

## Seagate Technology Technical Support Desk Reference



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## Seagate Technical Support Desk Reference Information

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Seagate Technology, Inc.  
Scotts Valley, CA

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The Seagate Technology Technical Support Desk Reference WILL BE updated with new drives, more troubleshooting, and appropriate miscellaneous material. The latest copy can always be obtained from the Seagate Tech Support BBS.

We can also be reached by mail:

Seagate Technology, Inc.  
Attn: Technical Support - Bldg. 5  
P.O. Box 66360  
Scotts Valley, CA 95067-0360

By phone: 1-408-438-8222  
By FAX: 1-408-438-8137

Thank you for using the Seagate Technical Support Desk Reference!

Seagate Technical Support



### ATA drive list:

ST1057A  
ST1090A  
ST1102A  
ST1111A  
ST1126A  
ST1133A  
ST1144A  
ST1156A  
ST1162A  
ST1186A  
ST1201A  
ST1239A  
ST125A  
ST138A  
ST1400A  
ST1401A  
ST1480A  
ST157A  
ST2274A  
ST2383A  
ST274A  
ST280A  
ST3051A  
ST3096A  
ST3120A  
ST31220A  
ST3123A  
ST3144A  
ST3145A  
ST3195A  
ST3240A  
ST3243A  
ST325AX  
ST3250A  
ST3283A  
ST3290A  
ST3291A  
ST3295A  
ST3385A  
ST3390A  
ST3391A  
ST3491A  
ST351AX

ST352AX  
ST3500A  
ST3550A  
ST3600A  
ST3655A  
ST3660A  
ST3780A  
ST51080A  
ST5540A  
ST5660A  
ST5850A  
ST72A  
ST75A  
ST710A  
ST720A  
ST740A  
ST92A  
ST95A  
ST910AC  
ST920A  
ST9051A  
ST9052A  
ST9077A  
ST9080A  
ST9096A  
ST9100AG  
ST9140AG  
ST9144A  
ST9145AG  
ST9150AG  
ST9190AG  
ST9235AG  
ST9240AG  
ST9295AG  
ST9300AG  
ST9385AG  
ST9420AG  
ST9550AG  
ST9655AG



**ESDI drive list:**

ST1111E  
ST1156E  
ST1201E  
ST2106E  
ST2182E  
ST2383E  
ST4182E  
ST4383E  
ST4442E  
ST4766E  
ST4767ES  
ST4769ES



**IPI drive list:**

ST41201K  
ST41800K  
ST43200K  
ST6515K  
ST8100K  
ST81154K  
ST81236K  
ST8134K  
ST8135K  
ST8167K  
ST8201K  
ST82030K  
ST82105K  
ST82368K  
ST82500K  
ST8268K  
ST83050K  
ST83220K  
ST833K  
ST8335K  
ST8402K  
ST867K  
ST868K  
ST8851K





**MFM drive list:**

ST1100  
ST124  
ST125  
ST138  
ST151  
ST212  
ST213  
ST225  
ST251  
ST252  
ST253  
ST4026  
ST4038  
ST4038M  
ST4051  
ST4053  
ST406  
ST4085  
ST4086  
ST4096  
ST4097  
ST412  
ST419  
ST506



**PCMCIA drive list:**

ST71P  
ST71P5  
ST72P  
ST72P5  
ST75P  
ST75P5  
ST710P  
ST710P5  
ST720P  
ST720P5  
ST7050P



**RLL drive list:**

ST1106R

ST1150R

ST138R

ST157R

ST225R

ST238R

ST250R

ST277R

ST278R

ST279R

ST4135R

ST4144R



### SCSI drive list:

ST1090N  
ST1096N  
ST1111N  
ST11200N  
ST11201N  
ST1126N  
ST1133NS  
ST1156N  
ST1162N  
ST1186NS  
ST11900N  
ST11900W  
ST11950N  
ST11950W  
ST1201N  
ST1239NS  
ST12400N  
ST12400W  
ST12450W  
ST125N  
ST12550N  
ST12550W  
ST138N  
ST1400N  
ST1401N  
ST1480N  
ST1481N  
ST15150N  
ST15150W  
ST15230N  
ST15230W  
ST157N  
ST1581N  
ST177N  
ST1830N  
ST1950N  
ST1980N  
ST2106N  
ST2125N  
ST2209N  
ST225N  
ST2383N  
ST2502N

ST251N  
ST277N  
ST296N  
31200N  
31200W  
31230N  
31230W  
31250N  
31250W  
31930N  
32430N  
32430W  
325N  
32550N  
32550W  
3283N  
3285N  
3390N  
3500N  
3550N  
3600N  
3610N  
3620N  
3620W  
3655N  
ST410800N  
ST410800W  
ST41200N  
ST41520N  
ST41600N  
ST41601N  
ST41650N  
ST41651N  
ST4182N  
ST42000N  
ST42100N  
ST42101N  
ST42400N  
ST43400N  
ST43401N  
ST43402ND  
ST4350N  
ST4376N  
ST4385N  
ST4702N  
ST4766N

ST4767N  
ST5660N  
ST9235NG  
ST9295N



**SMD drive list:**

ST41097J  
ST41201J  
ST6165J  
ST6315J  
ST6344J  
ST6515J  
ST683J  
ST81123J  
ST81236J  
ST82030J  
ST82038J  
ST82272J  
ST82500J  
ST83073J  
ST8368J  
ST8500J  
ST8741J  
ST8851J



## Drives by Family



ST11950N  
ST11950W  
ST12450W  
ST12550N  
ST12550W  
ST15150N  
ST15150W  
ST31250N  
ST31250W  
ST32550N  
ST32550W



Decathlon 540 (ST5540A)  
Decathlon 545 (ST5660A)  
Decathlon 545 (ST5660N)  
Decathlon 850 (ST5850A)  
Decathlon 1080 (ST51080A)



