CRAY J90™ Series I/O Cabinet Hardware Reference Booklet

HMQ-261-0

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Record of Revision

Each time this booklet is revised and reprinted, all changes issued against the previous version are incorporated into the new version, and the new version is assigned an alphabetic level, which is indicated in the publication number on each page of the booklet.

Changes to part of a page are indicated by a change bar in the margin directly opposite the change. A change bar in the footer indicates that most, if not all, of the page is new. If the booklet is rewritten, the revision level changes but the booklet does not contain change bars.

Revision	Description
	November 1995. Original printing.

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I/O Cabinet Hardware Reference Booklet

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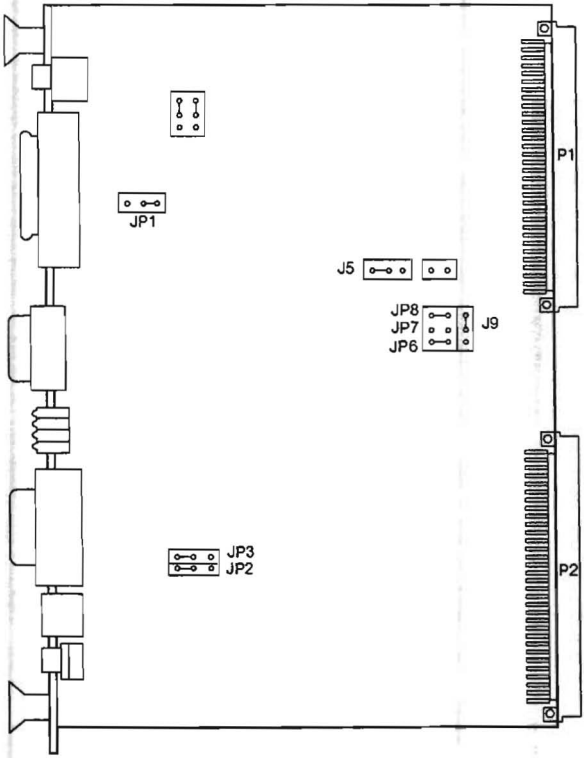
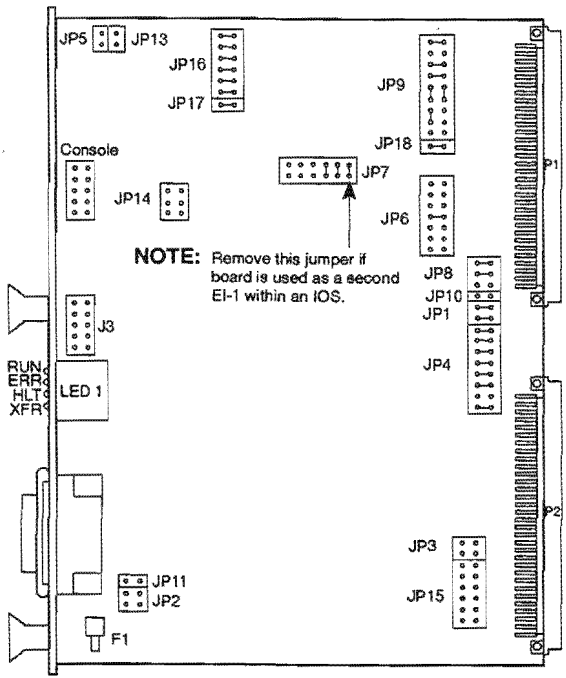
VME Chassis

