller hereunder shall be limited to replacing or repairing, at its option, any defective products which are returned F.O.B. to the Seller's plant, (or, at the Seller's option, refunding the purchase price of such products). In no case are products to be returned without first obtaining permission and a customer return authorization number from the Seller. In no event shall the Seller be liable for any consequential or incidental damages.

Equipment or parts which have been subject to abuse, misuse, accident, alteration, neglect, unauthorized repair or installation are not covered by warranty. The Seller shall make the final determination as to the existence and cause of any alleged defect. No warranty is made with respect to custom equipment or products produced to the Buyer's specifications except as specifically stated in writing by the Seller in the contract for such custom equipment.

This warranty is the only warranty made by the Seller with respect to the goods delivered hereunder, and may be modified or amended only by a written instrument signed by a duly authorized officer of the Seller and accepted by the Buyer.

Warranty and remedies on products not manufactured by the Seller are in accordance with warranty of the respective manufacturer. **THE SELLER MAKES NO OTHER WARRANTY OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED; AND ALL IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEEDS THE AFORESAID OBLIGATIONS IS HEREBY DISCLAIMED BY THE SELLER.**

IN CASE OF DIFFICULTY

If you experience difficulty with this equipment, check the following, as appropriate:

1. **Switch settings**
2. **Signal levels**
3. **Software configuration**
4. **Connections between Dantel's equipment and your equipment.**

If there is still a problem, substitute equipment that is known to be good. For additional assistance, call Dantel's Technical Field Service Department weekdays, 6 A.M. to 5 P.M. pacific time:

1-800-4DANTEL (1-800-432-6835).

If a thorough checkout shows a piece of equipment has malfunctioned, you may return it to the factory. For repairs and emergency replacements, obtain a Return Material Authorization (RMA) number from the Customer Service Representative at **1-800-4DANTEL (1-800-432-6835)**.

To ensure expedient processing of your order, provide a purchase order number and shipping and billing information when requesting an RMA number. Also, when the units are returned to Dantel, include a description of the failure symptoms for each unit returned. Send defective equipment to:

Dantel, Inc. • 2991 North Argyle Avenue • Fresno, California 93727-1388

