Seagate

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HAWK 2XL Family:

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ST32151N/W/WC

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ST31051N/W/WC

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 ST32155N/W/WC

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 ST31055N/W/WC

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Installation Guide

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Contents

Preface

This manual is organized to assist you in the installation and operation of your Seagate Hawk 2XL Family disc drive. Family models are listed in Hawk 2XL Family Product Information section. It also provides information to aid in obtaining service for the drive.

Before attempting any installation, please read through all applicable sections of this document, including all warnings and cautions.

Caution.   This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with these instructions, may cause interference to radio communications.

"HDA" means head-disc assembly. "PCB" means printed circuit board.

Electromagnetic interference (EMI) considerations

The drive models described herein, as delivered, are designed for system integration and installation into a suitable enclosure prior to use. As such, the drive models described herein are supplied as subassemblies and are not subject to Subpart J of Part 15 of the FCC Rules and Regulations nor the Radio Interference Regulations of the Canadian Department of Communications. However, the units have been tested using proper shielding and grounding and found to be compliant with the Class A limits of the FCC Rules and the Regulations of the Canadian Department of Communications.

The physical design characteristics of the drive models described herein, serve to minimize EMI radiation when installed in an enclosure that provides reasonable shielding. As such, the drive(s) are capable of meeting the Class B limits of the FCC Rules and the Regulations of the Canadian Department of Communications.

Note. It is the end users' responsibility to assure that the drive models described herein meet the appropriate EMI requirements of their system. Shielded I/O cables may be required if the enclosure does not provide adequate shielding. If I/O cables are external to the enclosure, shielded cables should be used, with the shields grounded to the enclosure or to the host controller, but not both.

The equipment is designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television, which can be determined by turning the equipment on and off, you are encouraged to try one or more of the following corrective measures:

- Reorient the receiving antenna.
- Move the device to one side or the other of the radio or TV.
- Plug the computer into a different AC power outlet so that the receiver and computer are on different branch outlets. That is, circuits controlled by different circuit breakers.

If necessary you should consult your dealer or an experienced radio/television technician for additional suggestions.

You may find helpful the following booklet prepared by the FCC: *How to Identify and Resolve Radio-Television Interference Problems*. This booklet is available from the Superintendent of Documents, US Government Printing Office, Washington, DC 20402. Refer to publication number 004-000-00345-4.

Things you may need to install the drive

- **Adequate power from your computer power supply**
  This drive requires 7.5 watts during typical operation, and 6.0 watts when at idle (not reading, writing or seeking). If this drive is an "add-on" make sure the computer power supply can supply enough extra power for this drive's needs.

- **An antistatic wrist strap**
  You will need this to reduce the possibility of damaging your drive by static discharge.

- **A #2 Phillips screwdriver**
  You will need this screwdriver to open your computer and to insert the drive mounting screws.

- **A Torx Size TX-08 driver tool**
  If your drive has a front panel and you need to install the drive in a conversion frame kit, this tool will be needed.

- **A bootable DOS system diskette for the PC**
  You will need this diskette, which should contain the DOS system files and the programs FDISK.EXE and FORMAT.EXE to partition and format your new hard drive.

- **A SCSI* host adapter card for the PC**
  You may need this if your computer does not already have a hard drive, if your present drive does not connect to a SCSI host adapter, or if your present SCSI adapter card cannot address a drive having the capacity the Hawk 2XL has.

  The host adapter card should have instructions with it for installing the card and assist in the installation of hard disc drives that it supports.

- **A 50-pin SCSI interface cable**
  You will need an interface cable if your computer does not presently contain a SCSI hard drive. If you are adding a second hard drive you must use an interface cable that has two drive connectors, one on the end and one in the middle. See Figure 1.

- **A Y-shaped drive power cable**
  You may need this if your computer does not have enough power cables to supply power to your new hard drive. See Figure 2.

- **Mounting screws**
  You will need four 6-32 x 1/4 inch (6.4 mm) nonmetric screws if you mount your drive directly into the drive bay. See Safety Instructions for maximum screw length (see Figure 6).

- **Drive mounting rails**
  You may need drive rails if your computer's drive bay is not designed for direct mounting.

* These drive models use the industry standard SCSI interface.

- **A frame kit**
  You will need a frame kit if you wish to mount a 3.5-inch disc drive in a 5.25-inch drive bay.
- **Extra configuration jumpers**
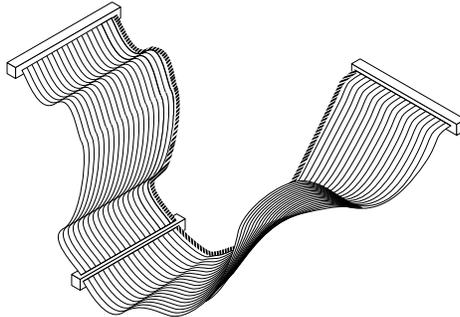 A small plastic bag of two types of configuration jumpers is included in drive package.
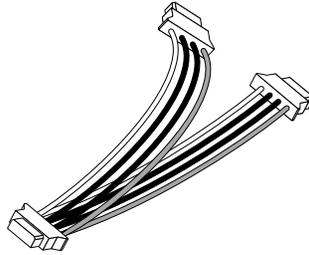
Figure 1. Two drive I/O cable

Figure 2. Y-shaped power cable

Before you begin

Verify that the system is switched off but remains connected to the main power before any installation is attempted.

Protect yourself, the drive, and your valuable programs and data by reading the following cautions and warnings.

• Do not tamper with sealed top cover. Doing so voids your warranty. The drive contains no user serviceable components. See Product Repair section for more information.

• Visually inspect the shipping container for any obvious damage.

• Verify all parts listed on shipping bill are received with the equipment. Discrepancies or damage should be reported to the shipping company.

