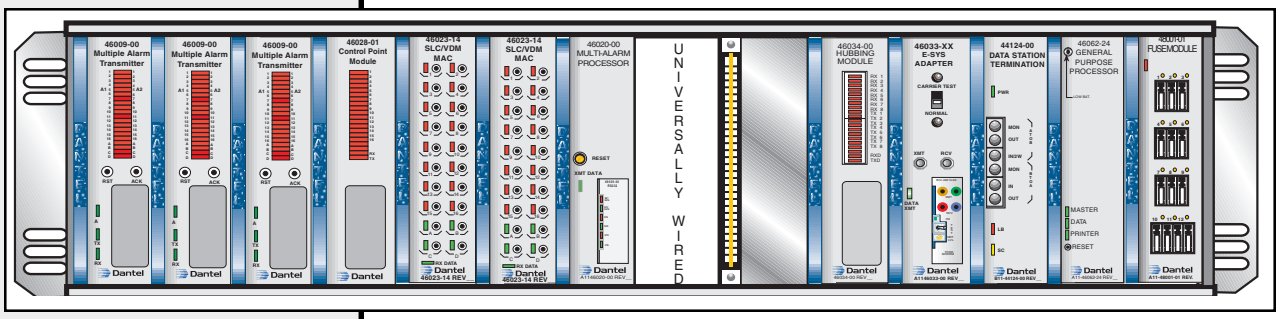
A18-05791-XX

SMALL OFFICE STANDARD ALARM SHELF



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About this Practice:

This is a new document.

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

UPDATED

Issue date: March 2000

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

The 05791 Small Office Standard Alarm Shelf (05791) is available in a variety of options and is ordered by "List Number". Refer to the General Description section of this manual for a discription of these options.

To order the various pieces that make up the 05791 system, refer to the DJ05791 Block Diagram. Sheets 1 and 2 describe the Stock List. Sheet 3 describes the make-up of the preassigned list structure.

GENERAL DESCRIPTION

The 05791 Small Office Standard Alarm shelf is a 14-position 460 Alarm and Control System (ACS) shelf. This shelf collects discrete or discrete and serial alarm data from central office communications equipment. The alarm data is processed, concentrated, and converted to DCP, DCPF, E2A or TL1 protocol for transmission to the host computer at the Alarm Center. For a functional schematic of this shelf, refer to sheet 4 of 14 of the DJ05791 Block Diagram that accompanies this Application Manual.

- Option A18-05791-41 uses a Multiple Alarm Processor (MAP) equipped with 46640 firmware and 46023-12 Multiple Alarm Combiners (MAC).
- Option A18-05791-42 uses a Multiple Alarm Processor (MAP) equipped with 46641 firmware and 46023-14 Multiple Alarm Combiners (MAC).

LIST STRUCTURE

The 05791 is ordered and equipped by "List Number". The different configurations are described below. A description of the individual modules follows.

List 41 and 42

A List 41 or 42 is always required. It collects eight serial ports and processes that alarm information to DCP or DCP/F protocol.

- The MAP is located in slot 7.
- The MAC is located in slot 5.
- The Fuse Module is located in slot 14.

The following Lists provide additional functionality to the List 41 or List 42.

List 41A

Adds to the List 41 an additional eight serial ports.

- A second MAC is added to slot 6.

List 42A

Adds to the List 42 an additional eight serial ports.

- A second MAC is added to slot 6.

List 43A

Adds to the List 41 or 42 thirty-two ground or loop-type discrete alarms and sixteen Form-A contact closures.

- The MAT is added to slot 1.
- The CPM is added to slot 4

List 43B

Adds to the List 43A thirty-two more ground or loop-type discrete alarms.

- The MAT is added to slot 2 or 3.

A maximum of two List 43B's may be ordered per system.

List 44A

Adds to the List 41 or 42 line conditioning of analog signals.

- The DST is added to slot 12.

List 45A

Adds to the List 41 or 42 VF (analog) E2A protocol to the NMA.

- The E-System Adapter is added to slot 11.

NOTE: *List 45A, 45B, or 45C cannot be used in the same shelf as a List 46A.*

List 45B

Adds to the List 41 or 42 RS-422 (digital) E2A protocol to the NMA.

- The E-System Adapter is added to slot 11.

NOTE: *List 45A, 45B, or 45C cannot be used in the same shelf as a List 46A.*

List 45C

Adds to the List 41 or 42 RS-232 (digital) E2A protocol to the NMA.

- The E-System Adapter is added to slot 11.

NOTE: *List 45A, 45B, or 45C cannot be used in the same shelf as a List 46A.*

List 46A

Adds to the List 41 or 42 TL1 alarm messaging to the NMA.

- The TL1 GPP is added to slot 13.

NOTE: *List 45A, 45B, or 45C cannot be used in the same shelf as a List 46A.*

List 47A

Adds to the List 41 or 42 access to the TL1 GPP's Printer Port, allowing single port configuration downloads.

- The Hubbing Module is added to slot 10.

NOTE: *List 45A, 45B, or 45C cannot be used in the same shelf as a List 46A.*

MODULES

This shelf, like many Dantel shelves is made up of separate plug-in modules that are factory-wired together to accomplish a task. The 05791 can be equipped with a variety of modules. The modules used in the 05791 shelf are described below.

Multiple Alarm Processor (MAP) - slot 7

The MAP is the center of the Dantel system. The MAP:

- Polls (interrogates) remote alarm reporting equipment
- Operates control points
- Reports alarm status to the Alarm Monitoring Center (FMAC)

The MAP uses three ports to receive and transmit information:

- The Data Port connects the MAP to the Multiple Alarm Combiners (MAC) and the CPM and MATS
- The Printer Port, (also called the Craft, Configuration, or Interface Port), is used for local monitoring and configuring of the MAP. A serial printer can be connected here to obtain a hardcopy printout of the alarm information
- The Master Port is used to report the alarm information to the alarm center through the E-System Adapter or TL1 GPP and provides mounting for an RS-232 subassembly

Multiple Alarm Combiner (MAC) - slots 5-6

The MAC is a serial port card. Each have eight RS-422/485 serial ports that can connect the MAP to various equipment that transmits alarms in a DCM or TBOS serial format.

Fuse Module - slot 14

The B11-48001-01 Fuse Module provides 13 GMT indicating-type fuse circuits and a failure alarm circuit for fusing 400-type modules in an equipment shelf. The module fits into any 400-type or similar equipment housing and operates on -21 to -56 VDC input power. The front panel includes 13 indicating-type GMT fuses and an alarm LED.

Multiple Alarm Transmitters (MATs) - slots 1-3

Each MAT:

- ♦ Reports the alarm status for up to 32 independent discrete alarm inputs
- ♦ Provides LED's to indicate active alarms

Control Point Module (CPM) - slot 4

The CPM provides 16 discrete (independent) relays controllable by the MAP. Commands can be entered from the Printer Port of the MAP using a dumb terminal (refer to 46020-40 or -41 manual), or by the Alarm Center. Any of the 16 control points can be turned on or off to control a particular piece of equipment.

The second function of the CPM is to provide an interface between the MAC and the Multi Alarm Transmitters (MATs).

Data Station Termination (DST) - slot 12

The 44124 Data Channel Termination Module (DST) is used to interface a metallic four-wire voice band/data channel line to a two-wire or four-wire modem when gain and equalization control are required.

The 44124 DST provides:

- ♦ Data channel line conditioning that includes:
  - • Impedance matching
  - • Selectable gain and attenuation control
  - • Adjustable 309B-type post equalization
- ♦ A loopback capability that can be activated manually or by a 2713 Hz tone
- ♦ Front panel LED indicators

NOTE: *This module may be substituted by other NCTE devices.*

E-System Adapter (ESA) - slot 11

The ESA provides an interface between the MAP(s) and the Alarm Center. It:

- Takes the DCP protocol from the MAP and converts it to E2A
- Provides mounting for a 202 Tone Modem.

TL1 General Purpose Processor (TL1 GPP) - slot 13

The TL1 GPP polls DCPF devices and converts the alarm information into TL1 messages. There are three ports on a TL1 GPP:

- The Data Port is set for RS-232 and polls (interrogates) the Master Port of the MAP through the Hubbing Module in slot 10
- The Master Port is also set for RS-232 and presents the TL1 messages at connector C2G, on the rear of the shelf
- The Printer Port is used for software and database downloads as well as inputing printer syntax commands

Hubbing Module - slot 10

This module is an interface converter and digital hub.

- The Hubbing Module has eight ports, strappable for RS-232 or RS-422.
- A ninth port on each Hubbing Module can be equipped with any standard Dantel communications subassembly to provide 202 Tone, RS-422, or RS-232.

This set of instructions is written specifically for the initial turn-up of the Dantel 460 Alarm Shelf 05791. Many of the settings and options contained in this instruction are applicable to other wire list configurations. However, due to the specific detail, these instructions should not be used for other than the 05791.

These instructions are written in three parts. **Part One** will define the physical installation of the shelf. **Part Two** will define the physical switch and option settings on each module. **Part Three** will define the software settings and loading instructions for the -40 MAP. Each part will contain step-by-step instructions as well as additional information as applicable.

Basic Expectations

These instructions are written with the expectation that the person using them has a basic understanding and general knowledge of the Dantel product line. Although not required, prior to attempting to implement this process, it will be assumed that such persons will have previously attended formal training on the components and software described in the procedure.

Configuration

These instructions are written based on the following:

- The shelf is being configured for E2A application
- A 4-wire analog data circuit has been installed from the shelf to NMA
- All components defined below have been received and are in proper working order
- Parts Two and Three assume that the shelf installation is complete including all cabling and power
- Current product documentation is readily at hand for each component
- A personal computer loaded with -40 MAP Editor sofware is readily available.

Components

The following components will be used in this configuration:

- 48001-01 Fuse Module
- 44124 Data Station Termination (DST) (Other Network Channel Terminating Equipment (NCTE) may be substituted for this module.)
- 46033 E-System Adapter (E-Sys) equipped with 49013 Tone Modem Subassembly
- 46034 Hubbing Module
- 46020-40 Multiple Alarm Processor (MAP) equipped with 49029 RS-232 Current Loop Subassembly
- 46023-12 two Smart Multiple Alarm Combiners (SMAC)
- 46028 Control Point Module (CPM) equipped with 49008 RS-422 Current Loop Subassembly
- 46009 three Multiple Alarm Transmitters (MAT)
- 46508 40 MAP Editor

Application Description

This instruction is written based on the assumption that the shelf will be fully equipped and installed for E2A application. Specific settings will define that the first port on the first MAC (slot 5) will be used for discrete alarm assignments as Displays 31 & 32. (The MAT in slot 1 is display 32, points 1-32. Slot 2 is display 32, points 33-64. Slot 3 is display 31, points 1-32.

The second port on the first MAC will be configured for serial (TBOS) application. No other ports will be assigned or specifically configured, however, all 64 displays are available.

PART 1 - EQUIPMENT MOUNTING

Tools Required:

- Ohmmeter
- Phillips screwdriver
- 7/16" Nutdriver or socket wrench
- (TMS) Transmission measuring Set

1. Visually inspect shelf for obvious damage.
2. Use ohmmeter to check for a short across the power input at B (-DC) and (GND) at the left end of the rear of the shelf (refer to Fig. 1).
3. TMS is used to verify the levels at the output of the 46033 E-System Adapter and the 4003C Line Amplifier.

