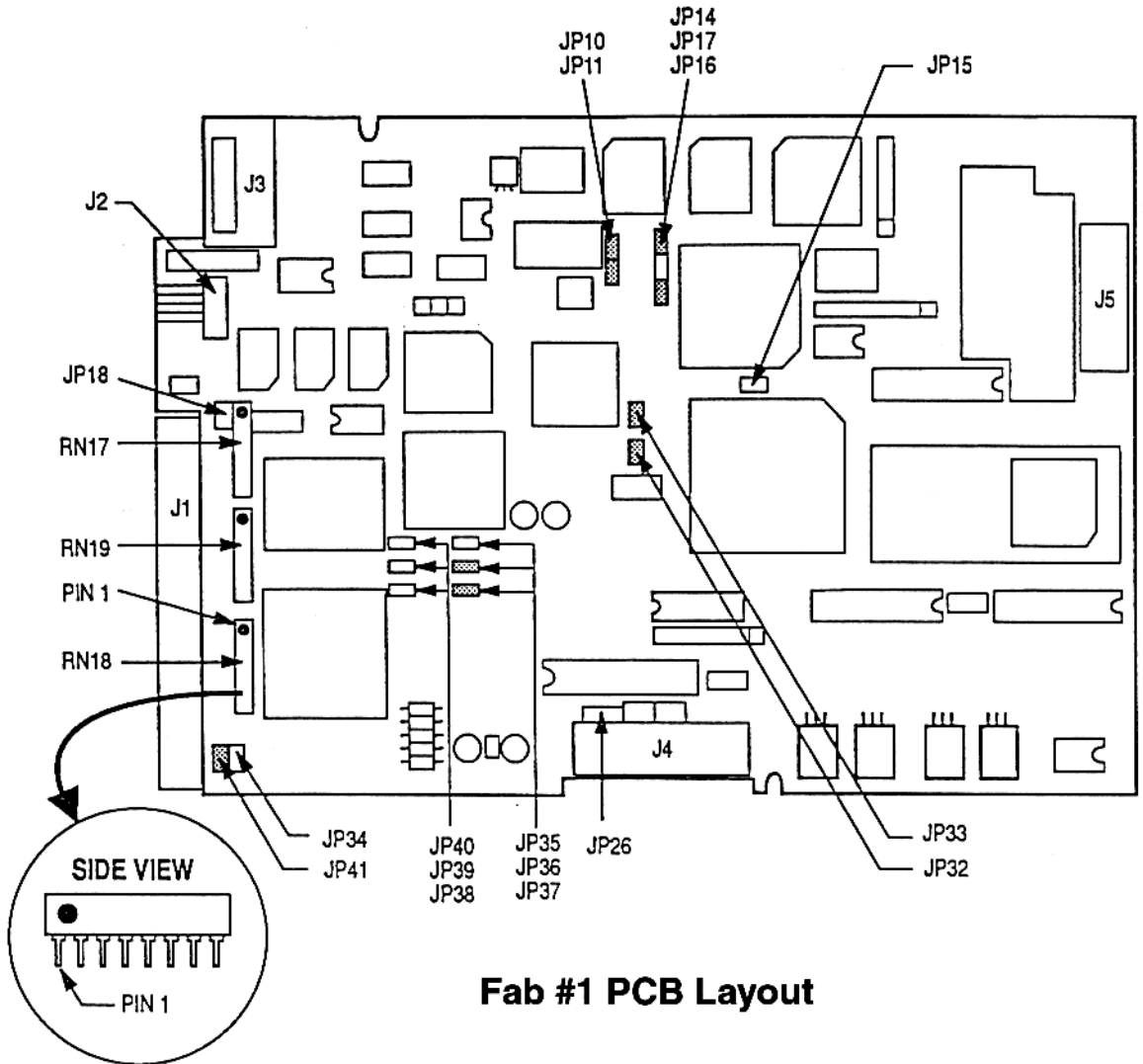