ST11200N  
ST11201N  
ST11900N  
ST11900W  
ST12400N  
ST12400W  
ST15230N



ST15230W  
ST1980N  
ST31200N  
ST31200W  
ST31230N  
ST31230W  
ST31930N  
ST32430N  
ST32430W  
ST3620N  
ST3620W



Marathon 130sl (ST9150AG)  
Marathon 170sl (ST9190AG)  
Marathon 210sl (ST9240AG)  
Marathon 260sl (ST9300AG)  
Marathon 340 (ST9385AG)  
Marathon 420sl (ST9420AG)  
Marathon 455 (ST9550AG)  
Marathon 520 (ST9655AG)



Medalist 210xe (ST3250A)  
Medalist 270xe (ST3291A)  
Medalist 270xe (ST3295A)  
Medalist 340xe (ST3391A)  
Medalist 425xe (ST3491A)  
Medalist 455 (ST3550A)  
Medalist 540 (ST3655A)  
Medalist 545xe (ST3660A)  
Medalist 720 (ST3780A)  
Medalist 1080 (ST31220A)

In addition to the drive families listed above, there are also the **Elite**, **Sabre**, **Wren** and **Swift** families. All drive families can be searched as a group using the "Search" toolbar icon.



## **ATA**

AT Attachment (also known as IDE  
- Integrated Drive Electronics)

**ESDI**

Enhanced Small Device Interface.

**IPI**

Intelligent Peripheral Interface

**MFM**

An original ST412 Interface (which includes the RLL variety) and stands for Modified Frequency Modulation.

**PCMCIA**

Personal Computer Memory Card  
Industry Association

**RLL**

An original ST412 Interface (which includes the MFM variety) and stands for Run Length Limited.



**SMD**

Storage Module Drive

## **SCSI**

Small Computer Systems Interface



## Seagate Technology Desk Reference Revision History

This file will be maintained starting April 1992.

### What's new in this edition of the Seagate Desk Reference

#### 1994 Changes

#### 1993 Changes

#### 1992 Changes

### **1995 Changes**

- 05/14/95 Added Type A and B board configurations to ST-3780A and ST31220A. Updated to include the PDIAG Slave jumper option. Added ST5540A and ST51080A.
- 04/25/95 Fixed a spelling problem on Medalist family slave present jumpers.
- 04/05/95 Cleaned up ST5660N term power description and corrected BPI value. Corrected ST3610N ID# order.
- 02/01/95 Added shock specs to Hawk family drives
- 01/27/95 Corrected default term power reference asterisk on 1" Barracuda Differential models
- 01/24/95 Added ST5850A and ST9420AG. Corrected Term Power from SCSI bus setting on Hawk family drives. Fixed spelling error on Barracuda family wide models. Corrected ST12450W J4 option block to show 8 pairs.

### **1994 Changes**

- 12/09/94 Updated Hawk and Barracuda families to show ASA level.
- 12/06/94 Updated ST3500N average sector per track value.
- 10/24/94 Updated ST31230W, ST32430W, ST31200W and ST410800N/W

	Added ST3620W.
10/20/94	Corrected ST15230N avg SPT.
10/10/94	Added Marathon name to ST9385AG, ST9550AG, ST9655AG
08/31/94	Corrected ST5660A specs. Corrected ST15150N to not show removable terminators (uses TE jumper).
08/26/94	Added ST31230N and ST32430N. Updated ST12400W and ST15150N.
08/17/94	Added ST3240A, ST3295A and ST3660A. Updated missing info on ST9385A, ST9550A, ST9655A, ST3780A and ST31220A.
08/09/94	Added Medalist, Decathlon and Marathon names to appropriate models. Added ST31220A and ST3780A models.
08/08/94	Corrected External Transfer Rate for ST410800W. Added Force 1024 Cyls jumper to ST5660A. Added External Transfer Rates to Hawk and Barracuda drives. Corrected SPT avg for Barracuda 4 drives.
08/01/94	Updated wide Barracuda models to show J4 jumper MAY have 7 pairs.
05/31/94	Added Parity Enable to ST43401N. Updated ST5660N specs and jumpers.
05/10/94	Corrected ST740A width. Corrected Barracuda Family Depth (mm). Updated ST3390N average Sector per Track value. Clarified ST3x91A Family jumper drawing.
05/02/94	Corrected access times on ST3x91 family drives.
04/28/94	Added ST9385AG, ST9150AG, ST9240AG, ST9300AG, ST9655AG, ST15230N, ST15230W
04/14/94	Corrected Height measurement on several 9xxxA models.
03/24/94	Corrected the ST410800N and W info.
03/14/94	Corrected ST31200N family drives Parity Enable

jumper reference (said Disable, sorry). Also clarified the same jumper on ST3610N family.

- 02/27/94 Added ST3250A, ST3291A, ST3391A and ST3491A. Updated ST7050P. Pulled ST11201N and ST42101N which were never mfg'd.
- 02/15/94 Corrected pwa reference on Terminator Power view for Hawk family drives.
- 02/11/94 Corrected specs that said "straight arm" actuator to "rotary voice coil".
- 01/17/94 Reordered the J2 numbering on the ST11200 family to match the Installation Guides.

### **1993 Changes**

- 12/17/93 Updated Baracuda differential models to show correct buffer size.
- 12/15/93 Added new products which were introduced at the Fall '93 Comdex. 34 new models (whew <g>)
- 12/14/93 Minor change to Elite drive family concerning termination power options on Differential models.
- 11/12/93 Corrected Quartdeck phone numbers. Reworked the Old to New Imprimis/Seagate model numbers chart
- 11/09/93 Corrected ST7050P specs. Added mating cable connector info to ST31200N
- 11/08/93 Added Cable Select jumper info to ST3655A, ST3550A and ST3390A
- 11/04/93 Corrected number of cylinders on ST3655N to conform to mode select page 3 sector/track value.
- 10/12/93 Added jumper drawings to ST11950W and ST12550W. Removed T-res object from ST11900N and ST12400N jumper drawings since these models use a T-RES enable/disable jumper. Corrected avg sector per track on ST11900N.