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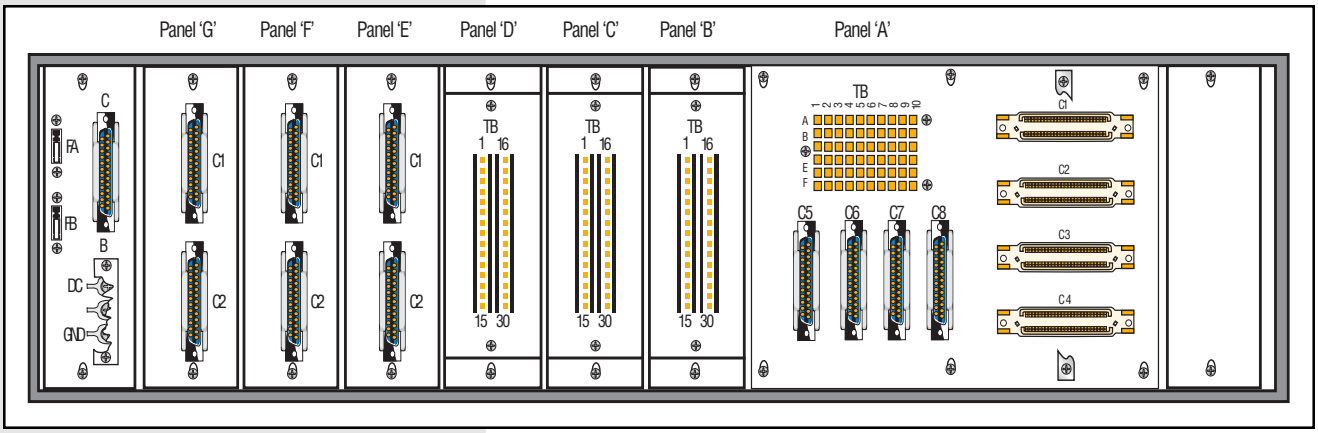
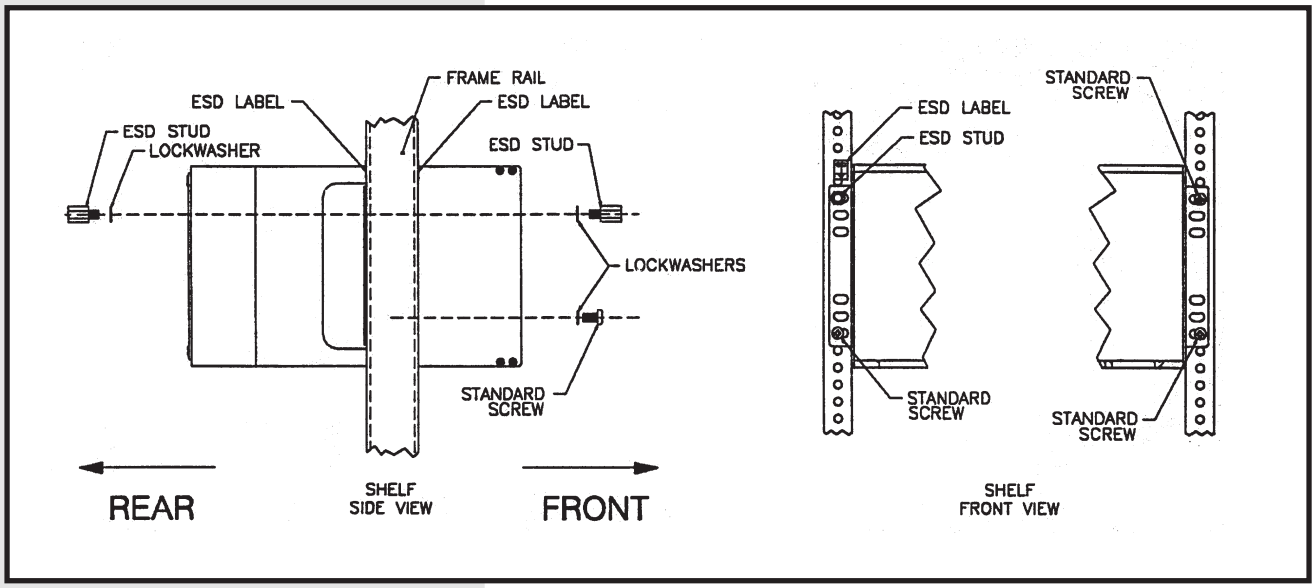
FIG. 1 - REAR VIEW OF 05791 SHELF



4. 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 2.

FIG. 2 - MOUNTING CONFIGURATION, 41075 400-TYPE MOUNTING



5. 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.
6. Install one ESD stud, with lockwasher, in the upper left location.
7. Secure all fasteners tightly, ensuring proper grounding between ESD stud and frame rail.
8. Place ESD label next to the ESD stud.

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9. 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.

WIRING

Wire the 05791 Small Office Standard Alarm Shelf to external equipment as required. Use the A18-05791-XX Block and Level Drawing or DJ05791 Block Diagram as references for making connections to Dantel equipment.

BONDING AND GROUNDING CONDUCTOR AND CONNECTION REQUIREMENTS

To ensure positive connections, the following guidelines **shall be** adhered to:

1. All bonding and grounding conductors (wire, bus bars, or braided straps for example) **shall be** made of copper and of sufficiently low impedance to safely conduct any fault current.

   Aluminum **shall not** be used.

2. Conductors of dissimilar metals **shall not** be used in terminals or splicing connectors. Any flux, inhibitors, or compounds (where used) **shall be** suitable and **shall not** adversely affect the conductor, the installation, or the equipment.

3. All unplated connectors, braided straps, and bus bars **shall be** brought to a bright finish and coated with an antioxidant before crimp connections are made.

   Tinned, solder-plated, or silver-plated and other plated connection surfaces do not have to prepared this way, but they **shall be** clean and free of contaminants. Raceway fittings **shall be** tightened to provide a low-impedance path.

4. Multiple connectors **shall not** be secured by the same bolt assembly.

5. Any unplated connection surfaces used (if any) that are part of a grounding or bonding path **shall be** brought to a bright finish and coated with an antioxidant before being electrically connected.

6. All grounding and bonding conductors **shall be** connected by exothermic welding or compression type fittings to the greatest extent possible.

   Connector devices depending solely on solder **shall not** be used.

7. The following connector types **shall not** be used to terminate grounding or bonding connections:

   - ♦ Soldering lugs
   - ♦ Screwless (push-in)
   - ♦ Friction-fit

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PART 2 - STRAP AND SWITCH SETTINGS

Read the following items before proceeding.

- Observe all company guidelines regarding ESD precautions when handing modules.
- Always remove power from any module before removing it from the shelf. This can be accomplished by either removing the Fuse Module, or by removing the GMT-type fuse on the front of the Fuse Module for the specific slot of concern. In the case of the MAC's and MAP's, always power **all** of them down before removing **any** one of them.
- After the option switches have been set in each module, insert the module fully into the appropriate shelf slot.
- Slot 13 of the shelf is wired for TL1 protocol application, however, under this configuration, this slot will not be used. Slots 8 and 9 are vacant slots and will not be used.
- A full set of documentation should be provided with each shelf. It is strongly recommended that these documents be referred to for switch locations and other informational details while setting options. Following the completion of this turn-up procedure, all documentation should remain in the office for future reference.

  Care should be taken to determine which direction a switch should be thrown to be in either the ON or OFF position. This can and does change between different modules.
- Ports 1 & 3 of the Hubbing Module are internally connected using buses A & B. Ports 2 & 4 are internally connected using buses C & D.

STEP 1 - POWER AND FUSE MODULE (LISTS 41 & 42)

Remove power from all slots by removing the 48001 Fuse Module in slot 14. There is one jumper on the Fuse Module. Refer to Fig. 3 and Table A.

The Fuse Module should have been shipped completely fused with GMT-type fuses. The standard fuse rating is 0.5 Amps. If any fuses are missing, replace them now. Ensure that all fuses are properly seated in the module.

IMPORTANT: *Do not plug the Fuse Module in until the end of this section. When all other modules have been optioned and are plugged into their respective slots, only then plug in the Fuse Module to power up the shelf.*

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FIG. 3 - STRAP LOCATION, B11-48001 FUSE MODULE

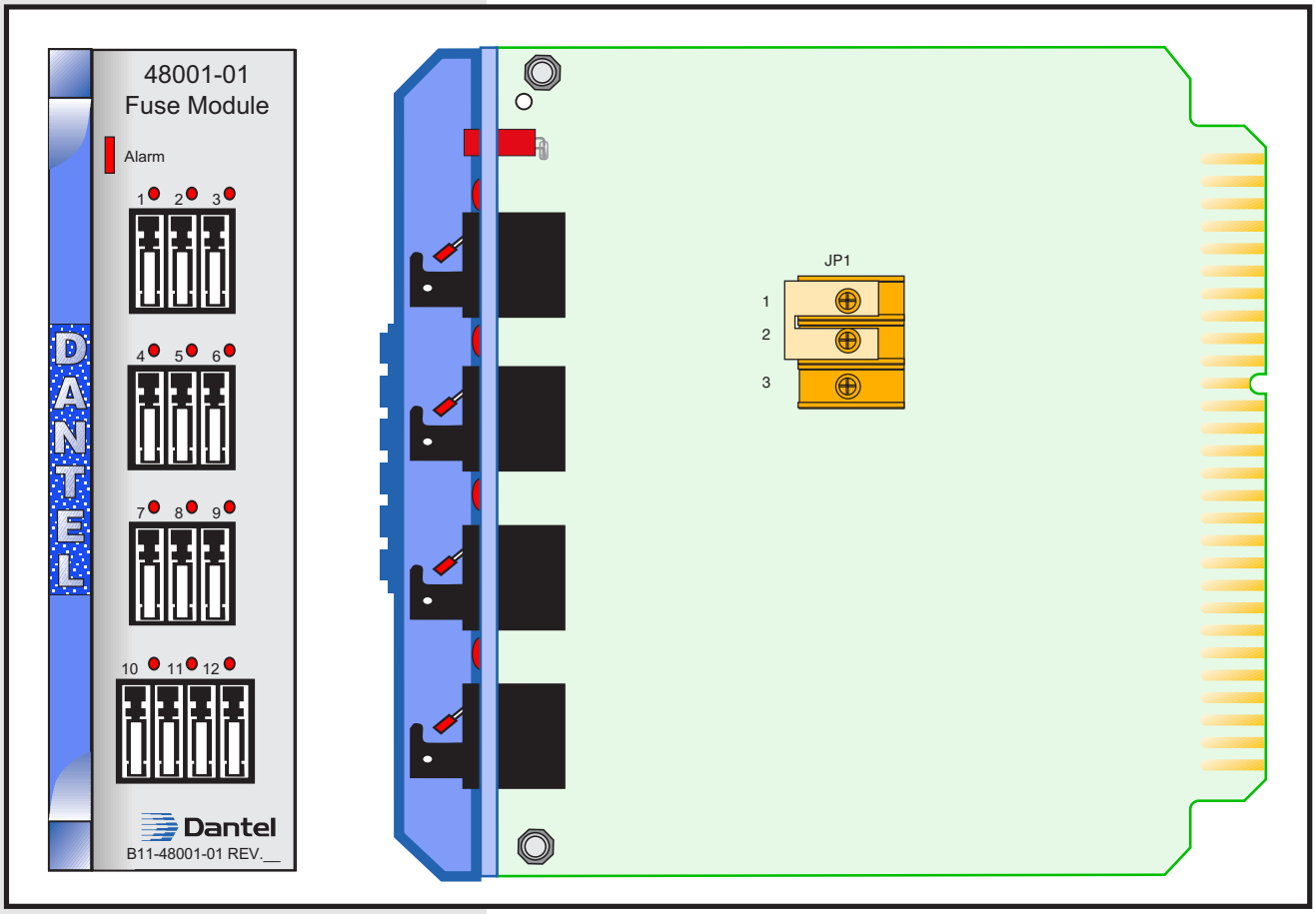


TABLE A - JP1 STRAP OPTIONS

POSITION	DESCRIPTION
Pins 1 & 2 *	Redundant or Single Input
Pins 2 & 3	Two Independant Inputs
* Setting for this application.	

