2.8.2 MODEL 930 FLOPPY DISK CONTROLLER BOARD

The 930 board is a floppy disk drive controller which can be used with either 5" or 8" disk drives. A single 930 board can control up to four drives of the same size.

CONFIGURING THE 930 BOARD

Processor/DMA Control (Location JA)

During a DMA cycle, bus control is transferred between the 930 Floppy Disk Controller and the CPU. IMS uses two different methods of transfer, dependent on the CPU. The shunt block JA should have pins 2 and 3 (lower 2 pins) connected when the system CPU is an IMS Model 451; pins 1 and 2 (upper 2 pins) should be connected for all other IMS CPU's.

```
JA

1 o
        · Shunt for 644, etc., CPU
2 o
        Shunt for 451 CPU
3 o
```
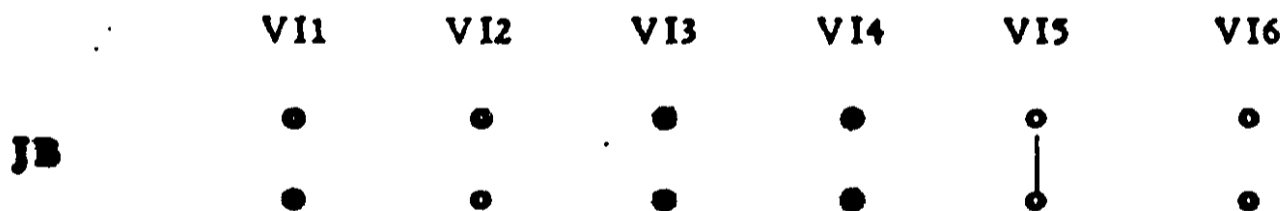
Vectored Interrupt Level Selection (Location JB)

The Vectored Interrupt Level of the 930 is etched to be VI5. This etch may be cut and, by means of a shunt, the 930 may be connected to any input, VI1 through VI6.

```
            VI1      VI2      VI3      VI4      VI5      VI6

            ●        ●        ●        ●        o        o
JB
            ●        o        ●        ●        o        o
```

I/O Base Address Selection (SW1-6)

Switch 6 on the package at location 1D assigns the I/O addresses for the 930 board. This switch should be on for 8" floppy disk drives, resulting in I/O address 80H to 8FH. For a system with 5" floppy disk drives, switch 6 should be off, resulting in I/O addresses C0H to CFH.

```
                 OFF              ON

      SW1-6  [                        ]
```
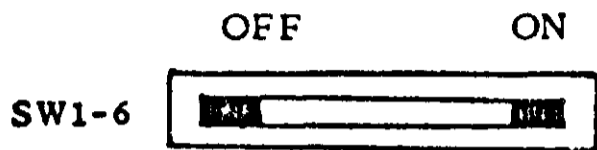
Program/Drives I/O Switches (SW1)

Switches 1 through 4 on the DIP at location 1D can be read by the program and are used to identify the type of drive connected to the controller. Switch 2 is used by the hardware and must be "on" for 8 inch drives. Switches 1 through 4 are read by the program as Data Bits 7 through 4; an "on" switch is read as a zero. The settings for all the switches in the package are shown below for different types of drives.

SW1

	Drive Type	SW1-1	SW1-2	SW1-3	SW1-4	SW1-5	SW1-6	SW1-7	SW1-8
1	8" SS	on	on	on	off	off	on	off	on
2	8" DS	on	on	off	on	off	on	off	on
3	5" DS 96 TPI	on	off	on	off	on	off	off	on
4	5" DS 48 TPI	on	off	off	on	on	off	off	on
5	5" SS 48 TPI	on	off	off	off	off	off	off	on
6*	5" DS ?? TPI	on	off	on	on	on	off	off	on

(SS - single sided, DS - double sided, TPI = tracks per inch)

*Controllers shipped loose will be set in this configuration. This setting allows 48 or 96 TPI and slow step rates.

CONNECTIONS

If the 930 board is used to control 5" disk drives, the J2 connector is connected to the disk drives in a daisy-chain. If the system contains 8" drives, then the J1 connector is daisy-chained to the drives. The signals for each connection are listed below. Flat ribbon cables are used to make the connection.