IOP Jumper Settings



EI-1 Controller Jumper Settings

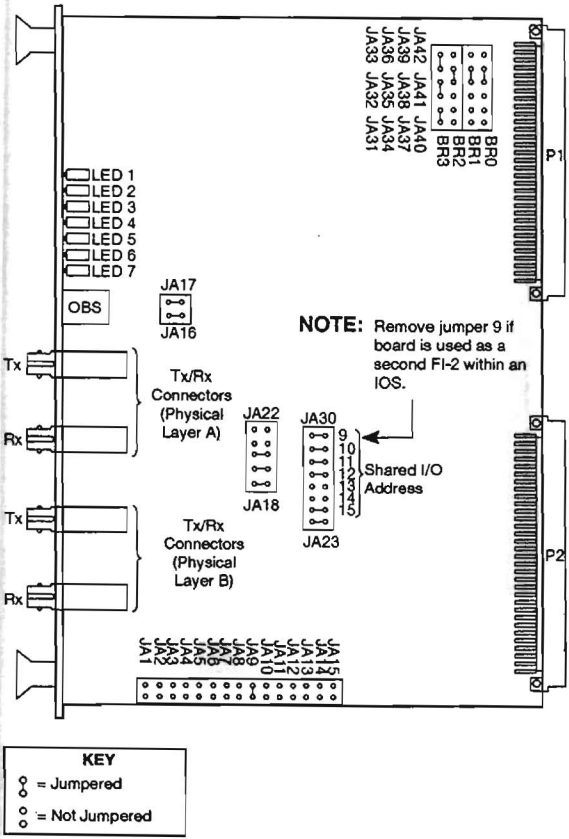


KEY

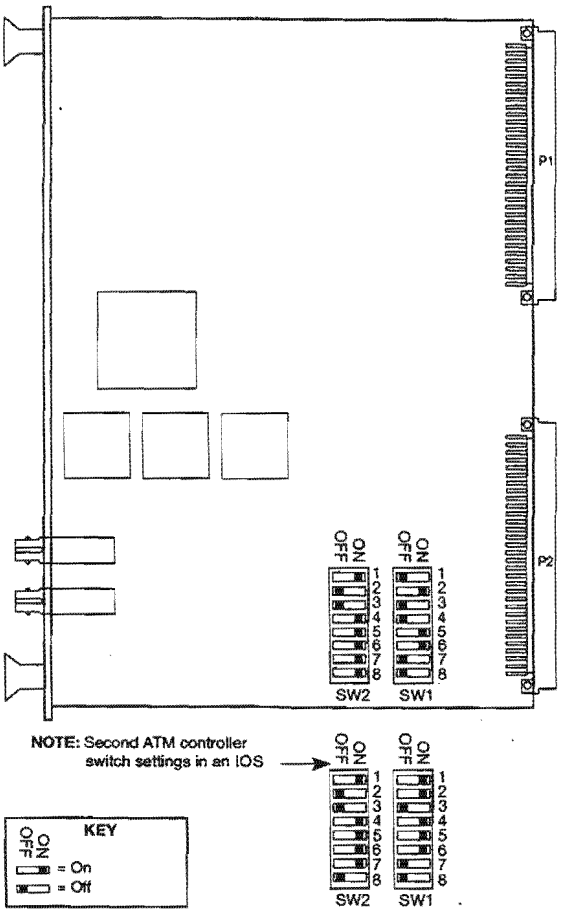
= Jumpered

= Not Jumpered

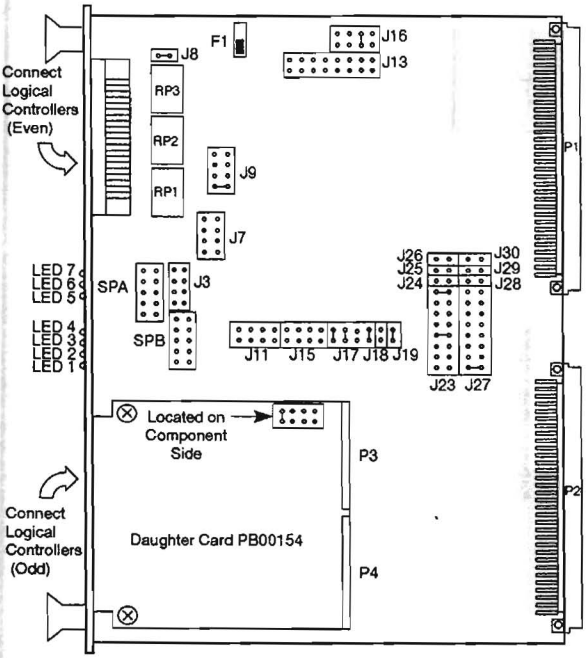
FI-2 Controller Jumper Settings



FORE Systems ATM Controller Jumper Settings



SI-3 Controller Jumper Settings



Physical SI-3 Boards	0	1	2	3
Logical Controllers	0, 1	2, 3	4, 5	6, 7

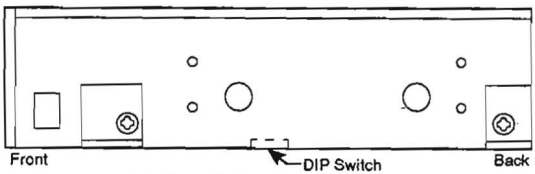
J23 — Pins 1, 2 → Pins 15, 16

KEY

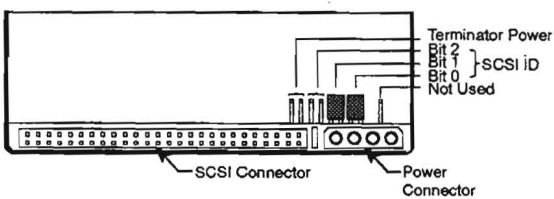
= Jumpered

= Not Jumpered

DS-3 Jumper and Switch Settings

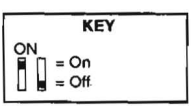


Side View with Front Faceplate Removed

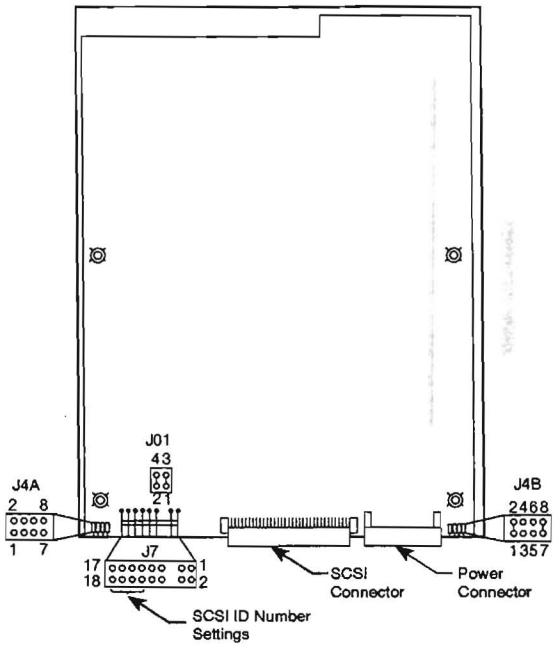