• Inspect drive for possible shipping damage. All claims of this type should be filed promptly with the transporter involved. Save original packing materials to be used when reshipping.

- When transporting or shipping a drive or system, please ensure that they are correctly packed in original Seagate approved (or equivalent) container and shipped via an air-ride carrier experienced in handling computer equipment.

- Do not unpack drive from its static shielded bag until you are ready to install it in the system.

- Always handle the drive by the frame or casting.

- Do not touch Printed Circuit Board (PCB) or the I/O connector pins.

- Never apply pressure to the PCB or to the drive top cover.

Safety instructions

1. The disc drive is to be installed in a customer supplied enclosure where the surrounding air does not   exceed 50°C.

2. Four (4) 6-32 UNC-2A screws are required for installation. Maximum screw length into side of drive is 0.15 inches (9/64 inch) (3.81 mm). Maximum screw length into bottom is 0.20 in. (3/16 inch) (5.08 mm). Screw tightening torque is 6.0 lb-in (.675 NM) max with minimum thread engagement of 0.12 in (1/8 inch) (3.00 mm).

3. The power requirements are shown in the Product Information section.

4. The power supply must satisfy the safety requirements for SELV (Safety Extra Low Voltage) circuits.

5. Service is to be provided by trained Seagate service personnel.

6. The incorporation of the disc drives listed in this guide into a customer enclosure must meet the appropriate safety requirements of the country in which it is used (e.g. UL 1950, CAN/CSA-C22.2 No. 950-M89, DIN VDE 0805:1993 and EN60950: 1992 (IEC 950).

Note
Power must be off when connecting or disconnecting.

Sicherheitsanleitung

1. Däs Gerät ist ein Einbaugerät, vorgesehen für eine maximale Umgebungstemperatur von 50°C.

2. Zur Befestigung der Drive werden 4 Schrauben benötigt (6-32 UNC-2A). Die maximale Länge der Schrauben in der unteren Seite des Chassis darf nicht mehr als 0.20 in (5.08 mm) betragen, die in der Seiten 0.15 in (3.81 mm). Maximalle Schraubenanziehung von 6.0 in-lb (.675 NM) mit minimalem Gewindeansperuch .12 in (3.00 mm).

3. Die Versorgungsspannungen werden in der Sektion Produkt Information gezeigt.

4. Die Versorgungsspannung muss SELV entsprechen.

5. Alle Arbeiten dürfen nur von ausgebildetem Seagate Service-Personal durchgeführt werden.

6. Der Einbau des Drives muss den Anforderungen gemäss DIN VDE 0805:1993 oder EN60950:1992 (IEC 950).

Vorsicht

Ánsehluss oder Entfernung oler Geräteverbindung nur bei abgeschalteter Versorgungsspannung vornehmen.

Drive configuration

You can easily install your new Seagate disc drive as your first ever hard drive, a replacement or as a second drive in a computer system with an existing hard disc drive.

Installation involves the following steps:

- Drive configuration
- Mounting
- Informing the computer about your drive and how you want it divided into partitions.

Before you physically mount your new disc drive in your computer, you need to check the jumper plug settings that determine how the drive operates. Refer to Table 1 to find the Figure specified applicable to your model drive for the particular configuration functions of interest. Note that there are some connector pins sticking out from the drive's printed circuit board (PCB) that are labeled J2 and J6 (called "jumper plug headers").

Model "W" additionally has J1-Auxiliary. Some systems may have a cable connected to J1-Auxiliary that allows remote setting of drive ID by switches or within the computer logic. It also provides a connection to a remote drive activity LED. Jumpers may be used on J1-Auxiliary.

Note the small jumper plugs connected across pairs of pins in some places on these connectors (Figures 3a through 3e show these jumper plugs enlarged).

Caution. Note that the jumper plugs used on J2 are shaped differently and are smaller than those used on J6 or J1-Auxiliary. Do not use J2 plugs on J6 or J1-Auxiliary as this will damage the internal contacts so they will not subsequently stay on J2.

The presence or absence of these jumper plugs in various places gives your drive information about how it is to operate in your system specifically. Each figure shows a diagram of one of these jumper headers, together with a brief description of the operational feature each jumper position controls.

If this is your first hard drive, or if it replaces your existing hard drive, you may not need to reposition any jumpers. However, check the figures against your drive to see if it is configured as it should be for your system. Consult your computer documentation for information on configuring your drive. Your dealer is the best source for help on this. Seagate also provides support service for customers if your dealer can't help.

Set Drive ID

Look at Figures 3a, 3b or 3c. If your new drive will be the only hard drive, assign it as "Drive ID 0," which requires no drive ID jumpers installed. If your new drive is to be a second hard drive, assign it as "Drive ID 1" by placing one of the extra jumper plugs supplied in the enclosed plastic bag (one of the larger plugs) on the "Drive ID 1" position, as shown in the figure. Do not remove cover from area shown shaded in the figure.

Double check drive ID settings for your drive or drives.

Table 1. Drive configuration selections summary

Model Type	Function	J1	J6	J1-Aux	J2	Appl. Figure
N	Drive ID		X,Y	none		3a
N	Drive Activity LED		X,[3]	none		3a
N	Option select			none	X	3d
W	Drive ID		X,Y	X,Y[5]		3b,3c[1]
W	Drive Activity LED		Y[3]			3b
W	Option select				X	3d
WC	Drive ID	Y[6]	X,Y	none		3b[4]
WC	Drive Activity LED	Y[3]	Y[3]	none		3b[4]
WC	Option select:					
	Delayed Mtr Start	Y[2]		none	X	3e
	Enable Mtr Start	Y[2]		none	X	3e
	Write Protect			none	X	3e
	Parity Disable			none	X	3e

("X" means the function selection can be made with jumpers on that connector;

"Y" means the signal is available to host through that connector).