STEP 2 - MAP AND RS-232 SUBASSEMBLY (LISTS 41 & 42)

MAP -40

Set the option switches on the 46020 MAP in slot 7 per Fig. 4 and Tables B, C, and D.

NOTE: *Switch S5-2 is set in the ON position at this time but will be changed to the OFF position near the end of this procedure. In the ON position, when power is applied to the module, any configuration held in memory will be erased. In the OFF position, when power is applied the module will resume normal operation, utilizing the current configuration held in its memory. By starting in the ON position, this ensures that any previous configuration will be erased and the memory will be blank.*

FIG. 4 - 46020 MAP SWITCH LOCATIONS

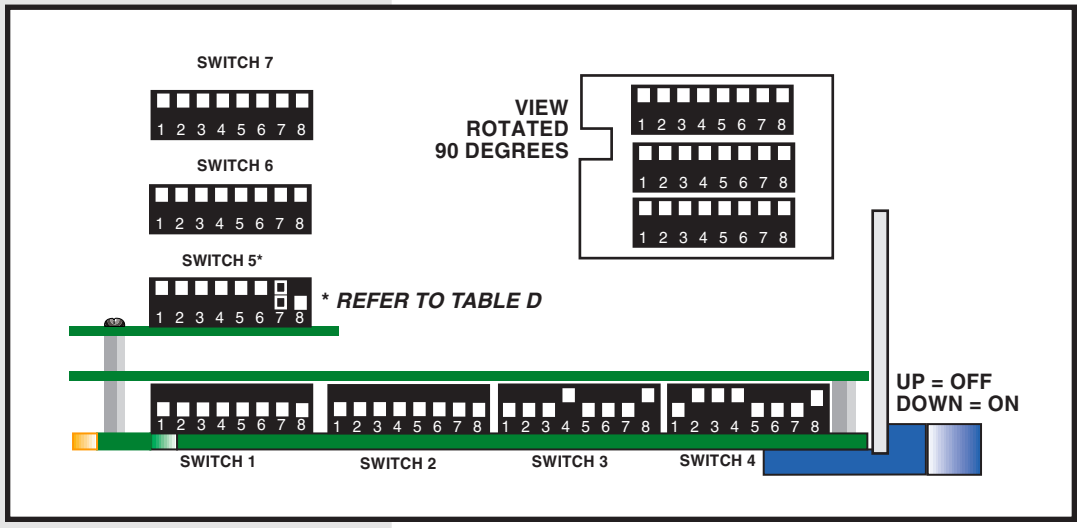


TABLE B - 46020 MAP SWITCHES SW1 THRU SW4

SWITCH	POSITION							
	1	2	3	4	5	6	7	8
SW1	0	0	0	0	0	0	0	0
SW2	0	0	0	0	0	0	0	0
SW3	0	0	0	1	0	0	0	1
SW4	0	1	1	1	0	0	0	1

NOTE: *A "1" indicates that the switch is up (up = OFF). A "0" indicates that the switch is down (down = ON).*

TABLE C - 46020 MAP SWITCHES SW5 THRU SW7

SWITCH	POSITION							
	1	2	3	4	5	6	7	8
SW5	0	0*	1*	1	1	1	1	1
SW6 If shelf equipped with 46033 E-System Adapter in slot 11	0	0	0	0	1	1	0	0
SW6 If shelf is not equipped with 46033 E-System Adapter in slot 11	1	1	0	0	0	1	0	0
SW7	1	1	1	1	1	1	1	1

***NOTE**: A "1" indicates that the switch is up (up = OFF). A "0" indicates that the switch is down (down = ON).*

** **NOTE**: SW5-2 and 3 work together to dictate how the MAP will use the on-board memory and what will happen when the MAP is reset. Placing S5-2 and 3 both DOWN, for example, causes the MAP's memory to be cleared. Refer to Table D below.*

TABLE D - 46020 MAP SWITCHES SW5-2 AND S5-3

SWITCH S5-2 AND S5-3		
CONDITION	S5-2	S5-3
When power is applied to the MAP, all information in the memory to define the data port configuration is erased. Configurations of printer and master ports go to default conditions as defined by switches S3, S4, and S6.	DOWN	UP or DOWN
When power is applied to the MAP, a reset occurs, but all information in memory to define the data port configuration is retained. Configurations of printer and master ports go to default conditions as defined by switches S3, S4, and S6.	UP	DOWN
If there is a configuration in memory, the system resumes normal operation upon startup. This is the setting for normal operation.	UP	UP
If there is no configuration in memory, the configurations of printer and master ports go to default conditions as defined by switches S3, S4, and S6.	UP	UP

***NOTE**: Place Switches S5-2 and 3 in the UP position before downloading a database configuration to the MAP. After the database is downloaded, keep the switch in the UP position.*

If you place the switch in the DOWN position after the database is downloaded and later remove power from the MAP, the MAP reconfigures the master and printer ports according to the switch settings on the module. These settings define only one address for each port. If the database has information for two addresses on a port, the MAP no longer reports any alarms for the second address.

49029 RS-232 Subassembly (on MAP)

Set the straps per to Fig 5 and Table E.

FIG. 5 - 49029 SWITCH AND STRAP LOCATIONS

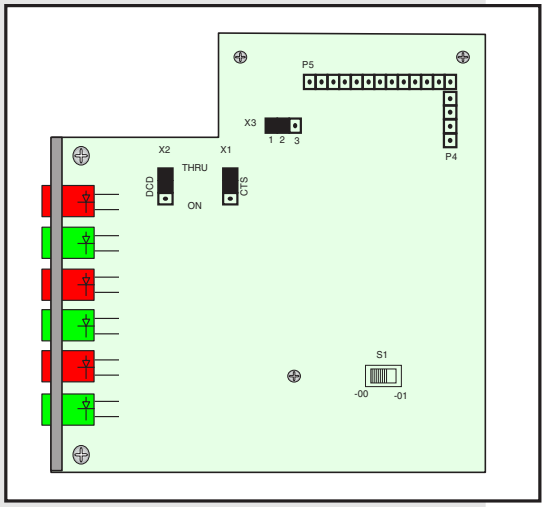


TABLE E - 49029 SWITCH AND STRAP SETTINGS

STRAP/SWITCH	POSITION
S1	-00 Mode
X1	THRU
X2	THRU
X3	Jumper pins 1 & 2

STEP 3 - 46023 SMAC (LISTS 41, 41A, 42, & 42A)

Set the option switches on the 46023-12 SMAC in slot 5 per Fig. 6 and Table F. Set this card (slot 5) to Card Address 1. If equipped, set the option switches on the 46023-12 SMAC in slot 6 per Fig. 6 and Table F. Set this card (slot 6) to Card Address 2.

FIG. 6 - 46023 SMAC SWITCH LOCATIONS

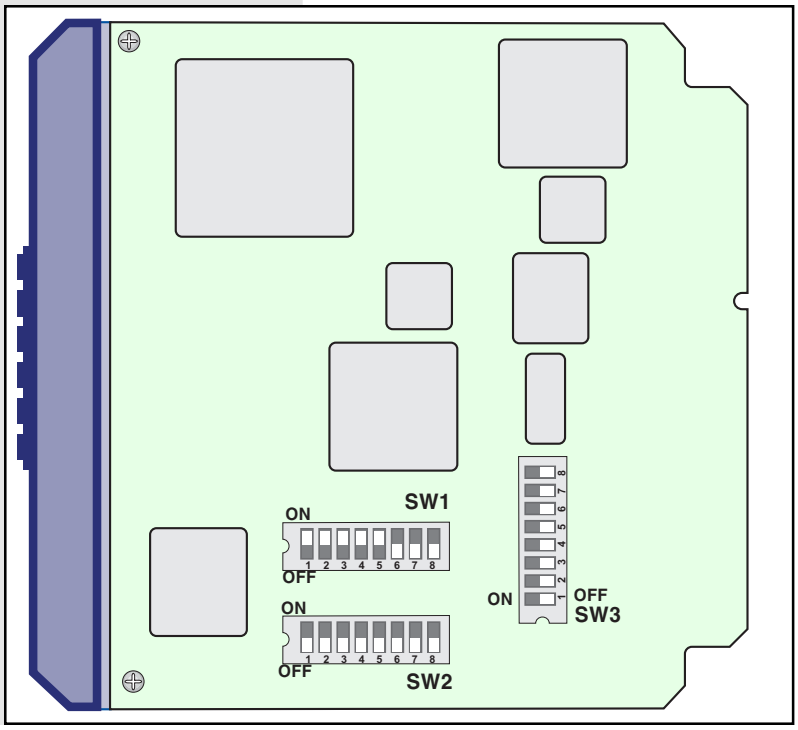


TABLE F - 46023 SMAC SWITCH OPTIONS

SWITCH S1	S1-1	S1-2	S1-3	S1-4	S1-5	S1-6	S1-7	S1-8
CARD ADDRESS								
1 (Ports 1-8) *	OFF	OFF	OFF					
2 (Ports 9-16) **	ON	OFF	OFF					
MASTER PORT DATA RATE								
9600 Baud				OFF				
MASTER PORT PROTOCOL								
DCPF					OFF	ON	ON	ON
SWITCH S2	**S2-1**	**S2-2**	**S2-3**	**S2-4**	**S2-5**	**S2-6**	**S2-7**	**S2-8**
Not Used	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
SWITCH S3								
Port Termination Port 1 Terminated Port 2 Terminated Port 3 Terminated	ON	ON	ON					
Port 4 Terminated Port 5 Terminated Port 6 Terminated Port 7 Terminated Port 8 Terminated				ON	ON	ON	ON	ON
* Default for slot 5 * Default for slot 6								

STEP 4 - 46009 MAT (LISTS 43A & 43B)

Set the option switches on the 46009 MAT in slots 1, 2, and 3 (if equipped) per Fig. 7 and Table G.

- Set slot 1 to addresses 125/126.
- Set slot 2 to addresses 127/128.
- Set slot 3 to addresses 121/122.

FIG. 7 - 46009 MAT SWITCH AND STRAP LOCATIONS

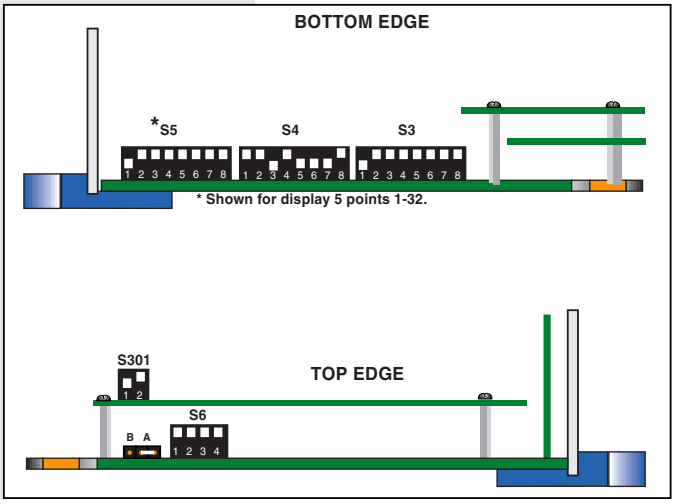


TABLE G - 46009 MAT SWITCH AND STRAP OPTIONS

SWITCH	POSITION							
	1	2	3	4	5	6	7	8
SW5								
Slot 1 *	0	0	0	0	0	0	1	1
Slot 2 **	0	0	0	0	0	0	0	1
Slot 3 ***	0	0	0	0	0	1	1	1
SW4	1	1	0	1	0	1	1	1
SW3	1	1	1	1	1	1	1	1
SW6	1	1	1	1	-	-	-	-
SW301	0	1	-	-	-	-	-	-
A/B Strap	Set for position "A".							