	<p>Added ST11900NC drawing to show new 80 pin I/O connector.</p> <p>Corrected ST11200N family access times to not include controller overhead.</p> <p>Added ST1950N and ST11830N (ST11200N family drives).</p>
10/11/93	<p>Changed model numbers:ST11951N -&gt;ST11950W, ST12551N -&gt;ST12550W (new SCSI-wide designations will use W instead of ..1N). Also fixed average sectors per track on Baracuda drives.</p> <p>Corrected Delayed Motor Start time on ST11200 family.</p>
10/05/93	<p>Updates specs on ST31200N. Added note to Baracuda models about differential termination.</p>
09/15/93	<p>Corrected avg sectors per track on ST3390N</p>
09/12/93	<p>Corrected T-res info on ST4182N</p>
08/17/93	<p>Corrected NEC Technologies phone numbers</p>
08/17/93	<p>Update specs and jumper setting for ST9235N.</p>
08/12/93	<p>Removed ST11700N, ST11701N, ST11750N, ST11751N and replaced with updated versions ST11900N, ST11901N, ST11950N and ST11951N.</p>
08/11/93	<p>Removed ST9295N (never produced).</p>
07/27/93	<p>Corrected "default" terminator power designations on ST3283N, ST3390N and ST3550N.</p>
06/24/93	<p>Correct SCSI pins 35,36,46 in PIN-CABL.HTX</p>
06/23/93	<p>Corrected Quarterdeck area codes, Storage Dimensions new phone number</p>
06/22/93	<p>Corrected ST9100AG power specs.</p> <p>Added ST3195A, ST9140AG, ST9190AG.</p>
05/18/93	<p>Corrected Ultrastor tech support area code</p>
05/14/93	<p>Added ST3390N.</p>
05/13/93	<p>Corrected ST1480N family t-res power from bus jumper.</p>

- 05/12/93      Corrected ST9100AG total sectors and changed default translation geometry. Corrected ST3243A mtbf and power specs.  
Added ST9145AG, ST3123A, ST3145A, ST3290A, ST3390A, ST3655A.
- 03/10/93      Clarified front-to-back orientation of configuration jumper block on ST3600A.  
Corrected ST3243A board layout.  
Corrected ST41601N external transfer rate.
- 03/09/93      Updated DTC Tech Support BBS number.
- 02/09/93      Corrected ST3600A Master with Slave Present jumper
- 02/02/93      Added reference to old/new style SCSI ID jumper block on ST3600, ST3610 and ST11200 families.  
Correct cylinder and head specs on ST43400 Elite 3 family. Pulled drawing in ST43402 and ST11201 (should show 68-pin wide scsi connector).
- 01/29/93      Added new PWA layout for ST3600A Family

### **1992 Changes**

- 12/18/92      Added all the NEW drives announced at COMDEX '92.
- 12/08/92      Updated ST3283N to show notch in I/O connector plastic shroud. Corrected MTBF and power specs.  
Corrected ST1980N internal transfer rate.
- 12/07/92      Added shock spec to ST9144 family.  
Updated left side view for ST3600N family to show early PCB layout for SCSI ID header.
- 12/01/92      Corrected Motor Start and Start Delay designations on ST3600N family. They were described in reverse.
- 11/12/92      Corrected external transfer rate on ST41601N
- 11/11/92      Clarified location of configuration jumpers on ST2106E.  
Noted perpendicular configuration header on ST412 members of the ST157 family.
- 10/22/92      Added ST3600 family drives (ST3500 A & N, ST3600 A & N)

10/12/92	Corrected order of jumper numbers on ST11200 family (incl ST1980N) J2 jumper block. Descriptions were OK, number wasn't. Also corrected ST11200N family data buffer amount.
09/28/92	ST3283 power specs and max full seek updated. Added pin-28 SPSYNC- info to front view of ST3283A.
09/08/92	Corrected perspective on ST3283 family front view.
08/05/92	Added 30 new numbers to the phone list.
07/16/92	Added T-res information to ST-2125N and ST-2209N (old 94221 family Wren 5)
07/13/92	Corrected description of Motor Start and Start Delay jumpers on ST11200 family Identified pin-1 of J5 on ST1480N family
06/11/92	Corrected 3-pin power assignments on ST3144 family. Added ST-9052A.
06/08/92	Added "Print/Export" to the top of each deck. This allows a complete card to be saved to a plain ASCII file. If PRN or LPT1 is given as the file name, then it will print. This was active on previous releases but omitted from the menu. One note of caution... if the data is being read from a server, then the user will need rights to create and delete in that subdirecory in order to make use of Print/Export.
06/05/92	Lots of new BBS numbers added to the phonest section.
06/01/92	Added a "user link" which allows anyone who cares to attach/expand their own technical info to the Desk Reference. The user file must be called USER.HTX and must, of course, be prepared in accordance to HYPERHELPER. The USER.HTX file distributed from Seagate is merely a dummy screen.
05/18/92	Added ST-42400N. Correct spindle speeds on ST11200 family.
04/17/92	ST325N SCSI drive added. UltraStor BBS added and their Tech Support # corrected. ST01/02 SCSI host adapter v3.3 board layout added.



Added reminder to all decks to be sure to register  
the HyperHelper program.

Beginning of the revision history.