Notes[ ] for Table 1:

[1] Use either J6 or J1-Aux, but not both.

[2] I/O connector J1 plugs directly into host. No jumper can be installed on J1. The host supplies the logic state of these function signals; causing the selection of these functions.

[3] The host can drive a remotely located Drive Activity LED using this signal.

[4] Use either J1 or J6, but not both.

[5] Jumper plugs can be used on J1-Auxiliary pins 1-2, 3-4, 5-6 and 7-8 to set drive ID if desired, but usually a connector/cable is plugged to J1-Auxiliary to run these signals to the host for remote ID selection.

[6] The host selects drive ID through J1.

Select Operating Features

If your new drive replaces an existing drive, you must set up the new drive to operate as the old drive did. Check the documentation for your old drive to see how the drive was set to operate. Look at Figure 3d or 3e. Normally, you should leave off the "Delay Motor Start", "Enable Motor Start," "Write Protect", "Parity Disable" and "Term power to SCSI Bus" jumpers. A jumper on means the feature is enabled, except for "Parity Disable," where a jumper on means that parity checking is disabled. Only "Terminator Enable" and "Term Power from drive" jumper positions should have a jumper on ("N" and "W" models only). Do not remove these two default jumpers or add jumpers to any of the other jumper positions mentioned above unless your computer system documentation indicates otherwise.

The factory installed default settings are generally always correct.

Drive model "WC" plugs directly into a bulkhead or PCB mounted connector. Systems using these drives have made provisions for terminators and selecting most options, so only "Write Protect" and "Parity Disable" options (on J2) must be considered for possible setting by a person installing a replacement drive (usually no change is needed). Most systems using "WC" model drives use drives that have unique drive internal control firmware, so "off the distributor shelf" drives probably will not work in these installations. Firmware cannot be changed on these drives. If you are upgrading by installing an additional drive, consult the system documentation or system purchase source for help in setting up drive ID, options and getting termination correct.

I/O line terminators

The SCSI I/O lines must be "terminated" at the drive connected to the end of the cable. If your new drive is a model "N" or "W" and is to be connected at the end of the cable, a jumper plug should be installed on J2 (one of the smaller plugs) at the location shown in Figure 3d where it says "Terminator Enable."

On J2, the "Terminator Power" (TP) jumper should be left in the "Term. Power From Drive" position, unless otherwise directed by your computer documentation.

If your drive is to be connected at the cable connector that is not at the end of the cable (it is a second hard drive for your system), the "Terminator Enable" jumper should not be installed. Remove and store the jumper if there is one on the "Terminator Enable" position.

If installing a "WC" model drive see system documentation. "WC" drives have no terminators, nor do they furnish terminator power to the I/O bus. Terminators are in the Host system.

N drives

**Drive
Front**

Jumper Plug
(enlarged to
show detail)

J6   Pin 1

← PCB

Reserved   L R R
            E E E
            D S S A₂A₁A₀

SCSI ID = 0		(default)
SCSI ID = 1		
SCSI ID = 2		
SCSI ID = 3		
SCSI ID = 4		
SCSI ID = 5		
SCSI ID = 6		
SCSI ID = 7		
Remote LED		Drive Activity LED

Do not remove
cover or install
any jumpers

11
12

CATH
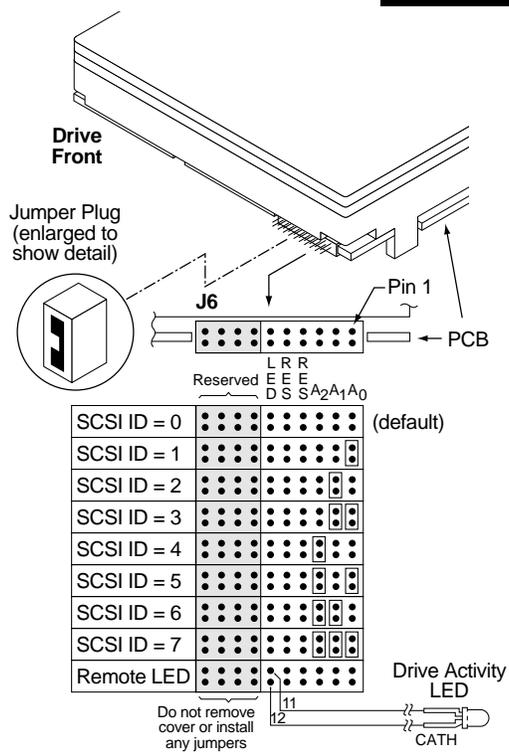
**Figure 3a. Model "N" drive ID Select and LED
connection**

W/WC drive

SCSI ID = 0 (default)
SCSI ID = 1
SCSI ID = 2
SCSI ID = 3
SCSI ID = 4
SCSI ID = 5
SCSI ID = 6
SCSI ID = 7
SCSI ID = 8
SCSI ID = 9
SCSI ID = 10
SCSI ID = 11
SCSI ID = 12
SCSI ID = 13
SCSI ID = 14
SCSI ID = 15

Jumper Plug (enlarged to show detail)

Drive Front

PCB

Shipped with cover installed. **Do not install jumpers; retain cover** unless 20 pin plug is installed.

Host Alternate Usage Plug:

Reserved Pins

+5V
Ground
Drive Activity LED

Optional connections to switching circuits in host equipment to establish drive ID.