***NOTE**: A "1" indicates that the switch is up (up = OFF). A "0" indicates that the switch is down (down = ON).*

* *DCM addresses 125/126*
** *DCM addresses 127/128*
*** *DCM addresses 121/122*

***NOTE:** The MATs in slots 1 through 3 are not interchangeable without changing the address on switch 5 first.*

STEP 5 - 46028 CPM (LIST 43A)

Set the option switches on the 46028 CPM (if equipped) in slot 4 per Fig. 8 and Table H.

FIG 8 - 46028 CPM SWITCH LOCATIONS

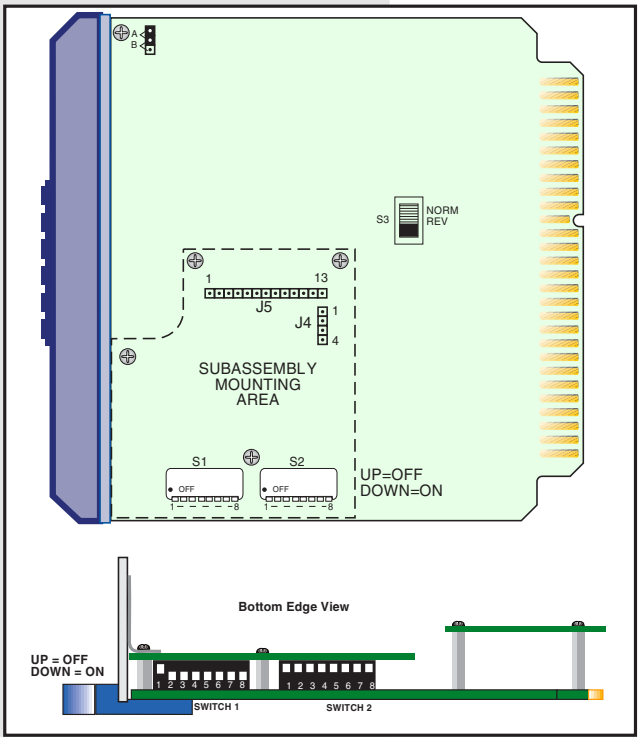


TABLE H - 46028 CPM SWITCH SETTINGS

SWITCH	POSITION							
	1	2	3	4	5	6	7	8
SW1	1	1	1	0	1	0	0	0
SW2	1	1	1	1	1	1	1	1
S3	Leave in "NORM"							
AB Strap	Leave in "A" position.							

***NOTE**: A "1" indicates that the switch is up (up = OFF).*
A "0" indicates that the switch is down (down = ON).

49008 RS-422 Subassembly (on CPM)

Set the straps per Fig. 9 and Table I.

FIG 9 - 49008 STRAP LOCATIONS

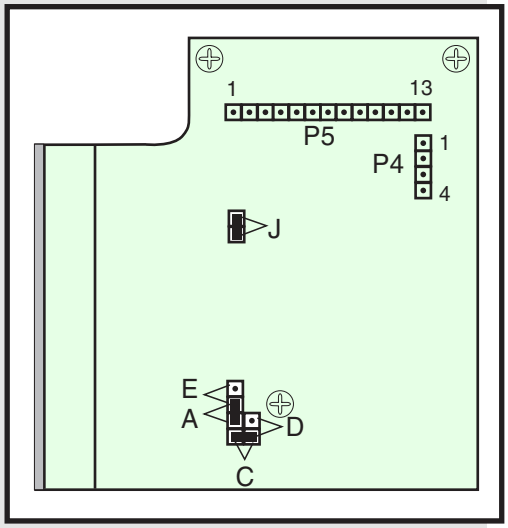


TABLE I - 49008 STRAP SETTINGS

OPTION	STRAP
Input Terminated	J Strap installed.
Interface RS-422	Straps A and C installed

STEP 6 - 44124 DST (LIST 44A)

Set the option switches on the DST in slot 12 per Fig. 10 and Tables J thru N. Specific levels and equalization settings are normally determined by either the Special Services or OCS Installer at the time of the ETEL circuit installation.

***NOTE**: This module may be substituted by other NCTE devices.*

FIG. 10 - 44124 DST SWITCH LOCATIONS

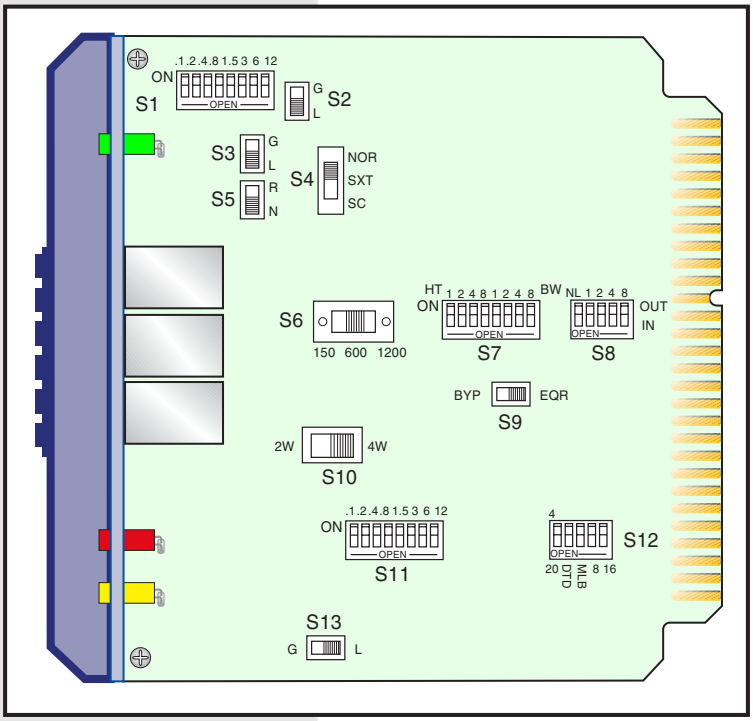


TABLE J - 44124 DST SWITCH OPTIONS

FUNCTION	OPTION	SWITCH	POSITION
Line Impedance	600 ohms	S6	600
2W/4W Drop Select	Four-Wire	S10	4W*
2713 Hz Loopback	Enable	S12-2	DTD
2713 Hz Loopback Timeout	20 Minutes	S12-1	20
Manual Loopback	Disabled	S12-3	OFF

CONTINUED . . .

TABLE J (CONTINUED) - 44124 DST SWITCH OPTIONS

FUNCTION	OPTION	SWITCH	POSITION
Loopback Gain	8 dB	S12-4 S12-5	ON OFF
Simplex Mode	Local	S4	NOR
Simplex Polarity	Normal	S5	N
Sealing Current	Sink	S2	L
Input Equalizer	Bypass	S9	BYP
Equalizer Slope Cable Select	Loaded Nonloaded	S8-1 S8-1	--- NL*
Input Level Gain /Loss Select	Gain Loss	S13 S13	G L*
Input Level (dB, accumulative) * default is all off	0.1 0.2 0.4 0.8 1.5 3.0 6.0 12.0	S11-1 S11-2 S11-3 S11-4 S11-5 S11-6 S11-7 S11-8	ON ON ON ON ON ON ON ON
Output Level Gain /Loss Effect	Gain Loss	S3 S3	G L*
Output Level (dB, accumulative) * default is all off	0.1 0.2 0.4 0.8 1.5 3.0 6.0 12.0	S1-1 S1-2 S1-3 S1-4 S1-5 S1-6 S1-7 S1-8	ON ON ON ON ON ON ON ON
* Default Settings Indicated			

TABLE K - LF SLOPE (SL) SETTINGS 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.*

TABLE L - HEIGHT (HT) SETTINGS FOR 3204 HZ LOSS

LOSS AT 3204 HZ WITH 1004 HZ FOR REFERENCE HT SETTING SWITCH					
Calculated Loss (dB values)	Reference Total	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 the calculated values of Height (HT) fall between settings, use the lower setting indicated by the table.*

TABLE M - 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 the calculated values of Bandwidth (BW) fall between settings, use the lower setting indicated by the table.*

TABLE N - 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) settings 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

STEP 7 - 46033 E-SYS AND 202 SUBASSEMBLY (LIST 45A)

46033 E-Sys

Set the option switches on the 46033 E-System Adapter in slot 11 per Fig. 11 and Tables O and P.

NOTE: *Switches S2-1 thru 8 on the 46033 E-Sys module set the Station Address. This information is available from the Network Operations Center (NOC) or NMA Database organization. Use Table P to set for the assigned address. Remember, each station address must be unique on any ETEl circuit or NMA port.*

FIG. 11 - 46033 E-SYS SWITCH LOCATIONS

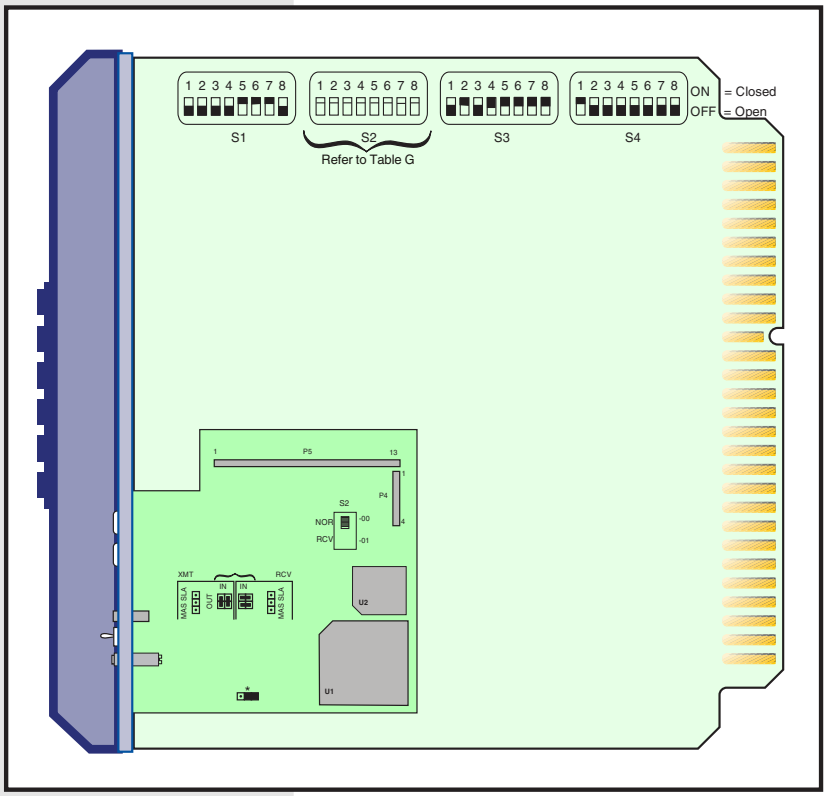


TABLE O - 46033 E-SYS SWITCH OPTIONS

SWITCH	POSITION							
	1	2	3	4	5	6	7	8
SW1	1	1	1	0	0	0	0	1
SW2	Station Address. Refer to Table J.							
SW3	1	0	1	0	0	0	0	0
SW4	0	1	1	1	1	1	1	1

NOTE: *A "1" indicates that the rocker switch is up adjacent to the position number (open = OFF). A "0" indicates that the rocker switch is down adjacent to the position number (closed = ON).*

TABLE P - 46033 E-SYS ADDRESS SETTINGS

NOTE:

A "0" indicates that the rocker switch is down adjacent to the position number (closed = ON). A "1" indicates that the rocker switch is up adjacent to the position number (open = OFF).

