1.1 Introduction

QUICKSTOR is a high performance, cost effective disk/tape subsystem for the TILINE based Texas Instruments 990 systems, including the 990/10, 990/10A, 990/12, the Business System 600, and the Business System 800. QUICKSTOR is equipped with either one or two 3 1/2" SCSI compatible Winchester disk drives. The QUICKSTOR typically requires only two chassis slots.

QUICKSTOR is perfect for users with smaller TILINE based 990 systems (such as the 990/10 and Business System 600) who desire a cost effective disk drive upgrade. By combining a disk drive and controller on one easy-to-install board, users can avoid the cost and inconvenience of installing separate controllers, cables, drives, cabinets and power supplies.

QUICKSTOR is fast! The 25-29 millisecond average access time of the onboard Winchester drive(s) is further enhanced by a one megabyte RAM memory cache.

With the EDI (External Disk Interface) option, QUICKSTOR can be used with high capacity external disk drives. The EDI option allows up to 7 SCSI compatible devices (including internal drives), to be daisy chained together on a single 50 pin ribbon cable connected to the QUICKSTOR. QUICKSTOR is also a tape controller (with EDI installed) capable of controlling a variety of SCSI tape drives, providing both high capacity disk storage and tape backup flexibility.

The QUICKSTOR utilizes state of the art, low-power integrated circuits, and high speed SCSI disk drives. The disk drives have integrated SCSI controllers and are mounted on a CAD designed six layer printed circuit board (with internal power and ground layers). With sealed media disk drives and VLSI circuitry, QUICKSTOR offers an MTBF (Mean Time Before Failure) in excess of 50,000 hours. This is a major improvement in disk reliability. Upon power up, QUICKSTOR executes Onboard Microdiagnostics. A green LED (Light Emitting Diode) indicates the proper operation of the QUICKSTOR. System level diagnostics verify the proper operation of the QUICKSTOR subsystem within the system.

The installation is similar to other Texas Instruments compatible disk controllers. The user configures the QUICKSTOR and plugs it into the chassis. The QUICKSTOR is then "Sysgened" into the operating system as a standard disk drive under DX10 or DNOS.

1.2 Features

The QUICKSTOR controller contains many key features. These features include:

- EMI/RFI Chassis Compatible
- 8 MHz 80286 Microprocessor architecture with 1 MByte sector buffering
- Direct Memory Access (DMA) across the TILINE
- Compatible with DX10, DNOS, and any existing TI compatible software
- Write protect option
- Onboard memory parity checking
- Switch selectable to perform continuous self diagnostics loop
- Automatic configuration of the SCSI devices
- Fully compatible with WD900 diagnostics
- Supports 256 and 512 bytes/sector SCSI devices
- Selectable 256 bytes/sector emulation for 512 bytes/sector SCSI device
- Error reporting LED display
- Automatic reassignment of bad sectors - when doing low level SCSI drive format
- Supports multiple densities on 1/2" and 1/4" tape drives
- Automatic self test at power up
- Compatible with ESDI or SMD to SCSI controllers allowing easy interface of existing drives
- Onboard diagnostic port for simplified diagnosis/debugging
- Low power consumption

1.3 Specifications

Drive Attachment (w/ EDI option)	Total of 7 devices (daisy-chained on one cable)
Base Address	F800 - F8F0 (hexadecimal)
DMA Addressing Range	20 bit
DMA Burst Control	1 to 128 Words
DMA Block Mode Transfer	YES
Data transfer rate	Up to 2.66 MB/sec (SCSI to TILINE)
	UP to 3.2 MB/sec (Cache memory to TILINE)
Interrupt Priority Level	Slot Dependent
Buffering	1 Megabyte
Seek Operation Control	Overlapped
PCB Size	14.250" X 10.813"
Power Consumption	5.5 amps at 5 volts (typical)
(with one drive)	(start surge 6.0 amps maximum during initial 7 seconds)
	350 mA at 12 volts (typical)
	30 mA at -12 volts (typical)
Power Consumption	6.0 amps at 5 volts (typical)
(with two drives)	(start surge 7.0 amps maximum during initial 7 seconds)
	700 mA at 12 volts (typical)
	30 mA at -12 volts (typical)
Weight (with one drive)	4.0 lb.
Weight (with two drives)	5.0 lb.

1.4 QUICKSTOR's Growth Path

QUICKSTOR ensures a growth path to meet your increasing demand by providing several expandable options. Western Automation currently offers the following options for the QUICKSTOR.

1.4.1 QSD-50 and QSD-125 Secondary Drives

QUICKSTOR users who have only one internal drive and need more storage on their system can add one of the following secondary drives.

- QSD-50   (50 megabytes unformatted)
- QSD-125   (125 megabytes unformatted)

QUICKSTOR currently supports any combination of Western Automation 50 and 125 megabyte internal drives. Your QUICKSTOR may be upgraded to have the maximum available storage capacity. See appendix C for installation of the second drive.

1.4.2 ACO (Advanced Caching Optimization) Option

Users access certain files, such as directories, overlays, allocation tables, and data base segments more frequently than others. By providing a large cache memory, the QUICKSTOR's ACO option allows this information to be accessed immediately. This significantly reduces the delay resulting from the mechanical movement of the drive heads and substantially increases your system throughput. The ACO's sophisticated caching algorithm allows the QUICKSTOR to anticipate and store future disk sector requests in its cache memory, while the 990 processor is busy performing other functions. This feature will save time and greatly improve the performance of your computer.