Dashed area is optional host circuitry (external to the drive) connected to host supplied optional usage plug. **Do not connect anything to pins 13-20.**

Figure 3b. Model "W" and "WC" drive ID select and LED connection

Figure 3c. Model "W" drive ID select and LED connection

N/W drives

Drive Front

Drive PCB

Jumper Plug
(enlarged to
show detail)

J2

Jumper Positions	TE	DS	ME	WP	PD	RES	TP	TP	
Terminator Enable	■								(default)
Delay Motor Start		■							
Enable Motor Start			■						
Write Protect				■					
Parity Disable					■				
Term. Power from Drive							■		(default)
Term. Power to SCSI Bus								■	
Term. Power from SCSI Bus							■	■	
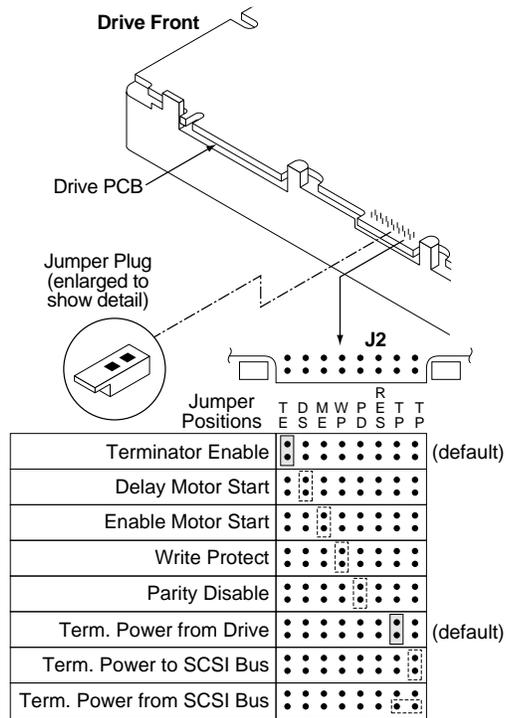
**Figure 3d. Models "N" and "W" drive configurator,
option select**

Drive Front

Drive
PCB

Jumper Plug
(enlarged to
show detail)

J2

Jumper Positions	T E	D S	M E	W P	P D	R E S	T P	T P
Delay Motor Start								
Enable Motor Start								
Write Protect								
Parity Disable								

*Not used.
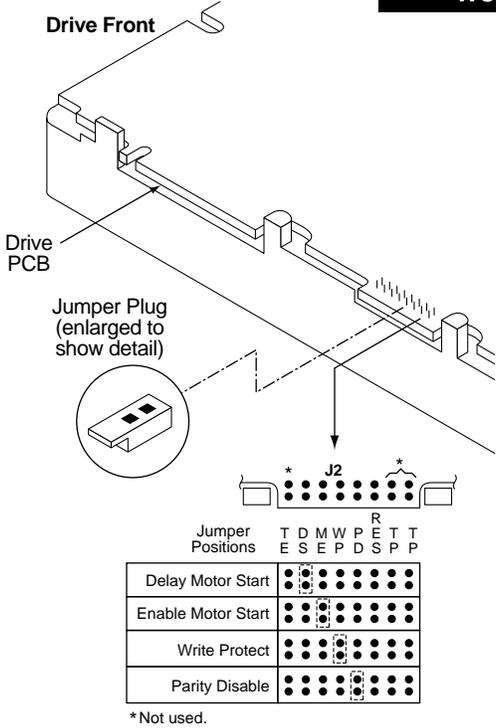
**Figure 3e. Model "WC" drive configurator,
           option select**

Mounting the drive

Important Precautions:

- Make sure your computer is turned off before beginning installation.

- Although switched off, your computer must remain plugged into an electrical outlet with an earth ground. This minimizes the possibility of damage from static discharge.

- Static electrical charges can accumulate quickly on people, clothing and synthetic materials. The electrostatic fields due to these charges when brought in close proximity to susceptible circuit assemblies and components, can result in degraded reliability or immediate failure of the affected component or assembly.

- Always wear a grounded wrist strap. Attach the wrist strap to the metal chassis of your computer. Use the antistatic pad as your work surface, and avoid installation in areas with static-inducing carpets.

1. Begin by removing the cover of the computer. Follow the instructions in your computer manual. Systems that use "WC" drives probably do not require cover removal, as the drives are mounted in a module that slides into place and plugs in.

2. Does your system have 5.25-inch drive bays? Your Seagate drive is designed to fit into a 3.5-inch wide drive bay. If your computer has 5.25-inch drive bays, then you must mount the drive ("N" or "W" models only) in a conversion frame kit before then you must mount the drive ("N" or "W" models only) in a conversion frame kit before it will fit into your computer. Purchase a conversion frame kit from your computer dealer if necessary.

3. Connect the 50 or 68 pin interface cable to the hard drive interface connector on the SCSI host adapter card. Be careful not to bend the pins on the host adapter card connector. Refer to your SCSI host adapter manual for the location of the interface connector.

   The sockets on the interface cable must be matched correctly with the pins on your SCSI host adapter interface connector. Verify the location of pin 1 on the SCSI host adapter using your computer system's manual. Pin 1 on the interface cable is indicated by the stripe along the edge of the cable. Plug the cable into the hard drive interface connector on your SCSI host adapter.

4. Thread the other end of the interface cable through your drive bay and connect to the disc drive, as shown in Figure 4a, 4b, 4c or 4d.

   The sockets on the interface cable must be matched correctly with the pins on the disc drive. Pin 1 on the interface cable is indicated by the strip along the edge of the cable;

pin 1 on the Seagate disc drive is the pin closest to the HDA, on the side closest to the four-pin powersupply connector as shown in Figure 4a or 4b. Plug the interface cable into the drive connector firmly but carefully. The connector should cover both rows of pins.

If you are installing a second or multiple disc drives, repeat this procedure using the additional drive connectors on the interface cable, as shown in Figures 4c or 4d.