NOTE: The DS-3 is the only device on the IOS SCSI and must always be jumpered as ID address 3. Jumper SCSI ID address 3 by installing a jumper on bit 0 and bit 1. Leave bit 2 jumper off.

	SCSI ID Number (X = Jumpered)							
Jumper	0	1	2	3	4	5	6	7
Bit 0		X		X		X		X
Bit 1			X	X			X	X
Bit 2					X	X	X	X



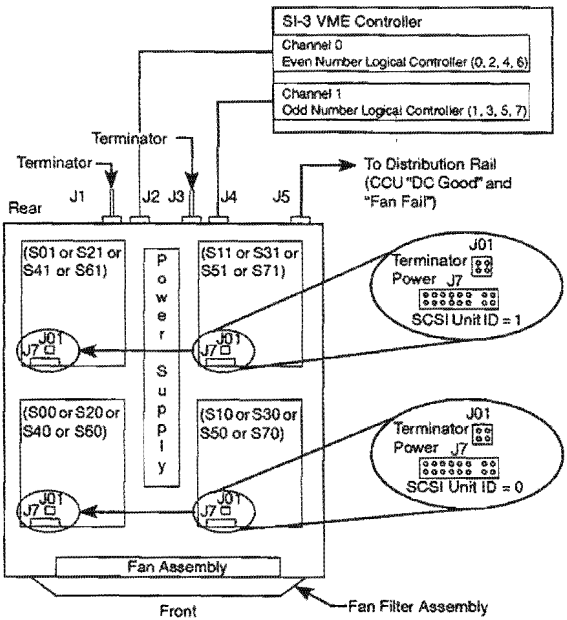
DD-5S Jumper Settings

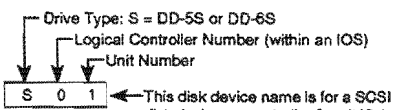


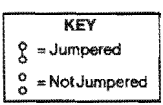
Jumper	Notes	Setting
J4A	All Jumpers	Off
J4B	Spin-up Delay Option (Pins 1 and 2) Start Command Option (Pins 3 and 4) SCSI Parity (Pins 5 and 6) Sweep Cycle Option (Pins 7 and 8)	On Off Off On
J7	Only appropriate ID number jumpers should be on. All other jumpers should be off.	
J01	Termination power. Jumper pins 2-4 and 1-3 as shown when the drive is the last drive in the chain. Do not jumper other drives in the chain.	