1.4.3 EDI (External Device Interface) Option

The EDI option allows you to connect a wide variety of SCSI compatible disk or tape drives, excluding the INTERTAPE 2G, externally to your system as the need for more storage and backup increases. With the EDI option, up to 7 SCSI devices (including internal disk(s)) can be daisy chained on a single 50 pin ribbon cable. To connect external drives to the QUICKSTOR, it is necessary to install the EDI option.

Any drive with an embedded SCSI interface that supports the standard SCSI command set should work with a QUICKSTOR that has an EDI option installed.

Note: For a QUICKSTOR to work with an ESDI or SMD drive through a SCSI adaptor, the drive must be low level formatted (SCSI format). If the drive you are planning to use with the SCSI adaptor is not previously formatted, you can call Western Automation for assistance.

1.4.4 EDI/2G Option

The EDI/2G option supports any external drives (Disk or tape) including the INTERTAPE 2G (2 Gigabyte tape backup).

1.4.5 INTERTAPE 150/INTERTAPE 2G

INTERTAPE 150 and INTERTAPE 2G are tape backup systems used with the QUICKSTOR. INTERTAPE 150 is mounted in a small desktop cabinet, INTERTAPE 2G is available in either a rack mount chassis or a desk top housing. The tape storage capacities of the INTERTAPE 150 and INTERTAPE 2G are 150 megabytes and 2 gigabytes respectively. Positions 1 through 4 of the TPCS DIP switch (TPCS #2) allow you to set the TPCS address of the INTERTAPE. For more information on the settings of the TPCS addresses refer to section 3.3.1 (TPCS Address Setting).

1.4.6 INTERFILE 150/INTERFILE 2G

INTERFILE is a disk/tape system that can be used with the QUICKSTOR. Each unit is installed in either a rack mount chassis or a desk top housing. The tape storage capacities of the INTERFILE 150 and INTERFILE 2G are 150 megabytes and 2 gigabytes respectively. INTERFILE has a high capacity - 380 or 760 megabyte - SCSI Winchester disk drive (daisy chained to the tape drive) within the same chassis. Western Automation will either install a drive or provide the necessary cabling for you to install a drive. NOTE: INTERFILE is also available with dual 380 or 760 megabyte disk drives (no tape).

1.5 How to Upgrade Your QUICKSTOR

All the above options are user installable. Appendix A steps you through installing your ACO option. Appendix B steps you through installing your EDI option. Appendix C steps you through installing the second internal drive on your QUICKSTOR. However, if you do not wish to upgrade your QUICKSTOR yourself, you may send it to Western Automation for upgrade. If so, note the following:

1. You must have a backup of your QUICKSTOR's internal disks because all the data on your disk will be lost when the QUICKSTOR goes through Western Automation testing.

2. When shipping your QUICKSTOR to Western Automation, you must agree to insure the product or assume the risk of loss or damage in transit, and to pay the shipping charges.

3. Allow 7 to 10 days for upgrade and shipping

4. You must receive an RMA number from Western Automation's service department.

1.6 Write Protect Option

The 4 position piano switch on the front panel of the QUICKSTOR gives you the ability to write protect the drives connected to the TPCS #1. The position numbers on the piano switch correspond to the ID numbers of the drives. To write protect a drive lower the corresponding switch position and make sure the corresponding LED right next to the write protect switch comes on.

NOTE: There are only write protect swithes for the first 4 SCSI drives (TPCS#1) there are no write protect switches for any drives, disk to tape, on TPCS#2.

3.1 Introduction

This chapter contains the information needed to install the QUICKSTOR or INTERSTOR subsystem into any slot of the TI 990 computer. The person(s) responsible for installing and maintaining this product should be familiar with TI 990 hardware and software. If you are connecting an external drive to the QUICKSTOR or INTERSTOR, you should also be familiar with the specifics of the drive. Sections 3.3 through 3.10 describe the procedures to install the QUICKSTOR or INTERSTOR in the TI 990 system.

3.2 Inspection

Properly ground yourself and remove the QUICKSTOR or INTERSTOR from it's anti-static plastic bag. Perform a thorough inspection of the controller's parts such as the PCB, drives, etc.. Check for any broken components and make sure that the ICs are securely in their sockets. If there is any damage notify the freight carrier and Western Automation immediately. Any damage claim should be filed through the carrier.

