WANG

6100

VS Remote System Administrator Facility (RSAF)

Models:

VS-5/6/15/65
VS-25/45
VS-50/80/85/90/100
VS-300

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Customer Engineering
Product Maintenance Manual

741-1657-A

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PREFACE

This document is the Product Maintenance Manual (PMM) for the Wang VS Remote System Administrator Facility (RSAF). The manual is organized in accordance with Customer Engineering Technical Documentation's approved PMM outline. The scope of this manual reflects the type of maintenance philosophy selected for this product.

The purpose of this manual is to provide the Wang-trained Customer Engineer (CE) with sufficient instructions to operate, troubleshoot, and repair the VS Remote System Administrator Facility (RSAF). The manual will be updated on a regular schedule or as necessary. Such updates will be published either as Publication Update Bulletins (PUBs) or as full revisions.

Second Edition (July, 1986)

This edition of the VS Remote System Administrator Facility (RSAF) PMM manual obsoletes document 741-1657. Use of the material in this document is authorized only for the purpose stated in the Preface, above.

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CHAPTER 1

REMOTE SYSTEM ADMINISTRATOR FACILITY

1.1 GENERAL

This manual describes the procedures for installing the hardware necessary to support the Remote System Administrator Facility (RSAF) on all VS systems. Included in this manual are site installation requirements and instructions for system interconnection.

1.2 DESCRIPTION

Remote System Administrator Facility (RSAF) permits a user with a host VS system to link up, via telecommunications, to remote VS systems. With the help of users and operators at the remote site, the host system administrator can control the remote systems as though they were local systems. This minimizes the need for system administrators at each VS site.

For example, the VS-5/6/15/65 computer systems can have their power on/off controlled remotely by the RSAF host administrator. The administrator can also remotely IPL these systems. This is done by using a Wang Professional Computer (PC) as Workstation 0. A Remote Initial Program Load (RIPL) printed circuit board (PCB) must be installed in the PC to accomplish this function. For the VS-85/90/100 remote systems, a large VS interface (LVSI) board in the remote PC allows remote IPL but not power on/off.

The RIPL PCB, together with an external disk controller, is able to remotely control the on/off sequence of external disk drives or disk storage cabinets. The ECD is used with VS-5/6/15/65 systems only.

An asynchronous modem at each site connects the host VS system with the remote PC's RIPL PCB. The modem can be used for both RSAF and remote maintenance by turning the VS-15/65 front panel 3-position key operated switch from Remote Administrator to Remote position.

RSAF also provides security features to protect the VS host and remote systems from unauthorized use. Passwords must be used to access remote systems and RSAF configuration files. Security screens host users trying to access a remote system, and can limit host user privileges. Ultimate control of an RSAF session is maintained at the remote site since the remote system can deny host access to it.

Table 1-1. Host/Remote VS Systems

Host System Type	Remote System Type
VS-5/6	VS-5/6
VS-15/65	VS-15/65
VS-25/45/45XP	VS-25/45/45XP
VS-50/80	VS-50/80
VS-85/85-H/90/100	VS-85/85-H/90/100
VS-300	VS-300

1.3 RSAF FUNCTIONS

Table 1-2. Host Invoked RSAF Functions

Function (Host Invokes On Remote System)	VS5/6/15/65	VS25/45/50/80	VS85/90/100	VS300
Power on remote VS system	Yes[1]	No	No	No
Power off remote VS system	Yes[1]	No	No	No
IPL remote VS system	Yes[1]	No	Yes[2]	Yes
Enter control mode	Yes[1]	No	Yes[2]	Yes
Enter workstation emulation	Yes	Yes	Yes	Yes
Reset remote RSAF workstation	Yes	Yes	Yes	Yes
Perform on-line diagnostics[3]	Yes	Yes	Yes	Yes
Perform off-line diagnostics[3]	Yes	No	No	Yes

Table 1-3. Host Invoked RSAF Functions

Function (Host Invokes Locally)	All VS Systems
Access another remote VS system	Yes
Close line currently in use	Yes
Invoke supervisor functions	Yes
End RSAF sessions	Yes

Table 1-4. Remote Invoked RSAF Functions

Function (Remote Invokes Locally)	VS5/6/15/65	VS25/45/50/80	VS85/90/100	VS300
Automatic restart	Yes	No	Yes	Yes
Terminate RSAF session	Yes	Yes	Yes	Yes

NOTES

1. RIPL board required for PC as Workstation 0.

2. LVSI board required for PC as Workstation 0 and interface board required for VS system.

3. Diagnostic software is a separate product from RSAF software.

1.4 RSAF CONFIGURATIONS

Table 1-5. VS-5/6/15/65 RSAF Remote/Host Hardware Requirements

Remote System	Host System
1. VS-5/6/15/65 (Note)	1. VS-5/6 with 25V76 TCDA (Rev 2) or 2. VS-15/25/45/45XP/65 with 25V76 TCDA or 3. VS-50/80 with 22V06 TC IOP or 4. VS-85/85-H/90/100 with 22V26 TC IOP or 4. VS-300 with 23V96 MLTC IOC
P Wang Professional Computer with L PC Local Comm. option U PC RIPL PCB (210-8458) S Async modem RS-232-C Cable (220-0332) "T" Connector (726-8089) Phone line within 10 ft of CPU with RJ11C jack	P RS232 conn. to async. TC port L Async modem U RS-232-C Cable (220-0332) S Optional auto dial unit "T" Connector (726-8089) Phone with RJ11C jack

Table 1-6. VS-25/45/45XP/50/80 RSAF Remote/Host Hardware Requirements

Remote System	Host System
1. VS-25/45/45XP/50/80 (Note)	1. VS-5/6 with 25V76 TCDA (Rev 2) or 2. VS-15/25/45/45XP/65 with 25V76 TCDA or 3. VS-50/80 with 22V06 TC IOP or 4. VS-85/85-H/90/100 with 22V26 TC IOP or 4. VS-300 with 23V96 MLTC IOC
P Wang Professional Computer with L PC Local Comm. option U Async modem S RS-232-C Cable (220-0332) "T" Connector (726-8089) Phone line within 10 ft of CPU with RJ11C jack	P RS232 conn. to async. TC port L Async modem U RS-232-C Cable (220-0332) S Optional auto dial unit "T" Connector (726-8089) Phone with RJ11C jack

NOTES

1. VS-15 Bus Processor (BP) must be 210-8358, E Rev. 5
2. VS-65 Bus Processor (BP) must be 210-8465, E Rev. 4
3. RF11W flush mount wall phone jack can be used with the "T" connector and a desk top phone, but a wall mounted phone cannot be used.

Table 1-7. VS-85/85-H/90/100 RSAF Remote/Host Hardware Requirements

Remote System	Host System
1. VS-85/85-H/90/100	1. VS-5/6 with 25V76 TCDA (Rev 2) or 2. VS-15/25/45/45XP/65 with 25V76 TCDA or 3. VS-50/80 with 22V06 TC IOP or 4. VS-85/85-H/90/100 with 22V26 TC IOP or 4. VS-300 with 23V96 MLTC IOC
P Wang Professional Computer with L PC Local Comm. option U PC LVSI PCB (210-8377) S VS RSAF Interface Board VS Disk/RSAF I/O Panel Async modem RS-232-C Cable (220-0332) "T" Connector (726-8089) Phone line within 10 ft of CPU with RJ11C jack	P RS232 conn. to async. TC port L Async modem U RS-232-C Cable (220-0332) S Optional auto dial unit "T" Connector (726-8089) Phone with RJ11C jack

Table 1-8. VS-300 RSAF Remote/Host Hardware Requirements

Remote System	Host System
1. VS-300	1. VS-5/6 with 25V76 TCDA (Rev 2) or 2. VS-15/25/45/45XP/65 with 25V76 TCDA or 3. VS-50/80 with 22V06 TC IOP or 4. VS-85/85-H/90/100 with 22V26 IOP or 4. VS-300 with 23V96 MLTC IOC
P Async modem RS-232-C Cable (220-0332) L "T" Connector (726-8089) U Phone line within 10 ft S of CPU with RJ11C jack	P RS232 conn. to async. TC port L Async modem U RS-232-C Cable (220-0332) S Optional auto dial unit "T" Connector (726-8089) Phone with RJ11C jack

The TC IOPs listed in table 1-9 may be used with any VS system for RSAF. For details on switch settings and cabling, refer to the Telecommunications Processor Product Maintenance Manual (741-1043).

Table 1-9. Telecommunications Processor TC IOPs

IOP MODEL NUMBER	IOP WLI P/N	MOTHERBOARD WLI P/N	DAUGHTERBOARD WLI P/N
TCB-1	212-3014	210-7763-A	210-7762-A
VS-TC (DLP 64)	212-3040	210-7963-A	210-7962-1A
VS-TC1 (DLP 128)	212-3038	210-7963-A	210-7962-A

1.5 SYSTEM SOFTWARE/DIAGNOSTIC REQUIREMENTS

Table 1-10. VS-5/6/15/25/45/45XP/65/50/80/85/85-H/90/100/300 RSAF Remote System Software Requirements

Software	Minimum Version	Part Number
RSAF Remote Software		195-4238-9
Consists of the following:		
PC system software	2.0	
PC Async. Communications Driver	1.05	

Table 1-11. VS-5/6/15/25/45/45XP/65/50/80/85/85-H/90/100/300 RSAF Host System Software Requirements

Software	Minimum Version	Part Number
RSAF host software	2.01.00	195-4237-X
VS General Async. package	7.00.00	195-4786-X

Table 1-12. Diagnostic Packages

Diagnostic	Minimum Version	Part Number
PCDS Monitor (RIPL)(PC to small VS)	2670	195-2459
VS Small System Diagnostic Monitor		195-2458
VS Advanced Diagnostic Package (ADP)		195-5084

1.6 PUBLICATIONS

Refer to the following sources for documentation concerning RSAF installation.

Table 1-13. Documentation

Base Document Number	Title
700-7647	Wang Customer Resource Catalog
715-0304-A	VS RSAF User's Manual
715-0650	VS-5/6 Installation Manual
741-0715	WCS 60/80 Volume II Installation
741-0871	VS-100 Product Maintenance Manual
741-1032	VS-25/45/45XP Product Maintenance Manual
741-1190	PC Product Maintenance Manual
741-1404	VS-15 Product Maintenance Manual
741-1492	VS-85/85-H Product Maintenance Manual
741-1617	VS-65 Product Maintenance Manual
741-1634	VS-300 Product Maintenance Manual
741-1705	VS-5/6 Product Maintenance Manual
742-0000	Technical Documentation Catalog/Index

1.7 CONFIGURATION GUIDELINES

Table 1-14. Host Configuration Guidelines

1. RSAF modem within 50 feet of the VS CPU. 2. Telephone next to RSAF modem.

Table 1-15. Remote Configuration Guidelines

1. PC (connected as a workstation). For VS-5/6/15/65 to perform remote power off and IPL, PC must be W/S 0 and be within six feet of the CPU. 2. RSAF modem within 10 feet of the PC. 3. Telephone next to RSAF modem.

1.8 RSAF-SUPPORTED MODEMS

The following modems are supported by RSAF:

- Wang WA3451
- Bell 212A
- Hayes Smartmodem 1200
- Wang 2227N Null Modem
- Wang 2228N Null Modem (full duplex operation)

1.9 SITE PREPARATION FOR RSAF

1. The Customer Engineer will perform a preinstallation check to verify that the site meets the necessary requirements of the Customer Site Planning Guide (WLI P/N 700-5978E)

2. During the preinstallation check, verify that the following order has been placed with the local telephone company by the customer:

   a. Telephone for RSAF
   b. Either of the following modular connecting blocks for the telephone:
      1. RJ11C jack for desk top telephones
      2. RF11W jack for flush mounted wall telephones

NOTE

RF11W flush mount wall phone jack can be used with the "T" connector and a desk top phone, but a wall mounted phone cannot be used.

3. The RSAF installation cannot begin until the telephone installation has been completed by the local telephone company. A dedicated telephone line is not required for the host and remote RSAF sites.

1.10 OVERVIEW OF SITE INSTALLATION FOR RSAF

1. RSAF 2 is customer installable. The customer installs the Wang Professional Computer (PC), the RIPL and LVSI boards, and software. The CE installs only components within the VS CPU and the external disk controller (EDC) following the procedures and system interconnection diagrams provided in this manual as well as procedures contained in the appropriate VS system product maintenance manual.

2. The Customer Engineer performs local diagnostics to verify that all computer system components are fully operational.

3. The host system administrator (customer) installs the RSAF software on the host system, referring to the RSAF User Manual (WLI P/N 715-0304-A, auto-enclosed with the RSAF shipment).

4. When the host RSAF installation is complete, the host system administrator will coordinate the network RSAF remote site installations.

5. The host system administrator will have control over the remote site RSAF installation specifications. An example of this would be all modems set to the same baud rate.

6. After RSAF is installed in VS-5/6/15/65 systems, the host system administrator will call the Remote Maintenance Center (RMC) to initiate a remote diagnostic/TC session to test the modem and telephone line circuits. (For all other systems, the CE should check the modems using local loopback tests.)

7. Host system administrator refers to the RSAF User Manual for RSAF operating instructions.

1.11 PC REMOTE IPL BOARD

The Remote IPL board is a PC Option Card, which, when installed in the PC, provides the capability to remotely turn power on/off in the VS-5/6/15/65, to simulate VS-5/6/15/65 front panel control buttons (Initialize and Control Mode), to simulate VS-15/65 IPL device switches (Floppy disk, Fixed disk and External disk), provide status of the VS-5/6/15/65 3-position key switch (Local, Remote, and Remote Administration) and monitor the power on/off status.

All control and status lines are connected from the RIPL board to the VS-5/6/15/65 system through a 25-pin RS232 connector J2. There are two other RS232 connections from the RIPL board. One is a 25-pin connector (J1) which is connected to the MODEM, and the other is a 15-pin to 25-pin connector which is connected from the RIPL board J4 to the RS232 connector on the PC CPU board.

1.11.1 RIPL OPTION CARD

The RIPL Option Card may be installed in any slot in the PC Electronics Unit (5-slot/8-slot). However, before installing the RIPL Card the eight section DIP switch must be set to the Option Card ID number 24H. Figure 1-2 shows the proper settings for this switch.

1.11.2 LARGE VS INTERFACE BOARD

The Large VS Interface (LVSI) board (210-8377) is a PC option card that simulates the functions of the VS-85/85-H/90/100 display panel controls and indicators. Simulated functions include IPL, control mode, initialize, control memory boot, load, and the following status LEDs: IOP Parity, CPU Halt, CM Error, Ready, and Power On. Unlike the RIPL board, however, the LVSI board does not allow power on or off. The LVSI board may be installed in any slot in the PC Electronics Unit. Refer to figure 1-3.

1.11.3 LOCAL COMMUNICATION BOARD SET

When installing the Local Communication Board Set in the PC, the Local Communications Datalink board and the Local Communications CPU board must be installed in adjacent slots (side by side) in the Electronics Unit, and the interconnect cable between the two boards connected to the connectors at the top of the Datalink and CPU boards. Figures 1-4A and 1-4B shows the Local Communications board set installed in the CP Electronics Unit.

1.11.4 INSTALLING PC OPTION CARDS

To install a PC option card in the Electronics Unit (5 slot/8 slot), perform the following steps using the illustrations in figures 1-4A and 1-4B as a guide:

1. Lay Electronics Unit on side and remove four Phillips screws.
2. Slide unit out of cover.
3. Remove Phillips screw, and remove RF shield and holddown device.
4. Slide Option Card into slot guides, press firmly into place, replace Phillips screw and holddown device.

1.11.5 REPLACING ELECTRONICS UNIT IN COVER

To replace the Electronics unit into its cover, perform the following steps using the illustrations in figure 1-5 as a guide:

1. Replace unit in cover.
2. Replace four Phillips screws.

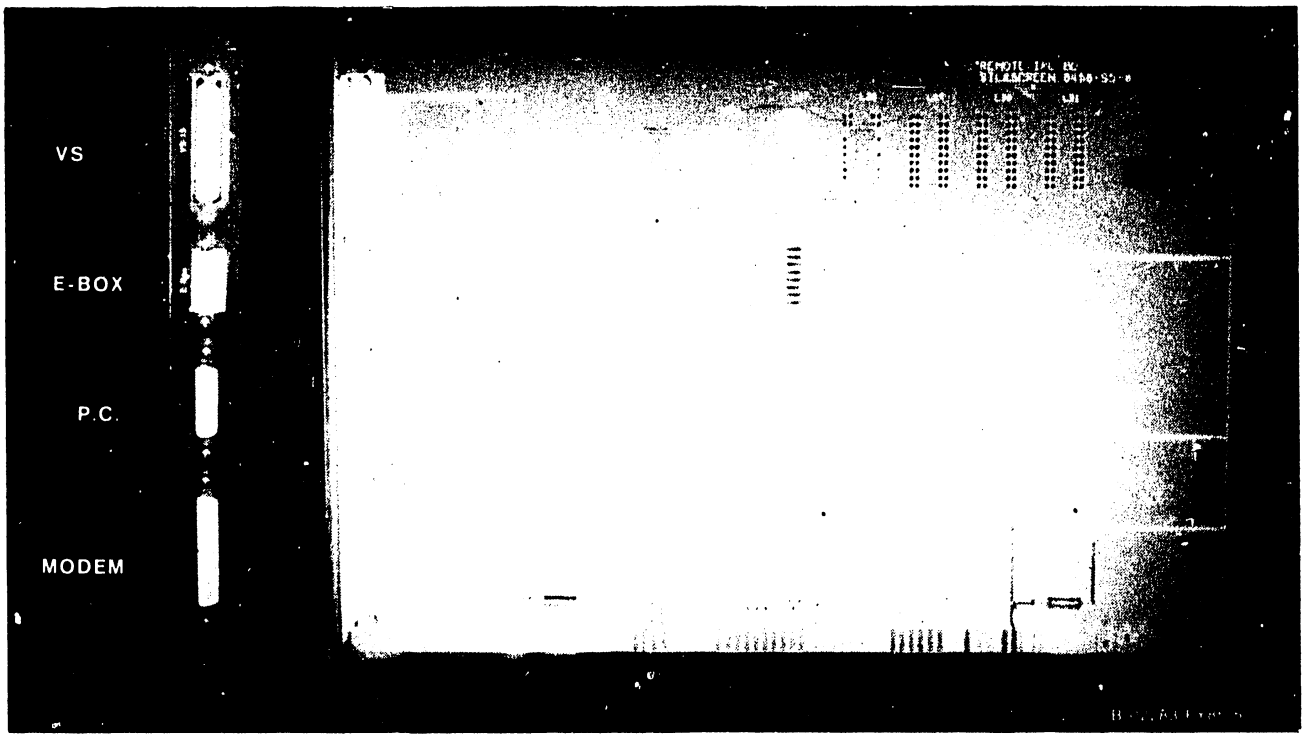


Figure 1-1. PC RIPL Board

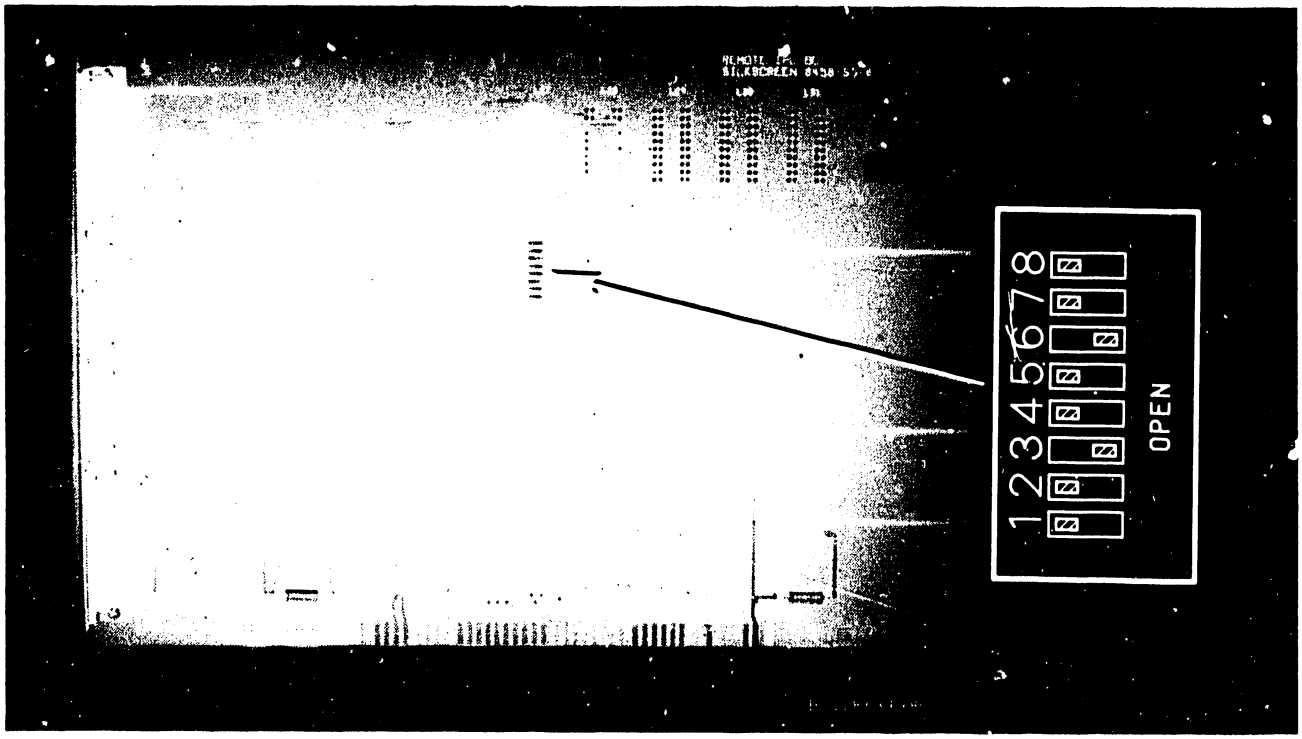


Figure 1-2. PC RIPL Board ID Switch Settings

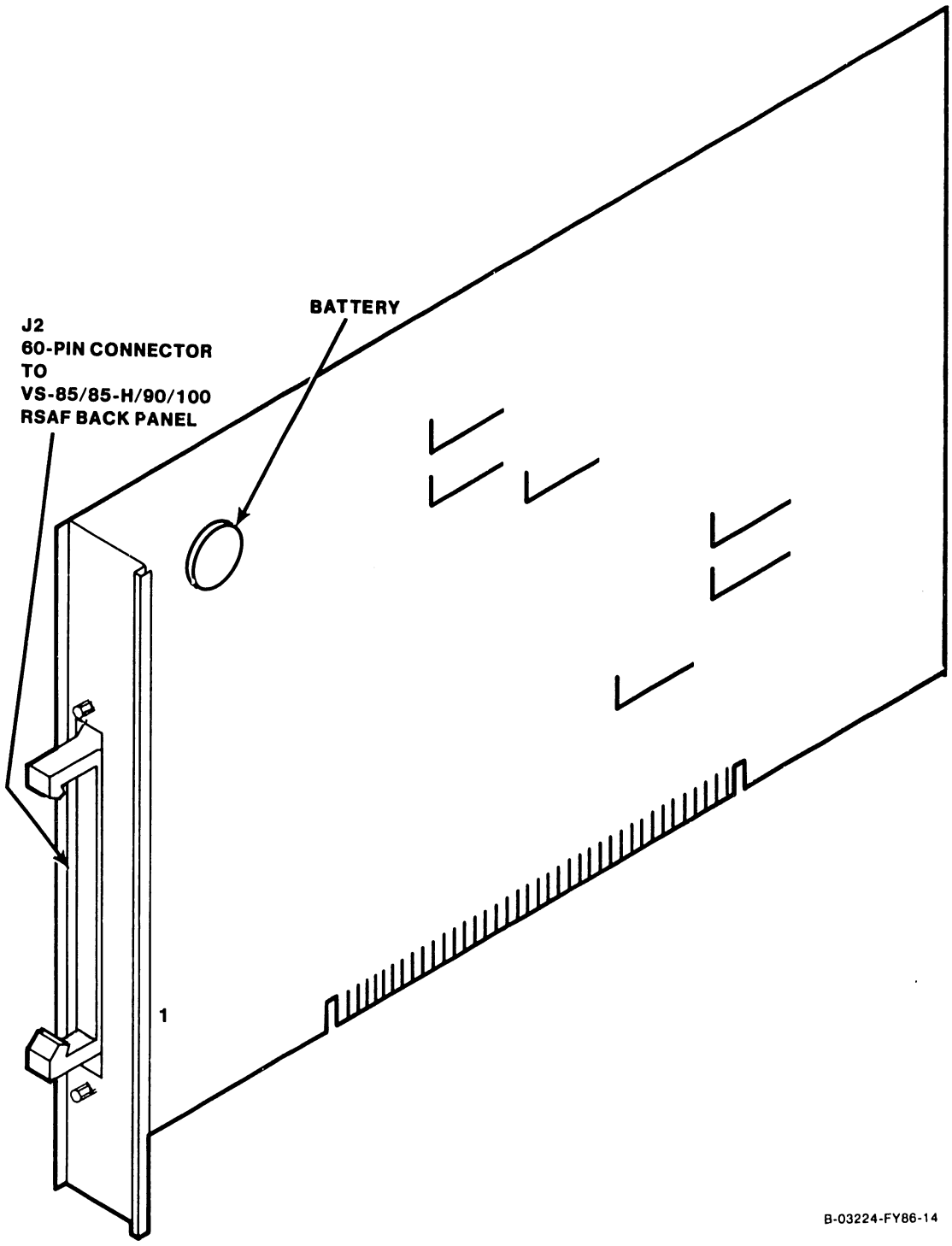


Figure 1-3. 210-8377 PC/Large VS Interface (LVSI) Board

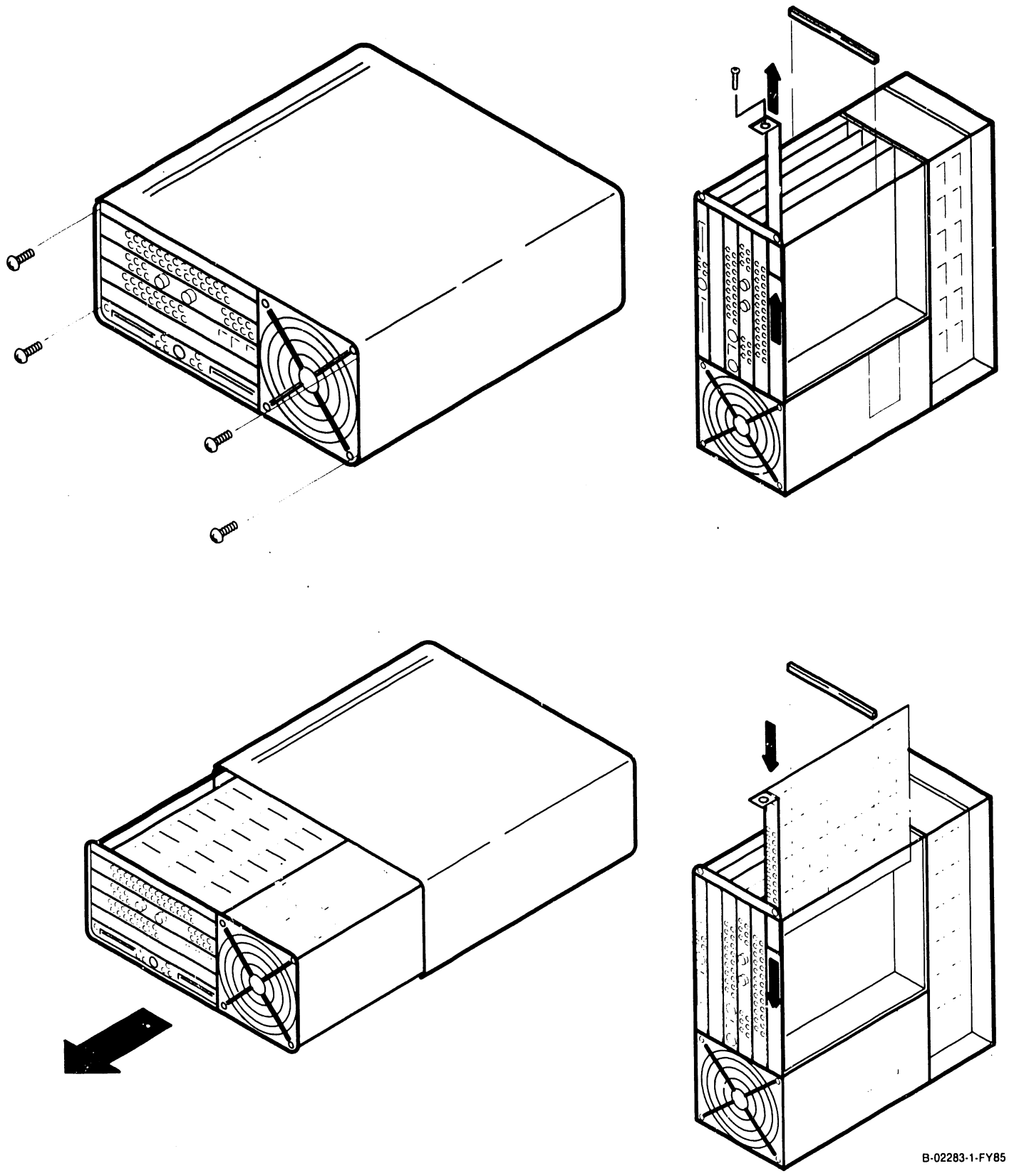
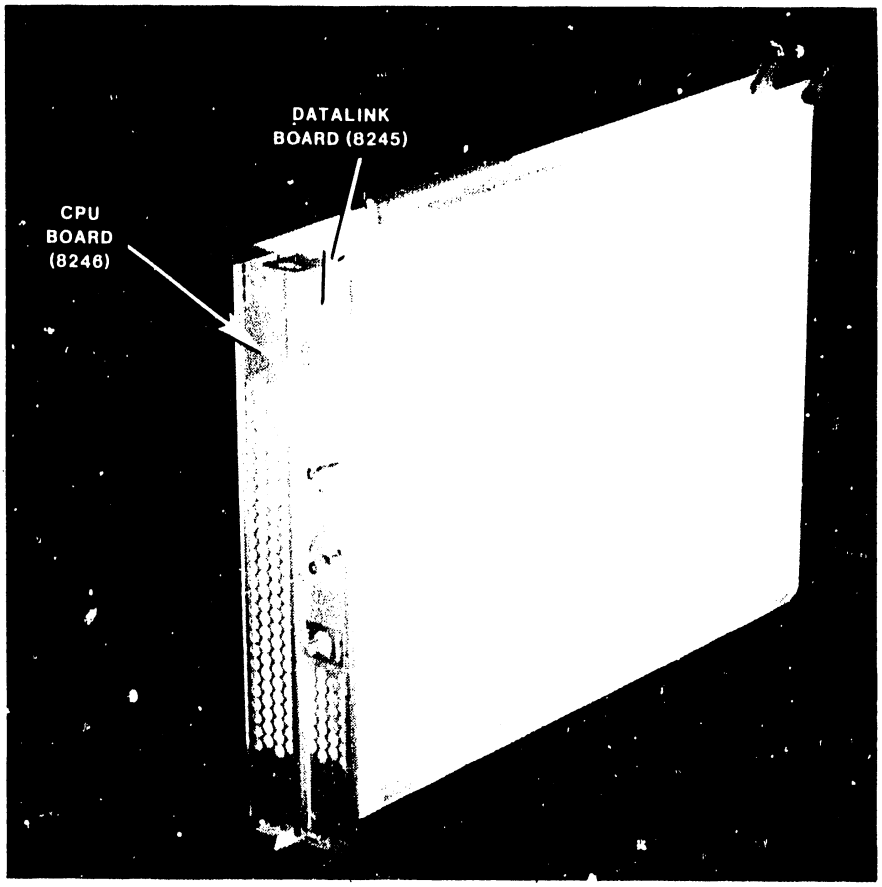
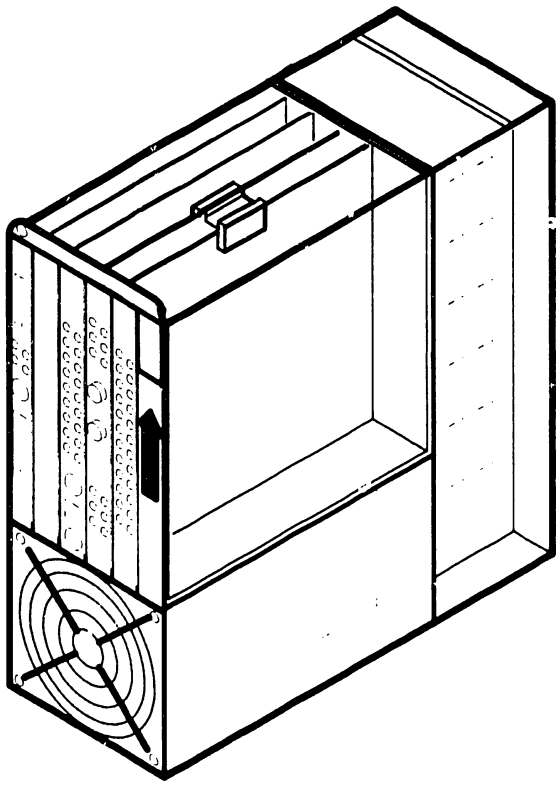


Figure 1-4A. Installing PC Option Card





B-03291-FY86-28

Figure 1-4B. Installing PC Option Card

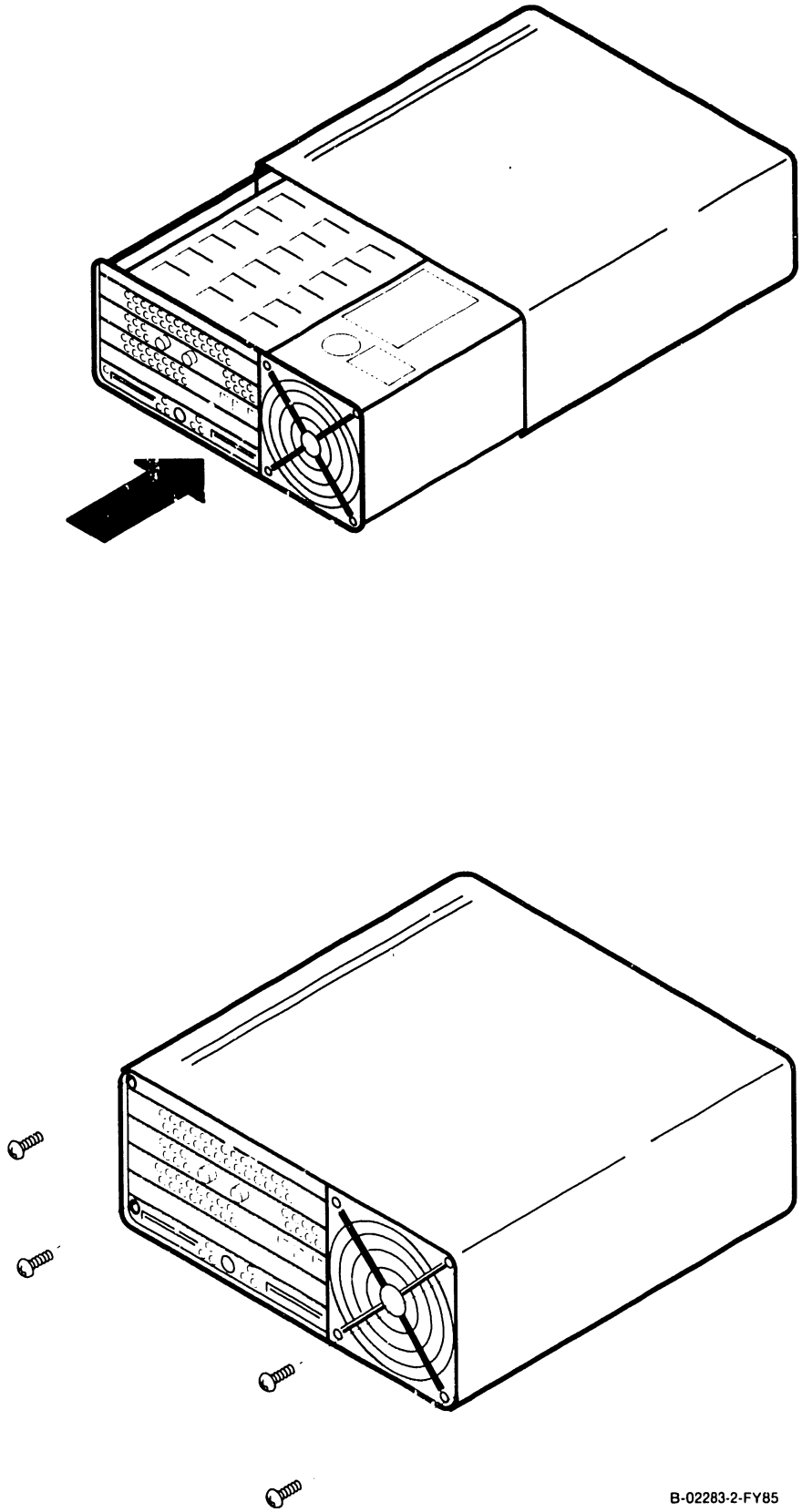


Figure 1-5. Replacing PC Electronics Unit in Cover

1.12 INSTALLING THE 1-PORT/2-PORT 25V76-1B/2B TC DA IN THE VS-5/6

To install the 1-port/2-port 25V76 in the VS-5/6, perform the following steps. Refer to the VS-5/6 Product Maintenance Manual for details.

1.12.1 PCA INSTALLATION

1. Power down the mainframe and remove mainframe covers.

2. Remove the PCA holddown device and hinge the TC Control panel to the left.

3. Check the 1-port or 2-port TC DA address jumper locations. The preferred addresses are 0300 for the first TC DA, 0500 for the second TC DA, and 0600 for the third TC DA installed. Refer to figures 1-6 and 1-7.

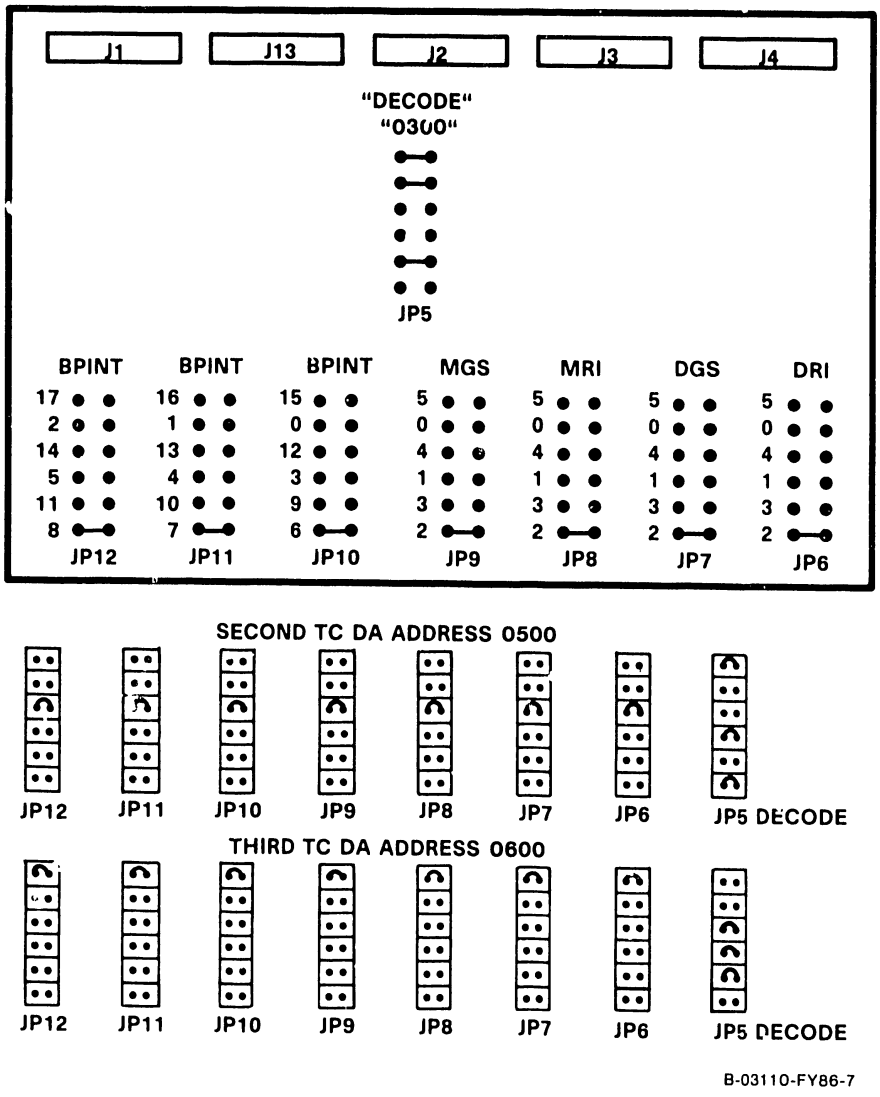


Figure 1-6. 1-Port TC DA Address Jumper Locations

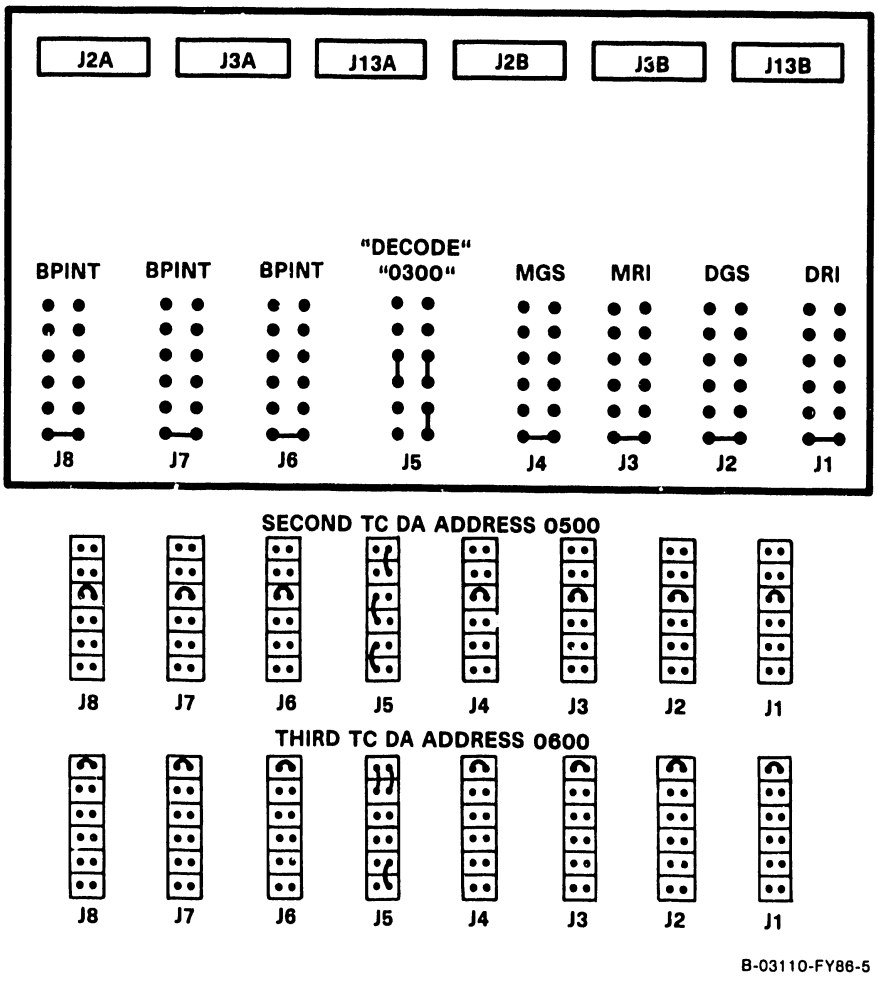


Figure 1-7. 2-Port TC DA Address Jumper Locations

4. Check the settings of the 8-position mode switches; SW1 on the 1-port TC DA and SW1 and SW2 on the 2-port TC DA. Normal operation require all switches to be in the Off (open) position unless the X.21 option is installed. Refer to table 1-16 for switch definitions and figures 1-8 and 1-9 for switch location.