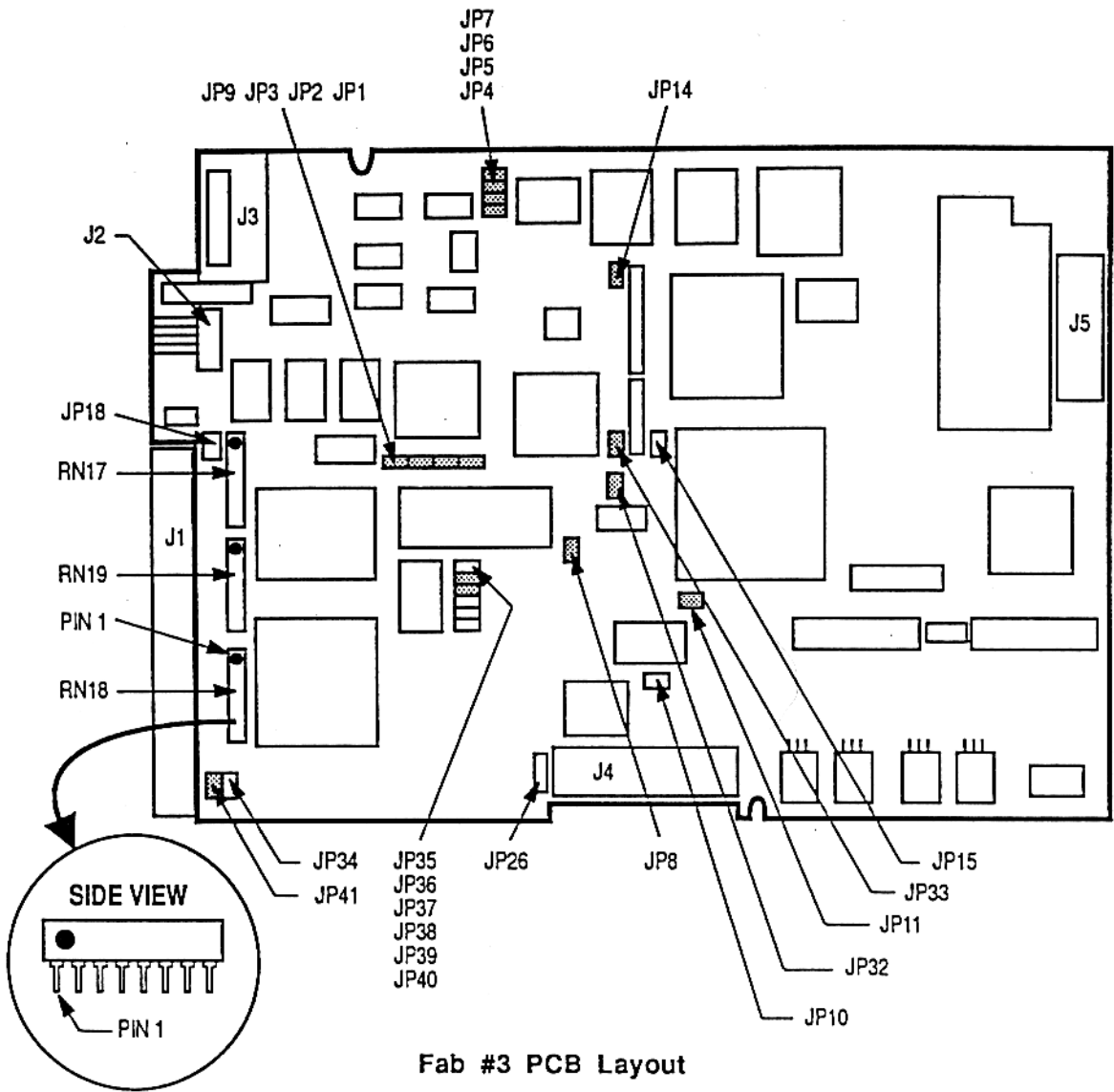# USER SELECTABLE OPTIONS