3.3 Configuration

The QUICKSTOR and INTERSTOR subsystem is configured using switches and jumpers. These switches and jumpers must be set to the desired configuration before installing the controller into the chassis. Locations of these switches and jumpers are shown in figure 1 and 2 below.
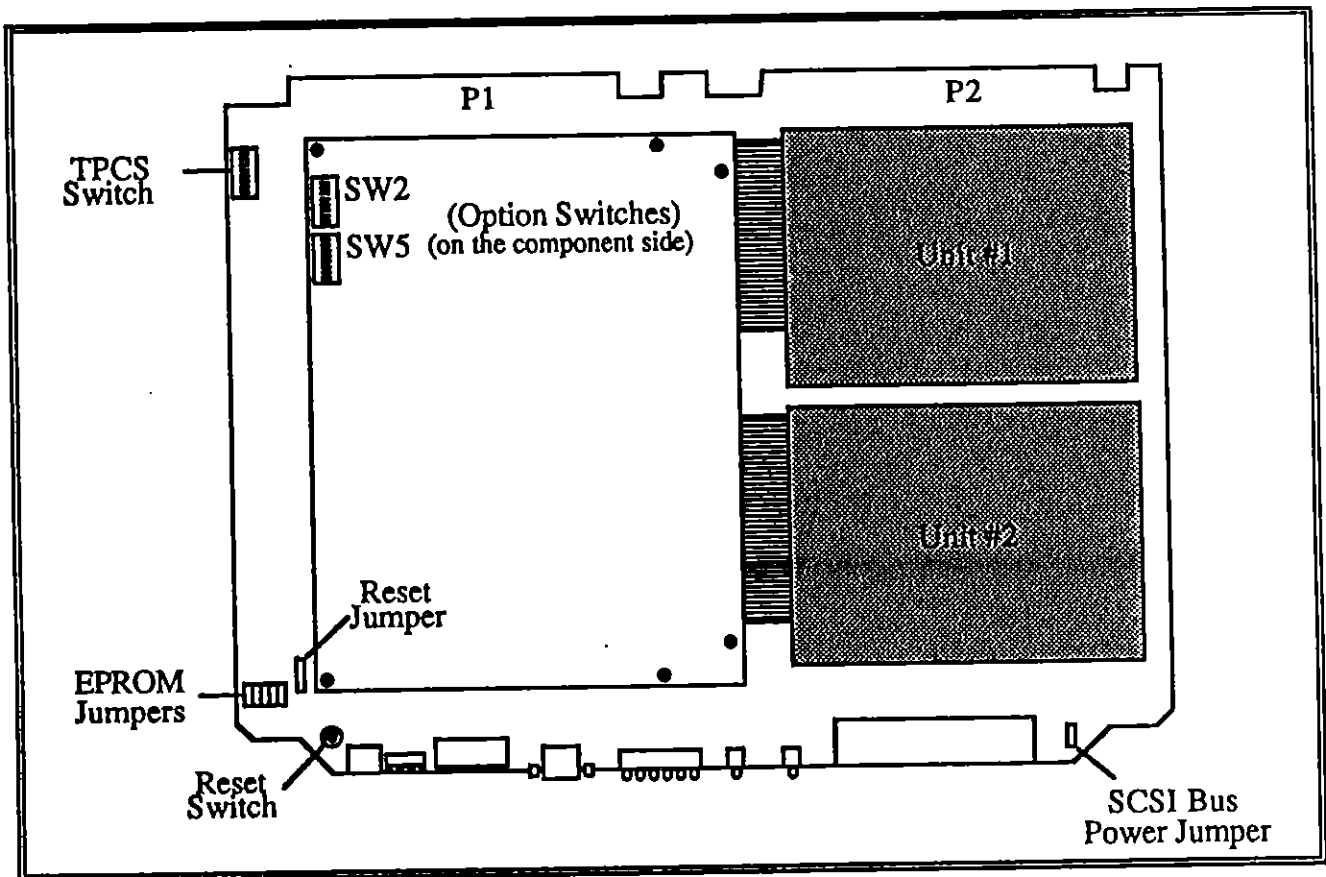

Figure 1. QUICKSTOR Top View
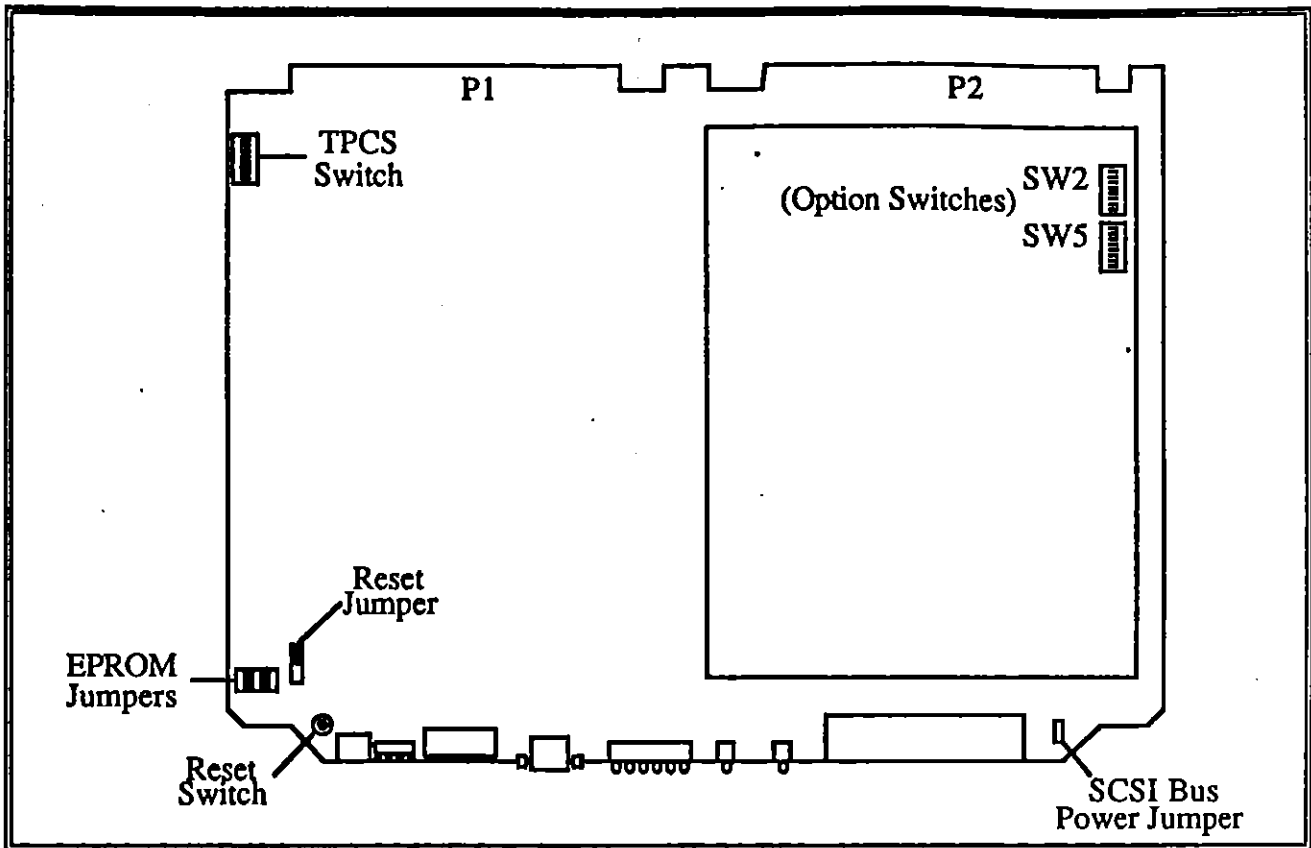
Figure 2. INTERSTOR Top View