KEY
= Jumpered
= Not Jumpered

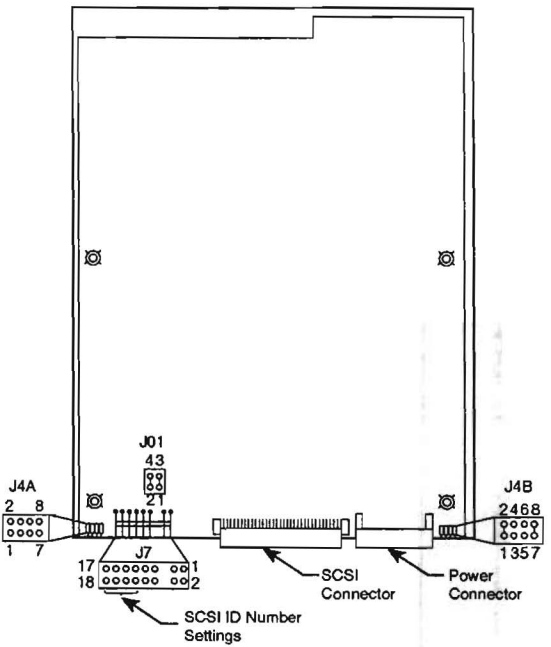
PE-5S Disk Tray SCSI IDs







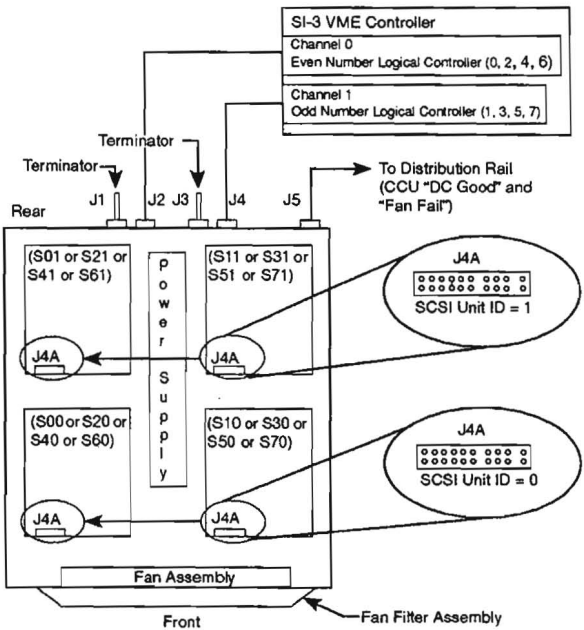
DD-6S Jumper Settings

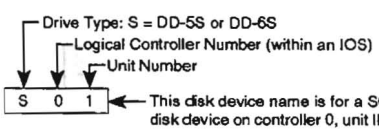


Jumper	Notes	Setting
J4A	All Jumpers	Off
J4B	Spin-up Delay Option (Pins 1 and 2) Start Command Option (Pins 3 and 4) SCSI Parity (Pins 5 and 6) Sweep Cycle Option (Pins 7 and 8)	On Off Off On
J7	Only appropriate ID number jumpers should be on. All other jumpers should be off.	
J01	Termination power. Jumper pins 2-4 and 1-3 as shown when the drive is the last drive in the chain. Do not jumper other drives in the chain.	

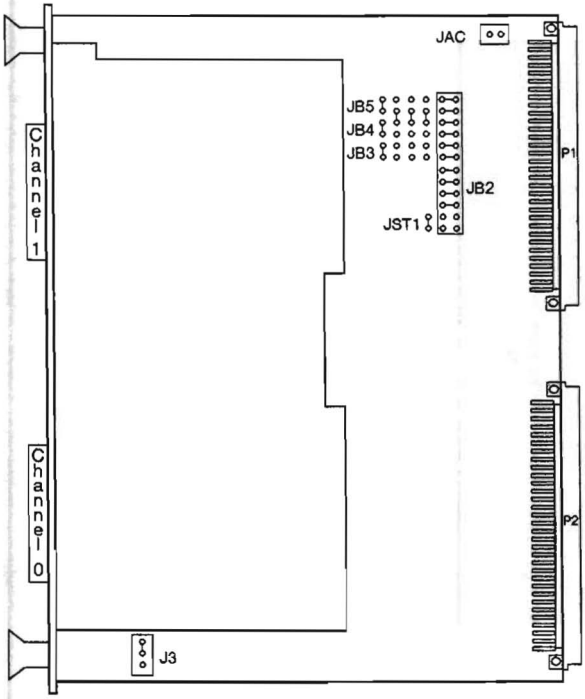
KEY
= Jumpered
= Not Jumpered

PE-6S Disk Tray SCSI IDs





DC-5I Controller Jumper Settings

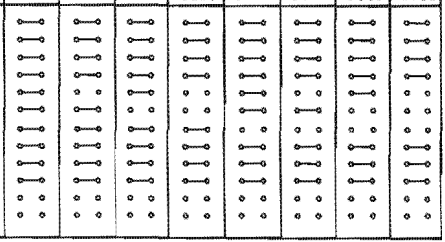


KEY

= Jumpered

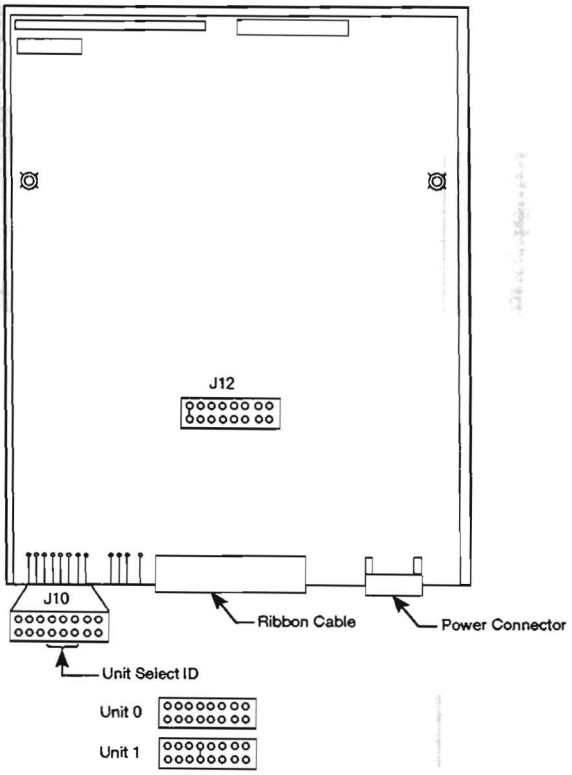
= Not Jumpered

DC-5I JB2 Jumper Settings

VME Controller	0	1	2	3	4	5	6	7
Address	C000	C100	C200	C300	C400	C500	C600	C700
JB2 Jumpering								