Jumper locations for Fab #1 (part numbers 1015664, 1015377 and 1014207) are identified in Figure 4•1, PCB Layout.
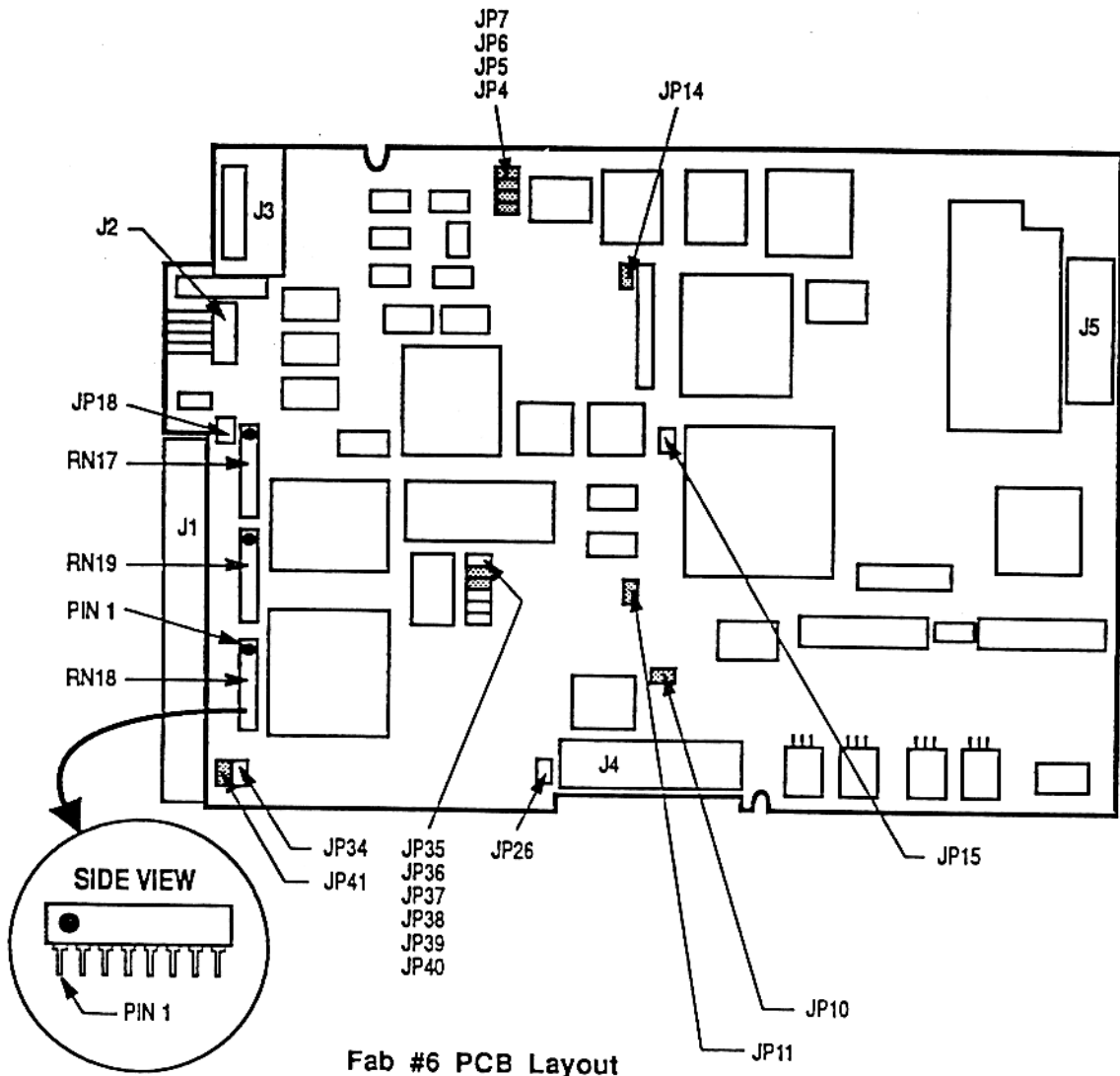