3.3.1 TPCS (TILINE Peripheral Control Space) Address Setting

There are two sections of the controller each requiring a separate TPCS address:

1. The disk section (TPCS #1).
2. The tape section (TPCS #2) (optional disk, see page 3-9 on SW2-5 TPCS configuration).

The 8 position DIP switch labeled as "TPCS Switch" in figure 1 on the previous page, allows you to set the TPCS addresses for both sections. The TPCS #1 address can be set by using positions 5 through 8 of the TPCS switch, and the TPCS #2 address can be set by using positions 1 through 4 of the TPCS switch. The hexadecimal values of the TILINE addresses and their corresponding switch settings are shown below.

NOTE: Make sure that the TPCS address settings of the controller will not conflict with the other TILINE device addresses in your system.

| (TPCS #1) | Switch Position | | | | TILINE ADDRESS |
	5	6	7	8	
Disk Only	ON	ON	ON	ON	F800
	ON	ON	ON	OFF	F810
	ON	ON	OFF	ON	F820
	ON	ON	OFF	OFF	F830
	ON	OFF	ON	ON	F840
	ON	OFF	ON	OFF	F850
	ON	OFF	OFF	ON	F860
	ON	OFF	OFF	OFF	F870
	OFF	ON	ON	ON	F880
	OFF	ON	ON	OFF	F890
	OFF	ON	OFF	ON	F8A0
	OFF	ON	OFF	OFF	F8B0
	OFF	OFF	ON	ON	F8C0
	OFF	OFF	ON	OFF	F8D0
	OFF	OFF	OFF	ON	F8E0
	OFF	OFF	OFF	OFF	F8F0

| (TPCS #2) | Switch Position | | | | TILINE ADDRESS |
	1	2	3	4	
Disk if SW2-5 Closed	ON	ON	ON	ON	F800
Tape if SW2-5 Open	ON	ON	ON	OFF	F810
	ON	ON	OFF	ON	F820
	ON	ON	OFF	OFF	F830
	ON	OFF	ON	ON	F840
	ON	OFF	ON	OFF	F850
	ON	OFF	OFF	ON	F860
	ON	OFF	OFF	OFF	F870
	OFF	ON	ON	ON	F880
	OFF	ON	ON	OFF	F890
	OFF	ON	OFF	ON	F8A0
	OFF	ON	OFF	OFF	F8B0
	OFF	OFF	ON	ON	F8C0
	OFF	OFF	ON	OFF	F8D0
	OFF	OFF	OFF	ON	F8E0
	OFF	OFF	OFF	OFF	F8F0

Figure 3. TILINE Addresses

3.3.2 Option Selection

The two 8 position piano type option switches on the smaller printed circuit board (shown in figure 1 and 2) select options defined in this section. Make sure you read and understand these options before attempting to set these switches. A summary of all the options available on the QUICKSTOR and INTERSTOR is shown in Figure 4 below.
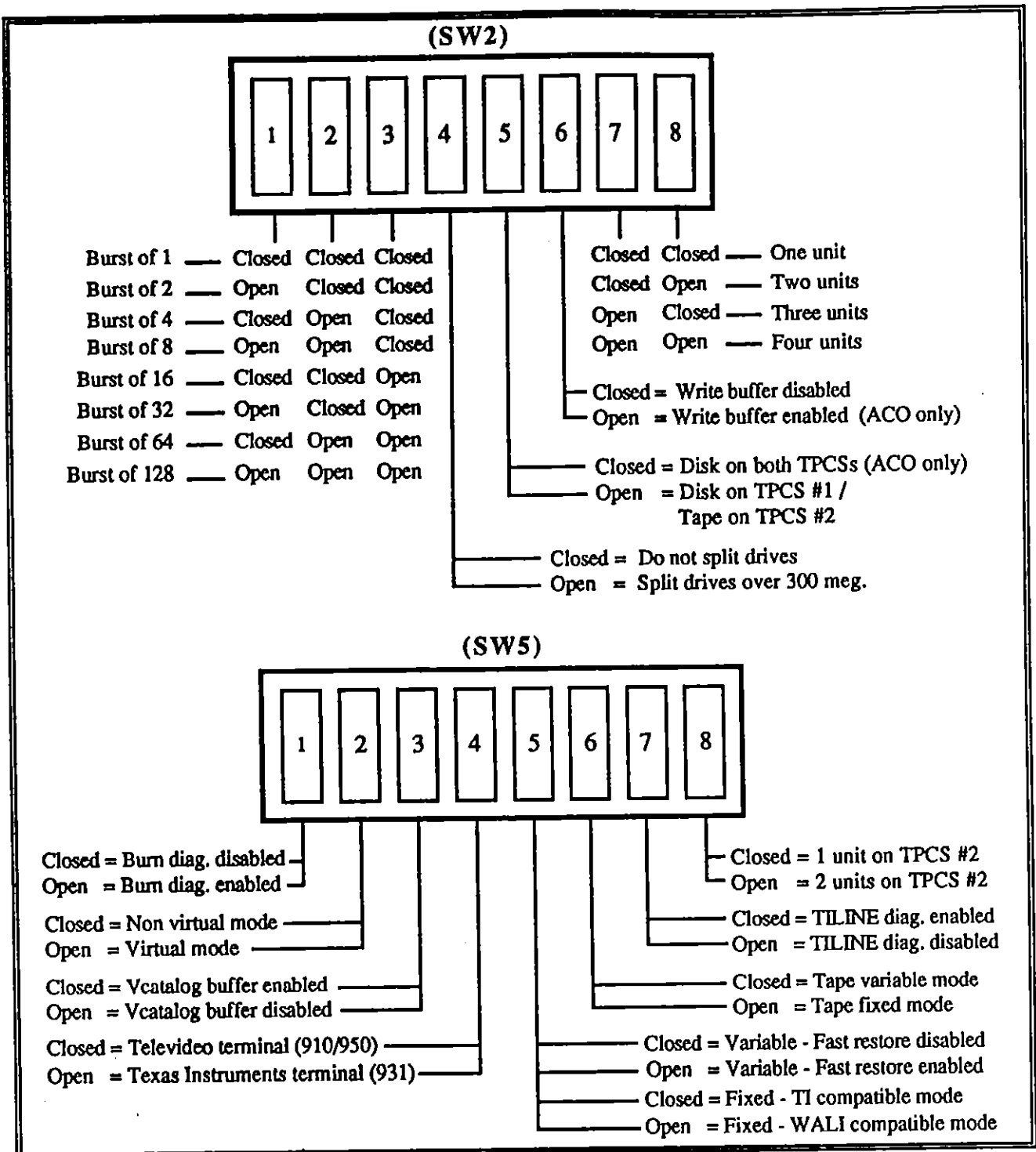
(SW2)

