Seagate

HAWK 4 Family:

(Wide Bus)

ST15230W/WD/WC

ST15230DC

Installation Guide

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Introduction

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

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

Electromagnetic interference (EMI) considerations

The drive(s) described herein, as delivered, are designed for system integration and installation into a suitable enclosure prior to use. As such, the drive(s) described herein are supplied as a sub-assembly 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 unit has 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.

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The physical design characteristics of the drive(s) 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(s) 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 and to the host controller.

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Before you begin

Verify that the system is switched off and disconnected from 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 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.
- 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.

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- 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.

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

- 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.

Caution. The circuit assemblies and components contained in this equipment can be degraded or destroyed by Electrostatic Overstress (EOS) or by Electrostatic Discharge (ESD).

Static electrical charges can accumulate quickly on personnel, 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.

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To insure optimum reliable equipment operation, it is required that technical support personnel discharge themselves by wearing a grounding strap around the wrist and be connected to a grounding terminal while working in the vicinity of, and while handling EOS/ESD susceptible assemblies/parts. If unavailable, ground yourself frequently by touching the metal chassis of the system before handling any components (this helps only if the system is connected to a ground). *Avoid static-inducing carpeted areas.* This procedure is especially important when handling printed circuit boards (PCBs).

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Safety instructions

1. The disc drive(s) are 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 (3.81 mm). Maximum screw length into bottom is 0.20 in. (5.08 mm). Maximum screw tightening torque is 6.0 in-lb (.675 NM) with minimum thread engagement of .12 in. (3.05 mm).
3. The power requirements are shown in Section 1.0 Product Information.
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.

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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 oberen 0.15 in (3.81 mm). Maximalle Schraubenanziehung von 6.0 in-lb. (.675 NM) mit minimalen Gewindeansperuch .12 in. (3.05 mm).
3. Die Versorgungsspannungen werden im Kapitel 1.0 (Produkt Information) gezeigt.
4. Die Versorgungsspannung muss SELV entsprechen.
5. Alle Arbeiten dürfen nur von ausgebildetem Seagate Service-Personal durchgefürhrt 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.

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Installation Overview

Installation of the drive can be divided into distinct phases as outlined below. Some of these may not be applicable to your particular installation requirements. Refer to the individual drive installation sections for specific information on your drive model.

- **Drive configuration:** The user must select which of the drive features are appropriate to enable for installation in their system. This is done by way of the user configuration jumpers found on the drive PCB.

- **Mechanical installation:** After setting up the drive configuration the drive must be mechanically installed into the host system and the power and I/O cables attached. Previously mentioned precautions should be observed

- **SCSI drives should not be defined in the CMOS:** The SCSI Host adapter has its own BIOS to handle the Input/output procedures. The CMOS setting for SCSI drive is either drive type zero, or the "no drive installed" option.

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- **Low-level formatting:** After the drive has been properly configured for the system, it does not need to be low-level formatted, as this has been done by the factory and does not require this step during installation. (The low-level format writes the sector boundaries and track information to the drive). Defect management information is read from the drive by the host system when required in the installation procedure. If an installed drive is low-level formatted, all user data stored on the drive will be lost.

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

- **Partitioning and high level formatting:** A drive can be sub-divided into "partitions" which behave as individual drives within the system. See your system documentation. Present day drive installation programs have menus that lead you through these installation procedures.

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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.
- 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.

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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.

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.

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

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If the drive is no longer under warranty contact purchase source for repair information or refer to numbers listed in the following paragraph .

Technical support services

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.

SeaFAX:	**United States**	**408/438-2620**
	England	**44-62-847-7080**

You can use a Touch-Tone telephone to access Seagate's automated FAX delivery system and select technical support information by return FAX. This service is available 24 hours a day, 7 days a week.

SeaFone: 408/438-8222

The enhanced phone system provides recorded technical information on selected Seagate products while you are on hold. Technical support specialists are available to answer questions from 8:00 AM to 5:00 PM PST, Monday through Friday. Recordings are accessible 24 hours a day, 7 days a week.

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SeaTDD: 408/438-5382

TDD is a Telecommunication Device for the Deaf where two people can communicate using a keyboard that is connected to the phone line. A TDD device is required to access this service. This service is available from 8:00 AM to 5:00 PM PST, Monday through Friday.