Fab #1 PCB Layout

Jumper locations for Fab #3 (part numbers 1018353 and 1018359) are identified in Fab #3 PCB Layout.

Fab #3 PCB Layout

Jumper locations for Fab #6 PCB (part number 1019822) are identified in Fab #6 PCB Layout.

SIDE VIEW

PIN 1

Fab #6 PCB Layout

SCSI ID SELECTION

SCSI ID jumpers (JP35 through JP37) are provided to configure each drive with a SCSI device ID for use in multiple SCSI device configurations.

SCSI ID Jumpers, is a reference table for the jumper configuration, ID, and priority on the SCSI bus. An ID of seven is the highest priority in a multidevice configuration, and is usually used for the initiator.

SCSI ID	PRIORITY	JP37 ID2	JP36 ID1	JP35 ID0
0	Lowest	Out	Out	Out
1	↑	Out	Out	In
2		Out	In	Out
3		Out	In	In
4		In	Out	Out
5		In	Out	In
6	↓	In	In	Out
7	Highest	In	In	In

In = Installed, Shorted
Out = Not Installed, Open

SCSI ID Jumpers

The drive is shipped from the factory with a SCSI ID of six. This assures that sufficient jumpers are available for any address except seven, which is usually reserved for the host system.

The SCSI ID can also be set remotely through the auxiliary connector, as mentioned in Section 4.9, Auxiliary Connector. The SCSI ID jumpers must be removed for this option and any shorting required for a selected SCSI ID is done outside the drive.

DRIVE POWER UP OPTIONS

In order to allow for system power supply constraints, which may require minimizing surge current when powering up multiple drives, three modes of start up sequencing are provided (see Table 4•2, Summary of Power Up Options).

SUMMARY		
JP14 (SPIN WITH POWER)	JP38 (SPIN DELAY)	MODE
Out	Out	Start by ID Sequence
Out	In	Wait for START Command
In	In or Out	Start When Power Applied

Summary of Power-Up Options

Start by ID Sequence: With both JP14 and JP38 out, the drive delays spinup for approximately 11 to 13 seconds times the SCSI ID. This allows for power up sequencing. A RESET condition results in the drive delaying its spinup according to its SCSI ID.

Wait for Start Command: With JP14 out and JP38 in, the drive does not spin up until the initiator issues a START STOP UNIT command with the start bit equal to one.

Start When Power Applied: When JP14 is in and JP38 is out, the motor starts as soon as power is applied. The drive is shipped in this configuration.

NOTE: If the drive has JP14 in and JP38 out, it does not respond to a START/STOP UNIT command.

TERMINATOR POWER SELECTION

Power to the terminators may come internally from the drive, or externally from the SCSI bus. If JP41 is in, the terminator power is internal, from the drive. If JP34 is in, the terminator power is external, from the SCSI bus.

With both JP41 and JP34 in, terminator power is provided from the drive and to the SCSI bus. Hence, the drive is at one end of the SCSI bus with terminators in place and is also supplying terminator power for the device at the other end of the SCSI bus (see Figure 3-4, Typical SCSI Configurations). Additional discussion of the termination of the SCSI bus and location of the drive on the bus is presented in Section 4.8, Interface Termination.

As shipped, JP41 is in and the drive supplies power to the terminators. JP34 is out.

WRITE PROTECT OPTION

The write protect jumper, JP18, is used to protect the data written to the drive. When the jumper is in, data cannot be written on the drive; only READ operations can be executed. Installation of JP18 grounds the remote write protect line, J2-7, forcing WRITE PROTECT on, and prevents remote control through J2-7 on the ten-pin connector.

As shipped from the factory, JP18 is out, allowing normal reading/writing, or optional remote control through the J2 connector. See Section 4.9, Auxiliary Connector, for details of the J2 connector.

PARITY OPTION

The parity jumper, JP40, enables (in) or disables (out) odd parity detection in the drive. Odd parity is always generated by the drive and provided to the SCSI bus.

The drive is shipped with JP40 in, enabling parity detection.

OTHER JUMPERS

Other jumper positions are not user selectable and are shipped as indicated in Table 4-3 and Table 4-4, Other Jumper Pin Assignments. The user should avoid changing these jumpers, or improper operation may occur.