* = Factory Default

ADDRESS	POSITION							
	1	2	3	4	5	6	7	8
00	0	0	0	0	0	0	0	0
01 *	0	0	0	0	0	0	0	1
02	0	0	0	0	0	0	1	0
03	0	0	0	0	0	0	1	1
04	0	0	0	0	0	1	0	0
05	0	0	0	0	0	1	0	1
06	0	0	0	0	0	1	1	0
07	0	0	0	0	0	1	1	1
08	0	0	0	0	1	0	0	0
09	0	0	0	0	1	0	0	1
10	0	0	0	0	1	0	1	0
11	0	0	0	0	1	0	1	1
12	0	0	0	0	1	1	0	0
13	0	0	0	0	1	1	0	1
14	0	0	0	0	1	1	1	0
15	0	0	0	0	1	1	1	1
16	0	0	0	1	0	0	0	0
17	0	0	0	1	0	0	0	1
18	0	0	0	1	0	0	1	0
19	0	0	0	1	0	0	1	1
20	0	0	0	1	0	1	0	0
21	0	0	0	1	0	1	0	1
22	0	0	0	1	0	1	1	0
23	0	0	0	1	0	1	1	1
24	0	0	0	1	1	0	0	0
25	0	0	0	1	1	0	0	1
26	0	0	0	1	1	0	1	0
27	0	0	0	1	1	0	1	1
28	0	0	0	1	1	1	0	0
29	0	0	0	1	1	1	0	1
30	0	0	0	1	1	1	1	0
31	0	0	0	1	1	1	1	1

CONTINUED . . .

TABLE P (CONTINUED)- 46033 E-SYS ADDRESS SETTINGS

NOTE:

A "0" indicates that the rocker switch is down adjacent to the position number (closed = ON). A "1" indicates that the rocker switch is up adjacent to the position number (open = OFF).

ADDRESS	POSITION							
	1	2	3	4	5	6	7	8
32	0	0	1	0	0	0	0	0
33	0	0	1	0	0	0	0	1
34	0	0	1	0	0	0	1	0
35	0	0	1	0	0	0	1	1
36	0	0	1	0	0	1	0	0
37	0	0	1	0	0	1	0	1
38	0	0	1	0	0	1	1	0
39	0	0	1	0	0	1	1	1
40	0	0	1	0	1	0	0	0
41	0	0	1	0	1	0	0	1
42	0	0	1	0	1	0	1	0
43	0	0	1	0	1	0	1	1
44	0	0	1	0	1	1	0	0
45	0	0	1	0	1	1	0	1
46	0	0	1	0	1	1	1	0
47	0	0	1	0	1	1	1	1
48	0	0	1	1	0	0	0	0
49	0	0	1	1	0	0	0	1
50	0	0	1	1	0	0	1	0
51	0	0	1	1	0	0	1	1
52	0	0	1	1	0	1	0	0
53	0	0	1	1	0	1	0	1
54	0	0	1	1	0	1	1	0
55	0	0	1	1	0	1	1	1
56	0	0	1	1	1	0	0	0
57	0	0	1	1	1	0	0	1
58	0	0	1	1	1	0	1	0
59	0	0	1	1	1	0	1	1
60	0	0	1	1	1	1	0	0
61	0	0	1	1	1	1	0	1
62	0	0	1	1	1	1	1	0
63	0	0	1	1	1	1	1	1
64	0	1	0	0	0	0	0	0
65	0	1	0	0	0	0	0	1
66	0	1	0	0	0	0	1	0
67	0	1	0	0	0	0	1	1
68	0	1	0	0	0	1	0	0
69	0	1	0	0	0	1	0	1
70	0	1	0	0	0	1	1	0
71	0	1	0	0	0	1	1	1
72	0	1	0	0	1	0	0	0
73	0	1	0	0	1	0	0	1
74	0	1	0	0	1	0	1	0
75	0	1	0	0	1	0	1	1

CONTINUED . . .

TABLE P (CONTINUED)- 46033 E-SYS ADDRESS SETTINGS

NOTE:

A "0" indicates that the rocker switch is down adjacent to the position number (closed = ON). A "1" indicates that the rocker switch is up adjacent to the position number (open = OFF).

ADDRESS	POSITION							
	1	2	3	4	5	6	7	8
76	0	1	0	0	1	1	0	0
77	0	1	0	0	1	1	0	1
78	0	1	0	0	1	1	1	0
79	0	1	0	0	1	1	1	1
80	0	1	0	1	0	0	0	0
81	0	1	0	1	0	0	0	1
82	0	1	0	1	0	0	1	0
83	0	1	0	1	0	0	1	1
84	0	1	0	1	0	1	0	0
85	0	1	0	1	0	1	0	1
86	0	1	0	1	0	1	1	0
87	0	1	0	1	0	1	1	1
88	0	1	0	1	1	0	0	0
89	0	1	0	1	1	0	0	1
90	0	1	0	1	1	0	1	0
91	0	1	0	1	1	0	1	1
92	0	1	0	1	1	1	0	0
93	0	1	0	1	1	1	0	1
94	0	1	0	1	1	1	1	0
95	0	1	0	1	1	1	1	1
96	0	1	1	0	0	0	0	0
97	0	1	1	0	0	0	0	1
98	0	1	1	0	0	0	1	0
99	0	1	1	0	0	0	1	1
100	0	1	1	0	0	1	0	0
101	0	1	1	0	0	1	0	1
102	0	1	1	0	0	1	1	0
103	0	1	1	0	0	1	1	1
104	0	1	1	0	1	0	0	0
105	0	1	1	0	1	0	0	1
106	0	1	1	0	1	0	1	0
107	0	1	1	0	1	0	1	1
108	0	1	1	0	1	1	0	0
109	0	1	1	0	1	1	0	1
110	0	1	1	0	1	1	1	0
111	0	1	1	0	1	1	1	1
112	0	1	1	1	0	0	0	0
113	0	1	1	1	0	0	0	1
114	0	1	1	1	0	0	1	0
115	0	1	1	1	0	0	1	1
116	0	1	1	1	0	1	0	0
117	0	1	1	1	0	1	0	1
118	0	1	1	1	0	1	1	0
119	0	1	1	1	0	1	1	1

CONTINUED . . .

TABLE P (CONTINUED)- 46033 E-SYS ADDRESS SETTINGS

NOTE:

A "0" indicates that the rocker switch is down adjacent to the position number (closed = ON). A "1" indicates that the rocker switch is up adjacent to the position number (open = OFF).

ADDRESS	POSITION							
	1	2	3	4	5	6	7	8
120	0	1	1	1	1	0	0	0
121	0	1	1	1	1	0	0	1
122	0	1	1	1	1	0	1	0
123	0	1	1	1	1	0	1	1
124	0	1	1	1	1	1	0	0
125	0	1	1	1	1	1	0	1
126	0	1	1	1	1	1	1	0
127	0	1	1	1	1	1	1	1
128	1	0	0	0	0	0	0	0
129	1	0	0	0	0	0	0	1
130	1	0	0	0	0	0	1	0
131	1	0	0	0	0	0	1	1
132	1	0	0	0	0	1	0	0
133	1	0	0	0	0	1	0	1
134	1	0	0	0	0	1	1	0
135	1	0	0	0	0	1	1	1
136	1	0	0	0	1	0	0	0
137	1	0	0	0	1	0	0	1
138	1	0	0	0	1	0	1	0
139	1	0	0	0	1	0	1	1
140	1	0	0	0	1	1	0	0
141	1	0	0	0	1	1	0	1
142	1	0	0	0	1	1	1	0
143	1	0	0	0	1	1	1	1
144	1	0	0	1	0	0	0	0
145	1	0	0	1	0	0	0	1
146	1	0	0	1	0	0	1	0
147	1	0	0	1	0	0	1	1
148	1	0	0	1	0	1	0	0
149	1	0	0	1	0	1	0	1
150	1	0	0	1	0	1	1	0
151	1	0	0	1	0	1	1	1
152	1	0	0	1	1	0	0	0
153	1	0	0	1	1	0	0	1
154	1	0	0	1	1	0	1	0
155	1	0	0	1	1	0	1	1
156	1	0	0	1	1	1	0	0
157	1	0	0	1	1	1	0	1
158	1	0	0	1	1	1	1	0
159	1	0	0	1	1	1	1	1
160	1	0	1	0	0	0	0	0
161	1	0	1	0	0	0	0	1
162	1	0	1	0	0	0	1	0
163	1	0	1	0	0	0	1	1

CONTINUED . . .

TABLE P (CONTINUED)- 46033 E-SYS ADDRESS SETTINGS

NOTE:

A "0" indicates that the rocker switch is down adjacent to the position number (closed = ON). A "1" indicates that the rocker switch is up adjacent to the position number (open = OFF).

ADDRESS	POSITION							
	1	2	3	4	5	6	7	8
164	1	0	1	0	0	1	0	0
165	1	0	1	0	0	1	0	1
166	1	0	1	0	0	1	1	0
167	1	0	1	0	0	1	1	1
168	1	0	1	0	1	0	0	0
169	1	0	1	0	1	0	0	1
170	1	0	1	0	1	0	1	0
171	1	0	1	0	1	0	1	1
172	1	0	1	0	1	1	0	0
173	1	0	1	0	1	1	0	1
174	1	0	1	0	1	1	1	0
175	1	0	1	0	1	1	1	1
176	1	0	1	1	0	0	0	0
177	1	0	1	1	0	0	0	1
178	1	0	1	1	0	0	1	0
179	1	0	1	1	0	0	1	1
180	1	0	1	1	0	1	0	0
181	1	0	1	1	0	1	0	1
182	1	0	1	1	0	1	1	0
183	1	0	1	1	0	1	1	1
184	1	0	1	1	1	0	0	0
185	1	0	1	1	1	0	0	1
186	1	0	1	1	1	0	1	0
187	1	0	1	1	1	0	1	1
188	1	0	1	1	1	1	0	0
189	1	0	1	1	1	1	0	1
190	1	0	1	1	1	1	1	0
191	1	0	1	1	1	1	1	1
192	1	1	0	0	0	0	0	0
193	1	1	0	0	0	0	0	1
194	1	1	0	0	0	0	1	0
195	1	1	0	0	0	0	1	1
196	1	1	0	0	0	1	0	0
197	1	1	0	0	0	1	0	1
198	1	1	0	0	0	1	1	0
199	1	1	0	0	0	1	1	1
200	1	1	0	0	1	0	0	0
201	1	1	0	0	1	0	0	1
202	1	1	0	0	1	0	1	0
203	1	1	0	0	1	0	1	1
204	1	1	0	0	1	1	0	0
205	1	1	0	0	1	1	0	1
206	1	1	0	0	1	1	1	0
207	1	1	0	0	1	1	1	1

CONTINUED . . .

TABLE P (CONTINUED)- 46033 E-SYS ADDRESS SETTINGS

NOTE:

A "0" indicates that the rocker switch is down adjacent to the position number (closed = ON). A "1" indicates that the rocker switch is up adjacent to the position number (open = OFF).

ADDRESS	POSITION							
	1	2	3	4	5	6	7	8
208	1	1	0	1	0	0	0	0
209	1	1	0	1	0	0	0	1
210	1	1	0	1	0	0	1	0
211	1	1	0	1	0	0	1	1
212	1	1	0	1	0	1	0	0
213	1	1	0	1	0	1	0	1
214	1	1	0	1	0	1	1	0
215	1	1	0	1	0	1	1	1
216	1	1	0	1	1	0	0	0
217	1	1	0	1	1	0	0	1
218	1	1	0	1	1	0	1	0
219	1	1	0	1	1	0	1	1
220	1	1	0	1	1	1	0	0
221	1	1	0	1	1	1	0	1
222	1	1	0	1	1	1	1	0
223	1	1	0	1	1	1	1	1
224	1	1	1	0	0	0	0	0
225	1	1	1	0	0	0	0	1
226	1	1	1	0	0	0	1	0
227	1	1	1	0	0	0	1	1
228	1	1	1	0	0	1	0	0
229	1	1	1	0	0	1	0	1
230	1	1	1	0	0	1	1	0
231	1	1	1	0	0	1	1	1
232	1	1	1	0	1	0	0	0
233	1	1	1	0	1	0	0	1
234	1	1	1	0	1	0	1	0
235	1	1	1	0	1	0	1	1
236	1	1	1	0	1	1	0	0
237	1	1	1	0	1	1	0	1
238	1	1	1	0	1	1	1	0
239	1	1	1	0	1	1	1	1
240	1	1	1	1	0	0	0	0
241	1	1	1	1	0	0	0	1
242	1	1	1	1	0	0	1	0
243	1	1	1	1	0	0	1	1
244	1	1	1	1	0	1	0	0
245	1	1	1	1	0	1	0	1
246	1	1	1	1	0	1	1	0
247	1	1	1	1	0	1	1	1
248	1	1	1	1	1	0	0	0
249	1	1	1	1	1	0	0	1
250	1	1	1	1	1	0	1	0
251	1	1	1	1	1	0	1	1

CONTINUED . . .