<pre> ffffPWAffffffffff                 Ú.....¿  /ÄÄÄÄÄÄÄÄÄ\                 .....1    ³O O O O³ 1 0 0 2  ÄÄÄÄÄÄÄÄ¿      Ä Cable Connector  ÄÄ5ÄGÄGÄ12Ü 3 0 0 4  ÄÄÄÄÄÄÄ¿³ 5 0 0 6  ÄÄÄÄ¿³³ 7 0 0 8  ÄÄ¿³³³ 9 0 0 10 ¿³³³³           ³³³³ ÄÄÄ Life-Test (Factory use)           ³³³ ÄÄÄÄÄ Master *           ³³ ÄÄÄÄÄÄÄ Slave Present (on Master only) *           ³ ÄÄÄÄÄÄÄÄÄ Reserved           ÄÄÄÄÄÄÄÄÄÄ Remote LED           * No jumpers if unit is Slave </pre>	
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## ST-1057A

```

UNFORMATTED CAPACITY (MB) _____ N/A
FORMATTED CAPACITY (xx/17 SECTORS) (MB) _53.4
ACTUATOR TYPE _____ VOICE COIL
TRACKS _____ 6,144
CYLINDERS _PHYSICAL/LOGICAL_____ NA/1,024
HEADS _PHYSICAL/LOGICAL_____ 3/6
DISCS _____ 2
MEDIA TYPE _____ THIN FILM
RECORDING METHOD _____ RLL ZBR
TRANSFER RATE INTERNAL (mbits/sec) _____ 8.2/10/12
SPINDLE SPEED (RPM) -----3,528
INTERFACE _____ AT BUS
TPI (TRACKS PER INCH) _____ 1,300
BPI (BITS PER INCH) _____ 21,600
AVERAGE ACCESS (ms) _____ 18
SINGLE TRACK SEEK (ms) _____ 6
MTBF (power-on hours) _____ 150,000
POWER REQUIREMENTS: +12V START-UP (amps) _2.0
                     +12V TYPICAL (amps) _0.7
                     +5V START-UP (amps) _0.63
                     +5V TYPICAL (amps) _0.4
                     TYPICAL (watts) _____ 8
                     MAXIMUM (watts) _____
BUFFERED STEP PULSE RATE (micro sec) _____
WRITE PRECOMP (cyl) _____ N/A
REDUCED WRITE CURRENT (cyl) _____ N/A
LANDING ZONE (cyl) _____ AUTO PARK
IBM AT DRIVE TYPE _____ *

```

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

Translation to use: 1024 cyl, 6 heads, 17 sectors = 53,477,376

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to

65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications.

## ST-1090A (94354-090) Swift AT (IDE)

ÚÄÄÄ\  
 3 O 3 5  
 3 O 3 G  
 3 O 3 G AT (IDE) Cable  
 3 O 3 12 1Ú.....ö o o o o (o o) 6 off  
 ÄÄÄÄ/ ..... o o o o (o o) 7 off  
 |||||  
 1 2 3 4 5 6 7  
 ON OFF 3 3 3 3 ÄÄÜ  
 1 Slave Master ÄÄÜ 3 3 3 3  
 2 5 Heads 7/9 Heads ÄÄÄÄÜ 3 3 3  
 3 Slave installed Slave not inst. ÄÄÄÄÄÄÜ 3 3 3  
 4 7 byte ECC 4 byte ECC ÄÄÄÄÄÄÄÄÜ 3 3  
 5 Factory test Normal Oper. ÄÄÄÄÄÄÄÄÄÄÜ 3  
 6/7 Some PWA's have these pins, factory use ÄÄÄÄÄÄÄÄÜ

ST-1090A  
 94354-90 Swift

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 90  
 FORMATTED CAPACITY (29 SECTORS) (MB) \_\_\_\_\_ 79  
 ACTUATOR TYPE \_\_\_\_\_ VOICE COIL  
 TRACKS \_\_\_\_\_ 5,360  
 CYLINDERS \_\_\_\_\_ 1,072  
 HEADS \_\_\_\_\_ 5  
 DISCS \_\_\_\_\_ 3  
 MEDIA TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ RLL  
 TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 1  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
 BUFFER \_\_\_\_\_ 32 or 64 Kbyte  
 Read Look-Ahead, Non-Adaptive,  
 Single-Segmented  
 INTERFACE \_\_\_\_\_ AT BUS  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 1,350  
 BPI (BITS PER INCH) \_\_\_\_\_ 22,638  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 15  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 4  
 MTBF (power-on hours) \_\_\_\_\_ 150,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_2.5  
 +12V TYPICAL (amps) \_0.7  
 +5V START-UP (amps) \_0.75  
 +5V TYPICAL (amps) \_0.4  
 TYPICAL (watts) \_11  
 MAXIMUM (watts) \_33.75  
 BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_\_ 6-200  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ \*

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO  
 SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE  
 AVAILABLE. (see below)

Possible translation: 536 cyl, 10 heads, 29 sectors = 79,585,280  
 Possible translation: 335 cyl, 16 heads, 29 sectors = 79,585,280  
 Possible translation: 653 cyl, 14 heads, 17 sectors = 79,571,968  
 Possible translation: 854 cyl, 7 heads, 26 sectors = 79,579,136

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

#### PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

#### Swift Remote LED Option

##### Front View of Drive Without the Plastic Bezel

$\begin{matrix} \text{ÚÄÄÄÄÄÄÄ} \\ {}^3\text{A}^3\text{B}^3 \end{matrix} \quad \text{B} = \text{Anode}$   
 $\begin{matrix} \text{ÄÄÄÄÄÄÄÄ} \\ {}^3\text{C}^3\text{D}^3 \end{matrix} \quad \text{D} = \text{Cathode}$   
 ...||||||||||||||||||||||||||PíWíAííí...

- ø Default jumper at C-D for LED mounted on drive PWA
- ø To use remote LED, remove jumper and extend B (Anode) and D (Cathode).
- ø Swift LED kit 75912397 allows connection to a remote LED
- ø Swift LED kit 95913369 has an LED for attachment to the system front bezel or a 5.25-inch frame kit

Seagate reserves the right to change, without notice, product offerings or specifications.

## ST-1102A and ST-1102A-32

```

||||PWA|||||||||||||||||||||||||||||||||||||||||
          Ú.....¿ /ÄÄÄÄÄÄÄÄÄ\
          .....1  ³ O O O O ³
1 0 0 2  ÄÄÄÄÄÄÄÄ¿  Ä Cable Connector  ÄÄ5ÄGÄGÄ12Ü
3 0 0 4  ÄÄÄÄÄÄÄ¿ ³
5 0 0 6  ÄÄÄÄ¿ ³ ³
7 0 0 8  ÄÄ¿ ³ ³ ³
9 0 0 10 ¿ ³ ³ ³ ³ 1=closed 0=open
        ³ ³ ³ ³ ÄÄÄ Life-Test (Factory use)
        ³ ³ ³ ÄÄÄÄÄ Master on (Slave off) ÄÄÄÄ 1 1 0
        ³ ³ ÄÄÄÄÄÄÄ Slave Present ÄÄÄÄÄÄÄÄÄÄÄÄ 0 1 0
        ³ ÄÄÄÄÄÄÄÄÄÄ Reserved
        ÄÄÄÄÄÄÄÄÄÄÄ Remote LED          S M S
                                     i a l
                                     n s a
                                     g t v
                                     l e e
                                     e r