1	2	3	4	5	6	7	8

Burst of 1 —— Closed Closed Closed
Burst of 2 —— Open Closed Closed
Burst of 4 —— Closed Open Closed
Burst of 8 —— Open Open Closed
Burst of 16 —— Closed Closed Open
Burst of 32 —— Open Closed Open
Burst of 64 —— Closed Open Open
Burst of 128 —— Open Open Open

Closed Closed —— One unit
Closed Open —— Two units
Open Closed —— Three units
Open Open —— Four units

Closed = Write buffer disabled
Open = Write buffer enabled (ACO only)

Closed = Disk on both TPCSs (ACO only)
Open = Disk on TPCS #1 /
Tape on TPCS #2

Closed = Do not split drives
Open = Split drives over 300 meg.

(SW5)

1	2	3	4	5	6	7	8

Closed = Burn diag. disabled
Open = Burn diag. enabled

Closed = Non virtual mode
Open = Virtual mode

Closed = Vcatalog buffer enabled
Open = Vcatalog buffer disabled

Closed = Televideo terminal (910/950)
Open = Texas Instruments terminal (931)

Closed = 1 unit on TPCS #2
Open = 2 units on TPCS #2

Closed = TILINE diag. enabled
Open = TILINE diag. disabled

Closed = Tape variable mode
Open = Tape fixed mode

Closed = Variable - Fast restore disabled
Open = Variable - Fast restore enabled
Closed = Fixed - TI compatible mode
Open = Fixed - WALI compatible mode

Figure 4. Option Switches

NOTE: The above switch settings are valid only for Firmware release 1.9 and later.

On the QUICKSTOR, any switch positioned away from the number on the switch housing is in the 'Open' position (see below).
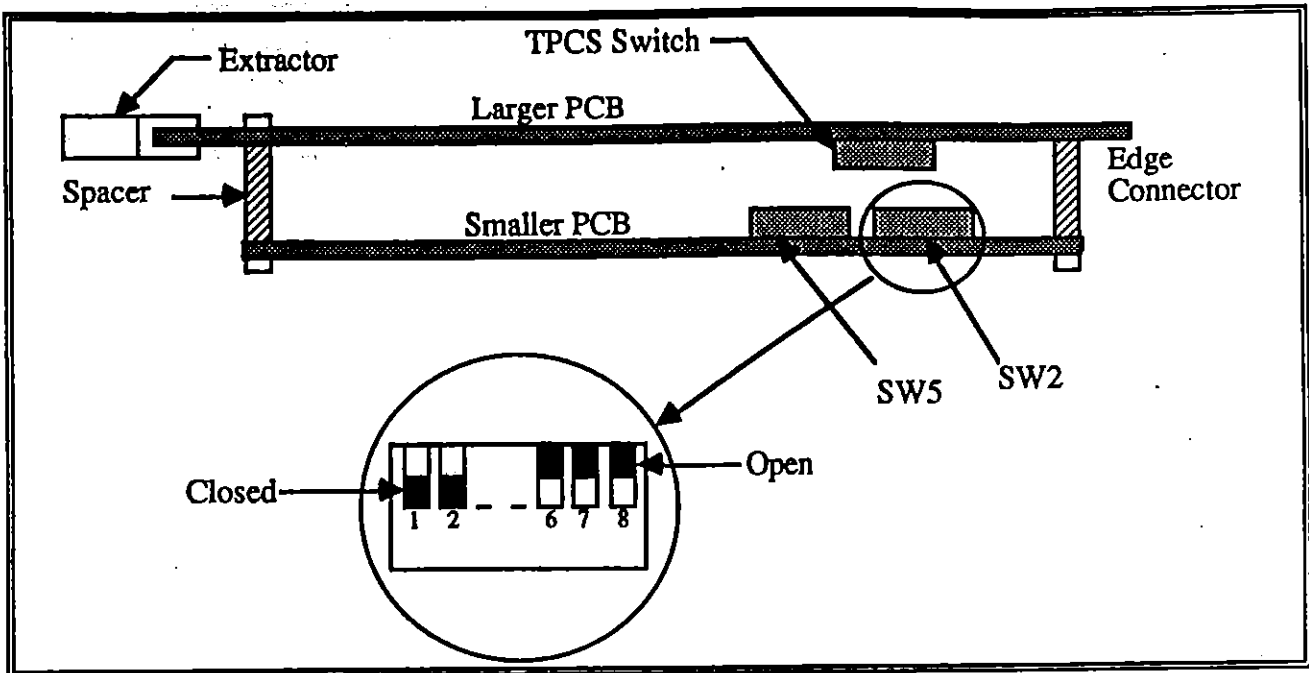