TABLE P (CONTINUED)- 46033 E-SYS ADDRESS SETTINGS

NOTE:

A "0" indicates that the rocker switch is down adjacent to the position number (closed = ON). A "1" indicates that the rocker switch is up adjacent to the position number (open = OFF).

ADDRESS	POSITION							
	1	2	3	4	5	6	7	8
252	1	1	1	1	1	1	0	0
253	1	1	1	1	1	1	0	1
254	1	1	1	1	1	1	1	0
255	1	1	1	1	1	1	1	1

49013 202 Tone Subassembly (on E-Sys)

Set the straps per Fig. 12 and Table Q.

FIG 12 - 49013 STRAP LOCATIONS

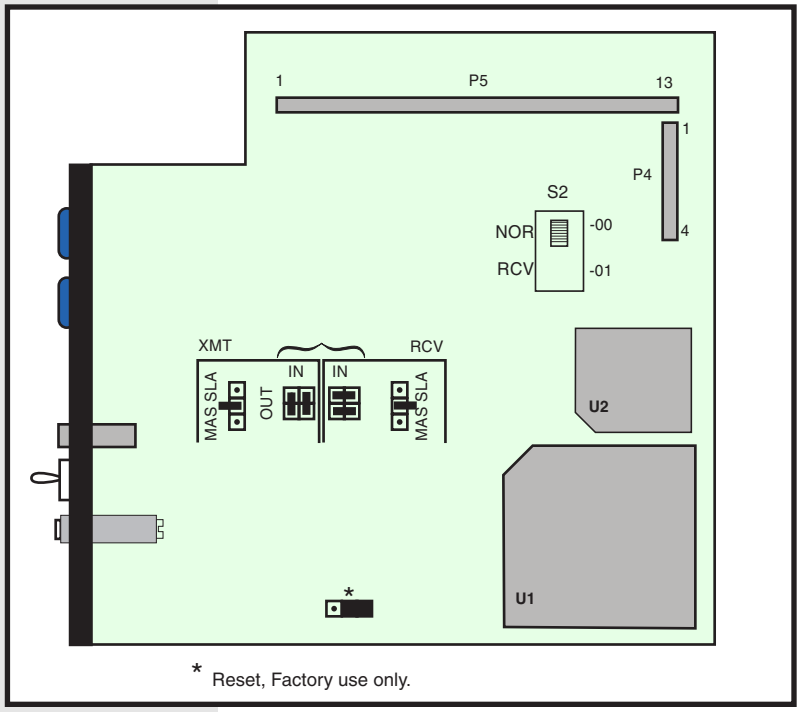


TABLE Q - 49013 STRAP SETTINGS

OPTION	INSTALL STRAP
Transmitter Master/Slave	Remove or store in inoperative position (see Fig. 12)
Receiver Master/Slave	Remove or store in inoperative position (see Fig. 12)
RCV Pad In (input level 0 to -20 dB)	Jumpers placed parallel to connector P5
XMT Pad Out (output level adjustable between -1 and -20 dBm)	Jumpers placed perpendicular to connector P5
S2	NOR (Toward connector P5)

STEP 8 - 46034 HUBBING MODULE (LIST 47A)

Set the option switches on the 46034 Hubbing Module in slot 10 per Fig. 13 and Tables R and S. These settings configure the module for the following port utilization:

- Port 1 is the path between the Hubbing Module and the Printer Port of the MAP and is hard-wired on the backplane.
- Port 2 is the path between the Hubbing Module and the Printer Port of the TL1 GPP in slot 13. It is hard-wired on the backplane.
- Port 3 appears at connector C7-A and provides access by way of Port 1 to the Printer Port of the MAP.
- Port 4 appears at connector C8-A and provides access by way of Port 2 to the Printer Port of the TL1 GPP.

FIG. 13 - 46034 HUBBING MODULE SWITCH AND STRAP LOCATIONS

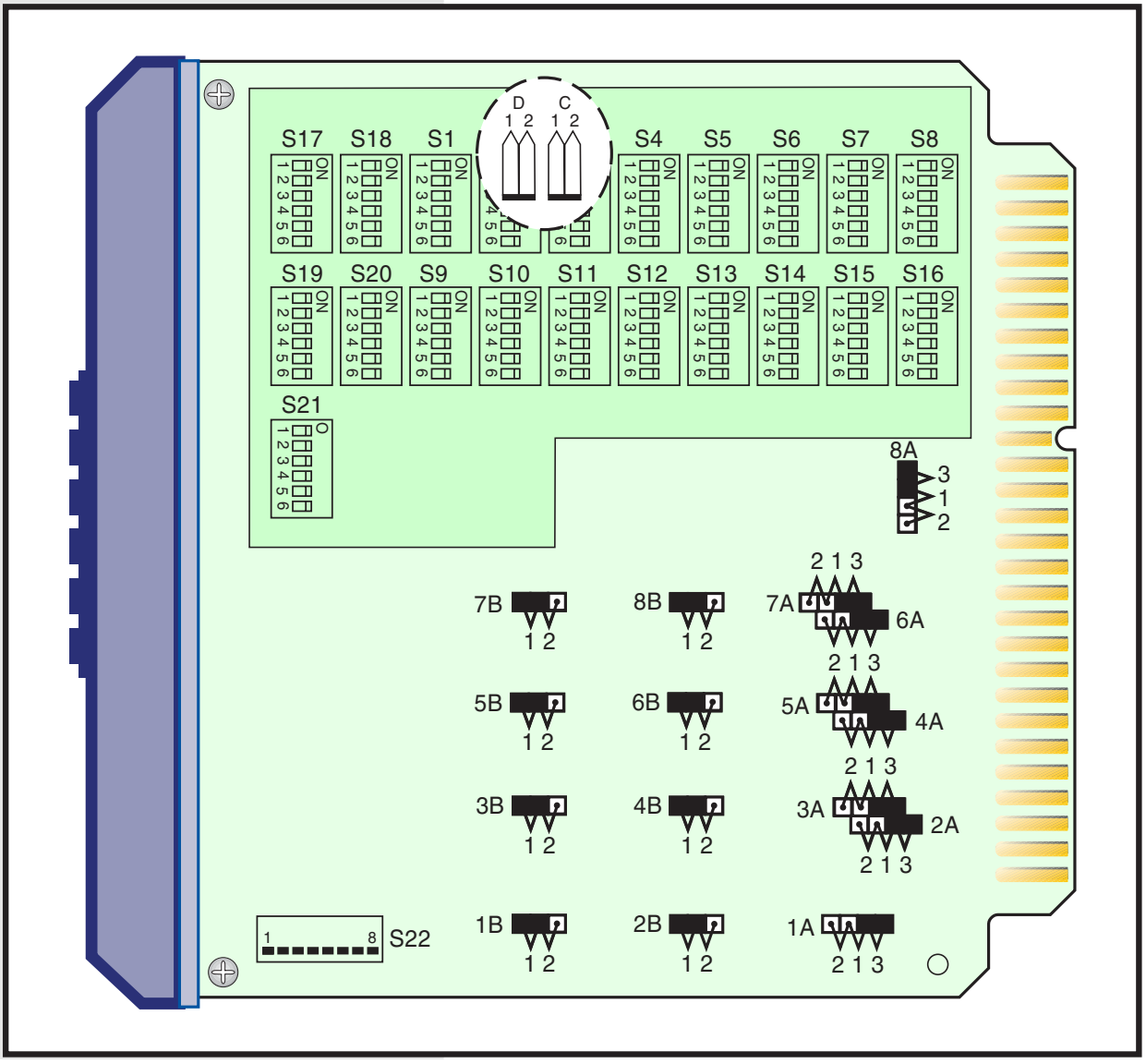


TABLE R - 46034 HUBBING MODULE STRAP OPTIONS

OPTION	STRAP	POSITION
DATA PORTS 1 THROUGH 8		
Receive RS-232	1A through 8A	3
Transmit RS-232	1B through 8B	1
COMMUNICATIONS SUBASSEMBLY		
Subassembly RTS Select RTS always ON	C	2
Subassembly Duplex Control Full-duplex	D	1

TABLE S - 46034 HUBBING MODULE SWITCH SETTINGS

DATA PORT NUMBER	SWITCH			
	BUS A	BUS B	BUS C	BUS D
Port 1 Input Output	S1-1 ON	S9-2 ON		
Port 2 Input Output			S2-3 ON	S10-4 ON
Port 3 Input Output	S11-1 ON	S3-2 ON		
Port 4 Input Output			S12-3 ON	S4-4 ON

NOTE: *All other switches on this subassembly are OFF, including all the bits on S17 through S21.*

DUPLEX ON PORTS 1-8	
PORT	SWITCH
Port 1 Full-duplex	S22-8 OFF
Port 2 Full-duplex	S22-7 OFF
Port 3 Full-duplex	S22-6 OFF
Port 4 Full-duplex	S22-5 OFF
Port 5 Full-duplex	S22-4 OFF
Port 6 Full-duplex	S22-3 OFF
Port 7 Full-duplex	S22-2 OFF
Port 8 Full-duplex	S22-1 OFF

STEP 9 - 46062-22 GPP (LIST 46A)

Set the option switches and straps on the 46062-22 TL1 GPP (if used) per Figs. 14 and 15 and Table T.