```

ST-1102A

```

UNFORMATTED CAPACITY (MB) _____ N/A
FORMATTED CAPACITY (xx/17 SECTORS) (MB) __89.1
ACTUATOR TYPE _____ VOICE COIL
TRACKS _____ 10,240
CYLINDERS __PHYSICAL/LOGICAL_____ NA/1,024
HEADS _____PHYSICAL/LOGICAL_____ 5/10
DISCS _____ 3
MEDIA TYPE _____ THIN FILM
RECORDING METHOD _____ ZBR RLL (2,7)
TRANSFER RATE INTERNAL (mbits/sec) _____ 8.2/10/12
SPINDLE SPEED (RPM) _____ 3,528
AVERAGE LATENCY (mSEC) _____ 8.5
BUFFER _____ 8 or 32 Kbyte
  Read Look-Ahead, Non-Adaptive,
  Single-Segmented Buffer
INTERFACE _____ AT BUS
SECTORS PER DRIVE _____ 174,080
TPI (TRACKS PER INCH) _____ 1,300
BPI (BITS PER INCH) _____ 21,600
AVERAGE ACCESS (ms) _____ 19
SINGLE TRACK SEEK (ms) _____ 8
MAX FULL SEEK (ms) _____ 40
MTBF (power-on hours) _____ 150,000
POWER REQUIREMENTS: +12V START-UP (amps) _2.0
                    +12V TYPICAL (amps) _0.7
                    +5V START-UP (amps) _0.63
                    +5V TYPICAL (amps) _0.4
                    TYPICAL (watts) _____ 8
                    MAXIMUM (watts) _____
BUFFERED STEP PULSE RATE (micro sec) _____
WRITE PRECOMP (cyl) _____ N/A
REDUCED WRITE CURRENT (cyl) _____ N/A
LANDING ZONE (cyl) _____ AUTO PARK
IBM AT DRIVE TYPE _____ *

```

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

Translation to use: 1024 cyl, 10 heads, 17 sectors = 89,128,960

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications.



## ST-1111A (94354-111) Swift AT (IDE)

ÚÄÄÄ\  
 3 O 3 5  
 3 O 3 G  
 3 O 3 G AT (IDE) Cable  
 3 O 3 12 1Ú.....ö ö ö ö ö (ö ö) 6 off  
 ÄÄÄÄ/ ..... ö ö ö ö ö (ö ö) 7 off  
 |||||  
 1 2 3 4 5 6 7  
 ON OFF 3 3 3 3 3 ÄÄÜ  
 1 Slave Master ÄÄÜ 3 3 3 3 3  
 2 5 Heads 7/9 Heads ÄÄÄÄÜ 3 3 3 3  
 3 Slave installed Slave not inst. ÄÄÄÄÄÄÜ 3 3 3 3  
 4 7 byte ECC 4 byte ECC ÄÄÄÄÄÄÄÄÜ 3 3  
 5 Factory test Normal Oper. ÄÄÄÄÄÄÄÄÄÄÜ 3  
 6/7 Some PWA's have these pins, factory use ÄÄÄÄÄÄÄÄÜ

ST-1111A  
 94354-111 Swift

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 111  
 FORMATTED CAPACITY (36 SECTORS) (MB) \_\_\_\_\_ 98  
 ACTUATOR TYPE \_\_\_\_\_ VOICE COIL  
 TRACKS \_\_\_\_\_ 5,360  
 CYLINDERS \_\_\_\_\_ 1,072  
 HEADS \_\_\_\_\_ 5  
 DISCS \_\_\_\_\_ 3  
 MEDIA TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ RLL  
 TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 1.25  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
 BUFFER \_\_\_\_\_ 32 or 64 Kbyte  
 Read Look-Ahead, Non-Adaptive,  
 Single-Segmented  
 INTERFACE \_\_\_\_\_ AT BUS  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 1,350  
 BPI (BITS PER INCH) \_\_\_\_\_ 28,103  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 15  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 4  
 MTBF (power-on hours) \_\_\_\_\_ 70,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_2.5  
 +12V TYPICAL (amps) \_0.7  
 +5V START-UP (amps) \_0.75  
 +5V TYPICAL (amps) \_0.4  
 TYPICAL (watts) \_11  
 MAXIMUM (watts) \_33.75  
 BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_\_ 6-200  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ \*

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO  
 SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE  
 AVAILABLE. (see below)

Possible translation: 536 cyl, 10 heads, 36 sectors = 98,795,520  
 Possible translation: 402 cyl, 10 heads, 48 sectors = 98,795,520  
 Possible translation: 873 cyl, 13 heads, 17 sectors = 98,781,696  
 Possible translation: 742 cyl, 10 heads, 26 sectors = 98,775,040

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

#### PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

#### Swift Remote LED Option

##### Front View of Drive Without the Plastic Bezel

$\begin{matrix} \text{ÚÄÄÄÄÄÄÄ} \\ {}^3\text{A}^3\text{B}^3 \end{matrix} \quad \text{B} = \text{Anode}$   
 $\begin{matrix} \text{ÄÄÄÄÄÄÄÄ} \\ {}^3\text{C}^3\text{D}^3 \end{matrix} \quad \text{D} = \text{Cathode}$   
 ...||||||||||||||||||||||||||PíWíAííí...