Figure 5. QUICKSTOR Side View

Sample QUICKSTOR / INTERSTOR configurations:

SAMPLE 1

QUICKSTOR 50 at F800   (primary system disk)
INTERTAPE 150 at F880   (primary system tape)

TPCS Switch Setting:

TPCS #2				TPCS #1			
1	2	3	4	5	6	7	8
OFF	ON	ON	ON	ON	ON	ON	ON

SW2 Setting: (Burst 1, no drive split, disk & tape, write buffer disabled, one unit TPCS #1)

1	2	3	4	5	6	7	8
closed	closed	closed	closed	open	closed	closed	closed

SW5 Setting: (burn diag. disabled, non virtual mode, vcatalog caching enabled, TI931 terminal, TI compatible tape mode, Fixed tape mode, TILINE diag. enabled, 1 unit on TPCS #2)

1	2	3	4	5	6	7	8
closed	closed	closed	open	closed	open	closed	closed

QUICKSTOR 250 at F820   (secondary system disk)
INTERTAPE 150 at F890   (secondary system tape)

TPCS Switch Setting:

TPCS #2				TPCS #1			
1	2	3	4	5	6	7	8
OFF	ON	ON	OFF	ON	ON	OFF	ON

SW2 Setting: (Burst 1, no drive split, disk & tape, write buffer disabled, two units TPCS #1)

1	2	3	4	5	6	7	8
closed	closed	closed	closed	open	closed	closed	open

SW5 Setting: (burn diag. disabled, non virtual mode, vcatalog caching enabled, TI931 terminal, TI compatible tape mode, Fixed tape mode, TILINE diag. enabled, 1 unit on TPCS #2)

1	2	3	4	5	6	7	8
closed	closed	closed	open	closed	open	closed	closed

INTERSTOR with
DUAL 760 Megabyte Drives at F800
& INTERTAPE 2G at F880

TPCS Switch Setting:

TPCS #2				TPCS #1			
1	2	3	4	5	6	7	8
OFF	ON	ON	ON	ON	ON	ON	ON

SW2 Setting: (Burst 128, no drive split, disk & tape, write buffer enabled, two units on TPCS #1)

1	2	3	4	5	6	7	8
open	open	open	closed	open	open	closed	open

SW5 Setting: (burn diag. disabled, non virtual mode, vcatalog caching enabled, TI931 terminal, WALI compatible tape mode, Fixed tape mode, TILINE diag. enabled, 1 unit on TPCS #2)

1	2	3	4	5	6	7	8
closed	closed	closed	open	open	open	closed	closed

INTERSTOR with
INTERTAPE 2G at F880
(no disk drive - Set TPCS # 1 to an unused location)

TPCS Switch Setting:

	TPCS #2				TPCS #1		
1	2	3	4	5	6	7	8
OFF	ON	ON	ON	OFF	OFF	OFF	OFF (Unused)

SW2 Setting: (Burst 128, no drive split, disk & tape, write buffer disabled, one unit on TPCS #1)

1	2	3	4	5	6	7	8
open	open	open	closed	open	closed	closed	closed

SW5 Setting: (burn diag. disabled, non virtual mode, vcatalog caching enabled, TI931 terminal, WALI compatible tape mode, Fixed tape mode, TILINE diag. enabled, 1 unit on TPCS #2)

1	2	3	4	5	6	7	8
closed	closed	closed	open	open	open	closed	closed

SW2 Settings

SW2-1, 2 & 3 Burst Selection

Switch Setting	S3	S2	S1	Burst Selection
	Closed	Closed	Closed	Burst of 1
	Closed	Closed	Open	Burst of 2
	Closed	Open	Closed	Burst of 4
	Closed	Open	Open	Burst of 8
	Open	Closed	Closed	Burst of 16
	Open	Closed	Open	Burst of 32
	Open	Open	Closed	Burst of 64
	Open	Open	Open	Burst of 128

Positions 1, 2, and 3 of SW2 allow the user to select the desired burst from 1 to 128. To achieve the best performance for your system, Western Automation suggests that you experiment with different burst settings. Typical burst settings are 1, 4 and 128. The higher the burst the faster the data transfer from the controller to the TILINE, resulting in faster system performance.

NOTE: Larger burst settings improve controller performance, but may hinder the performance of some other master devices in your system.

NOTE: Some older TI disk and tape controllers can not operate properly with the QUICKSTOR or INTERSTOR set for burst rates above 1. If you are uncertain, set the QUICKSTOR or INTERSTOR for a larger burst rate. If you get controller timeout errors, decrease the burst rate until no errors occur.

Example: With a Trident controller installed in the system, you should use burst of one on the QUICKSTOR and INTERSTOR.

SW2-4 Splitting a Drive Into Two Units

S4	Configuration
Closed	Do not split drives
Open	Split drives over 300 Meg.