Table 1-16. 1-port/2-port TC DA Switch Definitions

SWITCH	SWITCH NAME	PURPOSE	NORMAL POSITION
1	Loop on BIT	Repeat TC DA test sequence	Open (Off)
2	External Loopback	Supports external RS-232 loopback connector	Open (Off)
3	Loop on error	Repeat any test in error	Open (Off)
4	Stop on error	Holds error code in TC DA display. Needs SW3 ON.	Open (Off)
5	Bypass power-up	Bypass power-up test	Open (Off)
6	Loop on test	Repeats current TC DA test	Open (Off)
7	X.21 option	Supports X.21 interface	Open (Off)
8	128K option	Supports 128 KB TC device adapter memory	Open (Off)

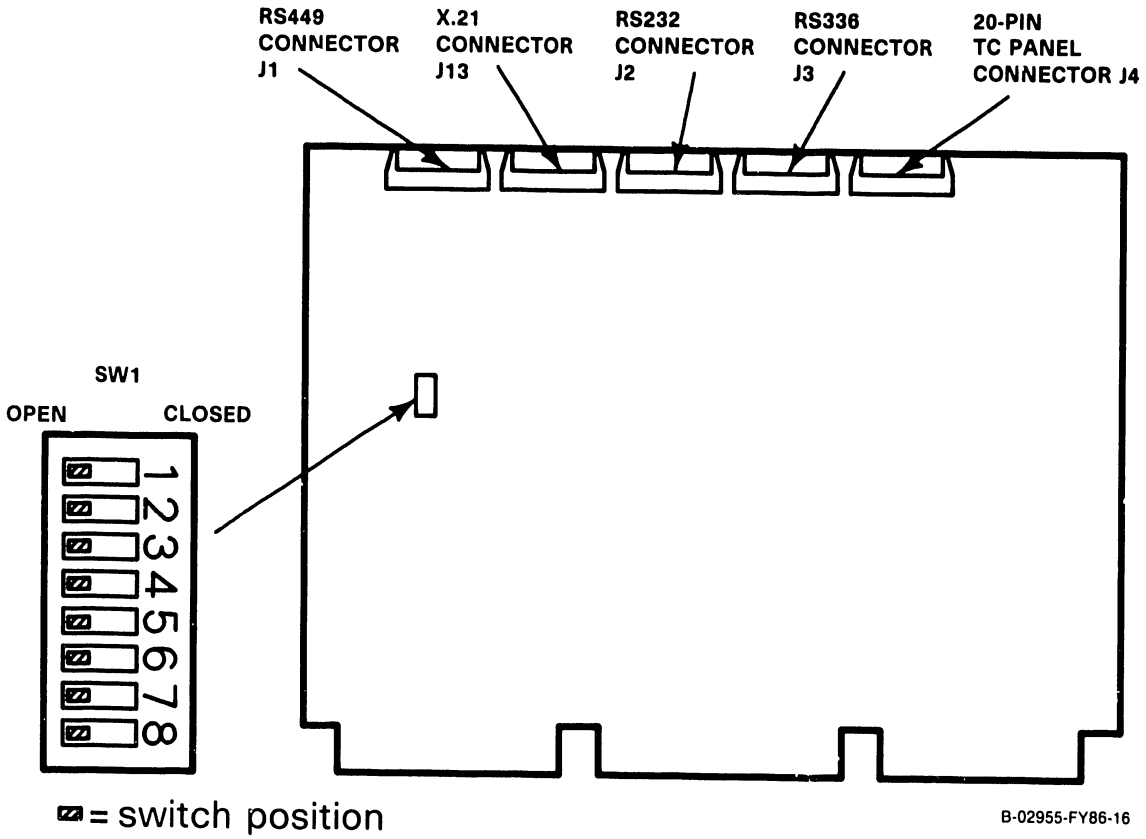


Figure 1-8. 25V76-1B 1-Port TC DA (210-9337) Switch Settings

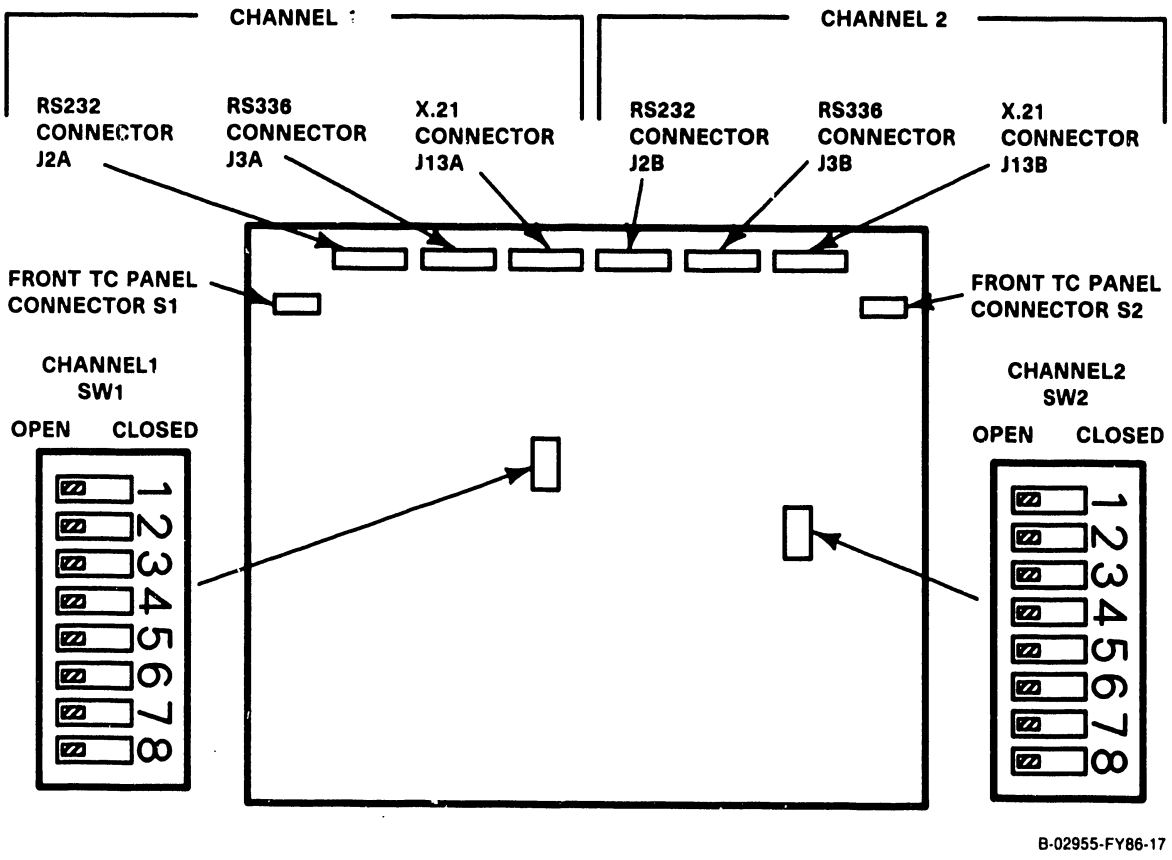


Figure 1-9. 25V76-2B 2-Port TC DA (210-9637) Switch Settings

5. Install the 1-port or 2-port TC DA in any available option slot (J2, J3, or J4).

1.12.2 SINGLE/DUAL PORT TC PANEL INSTALLATION

1. Remove one blank I/O panel from the bulkhead door for each TC DA to be installed.

2. Install the single/dual port TC panel in the space vacated by the blank I/O panel.

1.12.3 TC LIGHT PANEL INSTALLATION

1. Remove the blank panel from the location where the light panel(s) is to be located.

2. Install the TC light panel(s) (210-7785-A) onto the TC control panel with three screws. Refer to figure 1-10.

3. Install the TC label (615-3023) over the light panel(s) such that the cutouts align with the recessed switches.

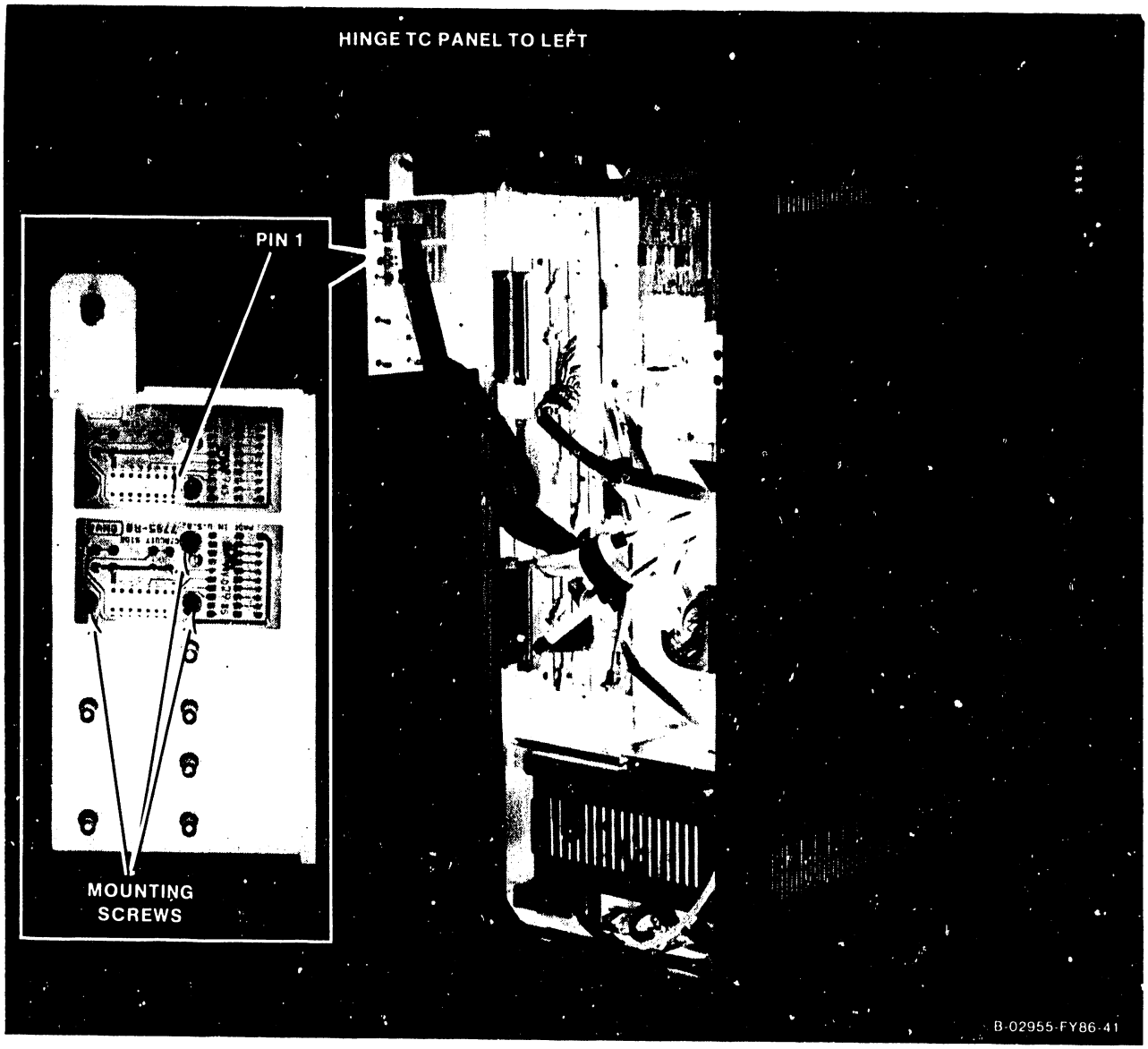


Figure 1-10. TC Light Panel Installation

1.12.4 1-PORT/2-PORT TC DA CABLING

1. Install the RS-232, RS-366, and X.21 cables through the mainframe via the cable trough and connect the cables to the TC DA and the TC panel as shown in figures 1-11A and 1-11B.

2. Note cable orientation and install the light board interface cables. Refer to cabling diagrams in figures 1-11A and 1-11B.

3. Upon completion of cabling, replace PCA holddown device and secure the TC panel door. Replace mainframe covers.

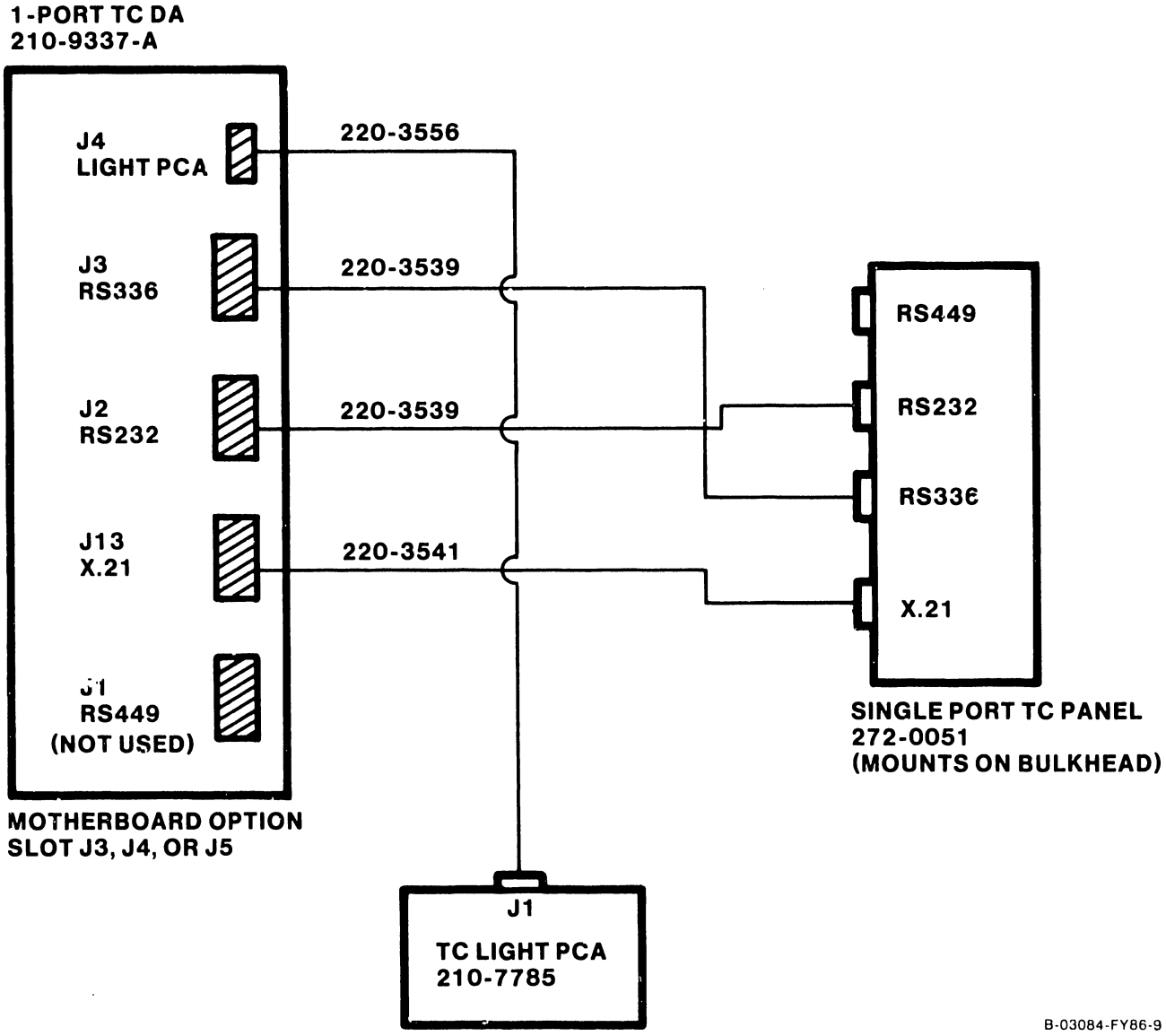


Figure 1-11A. 1-Port TC DA Option Cabling

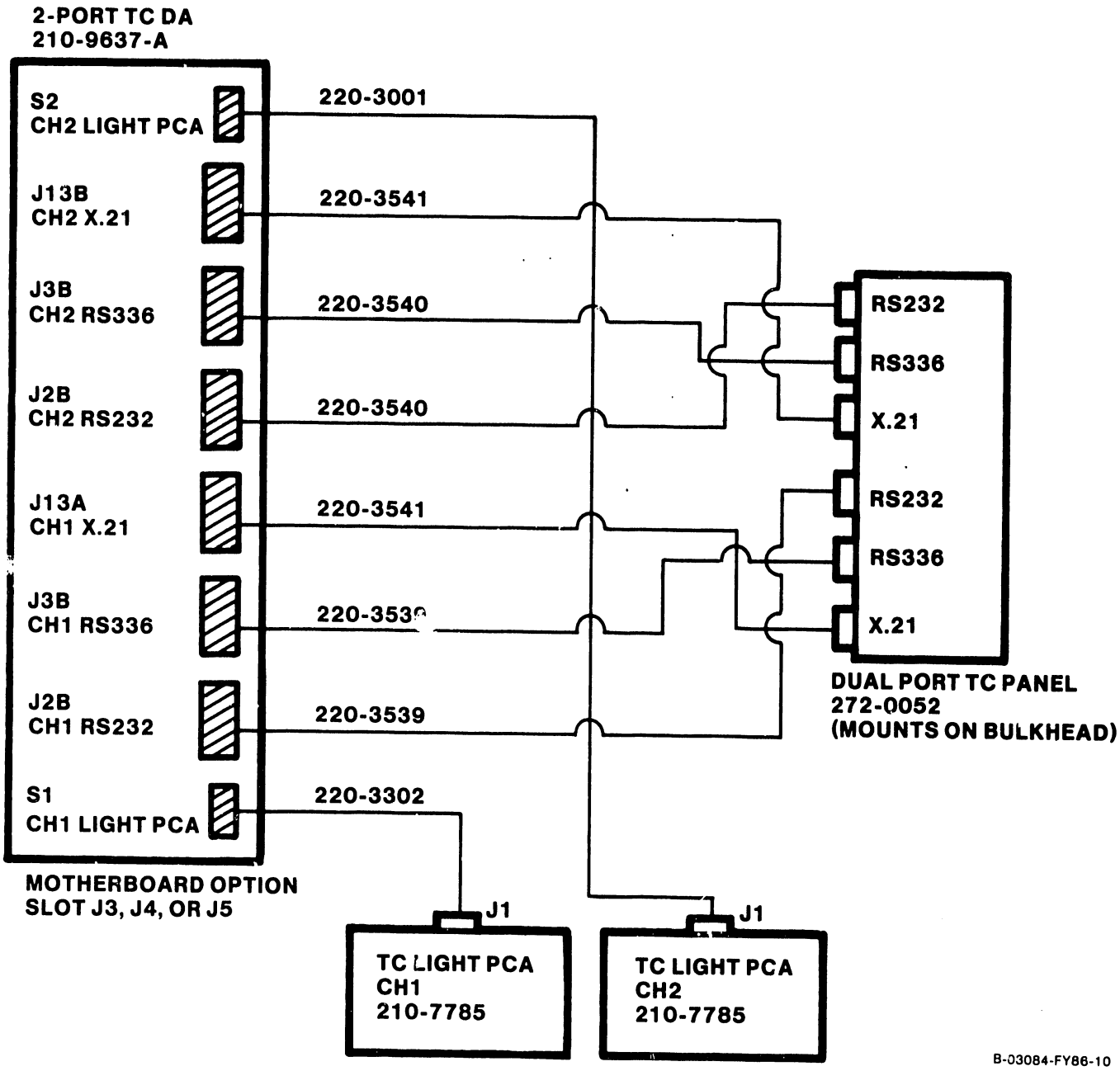


Figure 1-11B. 2-Port TC DA Option Cabling

1.13 INSTALLING THE 25V76-1A/25V76-2A TC DA IN HOST VS-15/25/45/65

Install the 25V76-1A (1-port) and 25V76-2A (2-port) TC DAs as follows:

1. Make sure that all operators have logged off of the system.
   a. Press PF key 13 (WORKSTATIONS) on an operator's console to check that the operators have logged off of the system.
   b. Press PF key 7 (NON-INTERACTIVE TASKS) on an operator's console to check the background tasks on the system. Look under the "User" column to identify any operator running a background task.

2. Press the Control Mode button. This prevents any disk I/O command in process from being halted prior to completion.

3. Power down any external disk drive(s). and any other peripheral devices according to procedures in the applicable documents in Class 3000.

4. Power down the main frame by depressing the ac power On/Off switch to the 0 position.

5. Before installing the TC DA, check the settings of the 8-position Address/Status switch(s) SW1 (1-port) and SW1 and SW2 (2-port). (See figures 1-12, 1-13, and 1-14.)

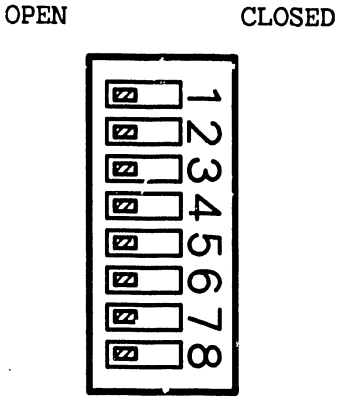


Figure 1-12. 25V76-1A/25V76-2A Telecommunications Adapter Address/Status Switch SW1/SW2

NOTE

1. SW1 is for 1-port TC adapter and SW1 and SW2 are for 2-port TC adapter.
2. All switches should be off unless the X.21 Interface option (switch position 7 On) or the 128Kbyte RAM option (switch position 8 On) have been ordered.