Not Supported

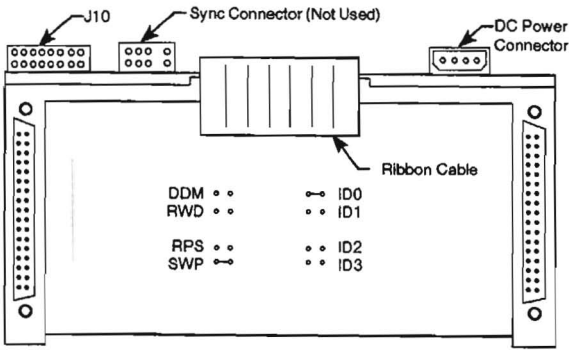
DD-5I Jumper Settings (Top View)



KEY
- = Jumpered
- = Not Jumpered

Jumper	Notes	Setting
J10	Set Unit ID to Unit 0 or Unit 1	See Illustration
J12	Master Spindle Sync Enable (all other pins open)	On

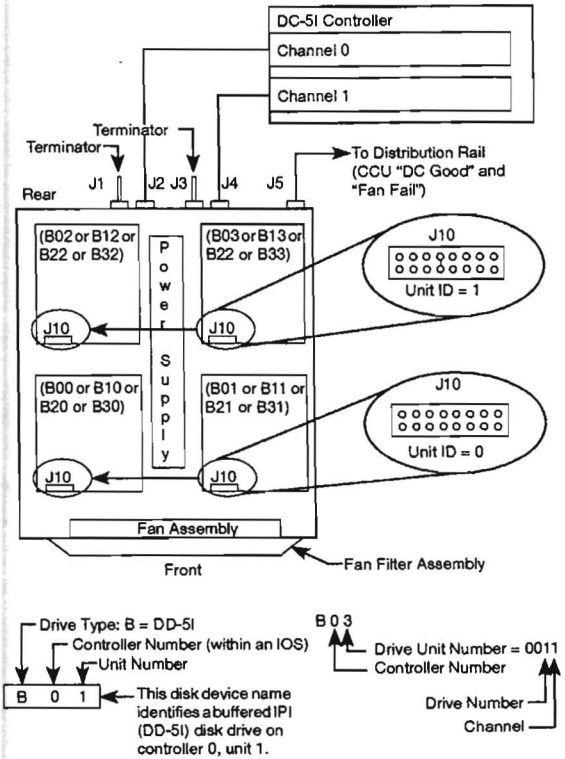
DD-5I Jumper Settings (End View)



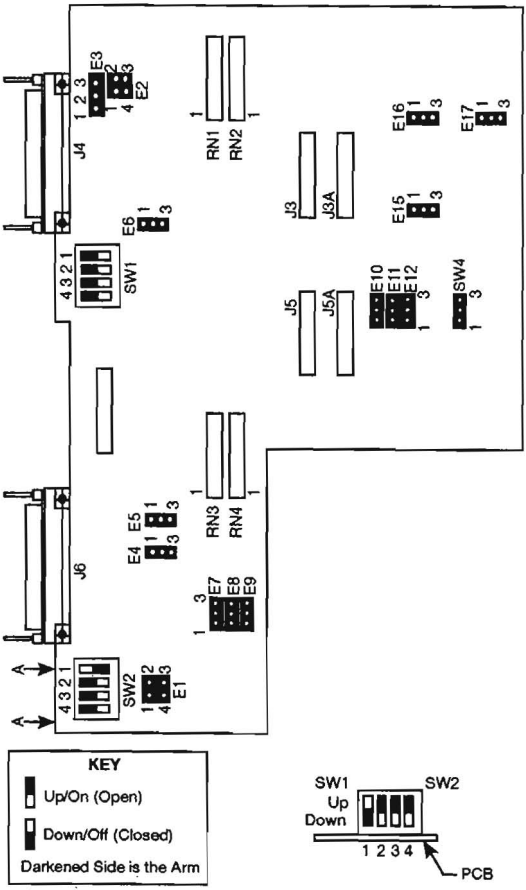
Jumper	Notes	Setting
DDM	Reserved	Off
RWD	Disable R/W Diagnostics	Off
RPS	Enable Short Rotational Position Sensing	Off
SWP	Enable Position Calibration on Seek	On
ID0	Microcode ID	On
ID1	Microcode ID	Off
ID2	Microcode ID	Off
ID3	Microcode ID	Off