FIG. 14 - TL1 GPP SWITCH AND STRAP LOCATIONS

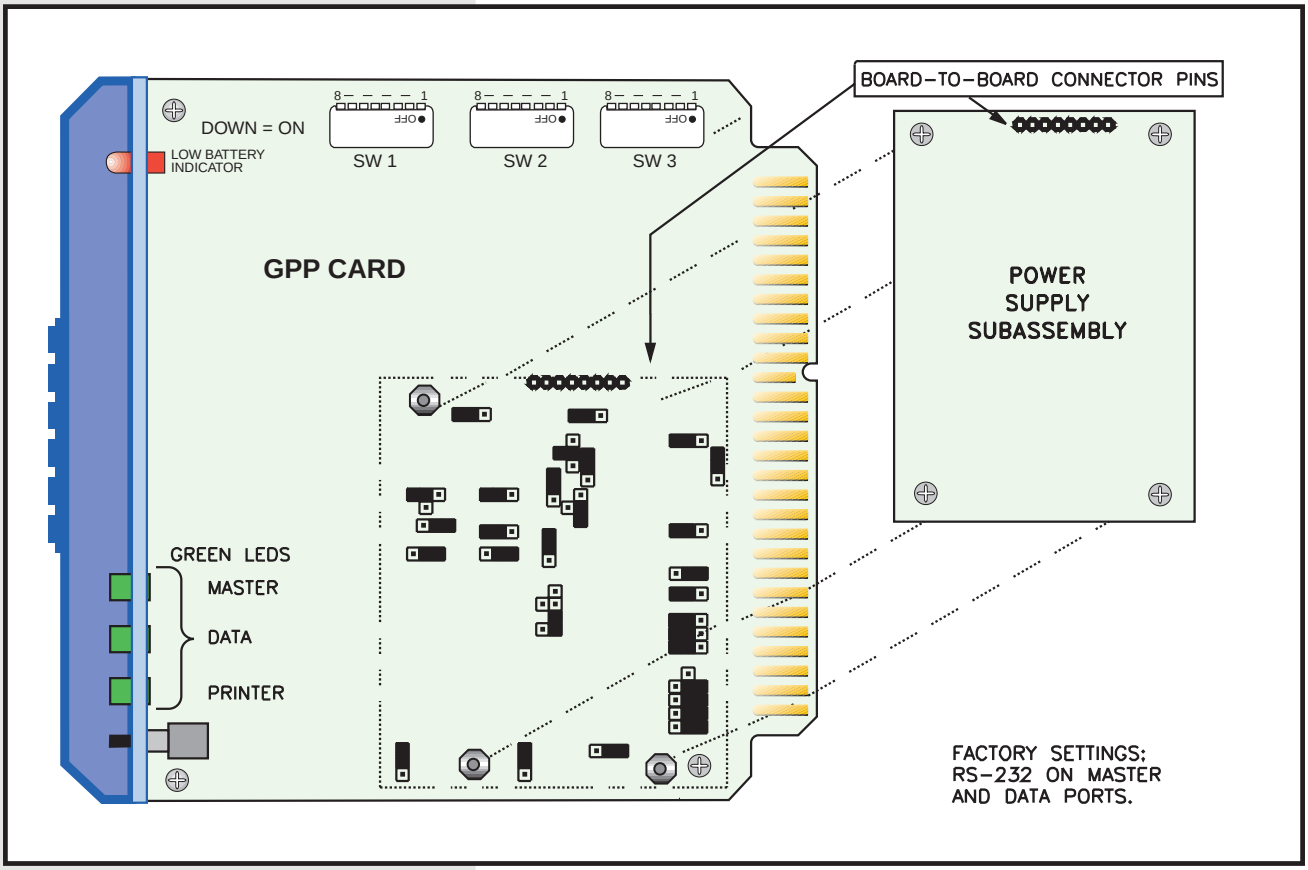


TABLE T - TL1 GPP SWITCH OPTIONS

SWITCH 1	S1-1	S1-2	S1-3	S1-4	S1-5	S1-6	S1-7	S1-8
Address 1	DOWN	DOWN	DOWN					
Address 2	UP	DOWN	DOWN					
Address 3	DOWN	UP	DOWN					
Address 4	UP	UP	DOWN					
Address 5	DOWN	DOWN	UP					
Address 6	UP	DOWN	UP					
Address 7	DOWN	UP	UP					
Address 8	UP	UP	UP					
Reserved				DOWN	DOWN			
Master Port Handshaking								
None						DOWN		
RTS/CTS						UP		
TL1 Mode								
Commands Issued From Computer							DOWN	
Commands Issued By User							UP	
Memory								
Hold Memory on Power-up/Reset								DOWN
Clear Memory on Power-up/Reset								UP
SWITCH 2	**S2-1**	**S2-2**	**S2-3**	**S2-4**	**S2-5**	**S2-6**	**S2-7**	**S2-8**
Printer Port Baud								
1200	DOWN	DOWN						
2400	UP	DOWN						
9600	DOWN	UP						
19200	UP	UP						
Printer Port Parity								
None			DOWN	DOWN				
Odd			UP	DOWN				
Even			DOWN	UP				
Master Port Baud								
1200					DOWN	DOWN		
2400					UP	DOWN		
9600					DOWN	UP		
19200					UP	UP		
Master Port Parity								
None							DOWN	DOWN
Odd							UP	DOWN
Even							DOWN	UP

TABLE T CONTINUED . . .

TABLE T (CONTINUED) - TL1 GPP SWITCH OPTIONS

SWITCH 3	S3-1	S3-2	S3-3	S3-4	S3-5	S3-6	S3-7	S3-8
Data Port Baud								
1200	DOWN	DOWN						
2400	UP	DOWN						
9600	DOWN	UP						
19200	UP	UP						
Data Port Parity								
None			DOWN	DOWN				
Odd			UP	DOWN				
Even			DOWN	UP				
Printer Port Protocol								
Printer Syntax					DOWN	DOWN		
TL1					UP	DOWN		
Hubbed Printer Application (DCPF)					DOWN	UP		
Data Port Protocol								
DCP							DOWN	DOWN
ESYS							UP	DOWN
DCPF							DOWN	UP

Set the straps as required for the specific application.

There are no strap settings for the Printer Port; RS-232 is the only interface available on this port.

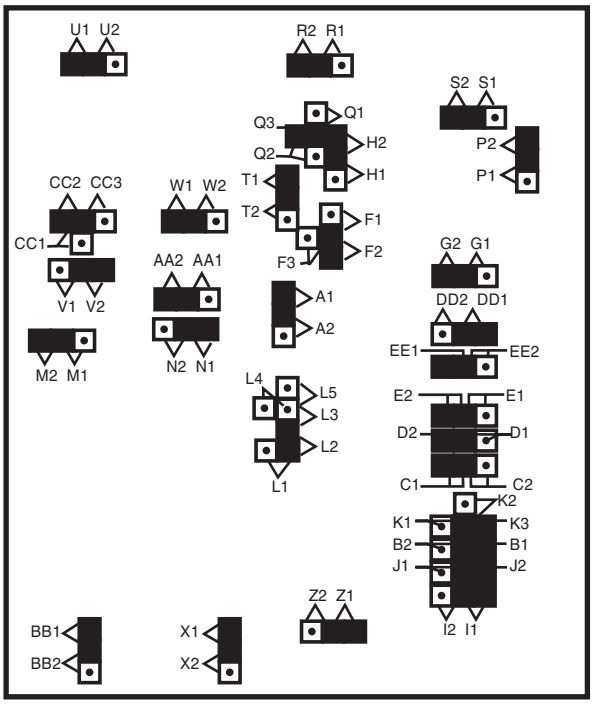
The straps for the Master and Data ports are located beneath the power supply subassembly; refer to Fig. 14 for the location of the power supply. To access the straps:

- Remove the four screws securing the subassembly.
- Pull the subassembly straight up, exercising caution not to bend the subassembly connector pins.

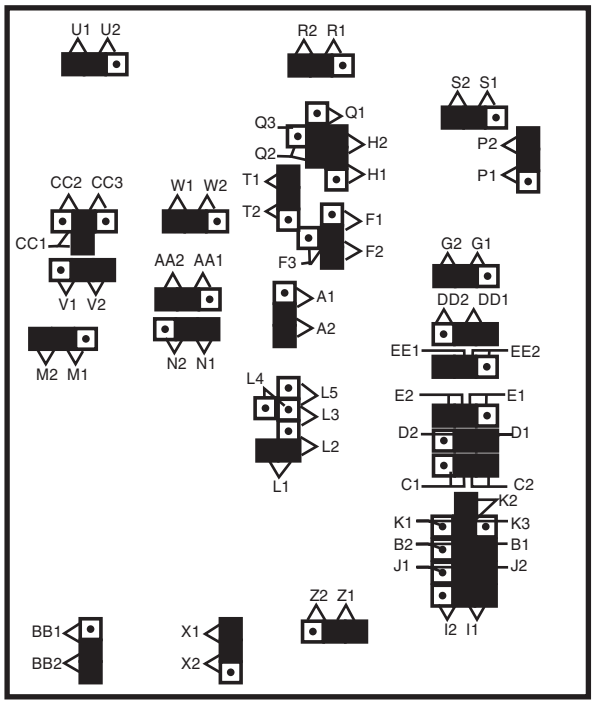
Refer to Fig. 15 for RS-232 and RS-422 asynchronous communications on the master and data ports.

Replace the power supply subassembly after setting the straps.

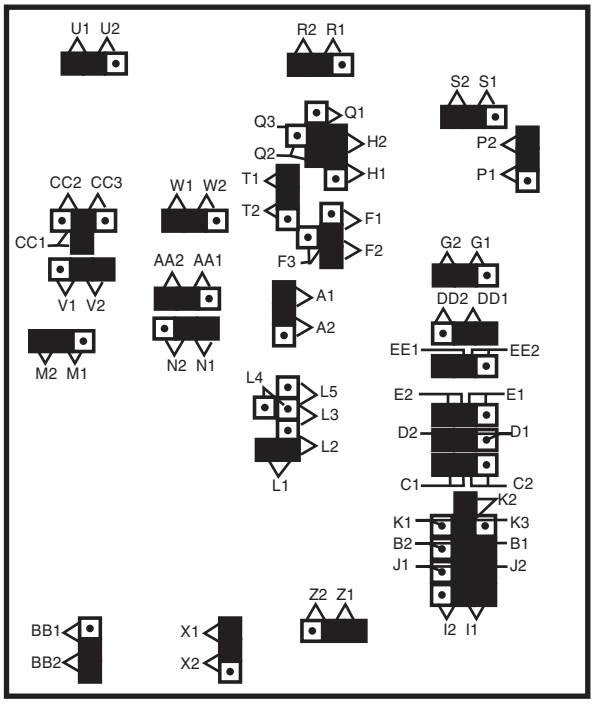
FIG. 15 - STRAPPING DIAGRAMS, TL1 GPP



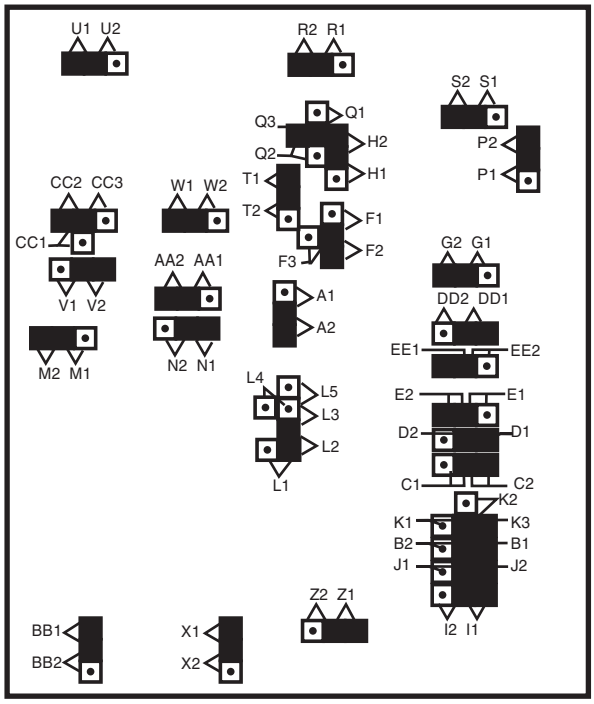
Master Port RS-232 Asynchronous
Data Port RS-232 Asynchronous



Master Port RS-422 Asynchronous
Data Port RS-422 Asynchronous



Master Port RS-422 Asynchronous
Data Port RS-232 Asynchronous



Master Port RS-232 Asynchronous
Data Port RS-422 Asynchronous

PART 3 - SOFTWARE SETTINGS AND DOWNLOADING INSTRUCTIONS

Read the following items before proceeding.

- This will assume that the shelf is now installed, all modules are configured with the proper switch and straps settings, and the system is powered up.
- This section will assume that the user has some prior knowledge and experience with the -40 T/Shell Editor and the PC has been properly configured.
- In this section, menu titles will be *italicized*, menu selections will be contained in [brackets], and keyboard entries will be contained in "quotes".

Step 1

After starting the PC and the -40 T/Shell Editor, proceed to the *Master Menu*.