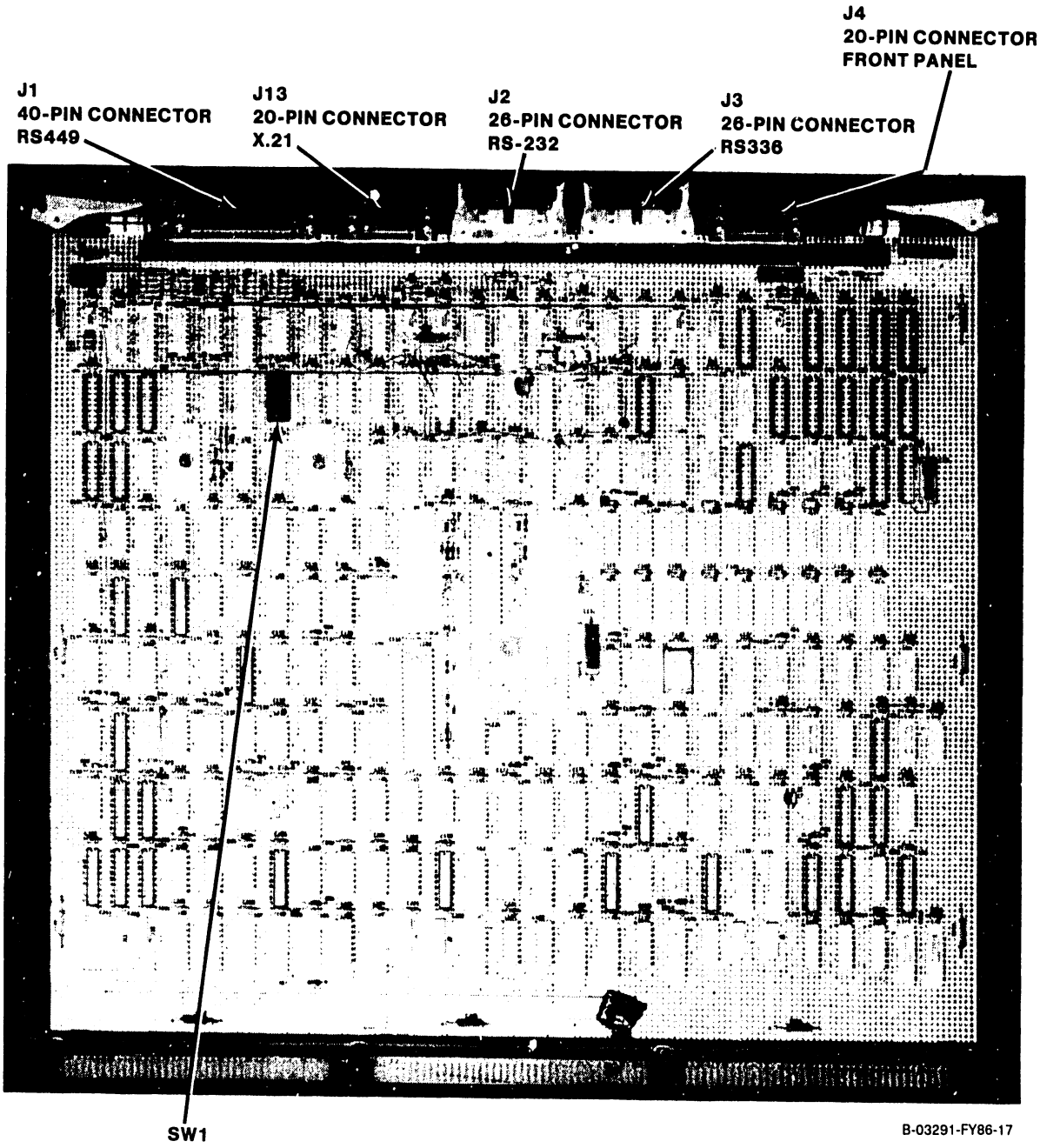


Figure 1-13. 25V76-1A 1-Port Telecommunications Adapter

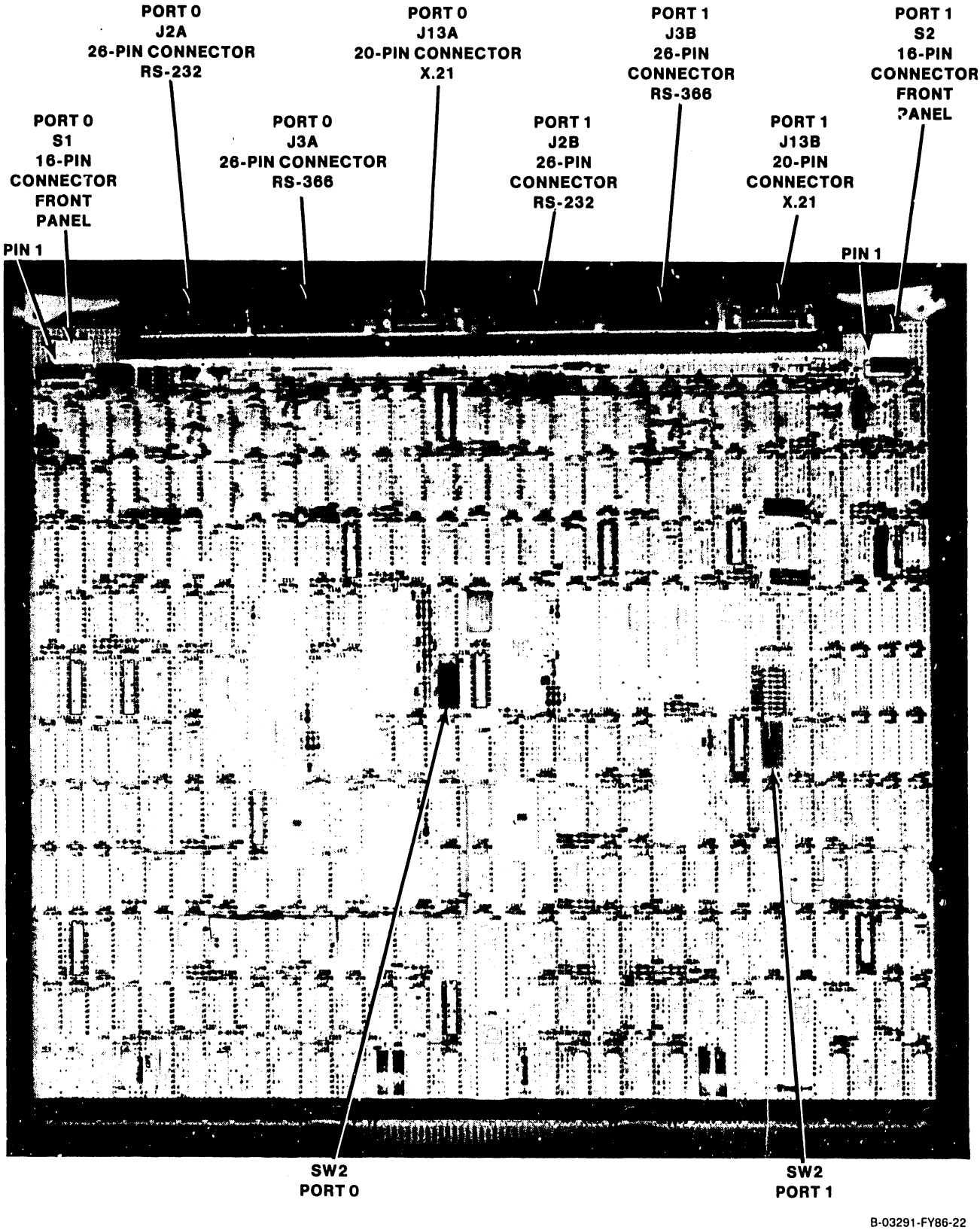


Figure 1-14. 25V76-2A 2-Port Telecommunications Adapter

6. Check all address selection jumpers as shown in figures 1-15, 1-16, and 1-17. Make sure that no TC DA addresses conflict with other DA addresses.

Table 1-17. VS-15/25/45/45XP Recommended TC Adapter Placement

I/ODA#	M/B Slot	Jumper Address	Adapter Type	WLI P/N
3	6	03xx	25V76-1/2	210-8337/8637
5	8	05xx	25V76-1/2	210-8337/8637
6	9	06xx	25V76-1/2	210-8337/8637

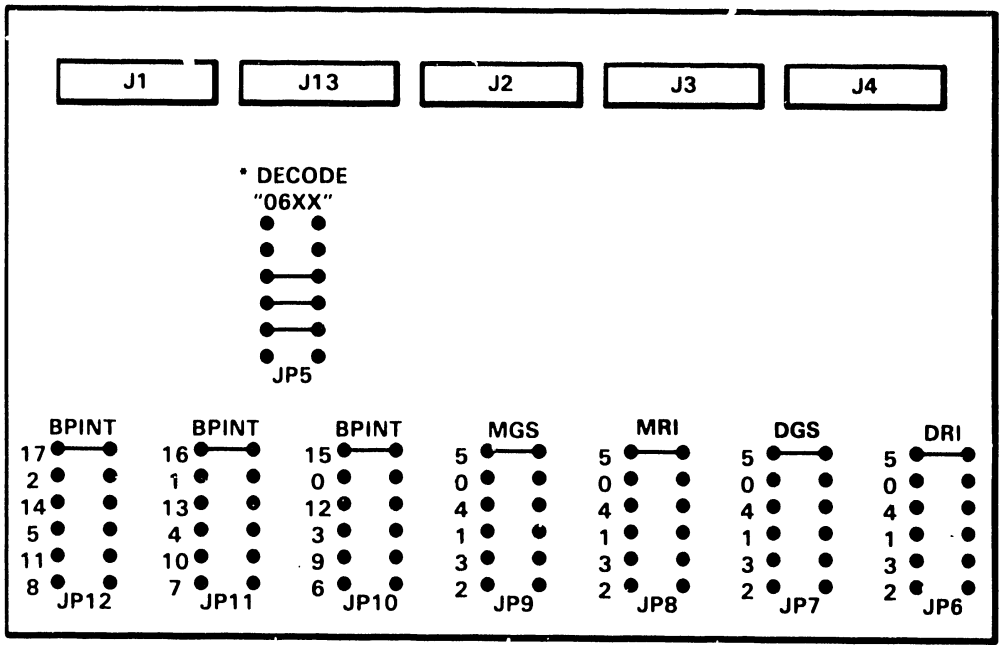
Jumper Address for a single TC DA = 03xx.
Jumper Address for a second TC DA = 05xx.
Jumper Address for a third TC DA = 03xx.

Table 1-18. VS-65 Recommended TC Adapter Placement

I/ODA#	M/B Slot	Jumper Address	Adapter Type	WLI P/N
3	6	03xx	25V76-1/2	210-8337/8637
6	9	06xx	25V76-1/2	210-8337/8637

Jumper Address for a single TC DA = 06xx.
Jumper Address for a second TC DA = 03xx.

7. Install the TC device adapter in the Motherboard. Each circuit board is held in place by two snaplocks. One snaplock tab fits under the top edge of the front board cage assembly rail and the second snaplock tab fits under the top edge of the rear board cage assembly rail. Insert the DA in the board guide and lower it to the Motherboard connector.
8. Make sure the board edge connectors are lined up with the Motherboard connector slots and the snaplock tabs are under the top rails.
9. Push down on the snaplocks to seat the board in the Motherboard.
10. Mount the TC connector plate at the rear of the main frame. This panel supports three different TC connections, providing plugs for both the modem and Automatic Calling Unit (ACU) cables. (Figures 1-18, 1-19, and 1-20.)
11. Install the TC cables from the connector plate to the correct connectors on the TC DA.



* STANDARD CONFIGURATION USED WHEN SYSTEM HAS ONLY ONE TC DA. OTHER POSSIBLE CONFIGURATIONS.

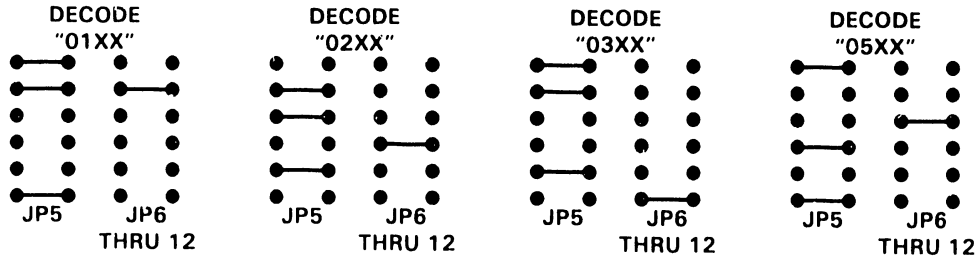


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Figure 1-15. 26V76-1A 1-Port TC Device Adapter Connector and Jumper Locations

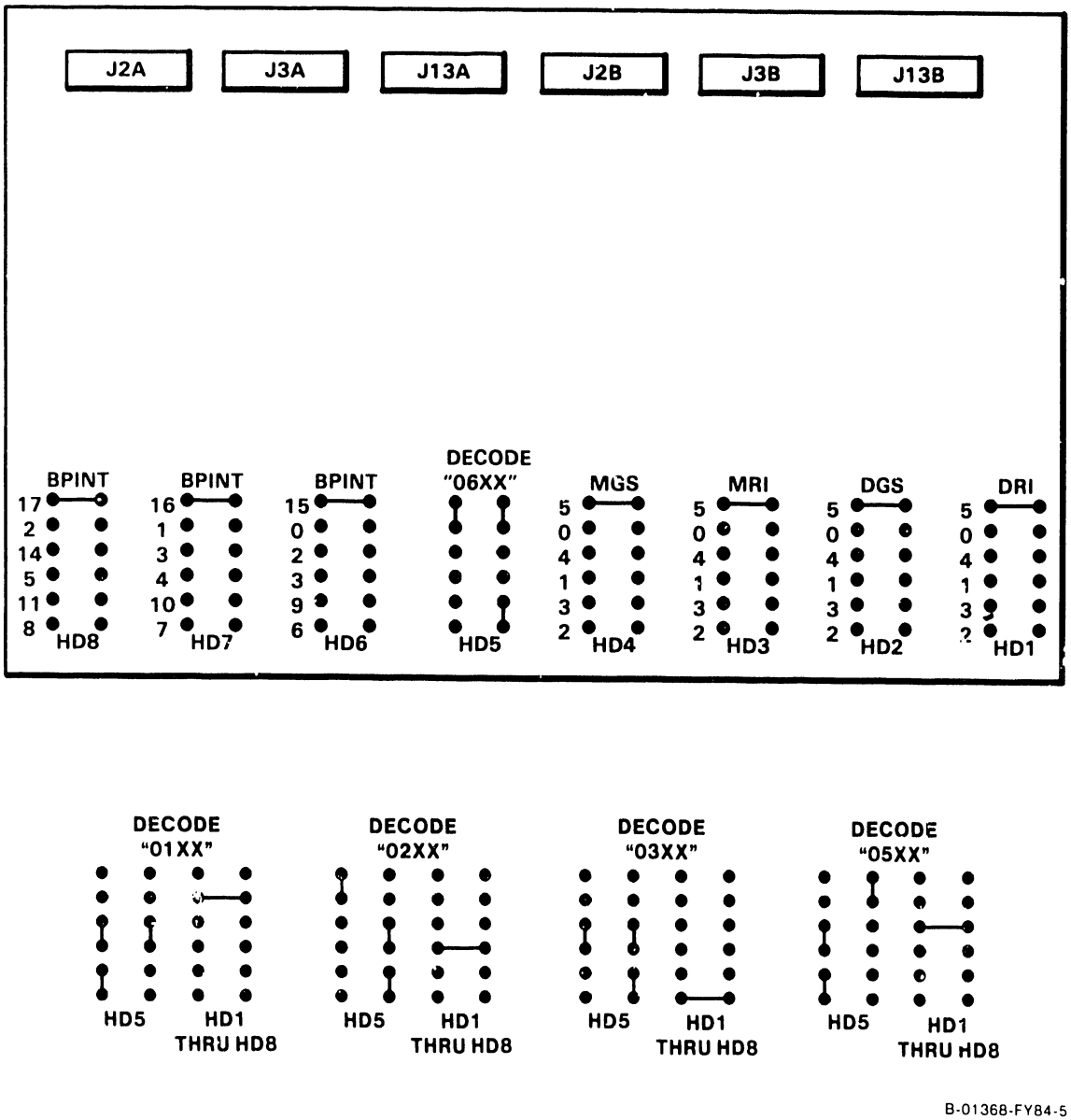


Figure 1-16. 25V76-2A 2-Port TC Device Adapter Connector and Jumper Locations (R1 Version)

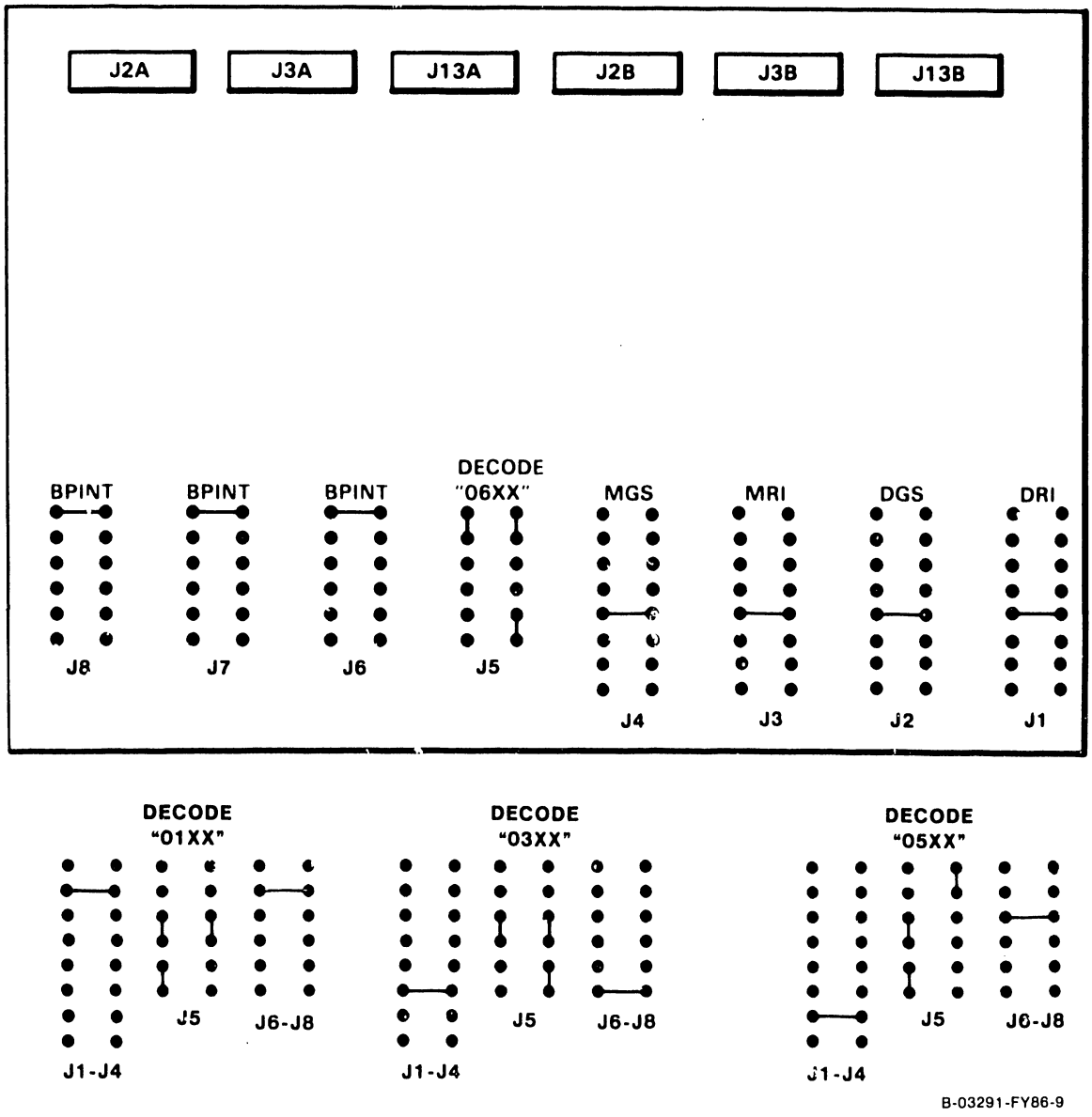


Figure 1-17. 25V76-2A 2-Port TC Device Adapter Connector and Jumper Locations (R2 Version)