- ø Default jumper at C-D for LED mounted on drive PWA
- ø To use remote LED, remove jumper and extend B (Anode) and D (Cathode).
- ø Swift LED kit 75912397 allows connection to a remote LED
- ø Swift LED kit 95913369 has an LED for attachment to the system front bezel or a 5.25-inch frame kit

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

## ST-1126A (94354-126) Swift AT (IDE)

ÚÄÄÄ\  
 3 O 3 5  
 3 O 3 G  
 3 O 3 G AT (IDE) Cable  
 3 O 3 12 1Ú.....ö o o o o (o o) 6 on  
 ÄÄÄÄ/ ..... o o o o (o o) 7 off  
 |||||  
 1 2 3 4 5 6 7  
 ON OFF 3 3 3 3 ÄÄÜ  
 1 Slave Master ÄÄÜ 3 3 3 3  
 2 5 Heads 7/9 Heads ÄÄÄÄÜ 3 3 3 3  
 3 Slave installed Slave not inst. ÄÄÄÄÄÄÜ 3 3 3 3  
 4 7 byte ECC 4 byte ECC ÄÄÄÄÄÄÄÄÜ 3 3  
 5 Factory test Normal Oper. ÄÄÄÄÄÄÄÄÄÄÜ 3  
 6/7 Some PWA's have these pins, factory use ÄÄÄÄÄÄÄÄÜ

ST-1126A  
 94354-126 Swift

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 126  
 FORMATTED CAPACITY (29 SECTORS) (MB) \_\_\_\_\_ 111  
 ACTUATOR TYPE \_\_\_\_\_ VOICE COIL  
 TRACKS \_\_\_\_\_ 7,504  
 CYLINDERS \_\_\_\_\_ 1,072  
 HEADS \_\_\_\_\_ 7  
 DISCS \_\_\_\_\_ 4  
 MEDIA TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ RLL  
 TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 1  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
 BUFFER \_\_\_\_\_ 32 or 64 Kbyte  
 Read Look-Ahead, Non-Adaptive,  
 Single-Segmented  
 INTERFACE \_\_\_\_\_ AT BUS  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 1,350  
 BPI (BITS PER INCH) \_\_\_\_\_ 22,638  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 15  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 4  
 MTBF (power-on hours) \_\_\_\_\_ 150,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_2.5  
 +12V TYPICAL (amps) \_0.7  
 +5V START-UP (amps) \_0.75  
 +5V TYPICAL (amps) \_0.4  
 TYPICAL (watts) \_11  
 MAXIMUM (watts) \_33.75  
 BUFFERED STEP PULSE RATE (micro sec) \_6-200  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ \*

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO  
 SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE  
 AVAILABLE. (see below)

Possible translation: 536 cyl, 14 heads, 29 sectors = 111,419,392  
 Possible translation: 469 cyl, 16 heads, 29 sectors = 111,419,392  
 Possible translation: 800 cyl, 16 heads, 17 sectors = 111,411,200  
 Possible translation: 523 cyl, 16 heads, 26 sectors = 111,394,816

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

#### PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

#### Swift Remote LED Option

##### Front View of Drive Without the Plastic Bezel

$\begin{matrix} \text{ÚÄÄÄÄÄÄÄ} \\ {}^3\text{A}^3\text{B}^3 \quad \text{B} = \text{Anode} \\ \text{ÄÄÄÄÄÄÄÄ}' \quad \text{D} = \text{Cathode} \\ {}^3\text{C}^3\text{D}^3 \end{matrix}$   
 ...||||||||||||||||||||||||||PíWíAííí...

- ø Default jumper at C-D for LED mounted on drive PWA
- ø To use remote LED, remove jumper and extend B (Anode) and D (Cathode).
- ø Swift LED kit 75912397 allows connection to a remote LED
- ø Swift LED kit 95913369 has an LED for attachment to the system front bezel or a 5.25-inch frame kit

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

## ST-1133A (94354-133) Swift AT (IDE)

ÚÄÄÄ\  
 3 O 3 5  
 3 O 3 G  
 3 O 3 G AT (IDE) Cable  
 3 O 3 12 1Ú.....ö o o o o (o o)  
 ÄÄÄÄ/ ..... o o o o (o o)  
 |||||  
 1 2 3 4 5 6 7  
 ON OFF 3 3 3 3 ÄÄÜ  
 1 Slave Master ÄÄÜ 3 3 3 3  
 2 5 Heads 7/9 Heads ÄÄÄÄÜ 3 3 3 3  
 3 Slave installed Slave not inst. ÄÄÄÄÄÄÜ 3 3 3 3  
 4 7 byte ECC 4 byte ECC ÄÄÄÄÄÄÄÄÜ 3 3  
 5 Factory test Normal Oper. ÄÄÄÄÄÄÄÄÄÄÜ 3  
 6/7 Some PWA's have these pins, factory use ÄÄÄÄÄÄÄÄÜ

ST-1133A  
 94354-133 Swift

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 133  
 FORMATTED CAPACITY (36 SECTORS) (MB) \_\_\_\_\_ 117  
 ACTUATOR TYPE \_\_\_\_\_ VOICE COIL  
 TRACKS \_\_\_\_\_ 6,360  
 CYLINDERS \_\_\_\_\_ 1,272  
 HEADS \_\_\_\_\_ 5  
 DISCS \_\_\_\_\_ 3  
 MEDIA TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ RLL  
 TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 1.25  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
 BUFFER \_\_\_\_\_ 32 or 64 Kbyte  
 Read Look-Ahead, Non-Adaptive,  
 Single-Segmented  
 INTERFACE \_\_\_\_\_ AT BUS  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 1,350  
 BPI (BITS PER INCH) \_\_\_\_\_ 28,103  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 15  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 4  
 MTBF (power-on hours) \_\_\_\_\_ 150,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_2.5  
 +12V TYPICAL (amps) \_\_0.7  
 +5V START-UP (amps) \_\_0.75  
 +5V TYPICAL (amps) \_\_0.4  
 TYPICAL (watts) \_\_\_\_11  
 MAXIMUM (watts) \_\_\_\_33.75  
 BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_6-200  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ \*

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO  
 SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE  
 AVAILABLE. (see below)

Possible translation: 636 cyl, 10 heads, 36 sectors = 117,227,520  
 Possible translation: 477 cyl, 8 heads, 60 sectors = 117,227,520  
 Possible translation: 962 cyl, 14 heads, 17 sectors = 117,225,472  
 Possible translation: 629 cyl, 14 heads, 26 sectors = 117,225,472

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

#### PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

#### Swift Remote LED Option

##### Front View of Drive Without the Plastic Bezel

$\begin{matrix} \text{ÚÄÄÄÄÄÄÄ} \\ {}^3\text{A}^3\text{B}^3 \quad \text{B} = \text{Anode} \\ \text{ÄÄÄÄÄÄÄÄ}' \quad \text{D} = \text{Cathode} \\ {}^3\text{C}^3\text{D}^3 \end{matrix}$   
 ...|||||PÍWÍÁ|||...