5. Mount the drive in a drive bay.

- **Direct mounting:**
  The disc drive can be mounted in the drive bay in any orientation permitted by the drive bay mechanical configuration. Be careful not to over tighten the mounting screws. Screws must not extend into the side drive mounting holes more than 0.015 inches, (9/64 inches) or into the bottom mounting holes 0.20 inches (3/16 inches). Purchase the four required 6-32 x 1/4 inch screws at a hardware or drive supplier store. If needed, Figure 6 shows the drive mounting dimensions.

- **Using drive rails:**
  In some computers, you must attach drive rails to either side of the drive, then slide the drive into the drive bay on its drive rails. Be sure that the drive is securely mounted within the bay. In computers that do not use drive rails, screw the drive or the frame kit holding the drive directly to the drive bay.

- **Using a conversion frame kit:**
  To mount a 3.5" drive in a 5.25" drive bay, install the drive in the frame kit (installation instructions and required hardware are included with a frame kit). Then mount the frame kit in the drive bay.

  If you are installing two disc drives, repeat the appropriate procedure above for the second drive.

- **Using a special module:**
  "WC" drives should be fitted with slides or most likely, mounted in a special module that slides into the host equipment.

- **Drive activity LED:**
  If the drive mounts such that the drive activity LED does not show when the computer cover is on, the computer may provide for a remote LED two conductor cable to be used on all models. This cable plugs into J6 on the front of the drive as shown in Figure 3a.

  "WC" model drives have a line available in the J1-80 pin interface. Check system documentation to see if J1 signal is used or if a cable should be attached to J6.

50-pin drive

HDA

Pin 1

*
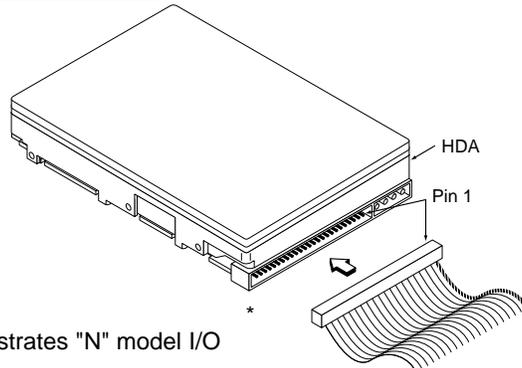
* Illustrates "N" model I/O
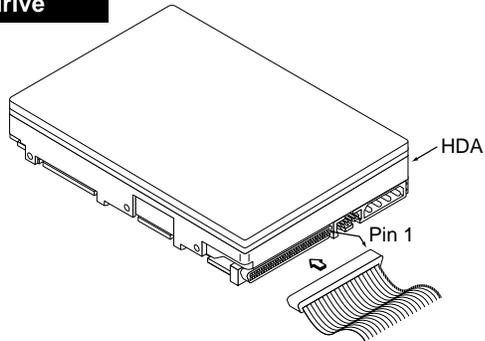
Figure 4a. Fifty-pin I/O connection to drive

68-pin drive

HDA

Pin 1
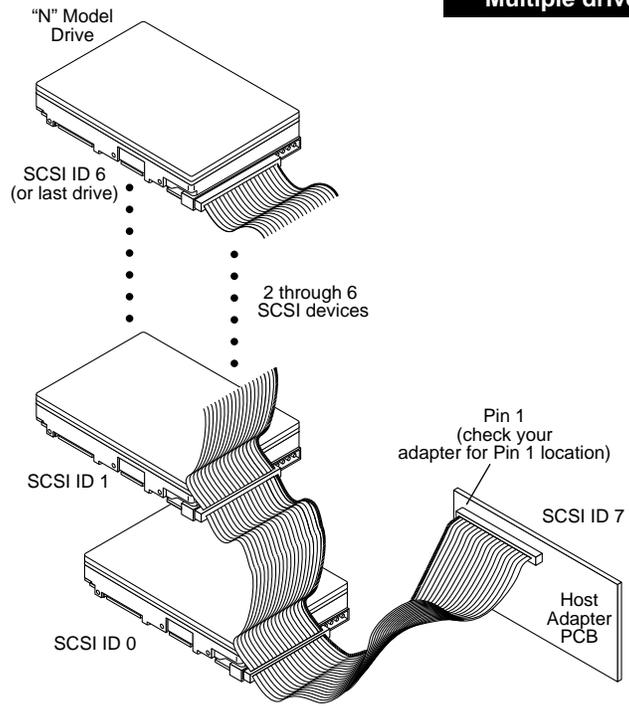
Figure 4b. Sixty-eight pin connection to drive

Multiple drive

"N" Model
Drive

SCSI ID 6
(or last drive)

2 through 6
SCSI devices

SCSI ID 1

Pin 1
(check your
adapter for Pin 1 location)

SCSI ID 7

Host
Adapter
PCB

SCSI ID 0

Figure 4c. Multiple drive connection to host adapter

W drive

"W" Model
Drive

SCSI ID 15
(or last drive)

2 through 15
SCSI devices

Pin 1
(check your
adapter for
Pin 1 location)
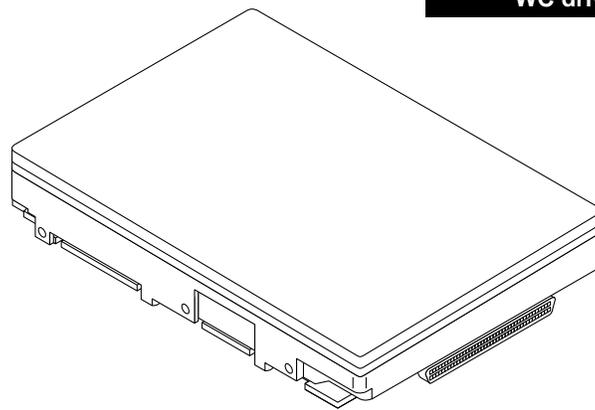
SCSI ID 1