JP10	JP11	JP15	JP16	JP17	JP26	JP32	JP33	JP39
In	In	Out	In	Out	Out	In	In	Out

Other Jumper Pin Assignments, Fab #1

JP1	JP2	JP3	JP4	JP5	JP6	JP7	JP8	JP9
In	In	In	In	In	In	In	In	In

JP10	JP11	JP15	JP26	JP32	JP33	JP39
In	In	Out	Out	In	In	Out

Other Jumper Pin Assignments, Fab #3

NOTE: *Positions JP1, JP2, JP3, JP8, JP9, JP32 and JP33 are eliminated in the Fab #6 PCB.*

Sector Size

The drive is shipped from the factory formatted with 512 byte sectors. Configuration parameters are default values in all optional cases. It is recommended that users reformat the drive with the user's sector size, using the P list, and the user's configuration parameters.

Interface Termination

SCSI devices require proper interface termination. The first device and the lastphysical, not SCSI ID, device on the daisy chain SCSI bus must be terminated (see Figure 3·4, Typical SCSI Configurations). Remove the terminators from any devices in between. For instance, if the drive is in the middle of the string, remove its terminators. The disk drive terminators are shown in Figure 4·1, PCB Layout and Figure 4·2, Fab #3 PCB Layout.

Pin one is on the end of the terminator that is marked with a dot in Figure 12, PCB Layout. The orientation of the terminator in the PCB is also shown. RN17 through RN19 all look like the side view inset in the figure. Note that the hole/solder pad for pin one has a square outline, whereas all others have a round outline. Pin one is oriented toward the power connector, J3.

NOTE: All terminator packs (RN17 through RN19) must be oriented with the dot toward J3 for the drive to work properly.

As shipped, interface signal lines are terminated with three removable 220/330 ohm resistor network packs.

The devices driving the drive inputs should be open collector devices capable of sinking at least 48 milliamps at a voltage level of less than 0.5 volts DC (7438 or equivalent).

Devices receiving the drive outputs should be of SCHMITT trigger type to improve noise immunity, 74LS14, 74LS240, or equivalent. The initiator should not load the bus with more than one standard low power Schotky transistor-transistor logic (LSTTL) input load per line, and should terminate all signals with 220/330 ohm terminators.

Auxiliary Connector

Connector J2 in Figure 3·5, Connector Locations, Rear View of Drive, is an auxiliary connector providing remote control of write protect and SCSI ID, and ability to carry the LED signal beyond the drive. The auxiliary connector is a Berg 68451-121, ten-pin part. The mating connector is a 3M 3473-6010 part.

PIN 9	PIN 7	PIN 5	PIN 3	PIN 1
Gnd	-WRT PROTECT	-LED	(Key)	+LED
PIN 10	**PIN 8**	**PIN 6**	**PIN 4**	**PIN 2**
ID0	ID1	ID2	GND	(Open)

Auxiliary Connector Pin Assignments

When pin seven is connected to ground, the drive is protected from writing, regardless of commands sent to the drive via the SCSI interface. The write protect signal may also be connected to an LED whose (+) terminal is tied to a voltage source, so that the LED is illuminated when the pin is grounded and the drive is in write protect mode.

For remote write protect, JP18 must be removed (see Section 4.4, Write Protect Option).

When an LED is connected to pin one (+) and pin five (-), that LED functions in the same manner as the LED which is mounted on the drive's front faceplate. This is typically used in cases where the drive is mounted in a position where the drive's LED is not visible and the faceplate is removed.

Pin three is not present so that users can key the mating connector. Pin three of the mating connector should be blocked for this purpose.

The SCSI ID of the drive may be programmed remotely by selectively connecting pins six, eight, and ten to ground, or leaving them open. The various combinations are shown in Table 4-6, Remote SCSI ID Programming Combinations.

SCSI ID	ID2	ID1	ID0
0	OPEN	OPEN	OPEN
1	OPEN	OPEN	GROUND
2	OPEN	GROUND	OPEN
3	OPEN	GROUND	GROUND
4	GROUND	OPEN	OPEN
5	GROUND	OPEN	GROUND
6	GROUND	GROUND	OPEN
7	GROUND	GROUND	GROUND

Remote SCSI ID Programming Combinations

SCSI ID jumpers (JP35 through JP37) must be removed for the remote SCSI ID option.