- ø Default jumper at C-D for LED mounted on drive PWA
- ø To use remote LED, remove jumper and extend B (Anode) and D (Cathode).
- ø Swift LED kit 75912397 allows connection to a remote LED
- ø Swift LED kit 95913369 has an LED for attachment to the system front bezel or a 5.25-inch frame kit

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

## ST-1144A and ST-1144A-32

```

||||PWA|||||||||||||||||||||||||||||||||||||||||
          Ú.....¿  /ÄÄÄÄÄÄÄÄÄ\
          .....1    3 O O O O 3
1 0 0 2  ÄÄÄÄÄÄÄÄ¿  Ä Cable Connector  ÄÄ5ÄGÄGÄ12Ü
3 0 0 4  ÄÄÄÄÄÄÄ¿ 3
5 0 0 6  ÄÄÄÄ¿ 3 3
7 0 0 8  ÄÄ¿ 3 3 3
9 0 0 10 ¿ 3 3 3 3          1=closed 0=open
      3 3 3 3 ÄÄÄ Life-Test (Factory use)
      3 3 3 ÄÄÄÄÄ Master on (Slave off) ÄÄÄÄ 1 1 0
      3 3 ÄÄÄÄÄÄÄ Slave Present ÄÄÄÄÄÄÄÄÄÄÄÄ 0 1 0
      3 ÄÄÄÄÄÄÄÄÄÄ Reserved
      ÄÄÄÄÄÄÄÄÄÄÄ Remote LED          S M S
                                   i a l
                                   n s a
                                   g t v
                                   l e e
                                   e r

```

ST-1144A

```

UNFORMATTED CAPACITY (MB) _____ N/A
FORMATTED CAPACITY (xx/17 SECTORS) (MB) __130.7
ACTUATOR TYPE _____ VOICE COIL
TRACKS _____ 14,336
CYLINDERS __PHYSICAL/LOGICAL_____ NA/1,001
HEADS _____PHYSICAL/LOGICAL_____ 7/15
DISCS _____ 4
MEDIA TYPE _____ THIN FILM
RECORDING METHOD _____ ZBR RLL (2,7)
TRANSFER RATE INTERNAL (mbits/sec) _____ 8.2/10/12
SPINDLE SPEED (RPM) _____ 3,528
AVERAGE LATENCY (mSEC) _____ 8.5
BUFFER _____ 8 or 32 Kbyte
  Read Look-Ahead, Non-Adaptive,
  Single-Segmented Buffer
INTERFACE _____ AT BUS
SECTORS PER DRIVE _____ 255,255
TPI (TRACKS PER INCH) _____ 1,300
BPI (BITS PER INCH) _____ 21,600
AVERAGE ACCESS (ms) _____ 19
SINGLE TRACK SEEK (ms) _____ 8
MAX FULL SEEK (ms) _____ 40
MTBF (power-on hours) _____ 150,000
POWER REQUIREMENTS: +12V START-UP (amps) _2.0
      +12V TYPICAL (amps) _0.7
      +5V START-UP (amps) _0.63
      +5V TYPICAL (amps) _0.4
      TYPICAL (watts) _____ 8
      MAXIMUM (watts) _____
BUFFERED STEP PULSE RATE (micro sec) _____
WRITE PRECOMP (cyl) _____ N/A
REDUCED WRITE CURRENT (cyl) _____ N/A
LANDING ZONE (cyl) _____ AUTO PARK
IBM AT DRIVE TYPE _____ *

```

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 1001 cyl, 15 heads, 17 sectors = 130,690,560

Possible translation: 1024 cyl, 14 heads, 17 sectors = 124,780,544

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications.



## ST-1156A (94354-155) Swift AT (IDE)

ÚÄÄÄ\  
 3 O 3 5  
 3 O 3 G  
 3 O 3 G AT (IDE) Cable  
 3 O 3 12 1Ú.....ö o o o o (o o) 6 on  
 ÄÄÄÄ/ ..... o o o o (o o) 7 off  
 |||||  
 1 2 3 4 5 6 7  
 ON OFF 3 3 3 3 ÄÄÜ  
 1 Slave Master ÄÄÜ 3 3 3 3 3  
 2 5 Heads 7/9 Heads ÄÄÄÄÜ 3 3 3 3  
 3 Slave installed Slave not inst. ÄÄÄÄÄÄÜ 3 3 3 3  
 4 7 byte ECC 4 byte ECC ÄÄÄÄÄÄÄÄÜ 3 3  
 5 Factory test Normal Oper. ÄÄÄÄÄÄÄÄÄÄÜ 3  
 6/7 Some PWA's have these pins, factory use ÄÄÄÄÄÄÄÄÜ

ST-1156A  
 94354-155 Swift

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 155  
 FORMATTED CAPACITY (36 SECTORS) (MB) \_\_\_\_\_ 138  
 ACTUATOR TYPE \_\_\_\_\_ VOICE COIL  
 TRACKS \_\_\_\_\_ 7,504  
 CYLINDERS \_\_\_\_\_ 1,072  
 HEADS \_\_\_\_\_ 7  
 DISCS \_\_\_\_\_ 4  
 MEDIA TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ RLL  
 TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 1.25  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
 BUFFER \_\_\_\_\_ 32 or 64 Kbyte  
 Read Look-Ahead, Non-Adaptive,  
 Single-Segmented  
 INTERFACE \_\_\_\_\_ AT BUS  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 1,350  
 BPI (BITS PER INCH) \_\_\_\_\_ 28,103  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 15  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 4  
 MTBF (power-on hours) \_\_\_\_\_ 150,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_2.5  
 +12V TYPICAL (amps) \_\_0.7  
 +5V START-UP (amps) \_\_0.75  
 +5V TYPICAL (amps) \_\_0.4  
 TYPICAL (watts) \_\_\_\_11  
 MAXIMUM (watts) \_\_\_\_33.75  
 BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_6-200  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ \*