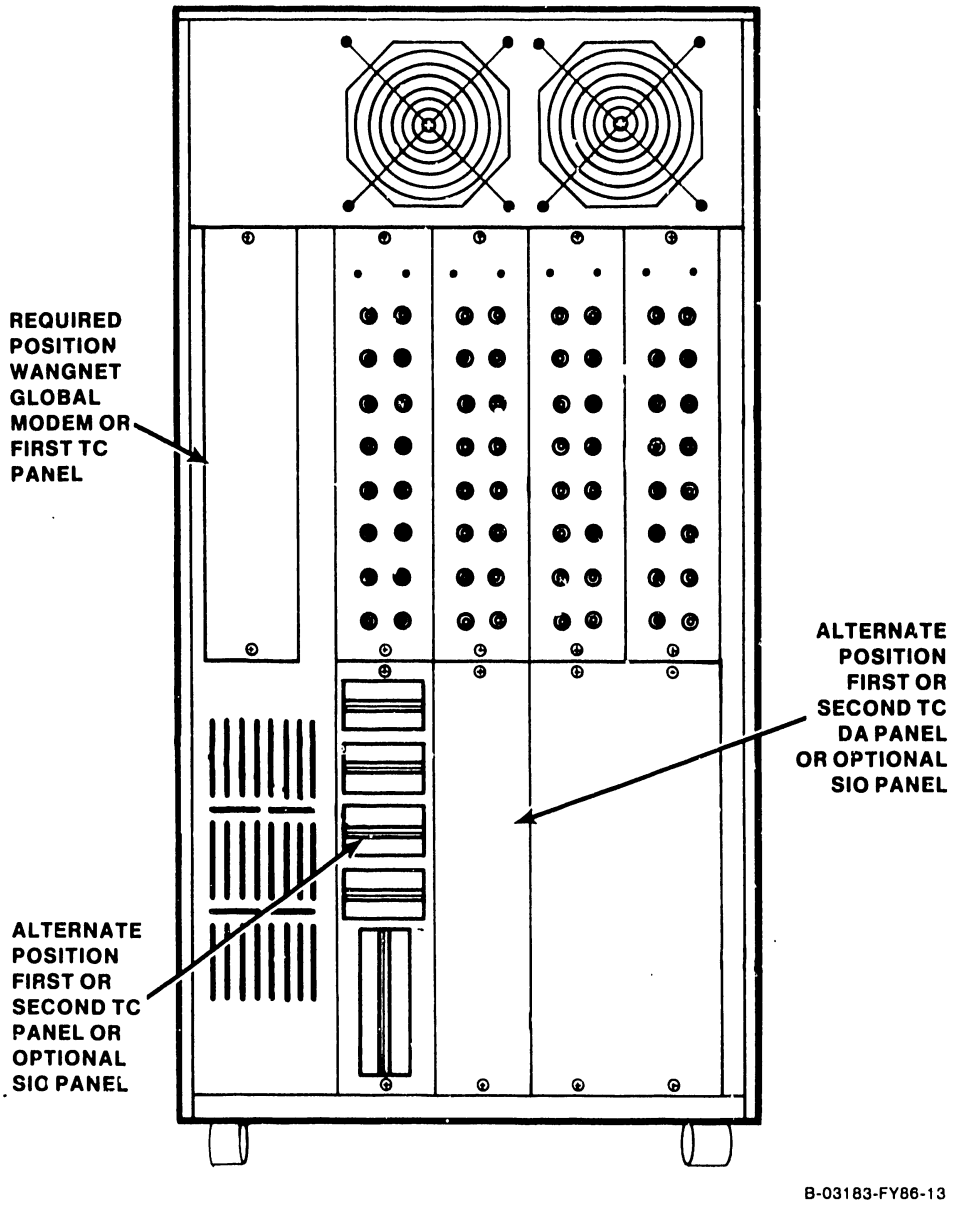


Figure 1-18. VS-15/65 Rear Panel

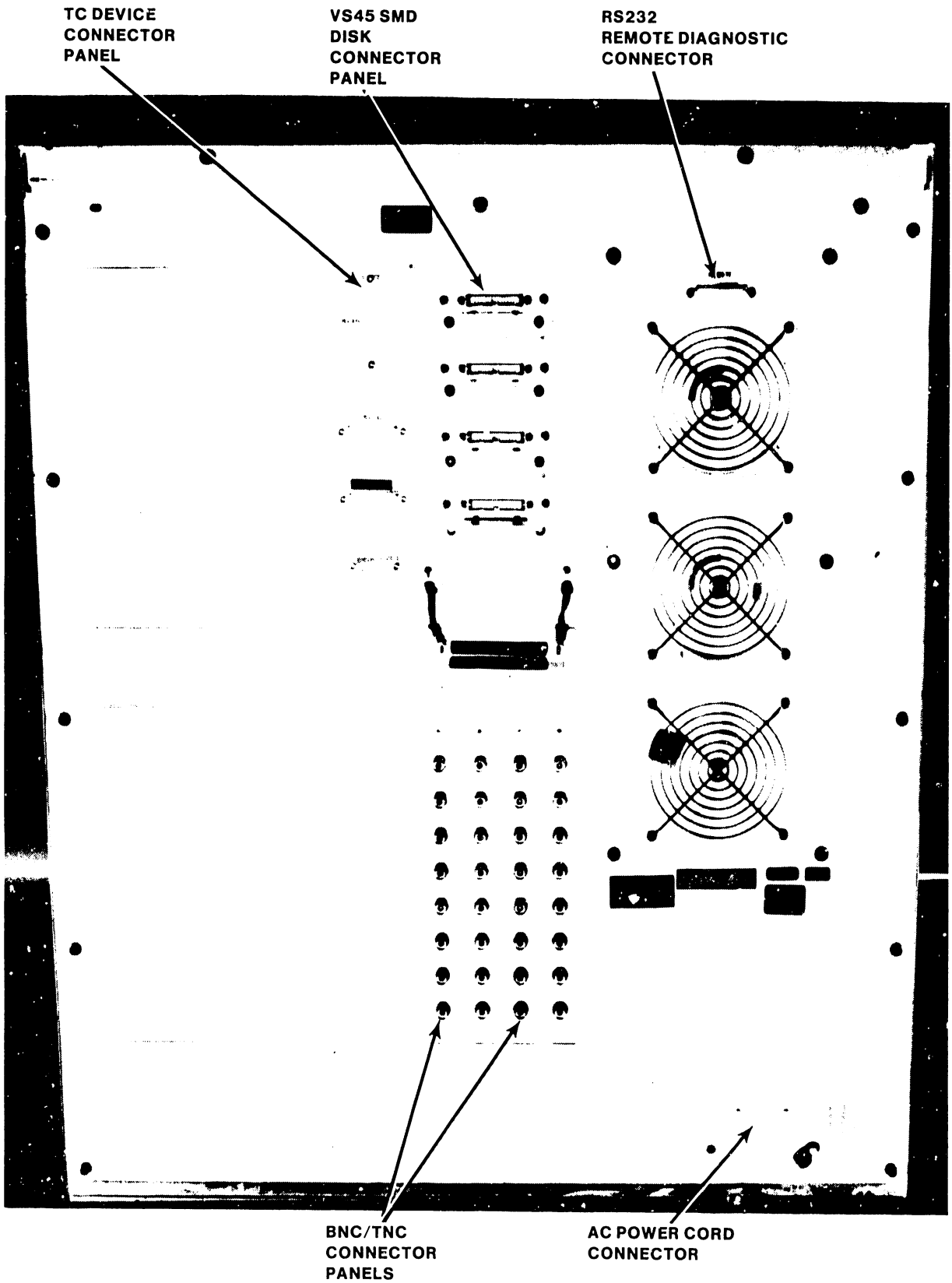


Figure 1-19. VS-25/45/45XP Rear Panel

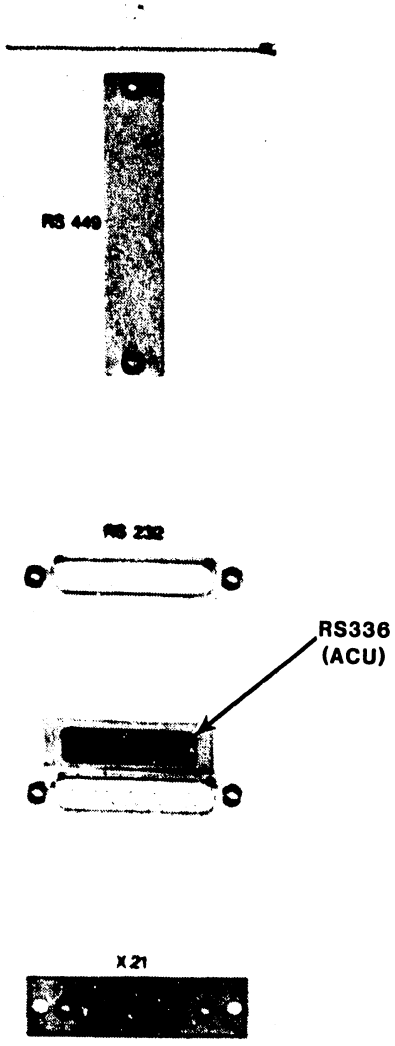


Figure 1-20. VS-15/25/45/45XP/65 Rear Cable Connector Panel For 1-Port TC DA

1.14 INSTALLING TC DA FRONT INDICATOR/CONTROL PANEL IN VS-15/25/45/45XP/65

On the VS-15/65, the TC DA Front Indicator/Control Panel(s) is mounted in the blank space beneath the Keylock Assembly. On the VS-25/45/45XP, the TC DA Front Indicator/Control Panel(s) is mounted in the blank space to the left of the floppy disk drive. (See figures 1-21 and 1-22.)

1. Install the panel.

2. Install the two nuts holding the panel to the chassis behind the panel.

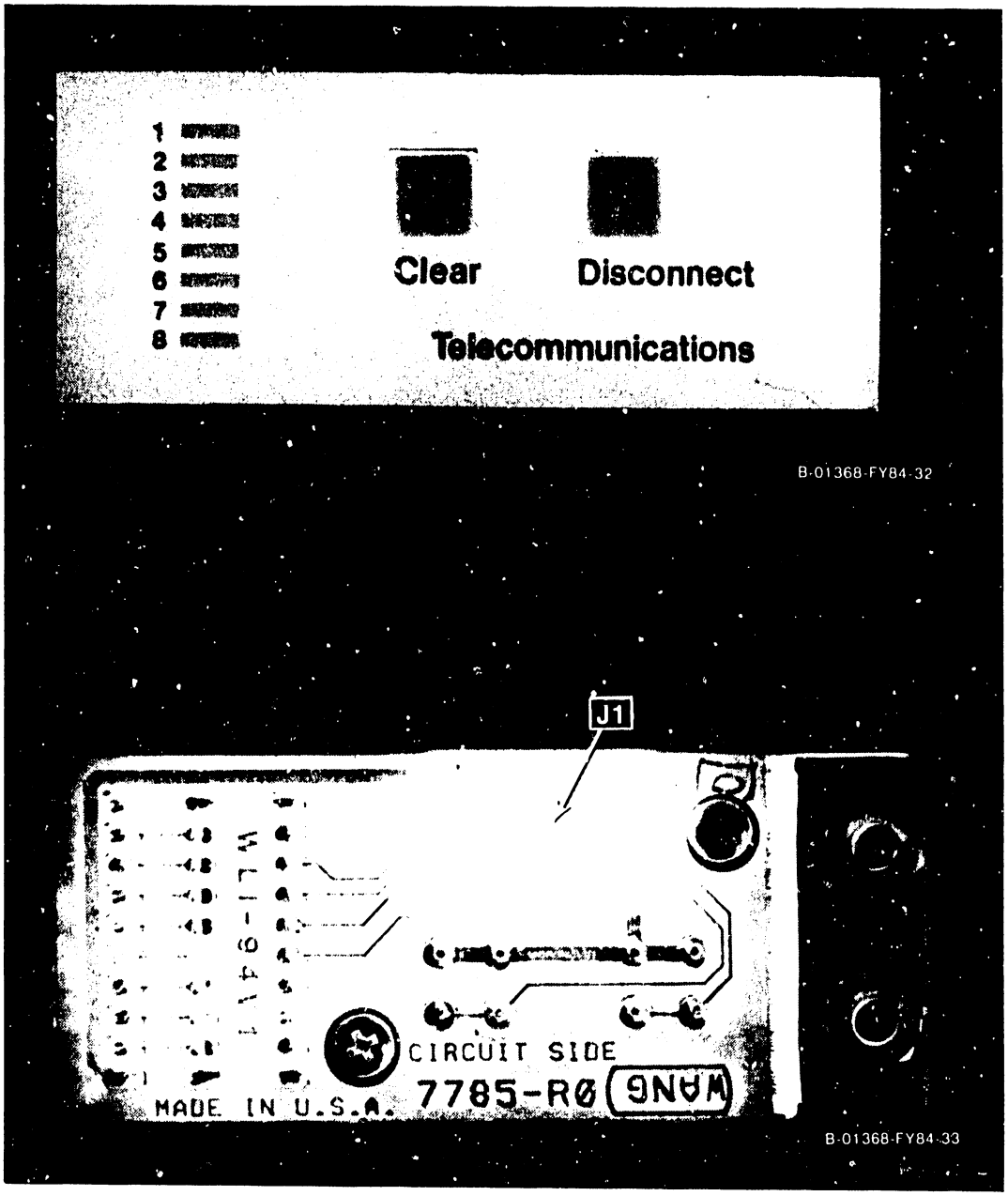
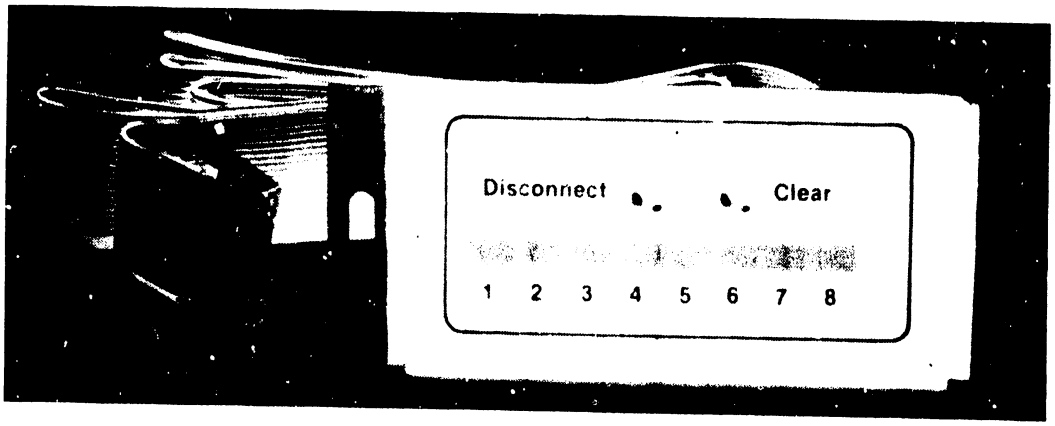


Figure 1-21. Front and Rear View of VS-15/65 Telecommunications Adapter Indicator/Control Panel

3. a. For a 25V76-1A (1-port) DA, install the 16-pin cable (WLI P/N 220-3247) from J1 on the panel to J4 on the TC DA.
   b. For a 25V76-2A (2-port) DA, install two 16-pin cables (WLI P/N 220-3012) from J1 on each panel to S1 (Channel 1) and S2 (Channel 2) on the TC DA.



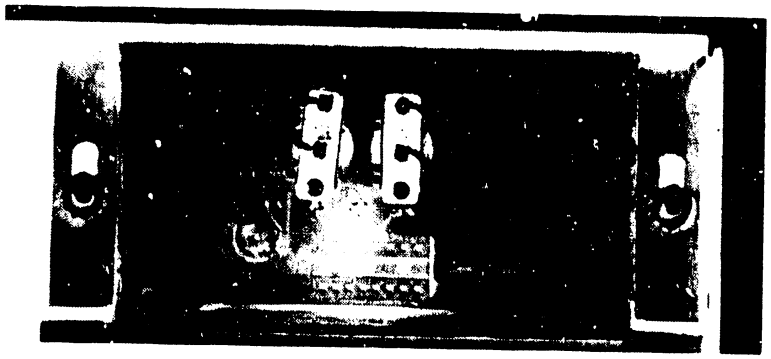


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Figure 1-22. Front and Rear View of VS-25/45/45XP Telecommunications Adapter Indicator/Control Panel

1.15 INSTALLING THE EXTERNAL DISK CONTROLLER

The external disk controller (EDC) is an interface device at the VS-5/6/15/65 remote site which allows powering on/off up to eight disk drives remotely from the host site before the remote system is powered on/off to prevent damage to the disk volume table of contents (VTOC). Refer to figures 1-23 and 1-41 (cabling). To install the EDC, perform the following:

1. Power down the system.

2. Disconnect the "A" cable that runs from the mainframe back panel to the first disk drive (drive 0) at the drive. Connect the "A" cable to the SYSTEM J1 connector (J5) on the 210-8357 EDC board.

3. Connect one end of another "A" cable to the DISK 1 connector (J2) on the EDC board and the other end to the first disk drive (drive 0).

4. Connect one end of the 220-0483 cable to the PC connector (J3) on the EDC board. The other end connects to the RIPL board in the remote PC.

This connection can control up to four disk drives. To control up to four more drives, use the SYSTEM J2 and DISK 2 connectors on the EDC.

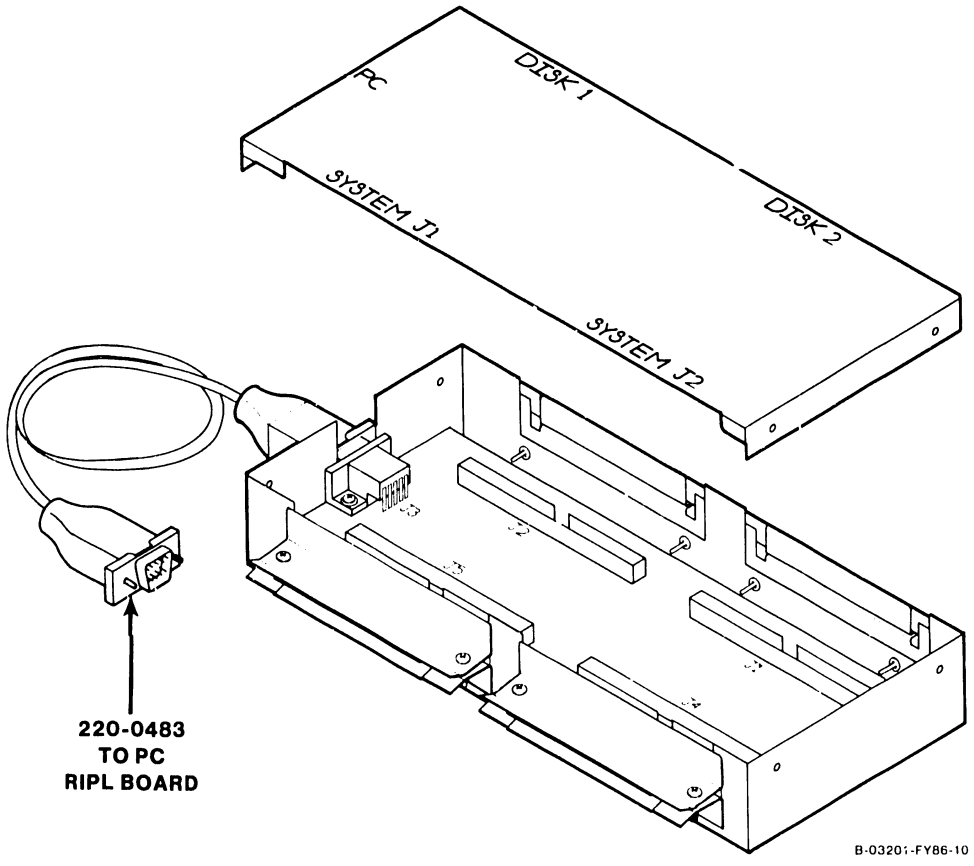


Figure 1-23. External Disk Controller (EDC)

1.16 INSTALLING 22V06 TC IOP IN VS-50/80

CAUTION

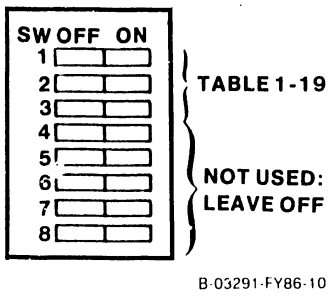
Improperly powering down the system and/or any disk drive can result in damage to the Volume Table of Contents (VTOC) of the affected disk drive(s).

1. Make sure that all operators have logged off of the system.
   a. Press PF key 13 (WORKSTATIONS) on an operator's console to check that the operators have logged off of the system.
   b. Press PF key 7 (NON-INTERACTIVE TASKS) on an operator's console to check the background tasks on the system. Look under the "User" column to identify any operator running a background task.
2. Press the Control Mode button. This prevents any disk I/O command in process from being halted prior to completion and prevents possible damage to any disk Volume Table of Contents (VTOC).
3. Power down all external disk drive(s), and any other peripheral devices according to procedures in the applicable documents in Class 3000.
4. Turn off the ac On/Off circuit breaker.

NOTE

Because TC has the lowest priority of all IOPs, install any TC IOP immediately following all other IOP assemblies.

5. Check the TC IOP switch settings. (Figure 1-24.) Take the lowest device address for the IOP and divide it by 32. This gives a decimal number. Now set the binary value of the number into the switches. The bit weights are given in table 1-19.



On = Active

Figure 1-24. 22V06 TC IOP Switch Settings

Table 1-19. 22V06 TC IOP Device Assignments

Switch	Binary Weight
SW1	4
SW2	2
SW3	1

6. After checking the TC IOP switch settings, install the IOP.
7. Mount the TC connector plate (WLI P/N 270-0705 for 1-port, 270-0705-2 for 2-port, and 270-0705-3 for 3-port) at the rear of the main frame.
8. Install the TC cables from the connector plate to the correct connectors on the TC IOP. (Figures 1-39 and 1-40.)
9. Power on the system. The -12 Volt dc supply on the TC Motherboard must be checked as follows: (Figure 1-25.)
   a. Connect the negative lead of a digital voltmeter to the -12 Volt test point and the positive lead to the +/- 0 Volt bus.
   b. Adjust the trimpot until the meter reads -12 Volts, +/- 0.5 Volts.

1.17 INSTALLING 22V26 TC IOP IN VS-85/85-H/90/100

CAUTION

Improperly powering down the system and/or any disk drive can result in damage to the Volume Table of Contents (VTOC) of the affected disk drive(s).

1. Make sure that all operators have logged off of the system.
   a. Press PF key 13 (WORKSTATIONS) on an operator's console to check that the operators have logged off of the system.
   b. Press PF key 7 (NON-INTERACTIVE TASKS) on an operator's console to check the background tasks on the system. Look under the "User" column to identify any operator running a background task.
2. Press the Control Mode button. This prevents any disk I/O command in process from being halted prior to completion and prevents possible damage to any disk Volume Table of Contents (VTOC).
3. Power down all external disk drive(s), and any other peripheral devices according to procedures in the applicable documents in Class 3000.
4. Press the Power Off button located on the main frame Power Panel.
5. Turn off the CPU ac On/Off circuit breaker.

NOTE

Because TC has the lowest priority of all IOPs, install any TC IOP immediately following all other IOP assemblies.