SeaBOARD:

The Seagate Technical Support Bulletin Board System (BBS) is available 24 hours a day, 7 days a week. A modem is required to access this service. Modem required. (300–9600 baud, 8-N-1). This is a toll call.

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With this service you can access:

- Specifications and jumper configurations for all Seagate products.
- Reprints of Seagate documentation.
- A directory of information and helpful utilities that you can download to your own computer.

BBS Location	**Modem Number**
USA, Mexico, Latin America	408/438-8771
Canada	416/856/5581
England	44-62-847-8011
France	33-1-40-67-1034
Germany	49-89-140-9331
Singapore	65-292-6973
Australia	61-2-756-2359
Korea	82-2-556-7294

Note: These are toll calls

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Drive specifications

Product Information	**Hawk 4 family (wide)**	
	ST15230W **ST15230WC**	**ST15230WD** **ST15230DC**
Interface [7]	SCSI-2 Fast	SCSI-2 Fast
Cache Type	Multi-segmented, 256 Kb*	
Capacity MB		
Unformatted	5170	5170
Formatted [1]	4294	4294
Cylinders	3992	3992
Heads	19	19
Sectors/track (Avg.)[8]	114	114
Recording method	RLL (1,7)	RLL (1,7)
Rev/min	5411	5411
Seek time (ms typ.) [2]		
Average Read	10.4	10.4
Write	11.4	11.4
Operating environment		
Ambient temp. [4]	------ 5°C to 50°C-----	
HDA max temp. [3]	----------60°C----------	
Power requirements (Versorgungsspannungen)		
+12 V+/-5% (Max [6]	1.0 A	1.0 A
(Max Start) [5]	2.0 A	2.4 A
+5 V +/-5% (Max) [6]	0.8 A	1.05 A
(Max Start)	0.8 A	0.71 A
Power Idle (Typ)	9.0 W	9.5 W
Oper. (Typ)	11.0 W	12.0 W

*Optional 1 MB

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Notes.

[1] Standard units are factory formatted with 512 data bytes per sector. ST15230 OEM standard models have twelve spare sectors per cylinder and 2 cylinders at inner tracks reserved for spares.

[2] Does not Include on-board controller overhead.

[3] Maximum measured at any location on top cover.

[4] For best reliability keep below 35°C (95°F).

[5] A droop of up to -10% is permissible for a maximum of 10 seconds at power up. (abfall von -10% ist erluabt für 10 Sekunden max).

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

[7] Can be commanded to operate according to SCSI-1 protocol.

[8] Average only. Each different zone has a different number of sectors per track.

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Initial setup information

For the initial setup connect the cables, set the SCSI bus address and enable or disable (as required by system configuration), the SCSI I/O line terminator resistors (model "W" drives only). Note whether the drive model number ends in W, WC, DC or WD. These procedures are described in paragraphs following.

SCSI interface cable connection

The drives covered by this manual are SCSI interface drives. For "W" and "WD"" models, system connection is via a 68 pin, SCSI connector. For "WC and DC" models system connection is via an 80 pin SCSI connector. Normally "WC and DC" models plug directly into a PCB or bulkhead mounted mating 80 pin connector. Interfacing "WC and DC" models via a cable is not recommended. Pin 1 is noted in Figures 1a and 1b. Some cables have a contrasting color stripe on one edge to indicate pin 1. The I/O connector is keyed by virtue of its shape. There is only one way it can mate with the mating input connector. Strain relief is recommended at the cable for drives using cables. *Do not block system cooling air flow in routing of cables.*

DC Power connection

Model ST15230W/WD family drives receive DC power through a 4 pin connector mounted on the PCB next to the SCSI I/O connector. See Figure 1.

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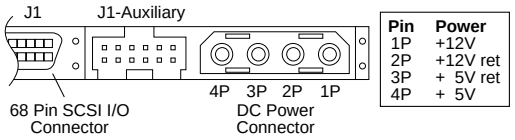

Figure 1. DC power connection, 68 pin SCSI I/O connector

ST15230WC and ST15230DC model drives receive power from the host computer through the 80 pin combined SCSI I/O and power connector (not shown, since a separate DC power cable not required). No separate DC power connector is provided on the drive.