KEY
= Jumpered
= Not Jumpered

PE-5I Disk Tray



DR-5IC Jumper and Switch Configurations



DR-5IC Jumper and Switch Descriptions

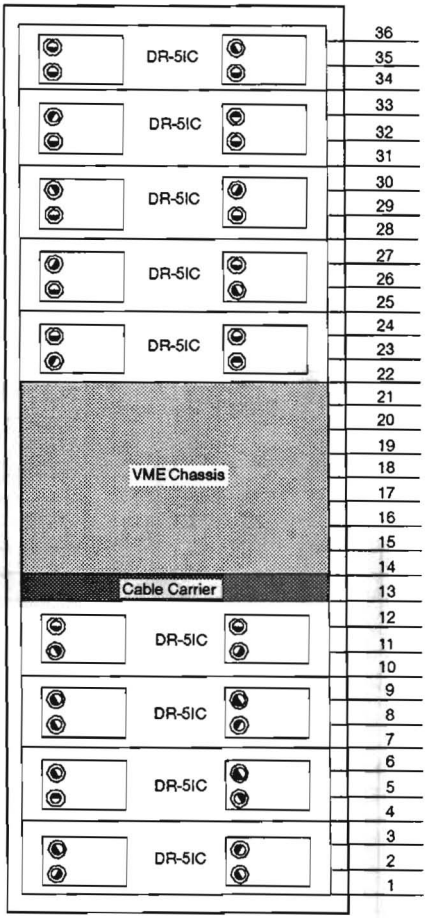
Location	Placement	Affected Logic
E1	2-3	Right drive
E2	2-3	Left drive
E3	1-2	Left drive
E4	1-2	Right drive
E5	Removed	Left drive
E6	1-2	Right drive
E7	1-2	Right drive
E8	1-2	Right drive
E9	1-2	Master control
E10	Removed	Master control
E11	1-2	Master control
E12	1-2	Master control
E15	Removed	Master control
E16	Removed	Master control
E17	2-3	Master control
SW1, 1-4	**Refer to page 20**	**Left drive unit selection (Unit 1)**
SW2, 1-4	**Refer to page 20**	**Left drive unit selection (Unit 0)**
SW4	2-3	Master control
RN1 (220/330)	**Removed**	**Left drive**
RN2 (150)	**Removed**	**Left drive**
RN3 (220/330)	**Removed**	**Right drive**
RN4 (150)	**Removed**	**Right drive**

NOTE: Location entries shown in bold print are user configurable.

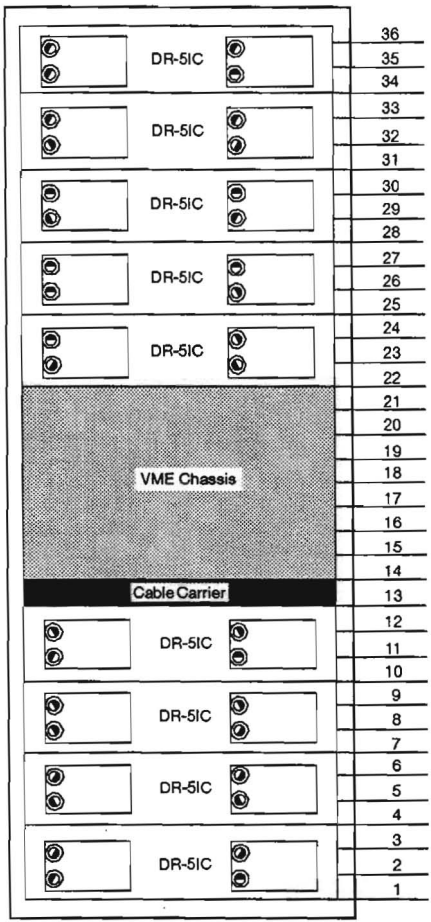
DR-5IC Unit Selection Switch Settings

Unit Selected	SW1/SW2 – S3	SW1/SW2 – S2	SW1/SW2 – S1
0	Open	Open	Open
1	Open	Open	Closed
2	Open	Closed	Open
3	Open	Closed	Closed
4	Closed	Open	Open
5	Closed	Open	Closed
6	Closed	Closed	Open
7	Closed	Closed	Closed

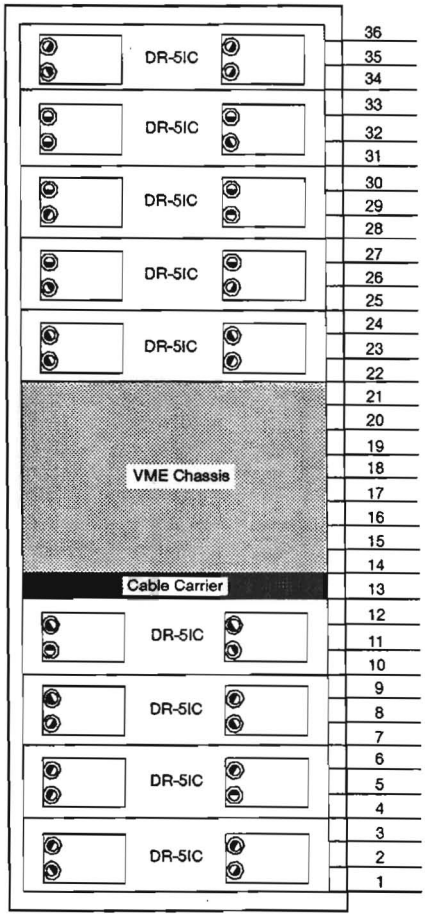
DR-5IC Keying Process for System I/O Cabinet