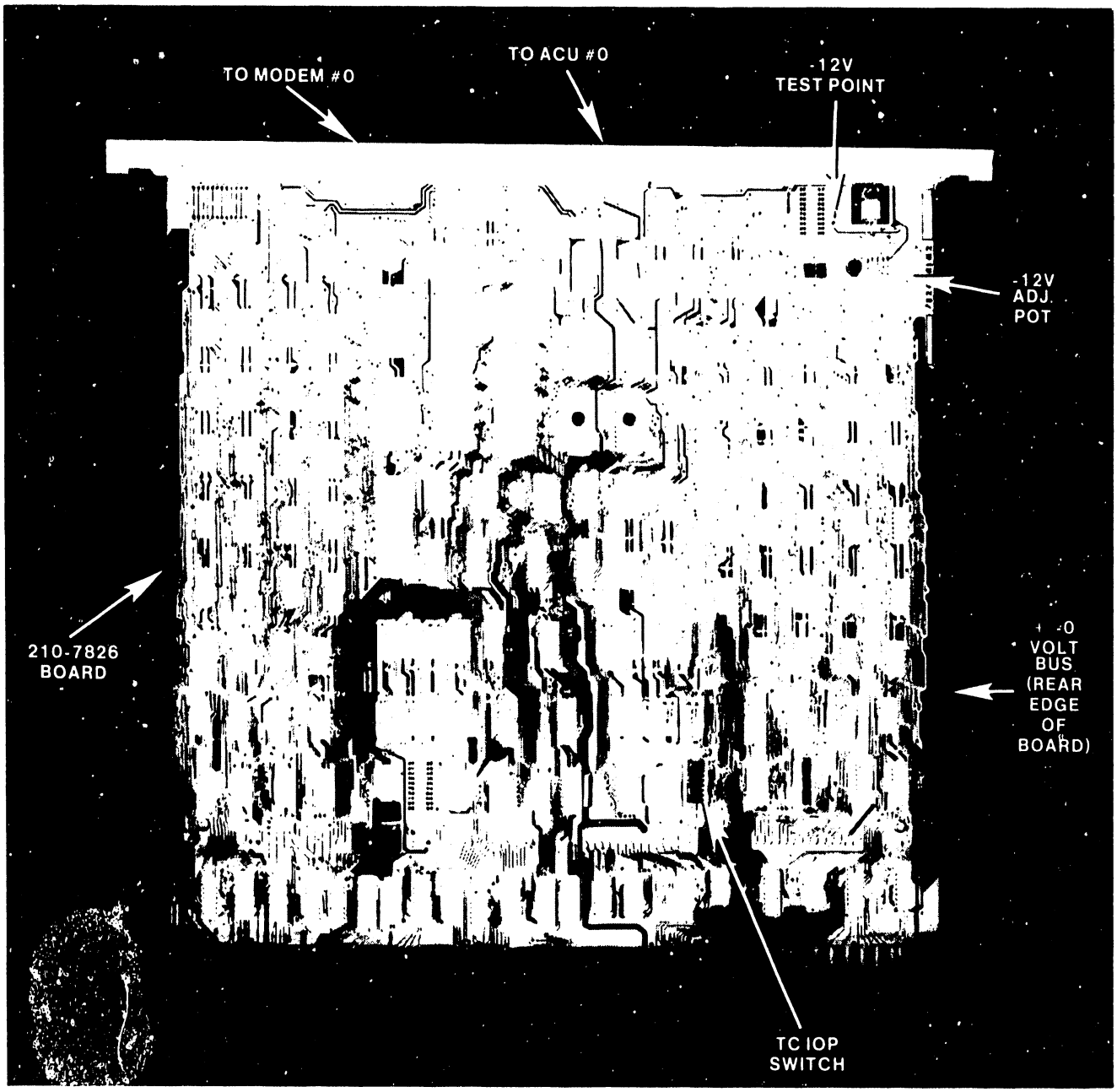


Figure 1-25. 22V26 TC IOP

6. Check the TC IOP switch settings.

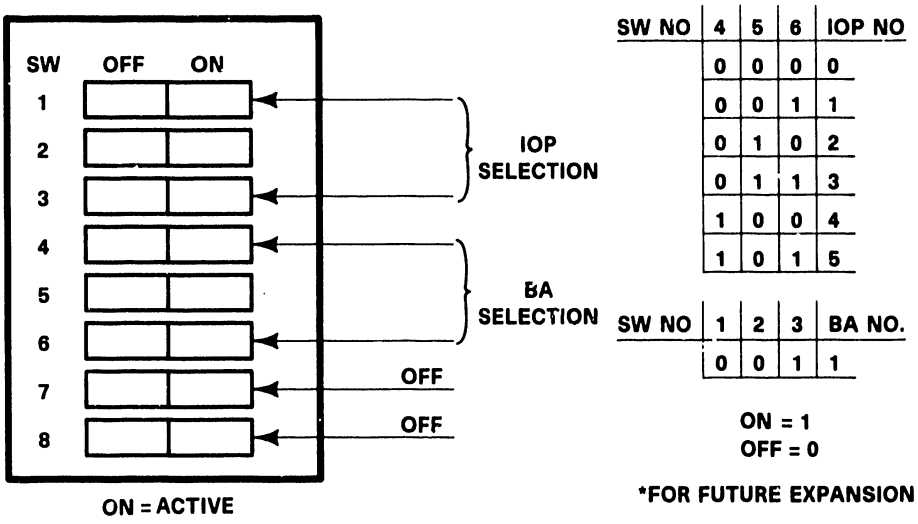


Figure 1-26. VS-85 22V26 TC IOP Switch Settings

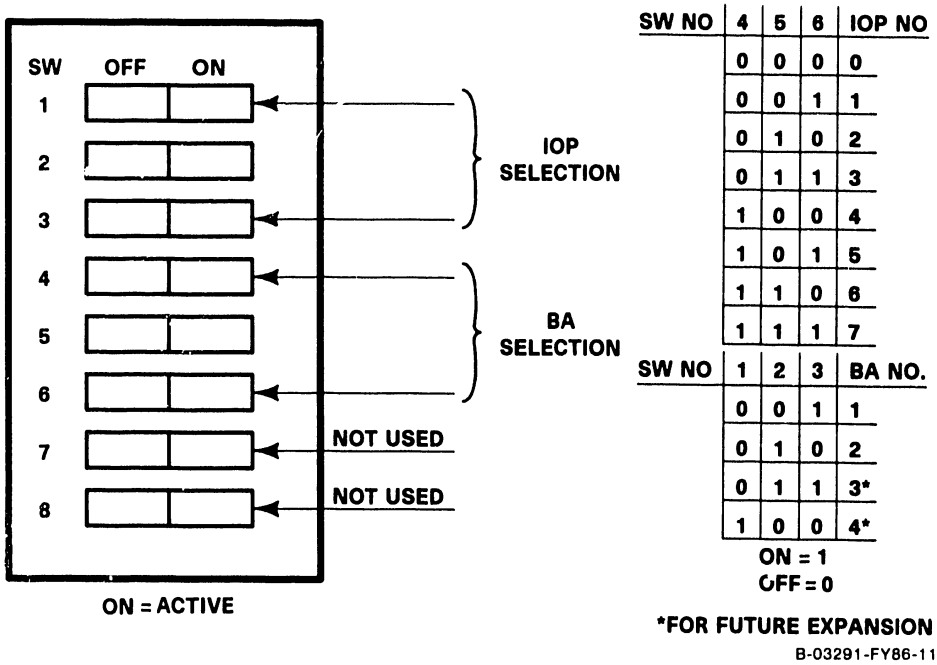


Figure 1-27. VS-90/100 22V26 TC IOP Switch Settings

7. After checking the TC IOP switch settings, install the IOP.
8. Mount the TC connector plate (WLI P/N 270-0705 for 1-port, 270-0705-2 for 2-port, and 270-0705-3 for 3-port) at the rear of the main frame.
9. Install the TC cables from the connector plate to the correct connectors on the TC IOP. (Figures 1-39 and 1-40.)
10. Power on the system and check the -12 Volt dc supply on the TC Motherboard must be checked as follows: (Figure 1-25.)
    a. Connect the negative lead of a digital voltmeter to the -12 Volt test point and the positive lead to the +/- 0 Volt bus.
    b. Adjust the trimpot until the meter reads -12 Volts, +/- 0.5 Volts.

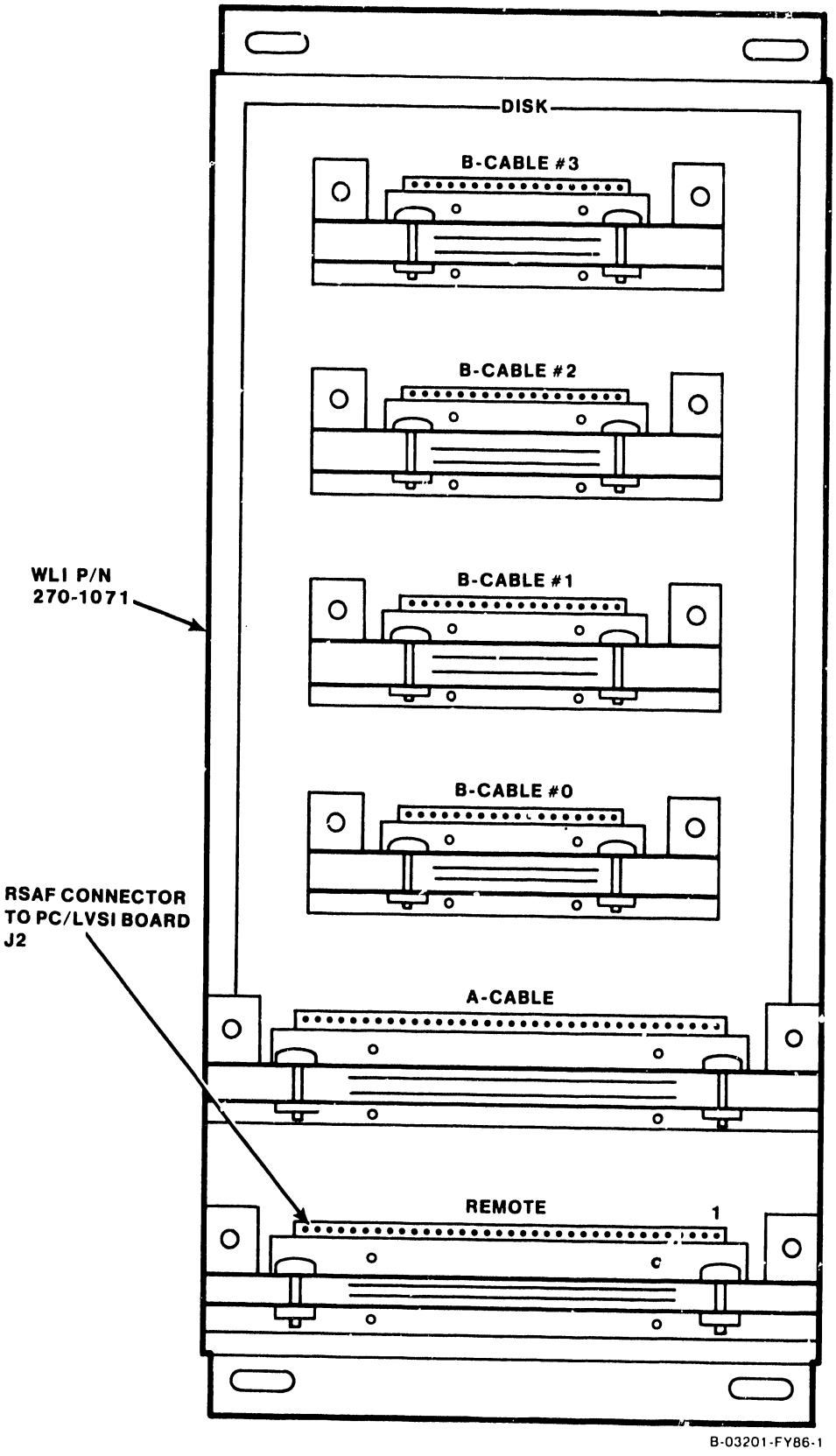


Figure 1-28. VS-85/85-H/90/100 RSAF Back Panel Assembly

1.18 VS-85/85-H/90/100 RSAF REMOTE SITE HARDWARE INSTALLATION

The following procedure explains the RSAF remote site hardware installation for the VS-85/85-H/90/100. Refer to the appropriate product maintenance manual. Refer to the interconnection diagrams in figures 1-45 and 1-46.

NOTE

Full-height and half-height diskette drives and disk I/O back panels, removed during the following RSAF installation procedures, should be saved and placed into CE stock.

1. Power down the mainframe and disconnect the power cord.
2. Remove the top cover for all models, and the front cover for the VS-85/85-H only.
3. Disconnect all disk cables attached to the disk I/O back panel and remove the back panel.
4. Install the new disk/RSAF back panel (270-1071), horizontally in the VS-85/85-H and vertically in the VS-90/100. Refer to figure 1-28. Reinstall disk cables.

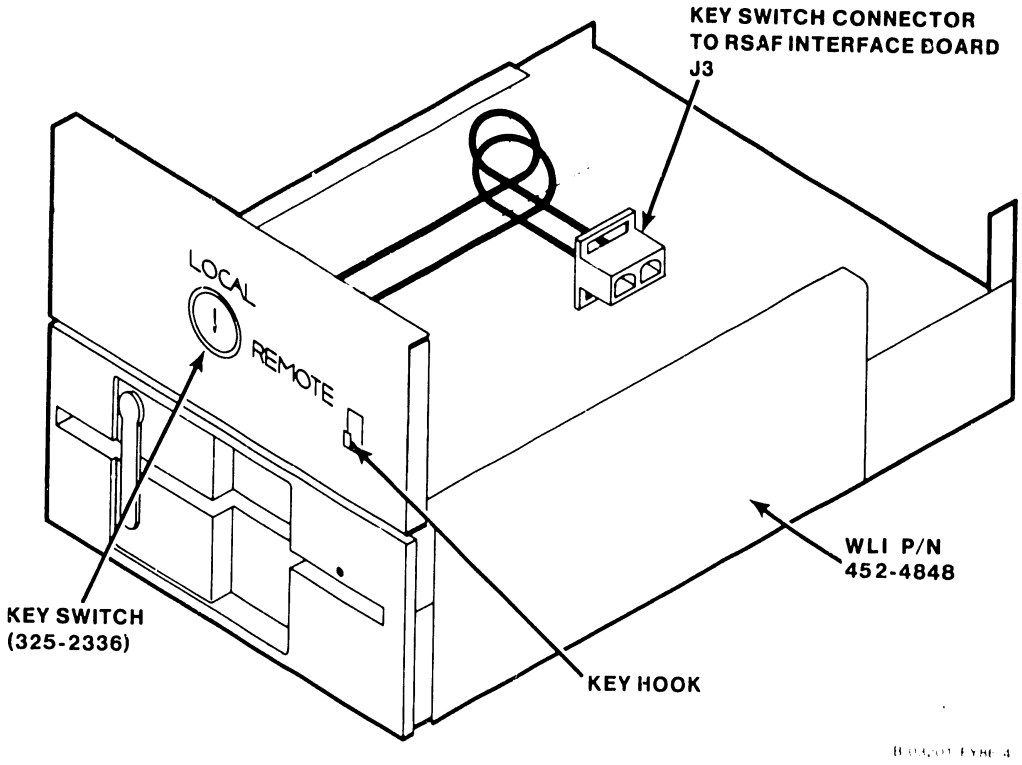


Figure 1-29. VS-85/85-H Half-height Diskette Drive/Keyswitch Assembly

5. For the VS-85/85-H, perform steps 6 thru 11. For the VS-90/100, go to step 12.

6. Remove the full or half-height diskette drive (whichever is installed). Install the new RSAF diskette drive/keyswitch assembly. Refer to figure 1-29.

7. Install the VS-85/85-H RSAF interface board (210-8772) as follows:

   a. Ensure that the plastic shield is installed on the RSAF board bracket.
   b. Remove the two right-hand screws from the rear of the display panel.
   c. Using the two screws removed in the previous step, install the RSAF interface board with the plastic shield against the display panel and the 60-pin connector (J1) on top.

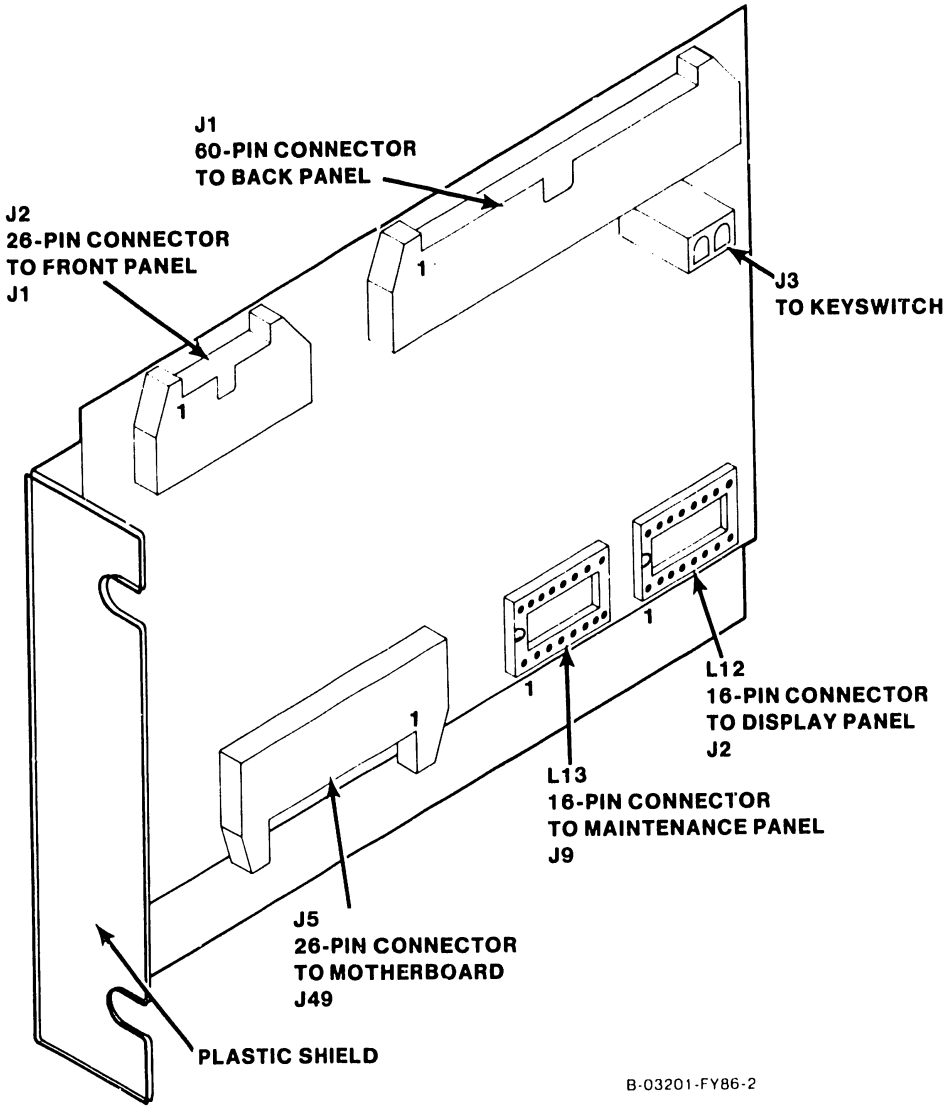


Figure 1-30. VS-85/85-H RSAF Interface Board Installation

8. Disconnect the 26-pin cable from J1 on the display panel board and connect it to J5 on the RSAF interface board.

9. Connect one end of the 26-pin cable (220-3566) supplied to J2 on the RSAF interface board and the other end to J1 on the display panel board.

10. Disconnect the 16-pin cable from J2 on the display panel board and connect it to L13 on the RSAF interface board.

11. Connect one end of the 16-pin cable (220-3565) supplied to L12 on the RSAF interface board and the other end to J2 on the display panel board. Go to step 16.

12. For the VS-90/100, open the door on the front cover. Install the RSAF interface board (210-8773)/keyswitch assembly on the left side of the power distribution box. Refer to figure 1-31.

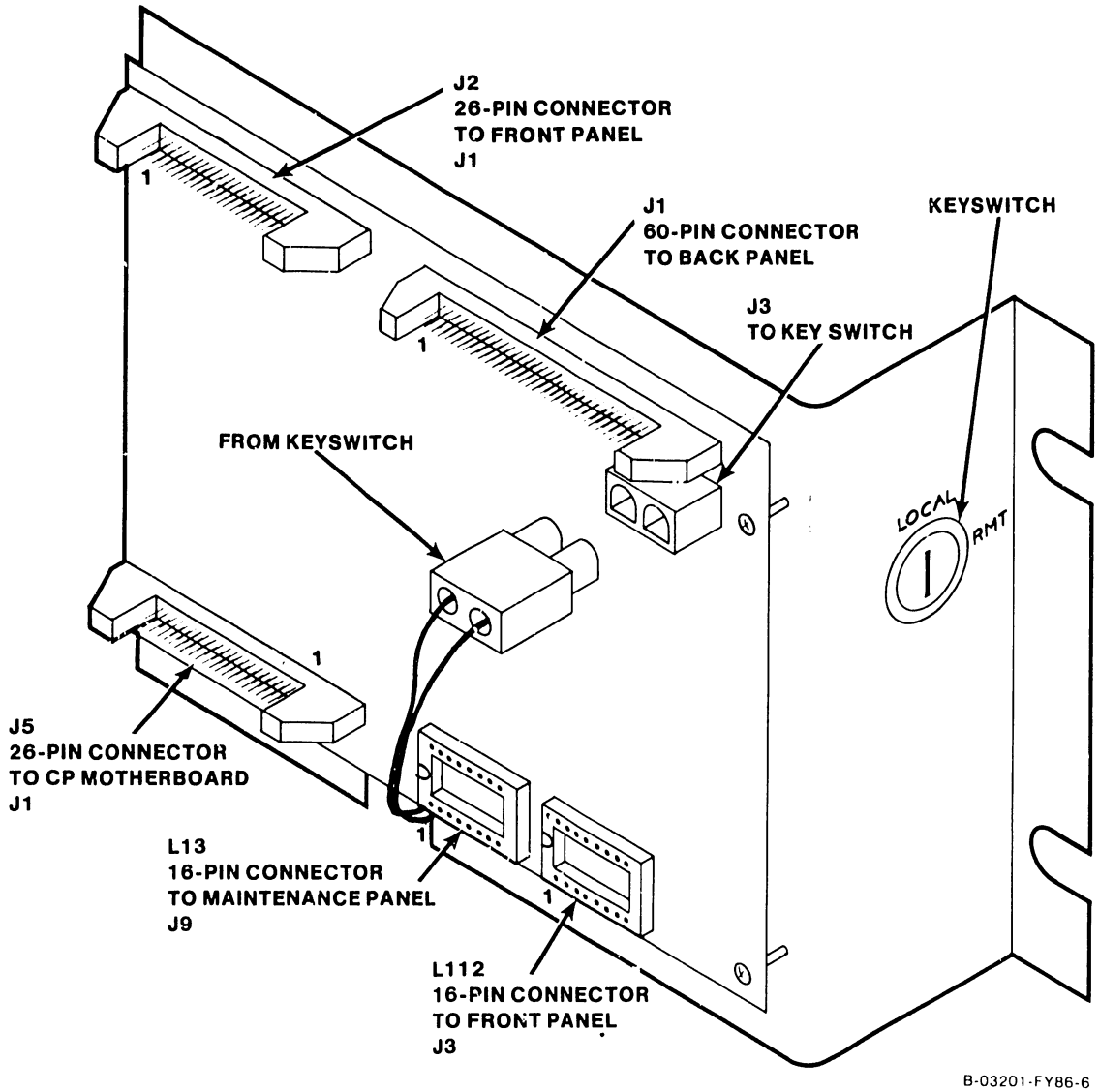


Figure 1-31. VS-90/100 RSAF Interface Board Installation

13. Disconnect the 26-pin cable from J1 at the bottom of the front panel board and connect it to J5 on the RSAF interface board.

14. Connect one end of the 26-pin cable (220-3584) supplied to J2 on the RSAF interface board and the other end to J1 at the bottom of the front panel board.

15. Disconnect the 16-pin cable attached to the right side of the front panel board and connect it to L13 on the RSAF interface board.

16. Connect one end of the 16-pin cable (220-3000) to L12 on the RSAF interface board and the other end to the 16-pin connector on the right-hand side of the front panel board.

17. For all systems, connect the 60-pin cable (220-3390) attached to the disk/RSAF I/O back panel "REMOTE" connector to J1 on the RSAF interface board.

18. Attach the 2-pin keyswitch cable to J3 on the RSAF interface board.

19. Install the large VS interface (LVSI) board in the PC electronics unit. Refer to paragraph 1.11.2.

NOTE

When servicing the LVSI board, some LVSI board spares may not have the new bracket with studs to secure the RF shield. If the replacement board does not have the proper bracket, remove the bracket from the defective board and install it on the new board. Send the obsolete bracket back with the defective board. The bracket will be upgraded when the defective board is repaired.

20. Connect the end of the 60-pin shielded cable (220-3568) with the RF shield cover to J2 of the LVSI board and secure the cover with the screws provided. Refer to figure 1-32. Connect the other end of the cable to the "REMOTE" connector on the disk/RSAF back panel assembly.

NOTE

If, when IPLing the system, you press the Initialize push button and the diskette activity LED lights, one of the 16-pin cables, connected to the display panel board or the RSAF interface board, is installed upside down.