SCSI address selection

On "W" and "WD" model drives, make sure that the SCSI bus address jumper plugs are properly set for the bus address assigned to the drive. In some systems, a cable plugs into either J6 or J1auxiliary, so drive ID can be set at some remote location. See Figures 3a and 3b showing the bus address select header and the jumper configurations that select addresses 0 through 15. ID 7 has the highest priority during bus arbitration on (both 8 and 16 device systems). Bus arbitration priority decreases to ID 0, then ID 15 down to ID 8. ID 8 is the very lowest priority. Typically the primary boot device is set to ID 0 the host is ID 7, and the subsequent SCSI drives are jumpered as appropriate for the particular system involved.

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If the drive LED shows no on/off activity when the host is trying to communicate with it, an incorrect bus address selection at the drive (or remote ID select location) should be suspected.

On "WC and DC" model drives the SCSI ID can be and presumably will be, set over the 80 pin interface by the host computer. Unless directed to do so by the system documentation, no jumpers should be installed for address selection. On "WC and DC" model drives, the host system also has complete control over motor start functions, so no Motor Start or Delayed Motor Start Jumpers should be installed.

Terminator resistor packs

Model ST15230W family drives have I/O line terminator resistors that are permanently installed, but can be enabled or disabled by jumper plug. See jumper in Figure 3a. If you are installing a single drive, the terminator resistors must remain enabled. If you are installing multiple hard disc drives, disable the termination resistors from all the drives but the one connected to the end of the SCSI I/O cable.

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Model numbers that end in "WD and DC" have differential I/O circuits and these drives and "WC" model drives have no provisions for terminators on the drive PCB. The system manufacturer must provide some external means of I/O line termination. The ST15230W/WD drives can provide power for external terminators if the **TP** jumper is installed on the last position on the right end of J2. See Figure 3a. Do not mix "W" model and "WD" model drives on the same I/O bus. Do not mix "WC" and "DC" model drives on the same bus.

Read/Write head auto-park

Seagate disc drives described herein mentioned in this drive park the heads automatically at power off. This feature requires no operator intervention.

Optional parity bit enable

Some systems require parity bit checking. Consult the system documentation for the specific requirements. See Figure 3a for location of Parity Bit enable jumper. Jumper-installed enables parity reporting by the SCSI bus.

Write precompensation and reduced write current

Not required on Seagate SCSI Interface drives covered by this manual.

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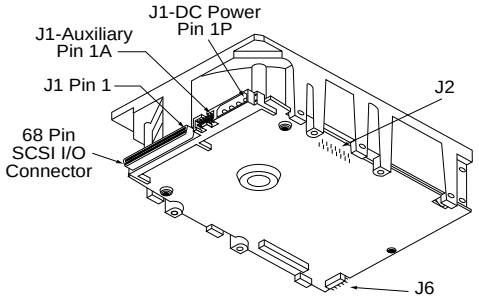

Figure 2a. Hawk 4 family ST15230W/WD model I/O connection 68 pin SCSI I/O and DC power connector). Terminators are not provided.

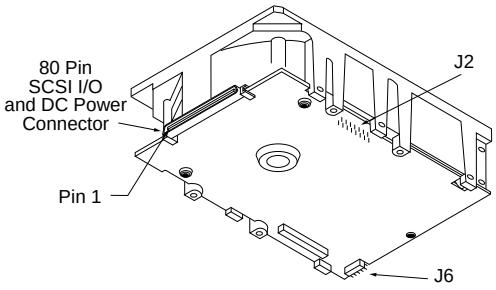

Figure 2b. Hawk 4 family ST15230WC/DC model drive physical interface (80 pin SCSI I/O and DC power connector). Terminators are not provided.

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Drive configuration

Each disc drive has option select header connectors on the back, side and front where jumper plugs are installed to select the way that the drive is to be configured and to select its ID (0 - 15) on the I/O bus. See "Initial set-up information" and see notes following Figure 3b.