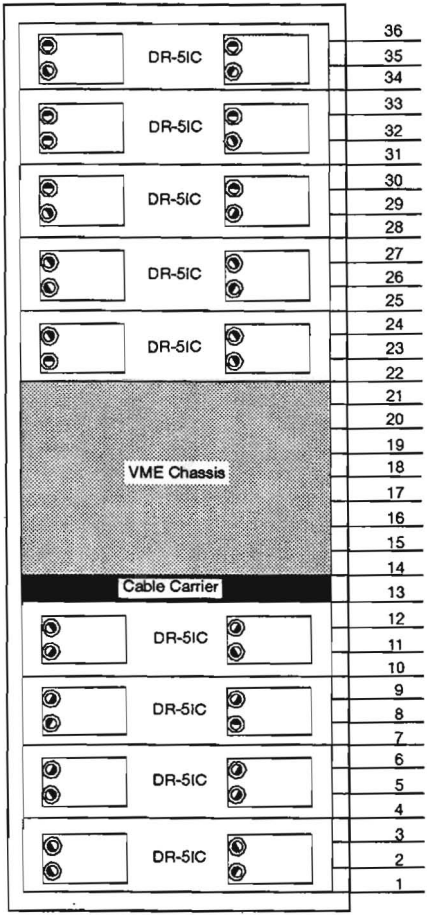
DR-5IC Keying Process for I/O Cabinet 1



DR-5IC Keying Process for I/O Cabinet 2



DR-5IC Keying Process for I/O Cabinet 3



Console IOTCB Format

	Bits 31	30	29	28	27	26 25	24	23 22 21 20 19 — 0
IOTCBptr	xx	WR	R	CC	EX	xx	S	IOBB Memory Address
IOTCBptr +1	Data 1							
IOTCBptr +2	Data 2							Length (Valid if EX =1)
IOTCBptr +3	MC #		CMD					Next IOTCBptr

MC # = 00: Command is for MC ASIC of processor module number 0
01: Command is for MC ASIC of processor module number 1
10: Command is for MC ASIC of processor module number 2
11: Command is for MC ASIC of processor module number 3

CC = 1: Local operation (local to CC), no need to initiate any console bus cycles

EX = 1: Extra data: the following fields are valid:
IOBB memory address, starting address length, number of 32-bit words transferred

WR = 0: Write from IOBB

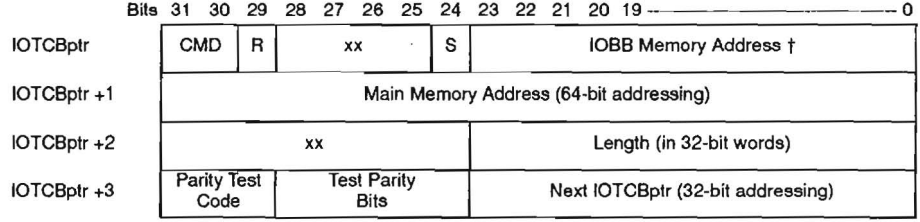
WR = 1: Write to IOBB

R = 0: No retry (same as I/O IOTCB)
1: Automatic hardware retry, one time

S = 0: Used for scan functions across the Y1 channel

xx = Not used

I/O IOTCB Format



CMD = 00: Input command channel (UNICOS packets sent from IOS to CPU)
01: Output command channel (UNICOS packets set from CPU to IOS)
10: Data channel input (from IOS to CPU)
11: Data channel output (from CPU to IOS)

R = 0: No retry (always set to zero by software)
1: Automatic hardware retry, one time

S = 1: Used for UNICOS packet and data transfers across the Y1 channel

xx = Not used

† Multiply the IOTCB's IOBB address by 4 to obtain the absolute IOBB (32-bit address).