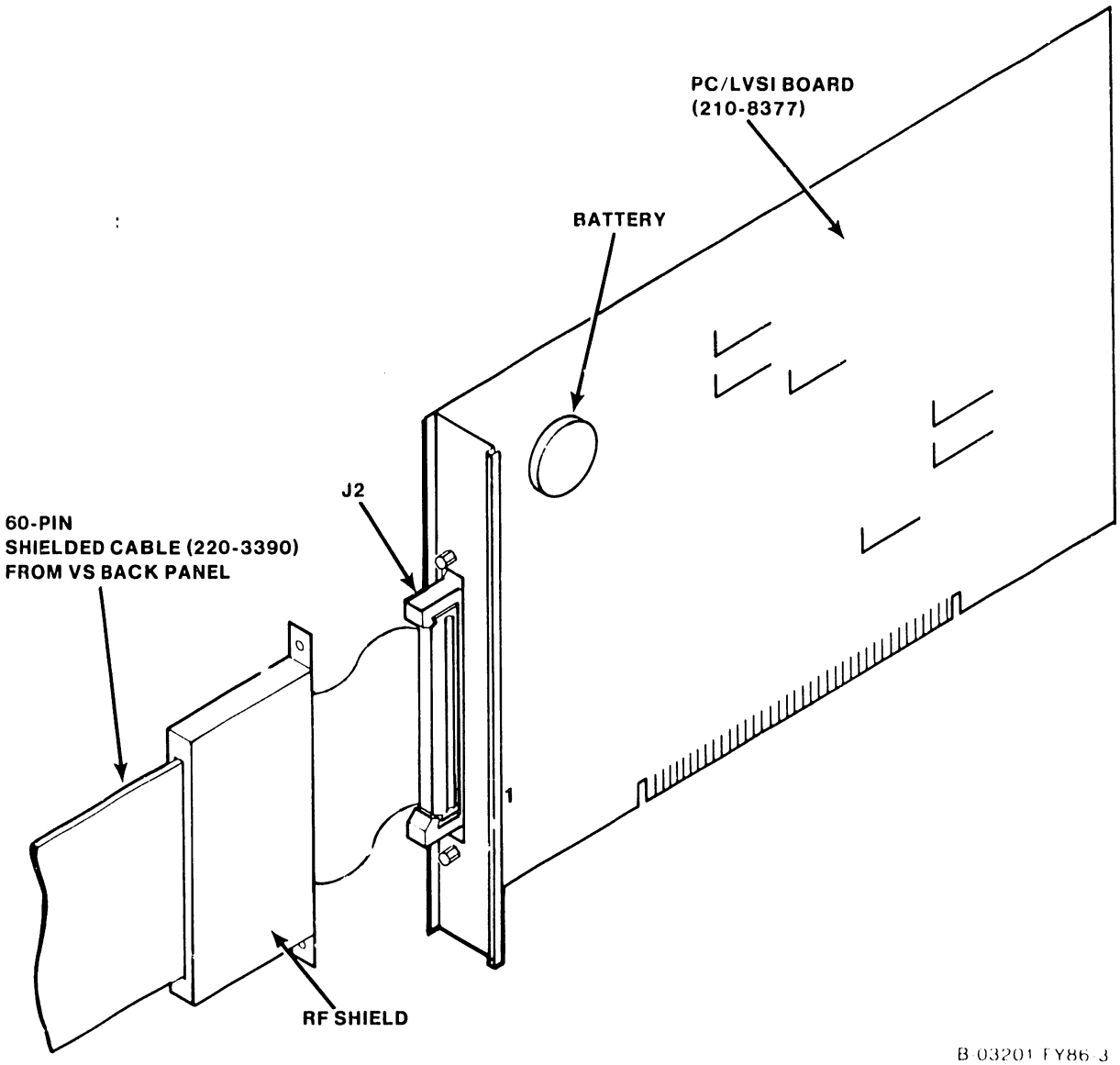


Figure 1-32. 60-Pin Shielded Cable Installation

1.19 MODEM SWITCH SETTINGS

The following paragraphs detail the switch settings for the most commonly used modems supported by RSAF. Refer to figures 1-33 thru 1-37.

1.19.1 WANG 3451 MODEM SWITCH SETTINGS

The Wang 3451 Modem contains both internal and external switches which must be set before operating RSAF.

To set the Wang 3451 Modem internal switches, perform the following:

1. Remove the modem top cover by pushing inward on the sides of the modem cover and carefully prying one corner. Lift off cover.

2. Locate Switch "A" at the front right-hand corner of the bottom pc board. Refer to figure 1-33.

3. Set switch 6 to the "OFF" or "OPEN" position. All other switches are ignored.

4. Replace the modem cover.

NOTE

Be sure to cycle the modem ac power off and on to ensure that the modem "reads" the new switch settings.

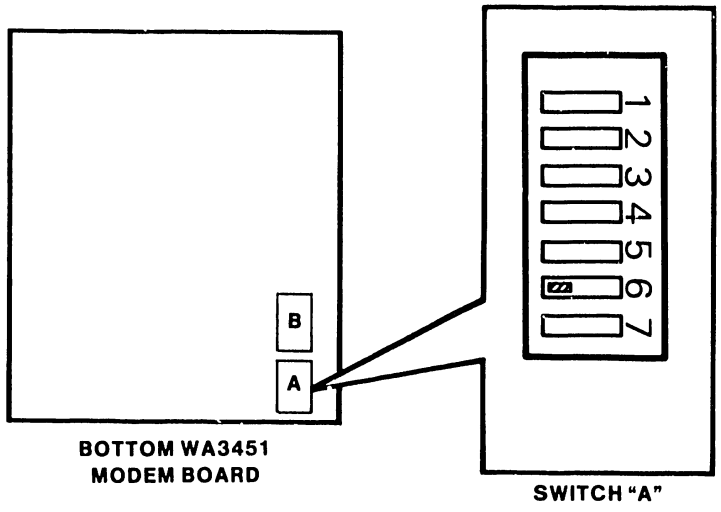


Figure 1-33. Wang 3451 Modem Internal Switch Settings

The following steps explain the procedure for setting the Wang 3451 modem external switches:

1. Set the LOW/HIGH toggle switch on the modem front panel to the HIGH position. Refer to figure 1-34.

2. Set the OFFL/AANS/DATA toggle switch, also on the modem front panel, to the OFFL (offline) position.

3. Set the the OFF/ST slide switch on the modem rear panel to the OFF position.

4. Set the DLB/OFF/ALB slide switch, also on the modem rear panel, to the OFF position.

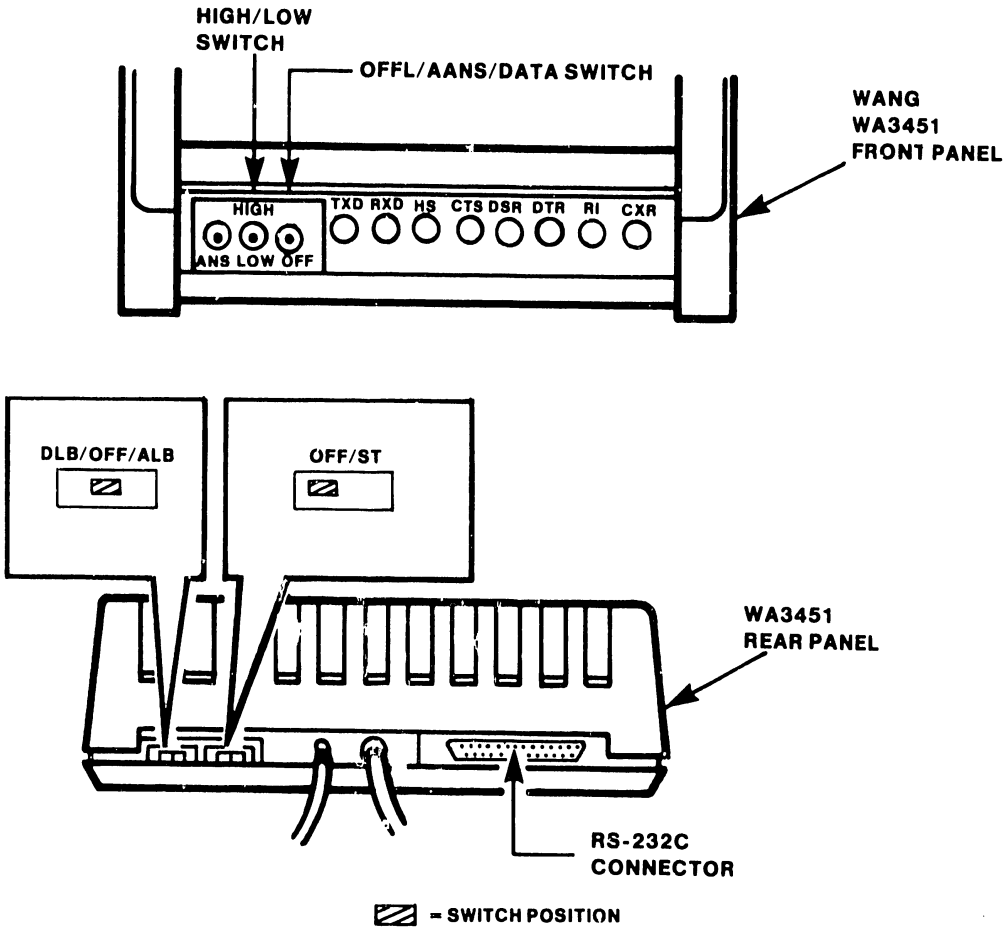


Figure 1-34. Wang 3451 Modem External Switch Settings

1.19.2 BELL 212A MODEM SWITCH SETTINGS

Set the push button switches on the Bell 212A modem front panel as shown in figure 1-35. HS IN, all other push buttons OUT.

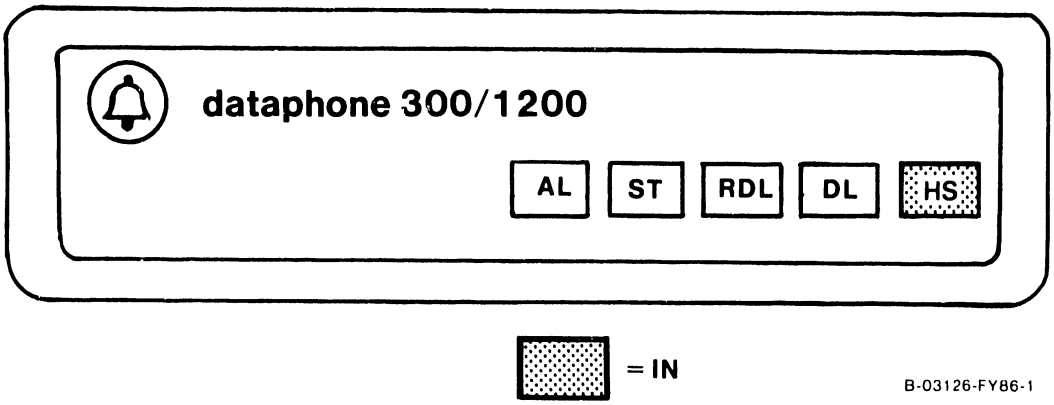


Figure 1-35. Bell 212A Modem External Switch Settings

1.19.3 HAYES SMARTMODEM 1200 SWITCH SETTINGS

The following procedure details the steps required to set the Hayes Smartmodem 1200 internal switches:

1. Remove modem front cover.
2. Locate the switch at the front of the pc board.
3. Set the switches according to the settings shown in figure 1-36.
4. Replace the modem front cover.

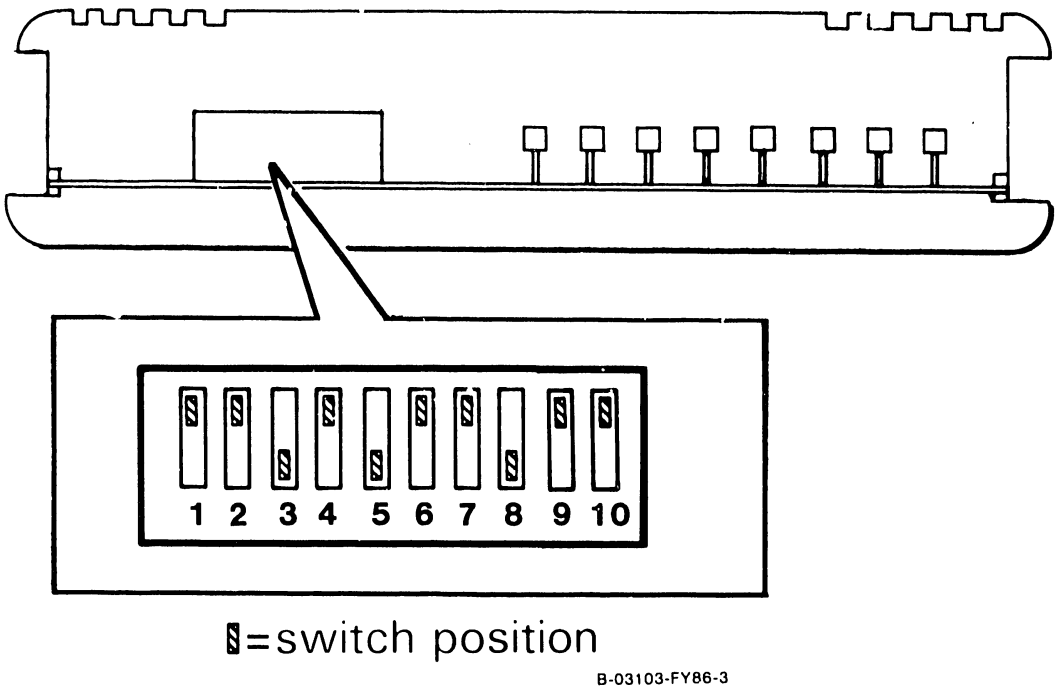


Figure 1-36. Hayes Smartmodem 1200 Internal Switch Settings

1.20 SYSTEM INTERCONNECTION

Use figures 1-37 through 1-46 to aid in interconnecting the RSAF remote or host systems.

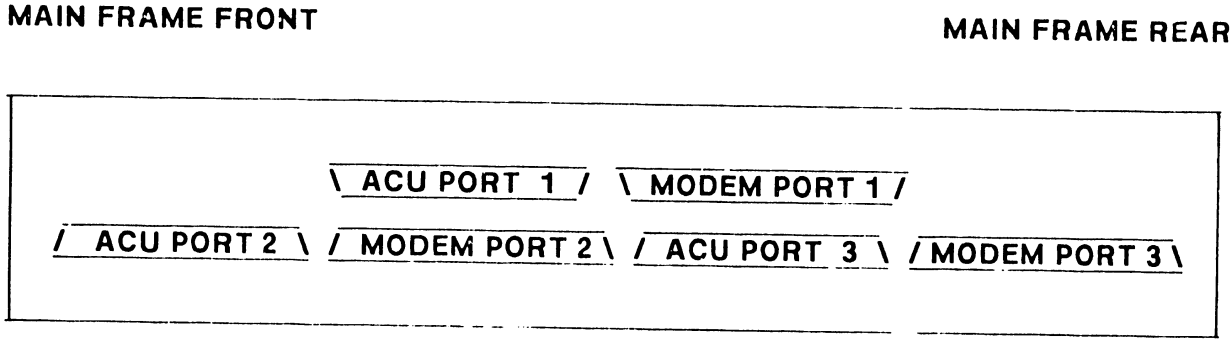


Figure 1-37. Top View of 22V06/26 3-Port TC I/O Processor

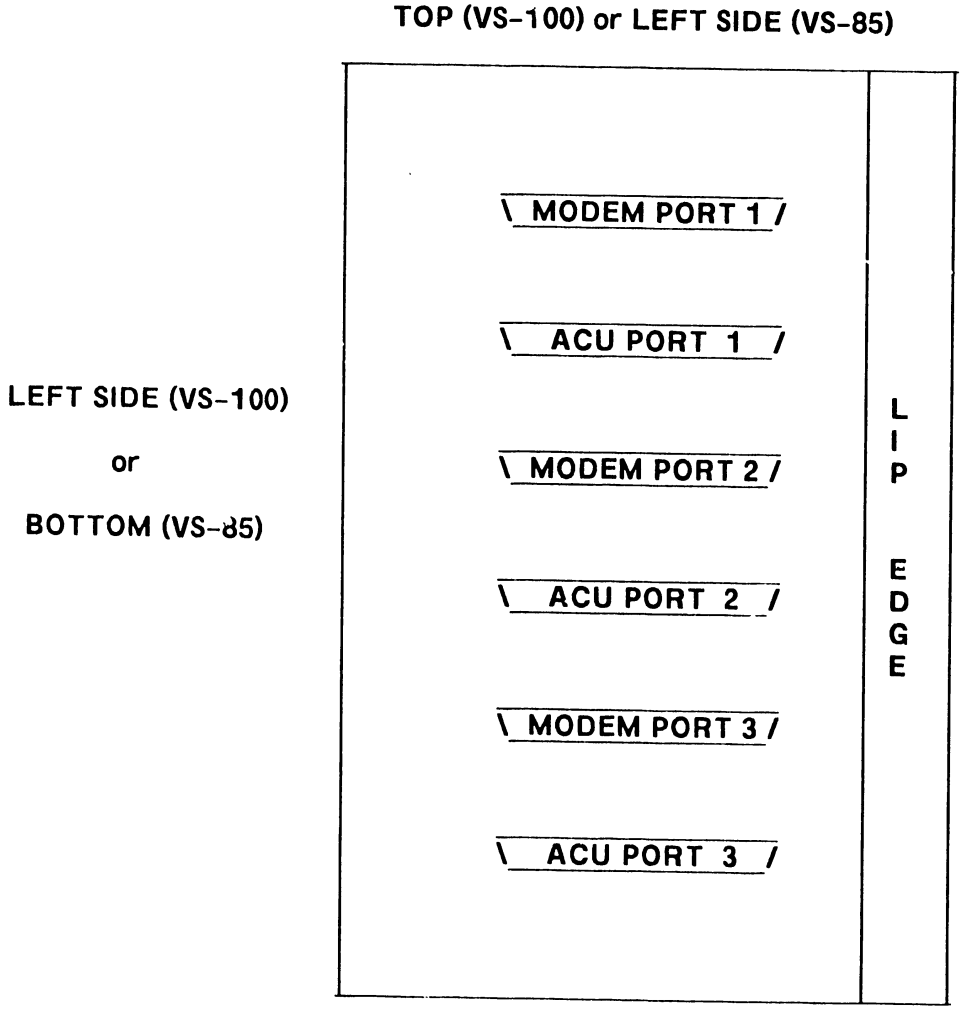
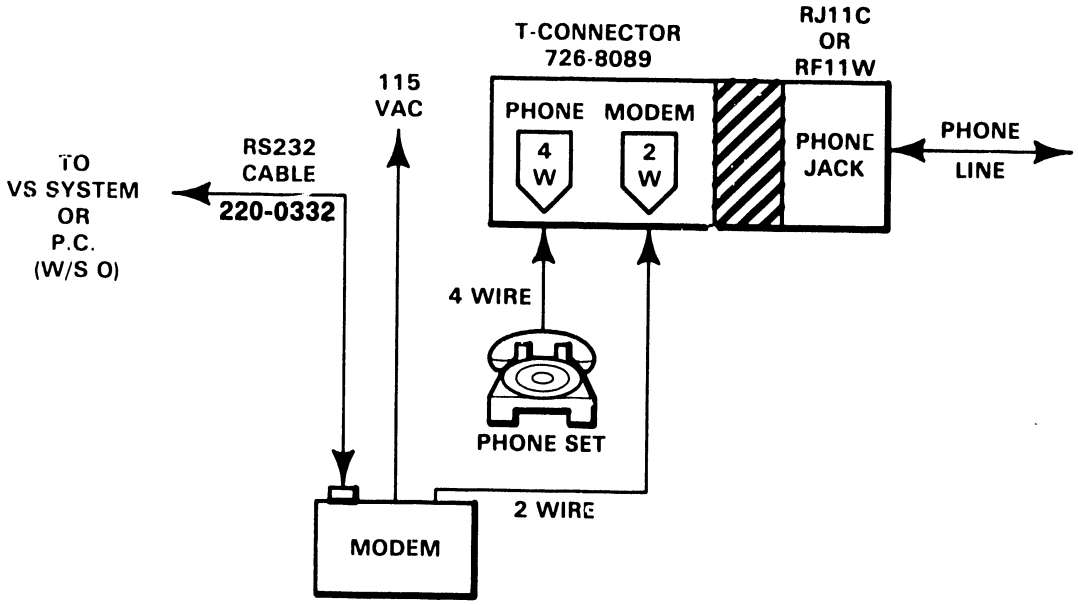


Figure 1-38. VS-50/80/85/85-H/90/100 TC Rear Connector Panel



MODEM/PHONE LINE HOOK-UP

Figure 1-39. Modem/Phone Connections (Remote and Host)