ST15230W/WD family 68 pin SCSI I/O drives

On Hawk 4 family, W/WD model drives either J6 (on the front of the drive) or J1-auxiliary (at the rear, beside the DC Power connector) may be used to set the drive ID. To avoid possible incorrect ID setting, do not use both J1-auxiliary and J6 for ID selection. The following figures show where these headers are located on the different drives covered by this manual. See notes following Figures 3a and 3b where explanations are given about the purpose of each jumper and specify the standard factory (called "default") settings of these jumpers (i.e., settings used for most common single drive application). Changes to these settings should be made only if it is known that the system requires a different configuration.

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ST15230WC/DC family 80 pin SCSI I/O drives

On Hawk 4 family, ST15230WC/DC model drives there is no J1-auxiliary. J6 can be used to set drive ID, but the host probably does it over the 80 pin interface. J6 may be used to drive the external drive activity LED. This is described in the notes following Figure 3b.

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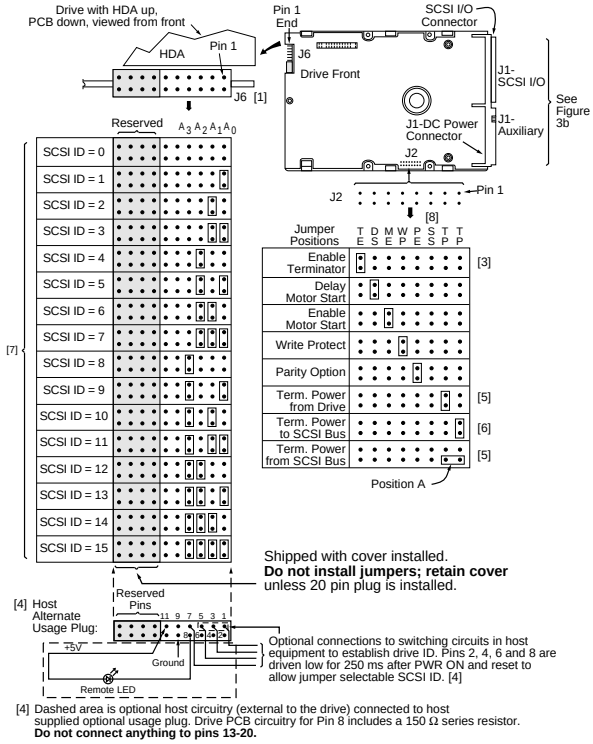

Figure 3a. Drive configurator Hawk 4 family ST15230W/WD model (Wide bus)

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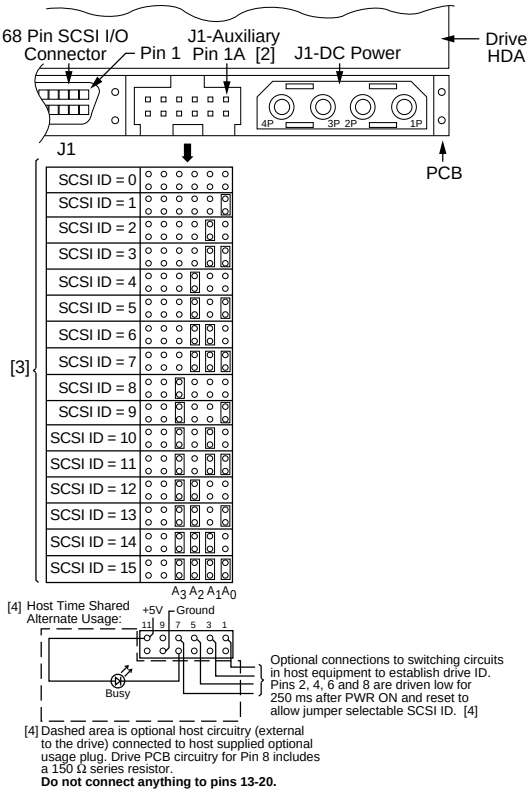

Figure 3b. Drive configurator Hawk 4 family ST15230W/WD model (Wide bus)