1. Select [Map 40 Editor].
2. From the *40- MAP Editor Module* menu, select [MAP System Definition].
3. From the *MAP Menu*, choose [Select MAP].
4. At the cursor position, type in the MAP name. Assuming that this name does not exist, you will be prompted to add the name (file). Type "Y".
5. Although it is not recommended, if you wish you may password protect the file by selecting [Edit Password/Config] and entering a password. However, once a password has been entered and the configuration loaded into the MAP, only those persons with the password may edit or see the configuration.
6. As desired, a description of this configuration file may be entered by selecting [Edit Password/Config] then [Edit MAP Description].
7. By default, the editor will set the Map Configuration Address to 1. Accept this default and proceed.

Step 2

From the *MAP Menu* select [Responder Definition]. From the *Responder Menu* choose [Select Master Responder].

1. At the prompt, select a protocol for the Master Port. Select [DCP] and press enter.
2. At the prompt, set the address for Displays 1-32. Enter "1" and press enter.
3. At the prompt, set the address for Displays 33-64. Enter "2" and press enter.
4. Leave the Disable point 64 Device Failures at the default value of "N" and press enter.

CONTINUED . . .

5. Accept the defaulted values of 1200 baud, No Parity, 1 Stop Bit, and Word Length of 8.

Step 3

From the *Responder Menu*, choose [Select Printer Responder].

1. At the prompt, select a protocol for the Printer Port. Select [DCPF] and press enter.
2. At the prompt, set the address for Displays 1-32. Enter "1" and press enter.
3. At the prompt, set the address for Displays 33-64. Enter "2" and press enter.
4. Leave the Disable point 64 Device Failures at the default value of "N" and press enter.
5. Select [Edit Responder Port].
6. From the *Edit Port* menu, select [Edit Baud]. Select [9600] and press enter.
7. Accept the defaulted values of No Parity, 1 Stop Bit, and Word Length of 8.
8. Select [Quit] twice and return to the *MAP Menu*.

Step 4A

From the *MAP Menu*, select [Data Port Definition]. From the *Data Port Menu*, choose [Select Data Port].

1. The cursor will be positioned for the Port ID. Accept the default value of 1 and press enter.
2. Select [DCM] as the protocol and press enter.
3. Accept the defaulted values of 1200 baud, Even Parity, 1 Stop Bit, and Word length of 8.
4. Select [Edit Devices].

Step 4B

From the *DCM* menu, select [Find] and enter the following values:

NOTE: *At this point, the DCM addresses are being defined for each 16 scan points on each MAT (previously configured as addresses 121/122, 125/126, and 127/128). This step will need to be repeated until all six addresses have been entered.*

1. The cursor will be positioned to add the first DCM address. For the MAT in slot 1, for points 1-16, enter "125" at this point and press enter.
2. For the Device ID, select [MAT].
3. Add the entry to the configuration by entering either "Y" or "YES".

CONTINUED . . .

4. The cursor will now be positioned to enter the Display number (MAP display) for the DCM address just entered. Since the MAT in slot 1 will be the first half of Display 32, enter "32" and press enter. Accept the defaulted Map Alarm Levels and MAT Point Levels.

Step 4C

Repeat Step 4B with the following changes:

- Change the DCM Address to 126. All other entries remain the same. This is the DCM address for the second 16 points in the MAT in slot 1.

Step 4D

Repeat Step 4B with the following changes:

- Change the DCM Address to 127. All other entries remain the same. This is the DCM address for the first 16 points in the MAT in slot 2.

Step 4E

Repeat Step 4B with the following changes:

- Change the DCM Address to 128. All other entries remain the same. This is the DCM address for the second 16 points in the MAT in slot 2.

Step 4F

Repeat Step 4B with the following changes:

- Change the DCM Address to 121. All other entries remain the same. This is the DCM address for the first 16 points in the MAT in slot 3.
- Change the MAP Display (MAP Dsp) from 32 to 31. All other entries remain the same.

Step 4G

Repeat Step 4B with the following changes:

- Change the DCM Address to 122. All other entries remain the same. This is the DCM address for the second 16 points in the MAT in slot 3.
- Change the MAP Dsp from 32 to 31. All other entries remain the same.

Step 4H

From the *DCM* menu, select [Find].

NOTE: *At this point, the DCM address is being defined for the CPM (previously configured as address 1).*

CONTINUED . . .

1. Enter the CPM address of “1” and press enter.
2. Select [CPM] and press enter.
3. Add your entry to the configuration by entering either “Y” or “YES”.
4. The cursor is now positioned to enter the MAP Dsp address. Enter “1” and press enter.
5. Accept the default values for Map Alarm Levels, CPM Points, and CPM Periods.
6. Select [Quit] and return to the *Data Port Menu*.

Step 5

From the *Data Port Menu*, choose [Select Data Port] to define the serial (TBOS) port(s).

1. Since Port 1 was defined for discrete alarms, the next available port is 2. The cursor is now positioned to define the Port ID. Enter “2” and press enter.
2. Select [TBOS] and press enter.
3. Accept the default values of 2400 Baud, Odd Parity, 1 Stop Bit, and Word Length of 8.
4. Select [Edit Devices]. Select [Edit]. Select [Edit Memory and Alarm Levels].
5. The cursor is positioned for you to define the MAP Dsp assigned to the first TBOS device on this port. Typically this would be Display 5. Enter “5” and press enter.
6. Accept the default Map Alarm Levels.
7. Repeat as necessary by assigning a MAP display number for each device on this port. For example, the second display on that device (Dev Dsp 2) would be assigned to MAP Dsp 6, and so on. There is a maximum of eight devices per port.
8. Once all the devices have been assigned, press F8 to Finish and save all the entries.
9. Select [Quit] three times and return to the *MAP Menu*.

Step 6

From the *MAP Menu*, select [MAP Port Definition].

1. From the *MAP Port Menu*, select [Define MAP Port].
2. Select [DCPF] and press enter.
3. Accept the default values of 9600 Baud, No Parity, 1 Stop Bit, and Word Length of 8.
4. Select [Quit] and return to the *MAP Menu*.

CONTINUED . . .

Step 7

From the *MAP Menu*, select [Extended Provisioning].

1. From the *Extended Provisioning* menu, select [Download MAP Options].
2. Accept the default values of Level D Alarm Status Only as “n”, E2 Hybrid refresh rate as “0”, TABS refresh rate of “0”, DCP refresh rate of “0”, MAP or RTU as “MAP”, and MAT or SG as “MAT”.
3. Press F8 to Save the selections and return to the *Extended Provisioning* menu.
4. Select [Controls].
5. Accept all default values.
6. Press F8 to Save the selections and return to the *Extended Provisioning* menu.
7. Select [Quit] and return to the *MAP Menu*.

Step 8

Plug the PC into connector C6 on the backplane of the 05791 shelf.

1. From the *MAP Menu*, select [Transfer].
2. Enter “D” for Option to download.
3. Enter “D” for direct transfer mode. At the prompt, confirm that a configuration download is to take place. Enter “Y” and press enter or just press enter.
4. If a MAP password has been previously assigned, enter that password now. If no password is required by the MAP, press enter.
5. Once the PC is able to establish synch with the MAP, it will begin downloading the configuration. this will take several minutes and the PC will provide notification that the download is complete.

FINAL STEP

After a successful download, pull the Fuse Module out of slot 14 to remove power from the shelf.

1. Remove the MAP in slot 7.
2. Change switch S5-2 to the OFF position.
3. Replace the MAP module.
4. Replace the Fuse Module.
5. This complete the basic turn-up of the shelf.

Careful examination of the LEDs on each module will reveal much about the status of the system. Detailed information on each module is contained in the practice specific to that module. Contact Dantel Customer Support for copies of these practices.

Slot 7 - Multiple Alarm Processor (MAP)

The MAP is the "brains" of the Dantel 460 Alarm and Control System. To fully understand its potential and capabilities, refer to the 46020-40 or -41 practice. The LEDs, however, are simple.

- The green XMT DATA LED in the front panel flashes every time the MAP polls for a TBOS (serial) or DCM (discrete) device.

The MAP will be equipped with one of two communications subassemblies:

49029 (RS-232) - The 49029 communications subassembly mounted on the MAP, and visible through the MAP's front panel, contains six LEDs.

- XMT DATA - indicates data being transmitted from the MAP to the E-System Adapter.
- RCV DATA - indicates a poll from the E-system Adapter.
- RTS, DTR, DCD, CTS - indicate that handshaking line is active.

49013 (202) - The 49013 communications subassembly mounted on the MAP, and visible through the MAP's front panel, contains one LED.

- CD - indicates that received data carrier is active.

Slots 5 and 6 - Multiple Alarm Combiner (MAC)

The MAC front panel contains 16 red and 5 green LEDs. For a detailed description of these LEDs and their uses, refer to the 46020-40 or -41 practice, ***Operation*** section

Slot 14 - Fuse Module

The Fuse Module contains only one LED. If any of the 13 fuses blow, this LED will light.

Slots 1 through 3 - Multiple Alarm Transmitter (MAT)

The MAT is equipped with 20 red LEDs and 3 green LEDs.

- The red LEDs numbered 1 through 16 and 17 through 32 indicate current alarms. Any active alarm detected by the MAT will result in that LED lighting.
- The red LEDs labeled "A", "B", "C", and "D" are alarm level LEDs. Every alarm can be assigned a level of A, B, C, or D - representing Critical, Major, Minor, or Status alarms.

CONTINUED . . .

- The green A1 ON LED indicates whether points 1 through 16 or 17 through 32 are being displayed with the red LEDs described above. When the A1 LED is on, points 1 through 16 are being displayed. When the A1 LED is off, points 17 through 32 are being displayed.
- The green XMT DATA LED will flash every time the MAT responds to a valid poll for that address.
- The green RCV DATA LED will flash every time the MAT receives a poll from the MAP.

Slot 4 - Control Point Module (CPM)

- Sixteen red LEDs numbered 1 through 16 display the status of the 16 control points available on the CPM. Activating any control point lights the corresponding LED. For more details on setting control points, refer to the 46020-40 or -41 practice.
- A red RXD LED indicates receipt of a DCM poll from the MAP.
- The red TXD LED flashes every time the CPM responds to a valid poll from the MAP.

The CPM will be equipped with a 49008 communications subassembly. Two LEDs on that subassembly monitor data received from, and transmitted to, the MAP, through port one of the MAC.

Slot 12 - Data Station Termination (DST)

The front panel of the DST has three LEDs.

- The green LED indicates applied power to the module.
- The red LED indicates loopback and control circuit activity.
- The amber LED indicates applied sealing current to the system.

Slot 11 - E-System Adapter (ESA)

One LED (DATA XMT) indicates data transmitted from the ESA to the TMAS.

Slot 10 - Hubbing Module

The first eight LEDs, labeled RX1 to RX8 respectively, indicate receive (RX) activity for data ports one through eight.

The next eight LEDs, labeled TX1 to TX8 respectively, indicate transmit (TX) activity for data ports one through eight.

The next two LEDs are not labeled and have no function.

The last two LEDs, labeled RXD and TXD, indicate data transmit (TXD) and data receive (RXD) activity for the communications subassembly (port nine).

Slot 13 - General Purpose Processor (TL1 GPP)

The front panel of the TL1 GPP has three LEDs labeled MASTER, DATA, and PRINTER. Each LED flashes when the corresponding port is transmitting data.

TROUBLESHOOTING

If difficulties are experienced with this unit, check the following as appropriate:

- ♦ Switch and strap settings
- ♦ Signal levels
- ♦ Connections to external equipment

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

NOTE: *Additional assistance is available from Dantel's Customer Support Services Department between the hours of 6am and 5pm Pacific time, Monday through Friday. Call 1-800-4-DANTEL (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.

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

Dantel

P.O. Box 55013 • Fresno, CA 93747-5013 Phone (559) 292-1111 Fax (559) 292-9355 http://www.dantel.com