SCSI ID 7

Host
Adapter
PCB

SCSI ID 0
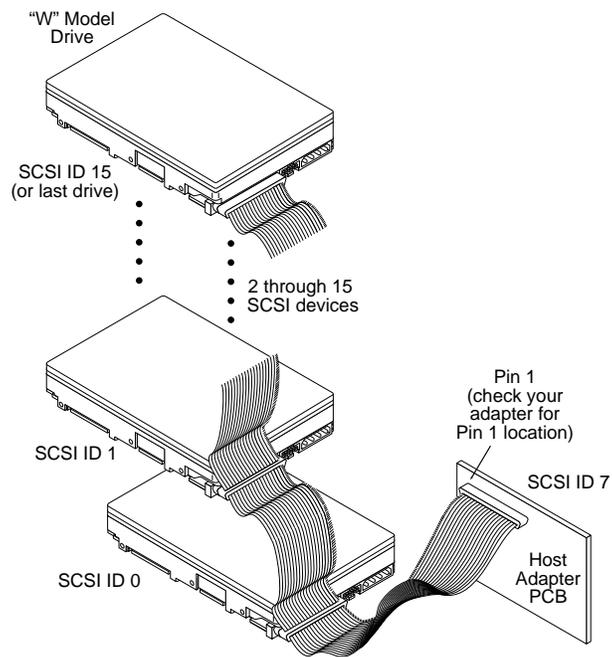
Figure 4d. Multiple-drive connection to host adapter

Note: This drive model plugs directly into a backplane
connector and therefore uses no cables.

**Figure 4e. Drive model "WC" with single 80 pin
connector**

6.   Attach a system power cable to the power connector on each drive as shown in Figure 5. If your system does not have an extra power cable for the hard drive, you can purchase a Y-shaped power cable, such as the one shown in Figure 2.

7.   Review each of the previous steps to verify that you have completed the installation correctly.

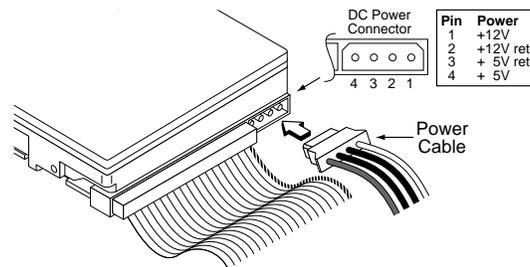**8.**   Replace the cover on your computer.

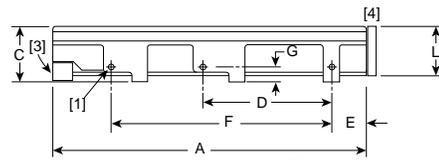| Pin	Power
1	+12V
2	+12V ret
3	+ 5V ret
4	+ 5V

Figure 5. Power connection to drive

Notes:

[1] Mounting holes three on each side, 6-32 UNC. Max screw length into side of drive 0.15 in. (3.81 mm). Screw tightening torque 6.0 in-lb (.675 NM) max with minimum thread engagement of 0.12 in. (3.05 mm).

[2] Mounting holes four on bottom, 6-32 UNC. Max screw length into bottom of drive 0.20 in. (5.08 mm). Screw tightening torque 6.0 in-lb (.675 NM) max with minimum thread engagement of 0.12 in. (3.05 mm).

[3] Power and interface connectors can extend past the "A" dimension by 0.040 in. (1.02 mm).

[4] Decorative front panel (optional).

[5] Mounting hole locations same for all Hawk 2XL models.
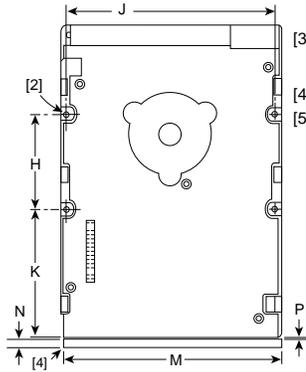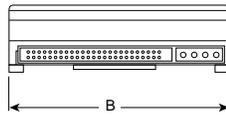
	Inches	Millimeters
A	5.74 ± .010	145.80 ± .25
B	4.00 ± .010	101.60 ± .25
C	1.00 + .021 − .009	25.40 + .53 − .22
D	2.362 ± .010	60.00 ± .25
E	.620 ± .020	15.75 ± .50
F	4.000 ± .010	101.60 ± .25
G	.250 + .010 − .005	6.35 + .25 − .12
H	1.750 ± .010	44.45 ± .25
J	3.750 ± .010	95.25 ± .25
K	2.370 ± .020	60.20 ± .50
L	1.00 ± .010	25.4 ± .25
M	4.000 ± .010	101.6 ± .25
N	0.19 ± .010	4.83 ± .25
P	0.015 max	0.381 max

Figure 6. Mounting configuration dimensions

Configuring the computer for your drive

The hardware part of your installation should now be complete. Software installation informs your computer operating software about your Seagate disc drive characteristics. You can then divide your drive into partitions called "logical drives."

DOS Installation

To install your Seagate disc drive in your computer software, your computer operating system should be Microsoft DOS version 4.0 or higher. Your SCSI adapter card must be able to address greater than two gigabytes.

If you already have a hard disc drive on your computer and you are installing a second drive, now is a good time to evaluate the status and quality of your backups. Once you are satisfied with the status of your backups, then proceed.

Caution.   Determine which drive is to be partitioned in a two drive system.

• Turn your computer on and boot-up from your existing hard drive or from a diskette in drive A, whichever is applicable. Watch the screen for text that tells which key(s) to press to branch into the system setup program. Hit CTL-ALT-DEL to boot-up again if you missed it. Choose to go into setup.