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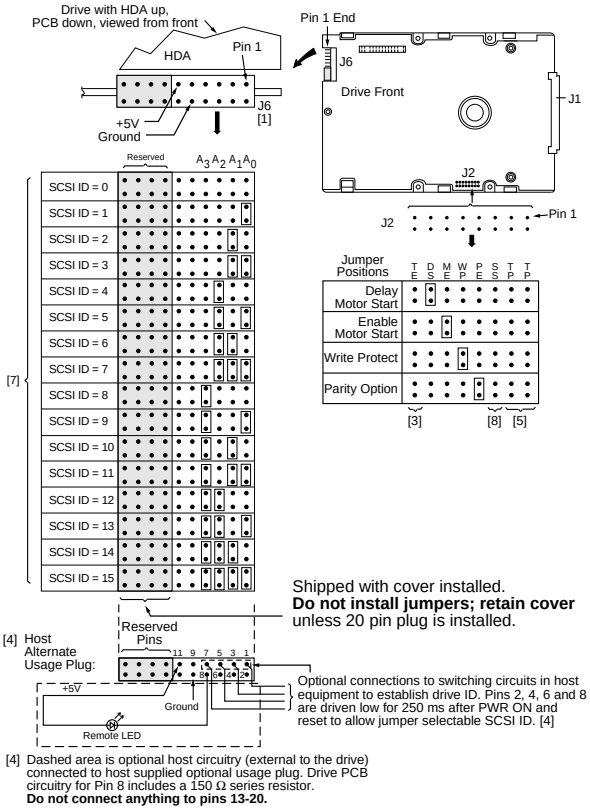

[4] Dashed area is optional host circuitry (external to the drive) connected to host supplied optional usage plug. Drive PCB circuitry for Pin 8 includes a 150 Ω series resistor.
Do not connect anything to pins 13-20.

Figure 3c. Drive configurator Hawk 4 family ST15230WC/DC model (Wide bus)

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Notes for Figure 3a, 3b and 3c:

[1] Notes explaining the functions of the various jumpers on jumper header connectors J2, J1-auxiliary and J6 are given below in left to right order of jumper position. The term "**default**" means as standard OEM units are configured when shipped from factory. "Off" means no jumper is installed; "On" means a jumper is installed. Off or On underlined is factory **default** condition.

[2] The PCB on "WC and DC" models does not have connector J1-auxiliary, but has a single 80 pin combined SCSI I/O and DC power connector instead of the 68 pin SCSI I/O and 4 pin DC power connectors. Included among the 80 pins are the SCSI ID, Motor Start and Delayed Motor Start select functions, and the remote LED signal. Do not use J2 and J6 for these five functions if the host uses the ones included in the 80 pin connector.

[3] Drive ID may be established by installing jumper plugs in one of the patterns shown in Figures 3a, 3b and 3c, or by plugging onto J6 or J1-auxiliary a cable that leads to an external ID selection circuit. Both jumper plugs and an external ID selection source should not be used. See [4] for other functions of these two headers that are time-shared with the drive ID function.

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[4] The drive time-shares the ID and LED functions of J6 and J1-auxiliary. That is, a cable may be attached to one of these headers to pick up the signal that lights the external LED indicator. If lines for external ID selection are not also included in the cable, jumper plugs must be used on the header not having a cable connected in order to establish drive ID. The drive reads the ID from J6 and J1-auxiliary for 250 ms after power-on or drive reset, and then uses these headers for the LED function the remainder of the time. Host system documentation should describe the application of the LED indicator if it connects a cable to use this option.

[5] Hawk 4 family model ST15230W only.

[6] Applies to Hawk 4 family ST15230W and WD models only.

[7] Applies to Hawk 4 family ST15230WC/DC models only.

[8] Reserved usage. Do not install a jumper.

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J2 Jumper. Position	Jumper Function Description
TE	**(Applies to "W" models only)**
On	With the jumper installed, the optional on-board (non-removable) terminator circuits are enabled (connected to the I/O lines). **Default** is jumper installed.
Off	Terminator circuits not connected to I/O lines.
DS ME	
Off Off	Spindle starts immediately after power up - **Default** setting.
Off On	Drive spindle does not start until Start Unit command received from host.
On Off	Spindle Start-up is delayed by SCSI ID times 12 seconds after power is applied, i.e., drive 0 spindle starts immediately when DC power connected, drive 1 starts after 12 second delay, drive 2 starts after 24 second delay, etc.
On On	Drive spindle starts when Start Unit command received from host. Delayed start feature is overridden and does not apply when **ME** jumper is installed.