Position 4 of SW2 allows you to split drives over 300 Megabytes. With this option, the controller automatically splits drives over 300 Meg. into two logical drives of equal size. The split drive will be assigned two logical unit numbers (Ex. If your drive is DS01, after it is split it will become DS01 and DS02).

NOTE: Drives are split by cylinders, therefore, performance may be severely hindered if both logical units are accessed simultaneously (the physical drive will have to move the heads from one drive section to the other which is very time consuming).

SW2-5 TPCS Configuration

S5	Configuration
Open	Disks on TPCS #1 and tape(s) on TPCS #2 (typical selection)
Closed	Disks on both TPCS locations (only useable with ACO option installed)

Position 5 of SW2 allows you to connect disks to both TPCS locations or disks to TPCS #1 and tape(s) to TPCS #2. Typical configurations will have Disk on TPCS #1 and Tape on TPCS #2 (SW2-5 open). The only case requiring Disk on both TPCS locations would be installations with more than 4 drives on 1 controller.

NOTE: You may not install both disk and tape on one TPCS location (operating system limitations).

SW2-6 Write Buffer Enable/Disable (ACO Option only)

S6	Write buffer selection
Open	Write buffer enable
Closed	Write buffer disable

Position 6 of SW2 will enable or disable write buffering. If write buffering is enabled, writes from the system to the controller will be sent to buffer memory. When the controller is inactive (no system requests pending) or the buffer memory is almost full, sectors previously written to buffer memory will be flushed to the disk. **If system power is lost before all buffered sectors are written to disk, data will be lost.** In order to insure data integrity when write buffering is enabled, wait for at least 2 seconds after the last write before turning the system off (NOTE: Write buffers will be flushed to disk immediately upon receiving an I/O reset (reset button on front panel of the system.)). The write buffering is disabled when position 6 on SW2 is in the 'Open' position and enabled in the 'Closed' position.

SW2-7 & 8 Number of Units on TPCS #1

Switch Setting	S7	S8	Number of units on TPCS #1
	Closed	Closed	One unit
	Closed	Open	Two units
	Open	Closed	Three units
	Open	Open	Four units

Set positions 7 and 8 of SW2 to match the number of drives connected to the controller on TPCS #1 (disk only portion).

SW5 Settings

SW5-1 Burn Diagnostics Enable/Disable

S1	Burn Diagnostic Mode
Closed	Burn Diagnostics Disabled (operational)
Open	Burn Diagnostics Enabled

Setting position 1 of SW5 to 'Open' before power up will cause the controller to enter the self diagnostics (burn-in) mode. In this mode the processor on the controller continuously checks proper operation of various sections of the controller. If any section fails to function properly, the yellow LED on the front panel comes on and stays on and the seven segment display shows the proper message indicating the failing part. To disable the Burn Diagnostics, set the switch to 'Closed' before power up. For more information on error codes displayed on the seven segment displays refer to section 5.0.

NOTE: During normal operation this switch must be in the 'Closed' position (Burn diagnostics disabled).

SW5-2 Drive Sector Size Selection Switch

S2	Configuration
Closed	Non-Virtual Mode (typical setting)
Open	Virtual Mode

If position 2 of SW5 is set to 'Closed' position - non virtual mode -, the controller defaults to the physical sector size of the drive. Setting it to 'Open' position, virtual mode, causes the controller to map 512 byte sectors into 256 byte sectors. This is only provided to be compatible with older versions of the operating system that are not compatible with 512 byte per sector drives.

NOTE: virtual mode is up to 40% slower than non-virtual mode. It is advisable to upgrade your operating system if compatibility is a problem.

If your operating system doesn't have the following patches

DX10 Version 3.7 patches: Version 3.14.0 TI Part Number 2302608-3611
DNOS Version 1.3 patches: Version 1.17.0 TI Part Number 2250703-3691

you may experience the following incompatibilities when using 512 byte per sector drives in non-virtual mode.

- Copy Volume (CV) and the Crash Analysis Utility (XANAL) do not work.
- Scan disk (SD) does not run in foreground.
- You can not boot diagnostics from the QUICKSTOR or INTERSTOR (you can run diagnostics on the controller).

These incompatibilities, when using 512 bytes per sector, can be eliminated by using one of the following options:

I.   You may purchase the new Operating System patches from Texas Instruments to eliminate the incompatibilities with 512 bytes/sector drives (preferred method).

II.   Configure the controller to virtual mode, simulating 256 bytes/sector (not suggested).

III.   Use a drive with 256 bytes/sector in non-virtual mode (external drives only).

SW5-3 VCATALOG Buffer Enable/Disable

S3	VCATALOG buffer mode
Closed	Enable VCATALOG buffering
Open	Disable VCATALOG buffering

Switch position 3 of SW5 is used to enable or disable VCATALOG buffering. VCATALOG buffering keeps often used sectors (VCATALOG and disk bitmaps) within the onboard buffer memory (read buffering only). If the system requests a sector that exists in the memory, a disk access is not required, thus, significantly reducing the access time for the data. Typically, VCATALOG buffering should be enabled. Switch position 3 of SW5 should be in the 'Open' position to disable and in the 'Closed' position to enable VCATALOG buffering.

SW5-4 Terminal Type

S4	Terminal Type
Closed	Televideo 910 or 950
Open	Texas Instruments 931 or 924

The diagnostics port on the controller supports two types of terminals, the Televideo 910/950 and the Texas Instruments 931. When using a Televideo 910 or 950, set position 4 of SW5 to the 'Closed' position. When using a Texas Instruments 931 terminal set this switch to the 'Open' position. For more information on the terminals used with the diagnostics port of the QUICKSTOR or INTERSTOR refer to section 5.4.