- Setup presents a menu. Choose the menu item that asks you to declare the drive type. If the screen says the drive type is "not installed" or something similar, save that and leave setup. If it asks you to enter a drive type, enter "none," "drive not installed," "type 0" or whatever similar response is given as a choice on the menu.

- Save and leave this screen. The computer will probably boot up again. If not, hit CTL-ALT-DEL.

- At the C> prompt or A> prompt, run the FDISK utility program either from your existing hard drive or from a diskette in drive A. (refer to your DOS user's Reference Manual for more detailed instructions on FDISK procedures).

- A menu comes up that gives choices pertaining to installing your new drive and dividing it into partitions. If the drive you set the jumpers for is Drive ID 0 (no ID jumpers on), the menu will stay at the top, "Current fixed disk drive: 1"

- From the menu choose "Create a DOS partition..."

- Proceed to set up desired partitions.

- If your new drive is jumpered as Drive ID 1, choose "Select next fixed disk drive" on the menu. FDISK displays the main menu again, but at the top it says "Current fixed disk drive: 2".

- The menu displayed gives you the same opportunity as mentioned above to partition your second drive as several logical (simulated) drive volumes.

Caution. Do not try to change the partitions set up for an existing in-use drive. If you change any partitions or logical (simulated) drive assignments on your existing drive, you will lose all data stored. Always backup the existing drive's data on diskettes, tape, or other media before changing the drive's configuration.

The first hard drive (drive jumpered as ID 0) is always called drive C. If you already have a hard drive, FDISK shows it as drive C and shows if it has been divided into a primary DOS partition and an extended partition. The extended partition can be divided into several logical drives. FDISK lists these logical drives as D, E, F, etc. The primary DOS partition has the operating system on it (this is the start up or "Boot-up" partition). From the main menu, choose to set "Active" the DOS partition you want to boot from, which is the primary DOS partition.

Many people like to make drive C a few megabytes, devoted almost entirely to the operating system (DOS or other) and little else.

They put other programs on other logical drives, grouped in categories that provide a distribution of data and programs across all logical drives that suits their applications. When satisfied with the set up as instructed in the menus presented, reboot the drive.

Formatting

Caution.

Do not format the existing drive that contains user data that you don't want to lose, as all user data will be lost when a drive is formatted.

When a second drive is installed, the drive letters assigned by DOS to the first drive may change. Be careful not to accidently format a logical drive with existing data.

When you complete drive partitioning, you need to high-level format every new logical drive you have set up. If your new drive is to be the boot-up drive, insert the DOS system diskette in drive A and type at the A/> prompt FORMAT C: /s/v. This formats drive C and puts the programs on that are necessary to boot the computer from the C drive, and verifies that the format was performed correctly. For each additional logical drive you have changed or newly set up, type in FORMAT X: /v (where "X" is the proper drive letter for the drive to be formatted).

Note:
Seagate Technology assumes no liability for lost user data.

From the C/> prompt, try to switch to each logical drive (C:, D:, E:, etc.) to see if you can get a prompt for each logical drive (C\>, D\>, E\>, etc.). With each prompt that you select, type CHKDSK. This shows if the logical drives are usable for storing data and programs. If the logical drives you set up are not recognized, try the FDISK set up routine and FORMAT again. You may have made a small mistake at some point in the installation procedure.

Make sure that the total capacity shown for your new drive is equal (or close to) the formatted capacity given in the Product Information table, column B at the end of this guide. If not, you may need to get a newer SCSI adapter card that allows you to access the complete drive.

If the complete DOS operating system software is not on your primary DOS drive (usually C), read it in from diskettes on drive A.

Macintosh installation

To configure this drive in a Macintosh system, you must use a third-party hard disc initialization application. Most software vendors and computer stores that carry Macintosh software will have hard disc drivers available for purchase.

Follow the instructions provided with the disc initialization application to complete the installation of your Seagate drive.

Note.
The *Apple HD SC Setup* utility included with your Macintosh system software only works on drives ordered directly through Apple.

Unix installation

There are several versions of the Unix operating system. Each of these handle hard disc installation in a different manner. For this for reason, refer to your system's operation manual for information about how to complete the installation of this disc drive. Contact Seagate Technical support services for any additional information needed to install the drive in a Unix system.

Troubleshooting

Before calling Seagate Technical Support, please read and consider the possibilities discussed below. The suggestions presented here will resolve the majority of installation problems.

General installation troubleshooting

• **Check system compatibility.** This is a SCSI interface device. Check your system documentation to ensure that is supports SCSI interface devices.

• **Check the drive ID assigned.** Model "N" has three drive ID jumper positions on the drive. See Figure 3a. Models "W" and "WC" have four drive ID jumper positions. See Figures 3b and 3c.

• **Check the drive operating feature jumpers.** See Figure 3b and associated explanations.

- **Check to ensure that drive is receiving power.** Insert the drive into your system. Listen carefully for the sound of the drive motor spinning up. There should be the rotational spin up noise, with no interruption, followed by seeking noises and clicks. If the drive motor does not spin up, check the power supply. If your power supply is functioning properly, but the drive does not spin up, contact the company from which you purchased the drive. If you have added one or more drives to your existing system the power supply may not be able to furnish enough power. Check with your drive purchase source about this.

  Inadequate power supplies may work for a short period of time under great stress, and then either fail or operate in a severely degraded mode. It may supply enough +5 V for the logic to respond, but not enough current on the +12 V for a spinup.

Product repair information

Service requirements

The special facilities required for the manufacture of these drives generally prohibit repair in the field. If problems occur during installation, please contact your supplier for assistance. Do not attempt to disassemble or repair. Drives should be sent to the repair depot through the purchase source, if possible. Please observe the following cautions.

Caution.

- Handle drive with care. Do not drop, or bump hard.