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WP

On	Entire drive is write protected.
Off	Drive is not write protected. **Default** is no **WP** jumper installed.

PE

On	Parity checking and parity error reporting by the drive is enabled. **Default** is **PE** jumper installed.
Off	Drive does not report result of parity checking to host.

SS Reserved Jumper position. Do not install a jumper.

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TP	**TP**	**(Not applicable to "WC and DC" model drives)**
Off	Off	No terminator power is connected to drive terminators or SCSI bus I/O pin 26.
On	Off	Drive supplies its own terminator power only. Jumper on this position is factory **default.**
Off	On	Drive supplies power to I/O pin 26 of SCSI bus; none to internal terminators. When drives have differential I/O circuits a jumper on the right **TP** position may be needed to power external terminator (see system documentation). The Hawk 4 family ST15230WD drive has differential I/O circuits which have no terminator circuits on the drive.
On	On	Drive supplies terminator power to itself (internal connection) and to I/O pin 26 of SCSI bus. This is a legal jumper setting.

TP Position A

On	This horizontally positioned jumper across the two **TP** positions nearest PCB edge, connects terminator power from SCSI bus I/O pin 26 to the drive's internal terminators (for single-ended I/O only).
Off	See above explanations for **TP** jumpers.

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J6 and J1-Auxiliary Jumper Installation	Jumper Function Description
A_3,A_2,A_1,A_0*	Drive ID on SCSI Bus. The drive ID is binary coded positionwise i.e., jumper in position A_3 is drive ID 8, in position A_2 is drive ID 4, in position A_1 is ID 2, position A_0 is ID 1 and no jumpers is ID 0. **Default** is ID = 0. Either J1-auxiliary or J6 may be used to select drive ID. Both should not be used at the same time, because at some future time when the ID is changed the user could fail to configure both J1-auxiliary and J6 the same. **Default** is ID = 0.
BUSY	Connection for optional external Drive Busy indicator.

*See notes on page 27, 28 and 29

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Drive installation

This section describes the physical mounting of the drive in the host cabinet and the logical installation as a system member, which is called drive setup.

Disc drive mounting

Do not touch the connector pins or any PCB components without observing static-discharge precautions. Always handle the drive by the frame only.

The drive may be mounted in any orientation.

- See notes on Figures 4 and 5 pertaining to proper drive installation.
- Verify that all connections between the drive and the host system are correctly installed. Most cables have a contrasting color stripe indicating pin 1. Pin 1 on the drive I/O, J1-auxiliary DC power connectors are indicated in the figures in the Initial Set-up Information section.
- Verify option select and drive ID select jumpers. See Drive Configuration section.

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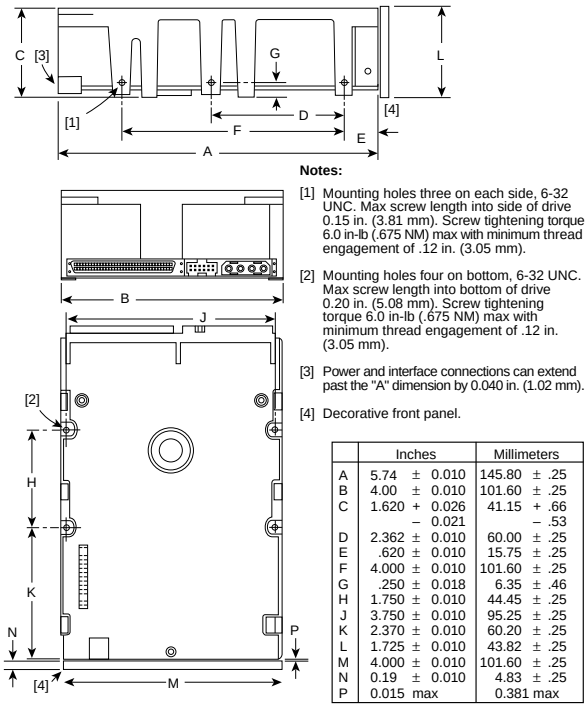

Notes:

[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 .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 .12 in. (3.05 mm).