SW5-6 Tape Recording Format (Variable block mode/Fixed block mode)

S6	Configuration
Closed	Tape variable mode
Open	Tape fixed mode

Position 6 of SW5 selects the SCSI tape drive recording format: 1/2" SCSI tape drives usually support both variable and fixed block modes. 1/4" SCSI tape drives on the other hand only support fixed block mode.

The following table shows the tape drives supported by Western Automation and their associated operational modes:

Tape Drive Type	Tape Block Mode
Cipher Microstreamer with CSC100 SCSI adapter (1/2")	Variable mode
INTERTAPE/INTERFILE 2G (8mm)	Fixed mode
INTERTAPE/INTERFILE 150 (1/4")	Fixed mode

SW5-5 Fast Restore option (variable tape drives only, SW5-6 Closed)

S5	Configuration
Open	Fast restore enabled (typical setting)
Closed	Fast restore disabled

SW5-5 Tape Compatibility option (fixed block tape drives only, SW5-6 Open)

S5	Compatibility mode
Open	WALI tape compatible mode (typical setting)
Closed	TI tape compatible mode

When using Variable tape mode (SW5-6 Closed):
- Position 5 of SW5 enables and disables the fast restore option. This option is only used with 1/2" SCSI tape drives supporting variable block mode. It is advisable, for better performance, to always enable the fast restore option. The fast restore option is only compatible with a small set of tape commands (BD - Backup Directory, RD - Restore Directory, and VB - Verify Backup all using a specified Block size [typically 9600] and the Western Automation ARCHIVE 990 backup utility).

When using Fixed tape mode (SW5-6 Open):
- To be compatible with Texas Instruments CT60 cartridge tapes, SW5-5 must be in the Closed position. NOTE: CT60 cartridges can be read using the INTERTAPE 150 but can not be written to (INTERTAPE 150 will only write 150 Megabyte cartridges).

- To improve performance when using the INTERTAPE 150, if CT60 cartridge compatibility is not an issue, set SW5-5 to the Open position (to select WALI tape compatibility mode).

NOTE: The INTERTAPE 2G will always be written in WALI tape compatibility mode (no CT60 compatibility required) to improve tape performance independent of the setting on SW5-5.

SW5-7 TILINE Diagnostics Enable/Disable

S7	Selection
Open	Disable powerup TILINE diagnostics
Closed	Enable powerup TILINE diagnostics (typical setting)

At the power up if position 7 of SW5 is set to 'Closed', the controller accesses the TILINE memory to test the following:

- Ability to access the TILINE bus
- Ability to address the TILINE memory board
- Data integrity upon transferring data

NOTE: This test must be disabled with the /10A processor in the system.

NOTE: If more than one QUICKSTOR or INTERSTOR is installed in a system, only one of them, the last one in the system, should have this test enabled.

If any problem occurs during this test the yellow LED on the front panel will blink fast and a '08' status message will be displayed on the 7 segment displays (For information on the error messages refer to section 5.3 on page 5-2 of this manual). Upon occurrence of this error, do not attempt to boot the system, there is a problem with the controller accessing TILINE memory that should be corrected for proper operation. If a '08' status is displayed on the 7 segment displays without a blinking yellow LED the controller cannot gain access to the TILINE bus. Typically due to incorrect configuration of TLAG jumpers in the chassis.

SW5-8 Number of Units on TPCS #2

S8	Configuration
Closed	One unit installed
Open	Two units installed

Set position 8 of SW5 to match the number of units connected to TPCS #2.

3.3.3   Reset Switch Jumper

This jumper (shown in figure 6 below) is set at the factory and should not be changed. Make sure that this jumper is set as shown below.
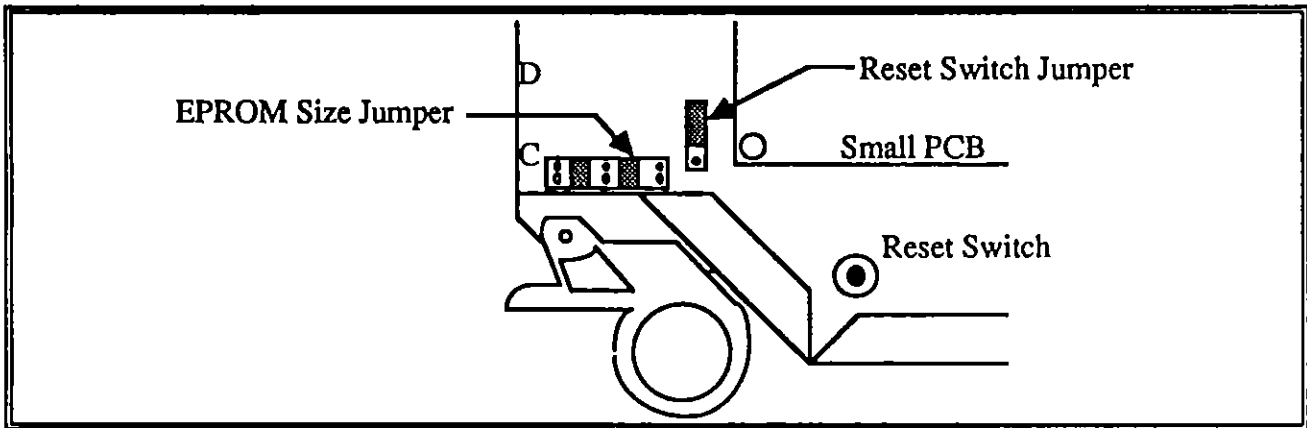

Figure 6.   Reset and EPROM Jumper Position

3.3.4   EPROM Size Jumper Select

These jumpers (shown in figure 6 above) are also set at the factory and must not be changed. Make sure that these jumpers are set as shown above.