- **Never** remove the cover of these disc drives. Servicing items in the sealed HDA (heads, media, actuator, etc.) require special facilities. The drive contains no user purchasable parts or PCBs.

- Opening the sealed HDA voids the drive warranty.

- Applying a soldering device to the components on the PCB voids the drive warranty.

- Do not connect or disconnect cables without first removing power from the drive.

- Place drive on a flat, static dissipative surface and handle with extreme care. Always follow all EOS/ESD precautions to avoid damage to the electrical assemblies.

Product repair and return information

Seagate customer service centers are the only facilities authorized to service Seagate drives. Seagate does not sanction any third-party repair facilities. Any unauthorized repair or tampering with the factory-seal voids the warranty.

Shipping: When transporting or shipping a drive, a Seagate approved container must be used. Keep your original box. They are easily identified by the Seagate Approved Package label. Shipping a drive in a non-approved container voids the drive warranty.

Seagate repair centers may refuse receipt of components improperly packaged or obviously damaged in transit. Contact your Authorized Seagate Distributor to purchase additional boxes. Seagate recommends shipping by an air-ride carrier experienced in handling computer equipment.

Warranty: Contact your Seagate Authorized Distributor, Dealer or other purchase source for warranty information.

If the drive is no longer under warranty contact purchase source for repair information or refer to numbers listed in section Technical Support Services.

Technical support services

Seagate Technology provides technical support literature and diagnostic utilities to Authorized Distributors. Please contact your dealer for technical support and installation troubleshooting. Product Technical Support is available for all Seagate products by calling the SeaFAX, SeaFONE, SeaTDD or SeaBOARD services. These are toll calls.

1. **SeaBOARD™:** the Seagate Technical Support Bulletin Board System (BBS) is available by modem 24 hours a day, 7 days a week. SeaBOARD provides access to:

    • Specifications and configurations for all Seagate products

    • Reprints of Seagate documentation

    • A directory of information and useful utilities that can be downloaded to your computer

To access SeaBoard:

• Set your communications software to eight data bits, no parity, and one stop bit (8-N-1).

• Dial the nearest SeaBOARD number from the following list:

BBS location	Modem number	Maximum baud rate
Australia	61-2-756-2359	9600
England	44-62-847-8011	9600
France	33-1-40-67-1034	9600
Germany	49-89-140-9331	9600
Korea	82-2-556-7294	9600
Singapore	65-292-6973	9600
USA	408-438-8771	9600
Thailand	662-531-8111	9600

2. **CompuServe:** Online technical support for Seagate Products is available on CompuServe. Type "Go Seagate" to access our technical support forum.

3. **SeaFAX™:** You can use a touch-tone telephone to access Seagate's automated FAX system and receive technical support information by return FAX. This service is available 24 hours daily. To reach SeaFAX dial:

    PHONE 408/438-2620 (USA)
    PHONE 44-62-847-7080 (England)

4. **Seagate Technical Support FAX:**
    You can FAX specific questions or comments to Seagate technical support specialists 24 hours daily. Responses are FAXed between 8:00 a.m. and 5:00 p.m. (Pacific time), Monday through Friday. To reach Seagate Technical Support Fax dial:

    FAX 408/438-8137

5. **SeaFONE™:** Technical support specialists are available to answer questions by telephone from 8:00 a.m. to 5:00 p.m. (Pacific time), Monday through Friday. The SeaFONE enhanced phone system also provides recorded technical information on selected Seagate products whenever callers are placed on hold. This recorded information is accessible 24 hours daily. To reach SeaFONE dial:

    PHONE 408/438-8222

6. **SeaTDD™:** Using a Telecommunications Device for the Deaf (TDD), you can send questions or comments 24 hours a day, and communicate with a Seagate technical support specialist between 8:00 a.m. and 5:00 p.m. (Pacific time), Monday through Friday. To reach SeaTDD dial:

    TDD 408/438-5382

Hawk 2XL Family product information

Characteristics of the various drives covered by this manual are listed in the following table.

Legend for table column meanings:

A	=	capacity, unformatted Gigabytes
B	=	capacity, formatted Gigabytes [1]
C	=	number of cylinders, user accessible
D	=	number of heads
E	=	+ 5 V typical current [2], Amps
F	=	+12 V typical current [2], Amps
G	=	spindle speed r/min ±0.5% tolerence

Model	A[3]	B	C[3]	D	E	F	G
ST32151N	2.54	2.148	4176	8	0.65	0.40	5411
ST32151W	2.54	2.148	4176	8	0.65	0.40	5411
ST32151WC	2.54	2.148	4176	8	0.65	0.40	5411
ST31051N	1.26	1.060	4176	4	0.65	0.40	5411
ST31051W	1.26	1.060	4176	4	0.65	0.40	5411
ST31051WC	1.26	1.060	4176	4	0.65	0.40	5411
ST32155N	2.54	2.148	4176	8	0.65	0.40	5411
ST32155W	2.54	2.148	4176	8	0.65	0.40	5411
ST32155WC	2.54	2.148	4176	8	0.65	0.40	5411
ST31055N	1.26	1.060	4176	4	0.65	0.40	5411
ST31055W	1.26	1.060	4176	4	0.65	0.40	5411
ST31055WC	1.26	1.060	4176	4	0.65	0.40	5411

Notes.

[1] Standard units are factory formatted with 512 data bytes per sector with 10 spare sectors per cylinder for ST32151/ST32155, 5 spare sectors per cylinder for ST31051/ST31055 and 2 cylinders at inner tracks reserved for spares in addition to capacity listed. All spare sectors are on one track.

[2] Measured with an average reading DC ammeter. Instantaneous +12 V current peaks will exceed these values.

[3] Preliminary values.

ΩΩ Seagate