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

[4] Decorative front panel.

	Inches	Millimeters
A	5.74 ± 0.010	145.80 ± .25
B	4.00 ± 0.010	101.60 ± .25
C	1.620 + 0.026 – 0.021	41.15 + .66 – .53
D	2.362 ± 0.010	60.00 ± .25
E	.620 ± 0.010	15.75 ± .25
F	4.000 ± 0.010	101.60 ± .25
G	.250 ± 0.018	6.35 ± .46
H	1.750 ± 0.010	44.45 ± .25
J	3.750 ± 0.010	95.25 ± .25
K	2.370 ± 0.010	60.20 ± .25
L	1.725 ± 0.010	43.82 ± .25
M	4.000 ± 0.010	101.60 ± .25
N	0.19 ± 0.010	4.83 ± .25
P	0.015 max	0.381 max

Figure 4. Hawk 4 family ST15230W/WD model drive mounting dimensions (68 pin SCSI I/O connector)

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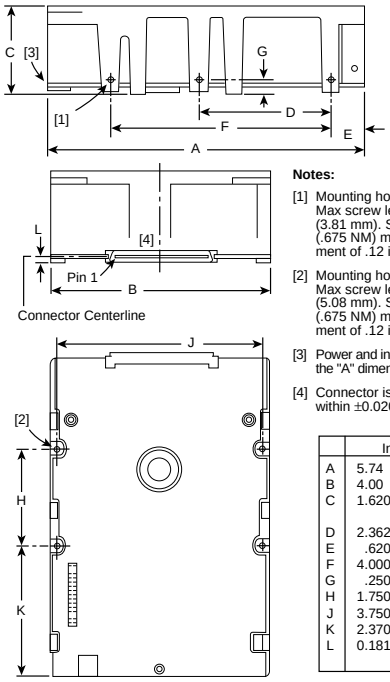

Notes:

[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 .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 .12 in. (3.05 mm).

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

[4] Connector is centered (side to side) on drive within ±0.020 in. (.508 mm).

	Inches	Millimeters
A	5.74 ± 0.010	145.80 ± .25
B	4.00 ± 0.010	101.60 ± .25
C	1.620 + 0.026 – 0.021	41.15 + .66 – .53
D	2.362 ± 0.010	60.00 ± .25
E	.620 ± 0.010	15.75 ± .25
F	4.000 ± 0.010	101.60 ± .25
G	.250 ± 0.018	6.35 ± .46
H	1.750 ± 0.010	44.45 ± .25
J	3.750 ± 0.010	95.25 ± .25
K	2.370 ± 0.010	60.20 ± .25
L	0.181 + 0.018 – 0.013	4.597 + .45 – .33

Figure 5. Hawk 4 family ST15230WC/DC model drive mounting configuration dimension (80 pin I/O connector)

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Do not power up the host system until the drive is mounted and the system cover is replaced.

- Connect DC power connector to the drive. (does not apply to "WC and DC" models which have DC power lines in the 80 pin I/O connector).
- Replace the Host System cover.
- Turn on DC power.
- Boot the system from the floppy drive or from a previously installed hard-drive if there is one.
- Proceed with drive setup of the new hard drive.

Grounding

Signal ground (PCB) and HDA ground are connected together in the Hawk 4 (Wide bus) drive and cannot be separated by the user. The equipment in which the drive is mounted is connected directly to the HDA and PCB with no electrically isolating shock mounts. If it is desired for the system chassis to not be connected to the HDA/PCB ground, the systems integrator or user must provide a nonconductive (electrically isolating) method of mounting the drive in the host equipment.

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SCSI interface drives

The SCSI interface handles both drive geometry and defect management internally. The "no drive installed" option is selected for systems with SCSI drives.

All SCSI interface drives are low-level formatted at the factory. You may wish to low-level format the drive to optimize its performance for your system. Consult the controller documentation for information on low-level formatting. Partitioning and high-level formatting can be done through DOS by way of the FDISK utility for partitioning, and FORMAT for high-level formatting. Consult your DOS manual for FORMAT and FDISK command options.

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