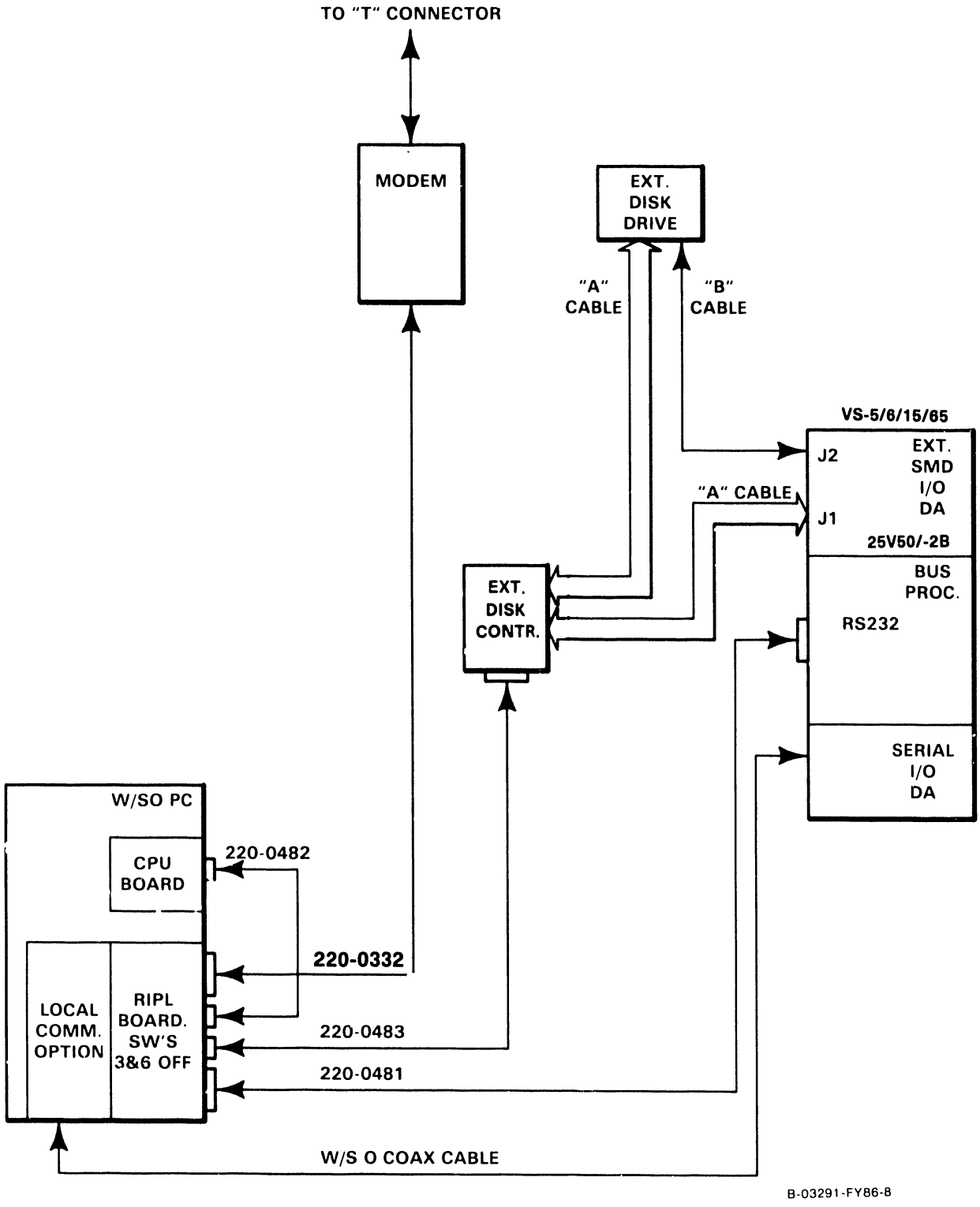


Figure 1-40. VS-5/6/15/65 Remote RSAF Site

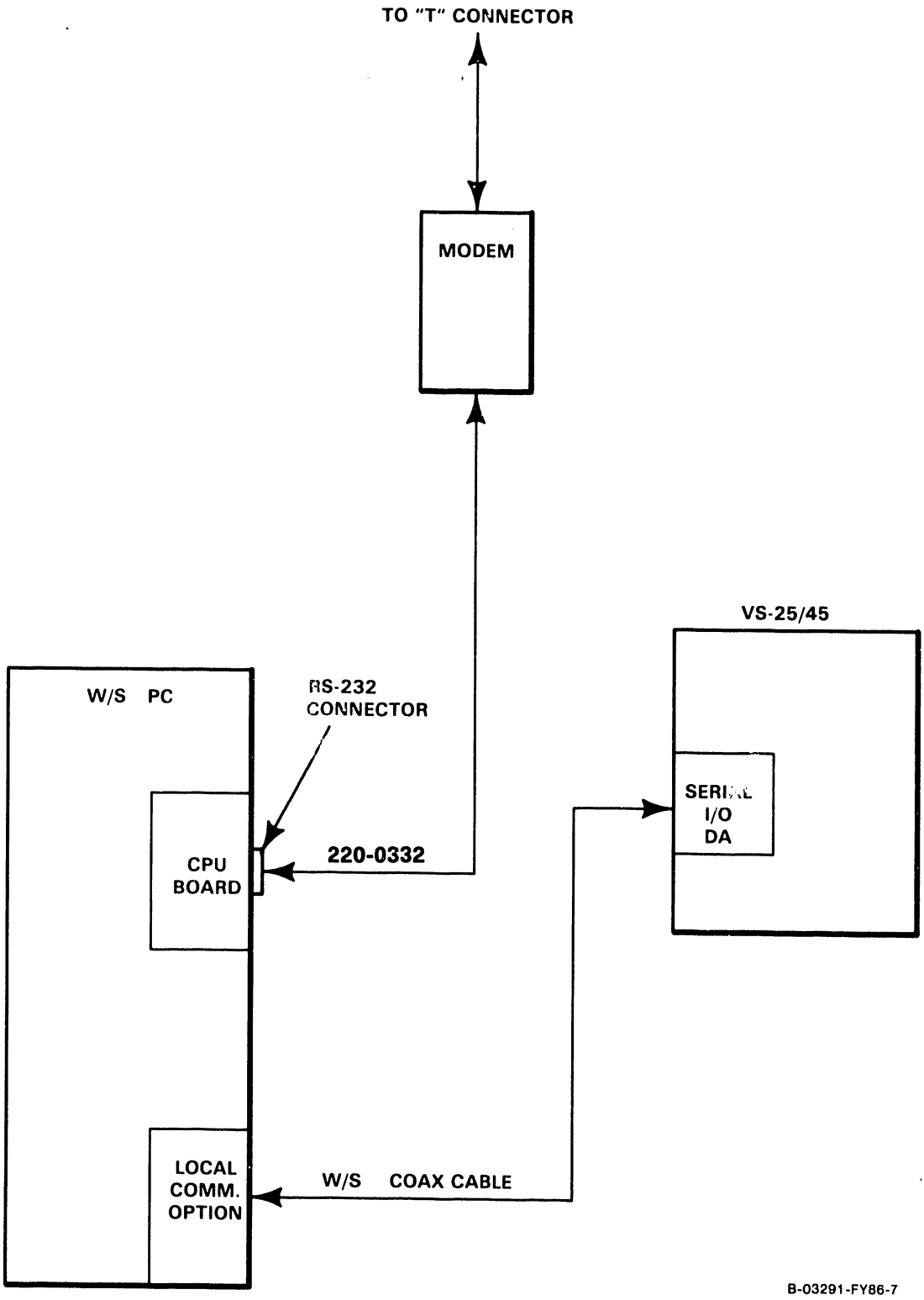


Figure 1-41. VS-25/45/45XP Remote RSAF Site

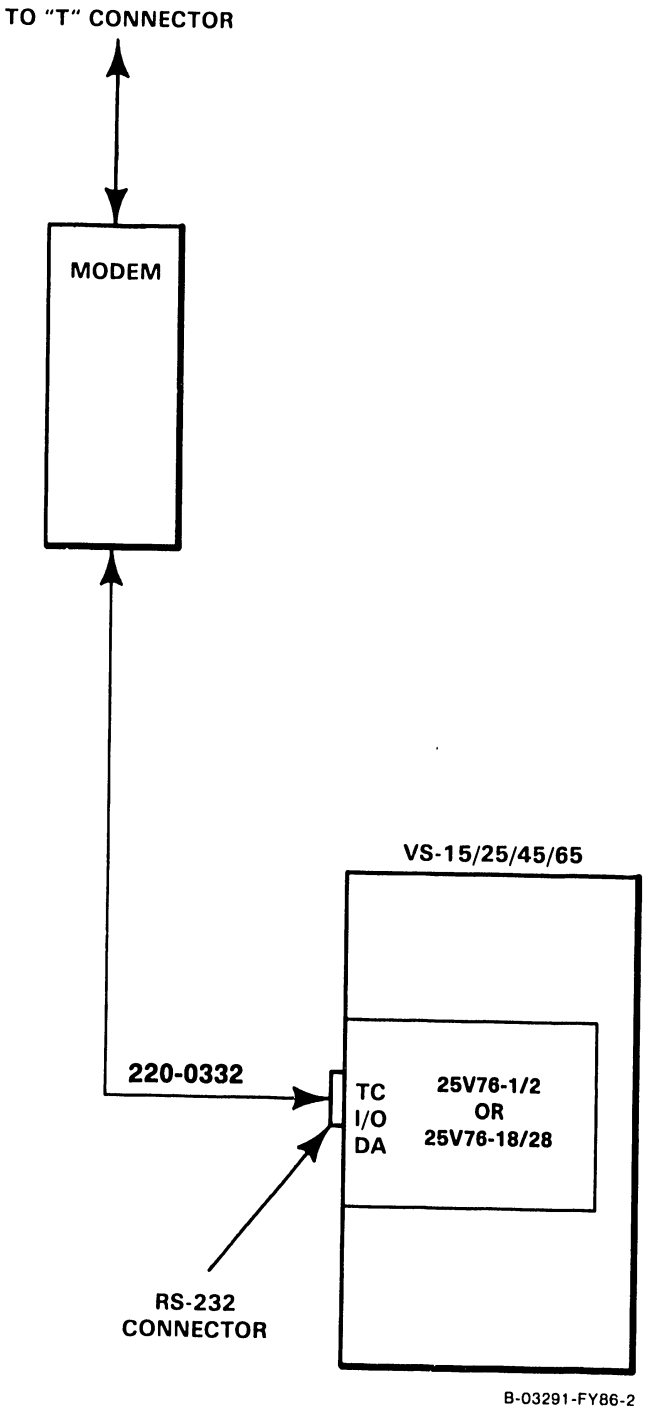


Figure 1-42. VS-5/6/15/25/45/45XP/65 Host RSAF Site

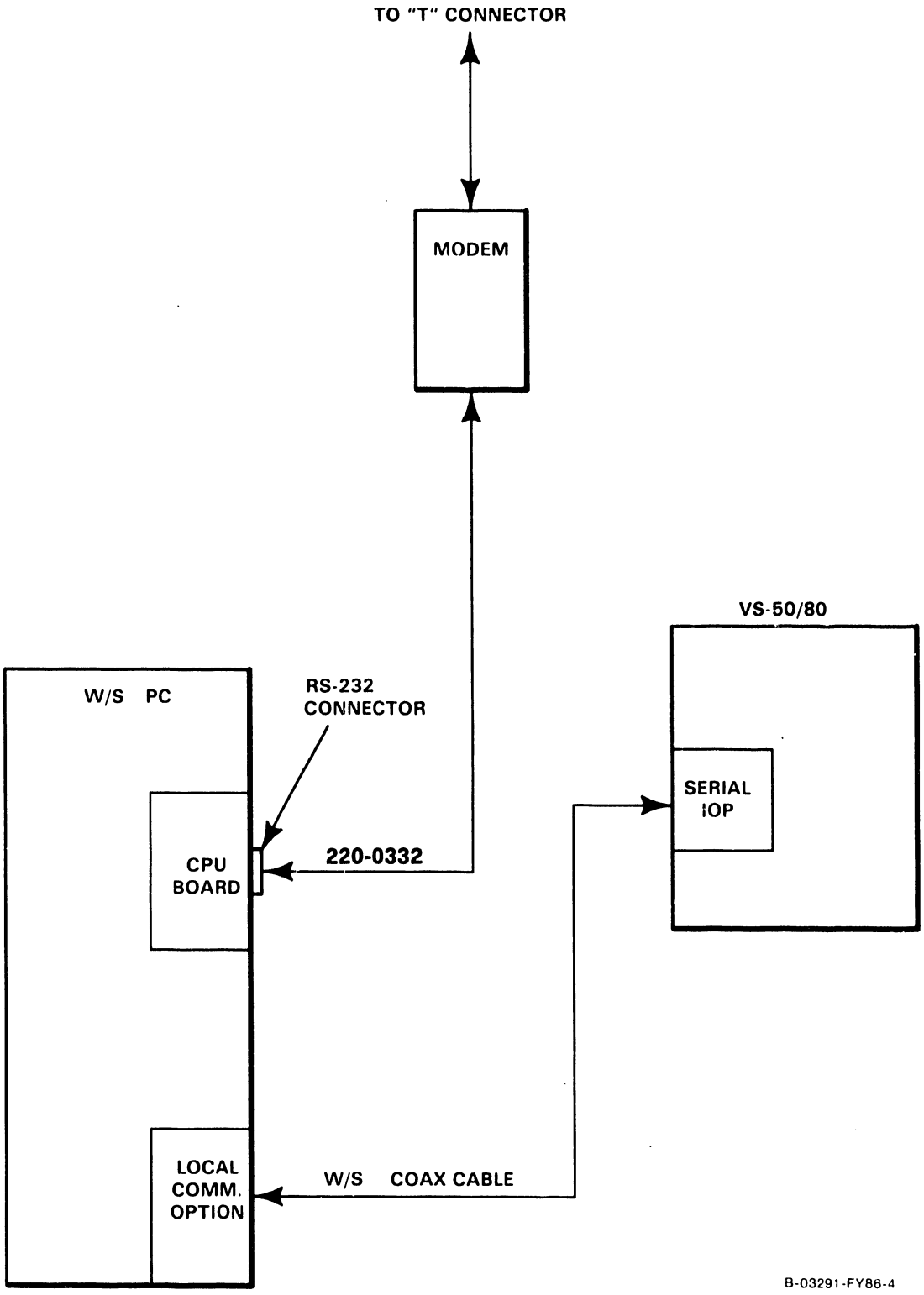


Figure 1-43. VS-50/80 Remote RSAF Site

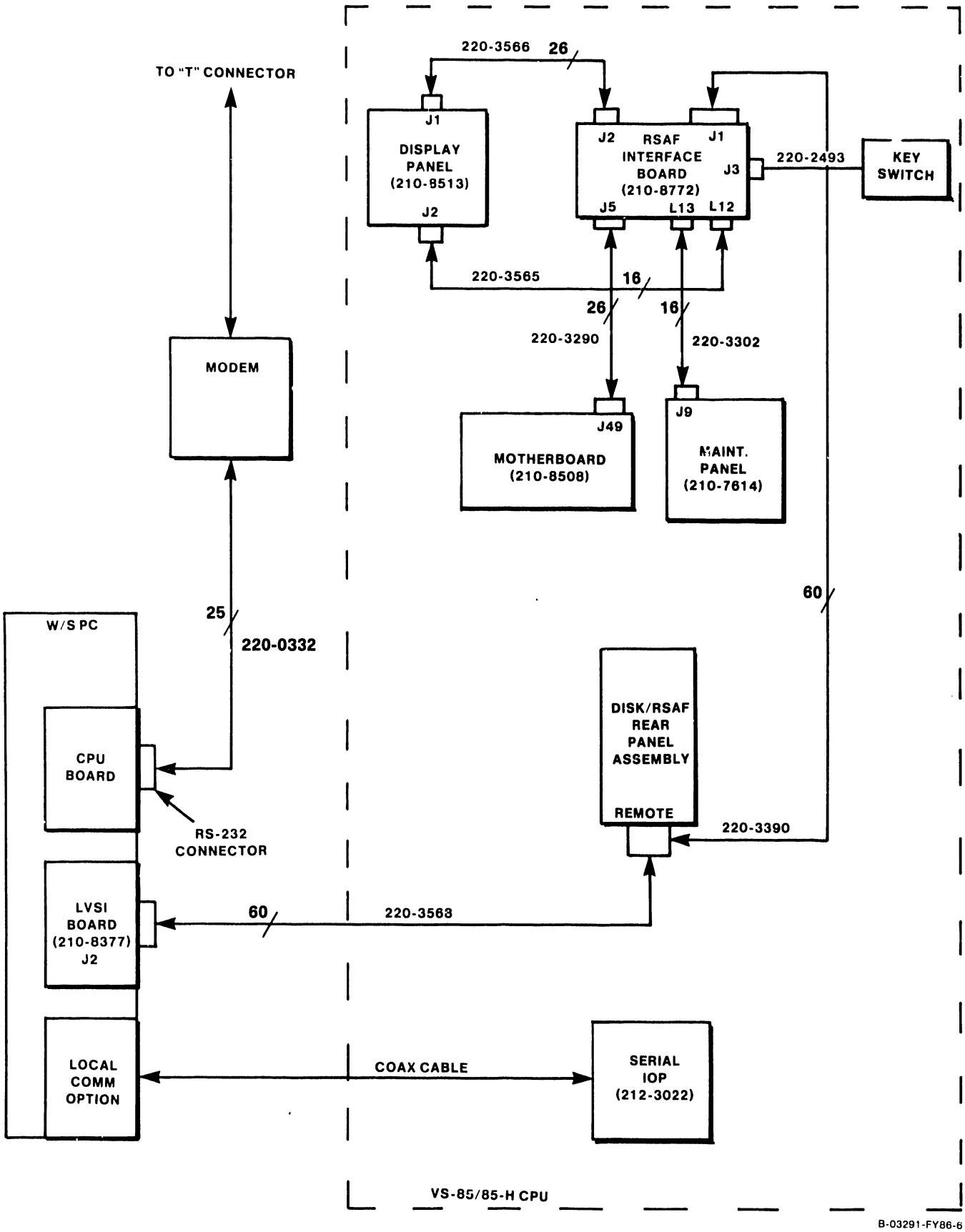


Figure 1-44. VS-85/85-H Remote RSAF Site

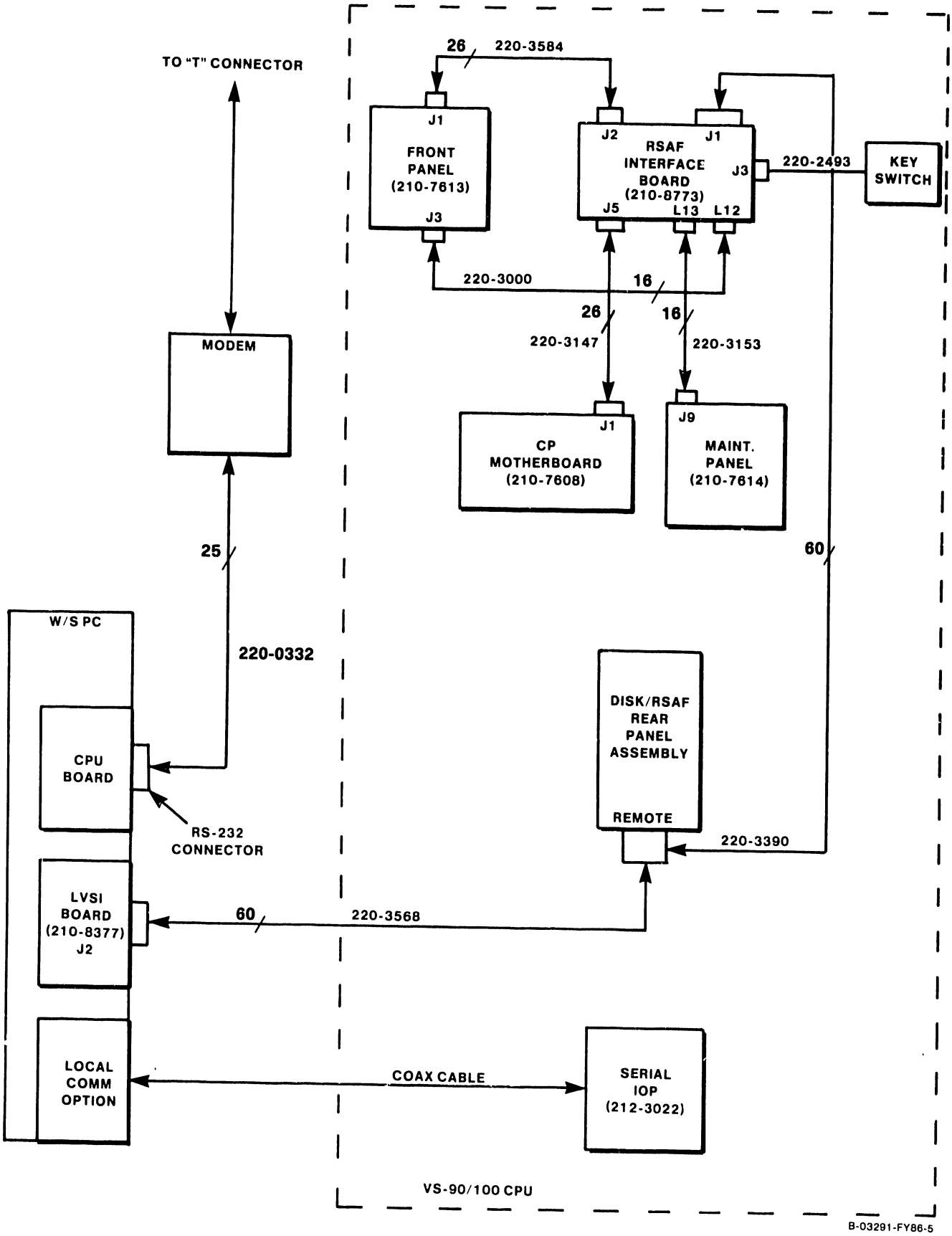


Figure 1-45. VS-90/100 Remote RSAF Site

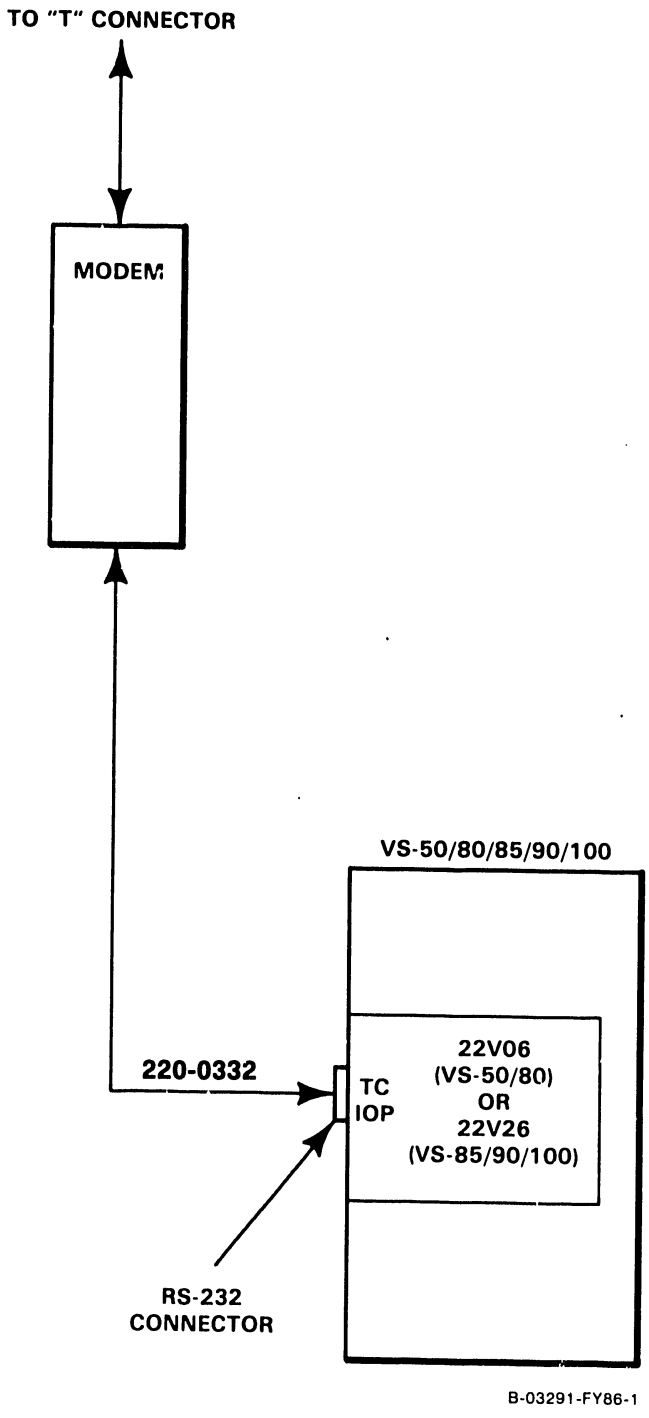


Figure 1-46. VS-50/80/85/85-H/90/100 Host RSAF Site

WANG LABORATORIES, INC.
ONE INDUSTRIAL AVENUE, LOWELL, MASSACHUSETTS 01851, TEL. (617) 459-5000, TWX 710 343-6769, TELEX 94-7421

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