Pin	8 Inch Drives J1 (50 Pins)	5 Inch Drives J2 (34 Pins)
2	low write current	--
4	--	--
6	--	select 4
8	--	index
10	2 sided	select 1
12	disk change	select 2
14	side 1	select 3
16	--	motor on
18	head load	in
20	index	step
22	--	write data
24	--	write gate
26	select 1	track 0
28	select 2	read data
30	select 3	side 1
32	select 4	--
34	in	--
36	step	
38	write data	
40	write gate	
42	track 0	
44	write protected	
46	read data	
48	--	
50	--	
All odd pins	ground	ground

MODEL 930 FLOPPY DISK DRIVE CONTROLLER BOARD

Legend

JA Processor/DMA Control.
JB Vector Interrupt Level Selection.
SW1 Drive Identification Switches.
J2 Connector to Floppy Disk Drives.
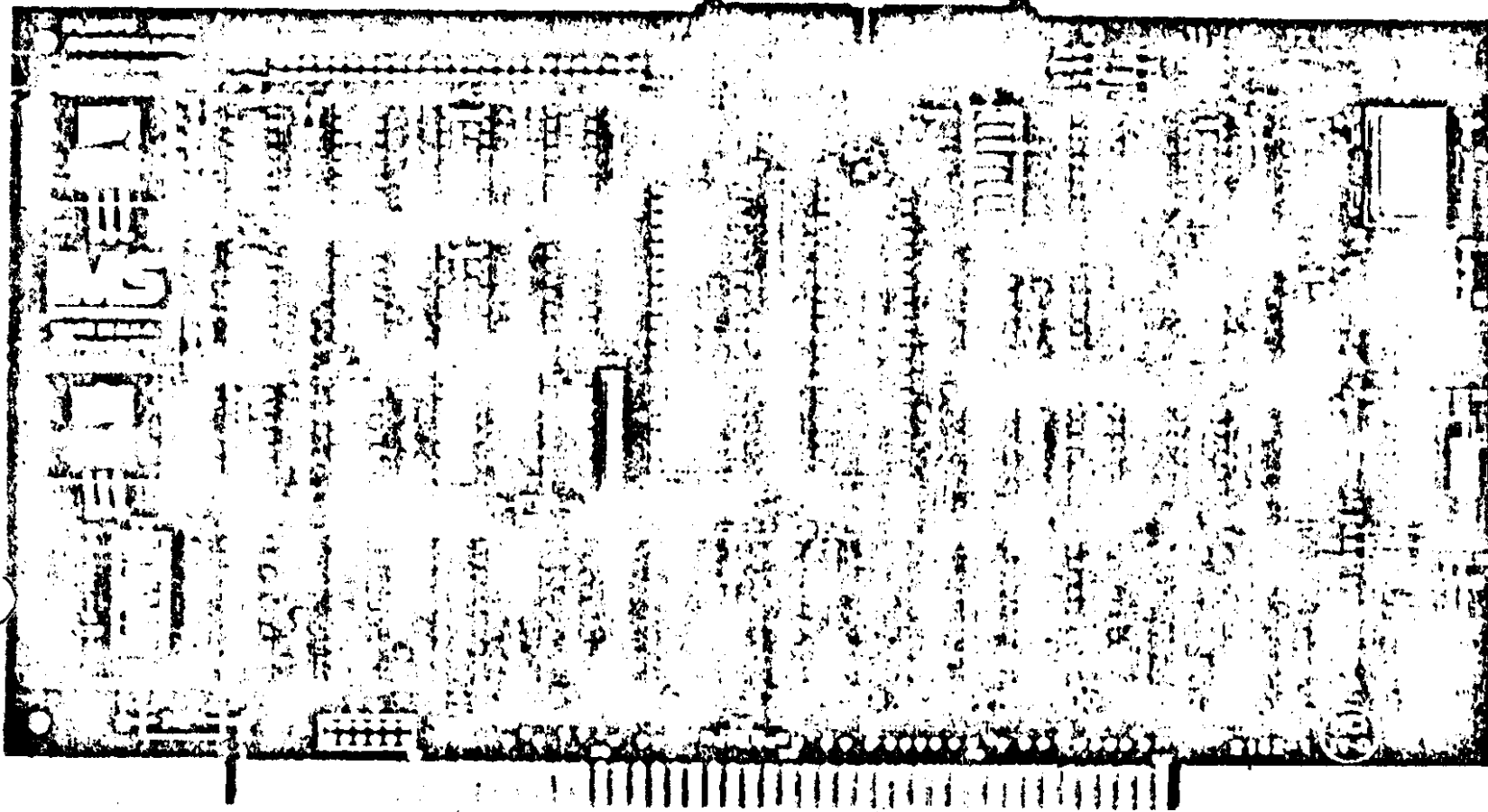
Figure 2-28
930 Floppy Disk Drive Controller Board