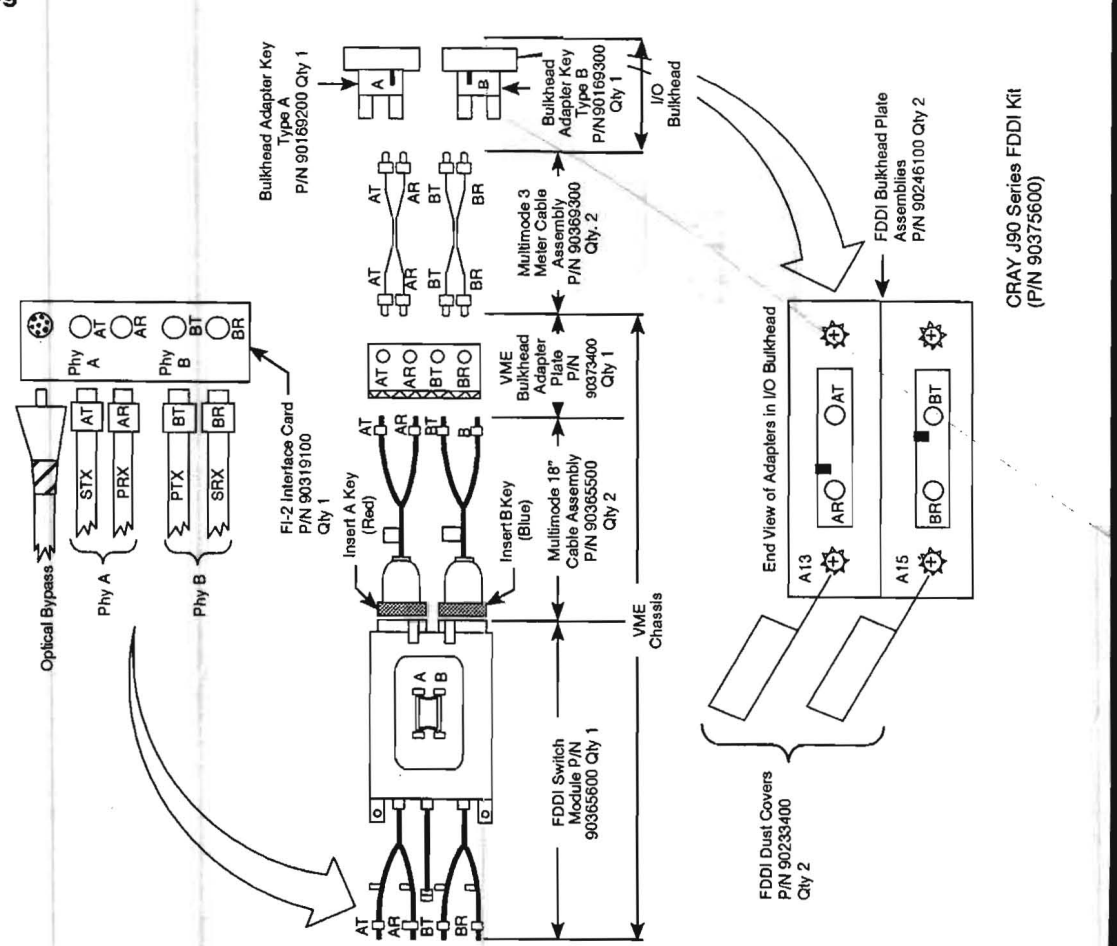
IOS Strategies and Drivers

Strategies	Description
/dev/console	Console terminal driver. Required only for IOS 0 so that it can communicate with the UNICOS console driver
/dev/disk	Disk device strategy for all disk drives
/dev/ethnet	Ethernet network interface strategy
/dev/fdnet	FDDI network interface strategy
/dev/taped	UNICOS tape daemon strategy
/dev/tape	Strategy for all non-tape daemon tape devices
Drivers	**Description**
/dev/si2	SCSI interface driver for SI-3 controller; required for any SCSI disk or tape attached to an SI-3 controller
/dev/sdisk	SCSI disk device driver for DD-5S
/dev/s2tape	SCSI tape driver for SI-3 attached tape devices and for all tape devices (DAT) connected to IOP
/dev/dc5i	Buffered IPI (DD-5I) disk driver
/dev/ether	Ethernet network interface driver
/dev/ipi	IPI-2 disk drive driver
/dev/fddi	FDDI network interface driver
/dev/atmv	ATM network interface driver

IOS Diagnostics and Utilities

Test or Utility	Area Tested
act_menu	ACT menu system can be used to test a variety of peripherals and controllers
bb1test	Checks IOBB functions
bb2test	Checks the related interfaces between the IOBB and the selected disk drive
cc1test	Checks the related interfaces between the IOP, IOBB, and central memory using data channel I/O
cc2test	Checks the related interfaces that control central memory (CM) to (IOBB) to CM data transfers
dd5itest	Checks DD-5I disk drives and DC-5I controllers
dd5stest	Checks any SCSI disk drive, the SI-3 controller, and the related interfaces between the disk drive and the IOS
enstat	Displays Ethernet controller statistics
mm1test	Checks IOP RAM and IOP cache memory
nettest	Checks communication on the Ethernet network and FDDI token ring network
jbs	Checks the module and backplane interconnections for shorts and opens; verify configuration using jconfig before running jbs
tp1test	Checks the selected tape device, the IOBB, and the related interfaces between the tape device and the IOS; the IOBB must be functional for this test to be effective

FDDI Cabling



IOS Diagnostics and Utilities (continued)

Test or Utility	Area Tested
offline	Loads, configures, and runs mainframe offline diagnostics; the following options are available: `-b #` Banks of memory to test (02000-0 octal) `-c #` CPU to test (octal bit mask) `-d` Disables scalar cache `-k` Specifies monitor: none, ymm, yms, ymi, ysmi, ym8 `-l #` Clusters to test (octal) `-m #` Memory size (in Mwords) `-n #` Octal bitmask selection of physical CPUs (CPUN) `-s #` Octal bitmask selection of a diagnostic
errpt	Displays memory resident error status
dstat	Summarizes disk activity since the IOS was booted
systat	Displays the current status of various parts of the IOS and network status
crash	Displays and formats an IOS memory image (dump file) to the IOS console window (available on IOS prior to UNICOS 8.0.4.1)
whatmic	Displays IOS controller and device microcode levels, including the IOS PROM firmware level

System Console Based Utilities

Utility	Description
crash	Displays and formats an IOS memory image (dump file); this utility is included with the UNICOS 8.0.4.1 system console release
j90install	Install maintains software on the system console, IOS, and mainframe
jcon	Establishes a remote login to an IOS
jconfig	Mainframe hardware configuration utility

Notes

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Fold

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