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO  
 SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE  
 AVAILABLE. (see below)

Possible translation: 536 cyl, 14 heads, 36 sectors = 138,313,728  
 Possible translation: 536 cyl, 9 heads, 56 sectors = 138,313,728  
 Possible translation: 993 cyl, 16 heads, 17 sectors = 138,289,152  
 Possible translation: 742 cyl, 14 heads, 26 sectors = 138,285,056

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

#### PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

#### Swift Remote LED Option

##### Front View of Drive Without the Plastic Bezel

$\begin{matrix} \text{ÚÄÄÄÄÄÄÄ} \\ {}^3\text{A}^3\text{B}^3 \quad \text{B} = \text{Anode} \\ \text{ÄÄÄÄÄÄÄÄ}' \quad \text{D} = \text{Cathode} \\ {}^3\text{C}^3\text{D}^3 \end{matrix}$   
 ...||||||||||||||||||||||||||PíWíAííí...

- ø Default jumper at C-D for LED mounted on drive PWA
- ø To use remote LED, remove jumper and extend B (Anode) and D (Cathode).
- ø Swift LED kit 75912397 allows connection to a remote LED
- ø Swift LED kit 95913369 has an LED for attachment to the system front bezel or a 5.25-inch frame kit

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

## ST-1162A (94354-160) Swift AT (IDE)

ÚÄÄÄ\  
 3 O 3 5  
 3 O 3 G  
 3 O 3 G AT (IDE) Cable  
 3 O 3 12 1Ú.....ç o o o o o(o o) 6 off  
 ÄÄÄÄ/ ..... o o o o o(o o) 7 off  
 |||||  
 1 2 3 4 5 6 7  
 ON OFF 3 3 3 3 ÄÄÜ  
 1 Slave Master ÄÄÜ 3 3 3 3 3  
 2 5 Heads 7/9 Heads ÄÄÄÄÜ 3 3 3 3  
 3 Slave installed Slave not inst. ÄÄÄÄÄÄÜ 3 3 3 3  
 4 7 byte ECC 4 byte ECC ÄÄÄÄÄÄÄÄÜ 3 3  
 5 Factory test Normal Oper. ÄÄÄÄÄÄÄÄÄÄÜ 3  
 6/7 Some PWA's have these pins, factory use ÄÄÄÄÄÄÄÄÜ

ST-1162A  
 94354-160 Swift

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 162  
 FORMATTED CAPACITY (29 SECTORS) (MB) \_\_\_\_\_ 143  
 ACTUATOR TYPE \_\_\_\_\_ VOICE COIL  
 TRACKS \_\_\_\_\_ 9,648  
 CYLINDERS \_\_\_\_\_ 1,072  
 HEADS \_\_\_\_\_ 9  
 DISCS \_\_\_\_\_ 5  
 MEDIA TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ RLL  
 TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 1  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
 BUFFER \_\_\_\_\_ 32 or 64 Kbyte  
 Read Look-Ahead, Non-Adaptive,  
 Single-Segmented  
 INTERFACE \_\_\_\_\_ AT BUS  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 1,350  
 BPI (BITS PER INCH) \_\_\_\_\_ 22,638  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 15  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 4  
 MTBF (power-on hours) \_\_\_\_\_ 150,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_2.5  
 +12V TYPICAL (amps) \_\_0.7  
 +5V START-UP (amps) \_\_0.75  
 +5V TYPICAL (amps) \_\_0.4  
 TYPICAL (watts) \_\_\_\_11  
 MAXIMUM (watts) \_\_\_\_33.75  
 BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_6-200  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ \*

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO  
 SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE  
 AVAILABLE.

Possible translation: 804 cyl, 12 heads, 29 sectors = 143,253,504  
 Possible Translation: 603 cyl, 16 heads, 29 sectors = 143,253,504  
 Possible Translation: 1024 cyl, 16 heads, 17 sectors = 142,606,336  
 Possible Translation: 978 cyl, 11 heads, 26 sectors = 143,210,496

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

#### PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

#### Swift Remote LED Option

##### Front View of Drive Without the Plastic Bezel

$\begin{matrix} \text{ÚÄÄÄÄÄÄÄ} \\ {}^3\text{A}^3\text{B}^3 \quad \text{B} = \text{Anode} \\ \text{ÄÄÄÄÄÄÄÄ}' \quad \text{D} = \text{Cathode} \\ {}^3\text{C}^3\text{D}^3 \end{matrix}$   
 ...|||||PÍWÍÁ|||...

- ø Default jumper at C-D for LED mounted on drive PWA
- ø To use remote LED, remove jumper and extend B (Anode) and D (Cathode).
- ø Swift LED kit 75912397 allows connection to a remote LED
- ø Swift LED kit 95913369 has an LED for attachment to the system front bezel or a 5.25-inch frame kit

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

## ST-1186A (94354-186) Swift AT (IDE)

ÜÄÄÄ\		
3 0 3 5		
3 0 3 G		ÜÄÄ Some have
3 0 3 G	AT (IDE) Cable	3 ÄÄ these pins
3 0 3 12 1Ü.....	Ä 0 0 0 0 0(o o)	
ÄÄÄÄ/.....	0 0 0 0 0(o o)	
		1 2 3 4 5 6 7
ON	OFF	3 3 3 3 3 ÄÄÜ
1 Slave	Master	ÄÄÜ 3 3 3 3 3
2 5 Heads	7/9 Heads	ÄÄÄÄÜ 3 3 3 3
3 Slave installed	Slave not inst.	ÄÄÄÄÄÄÜ 3 3 3
4 7 byte ECC	4 byte ECC	ÄÄÄÄÄÄÄÄÜ 3 3
5 Factory test	Normal Oper.	ÄÄÄÄÄÄÄÄÄÄÜ 3
6/7 Some PWA's have these pins, factory use		ÄÄÄÄÄÄÄÄÜ

## SWIFT Shrouded AT Interface Connector Only

[illegible]

ST-1186A  
94354-186 Swift

UNFORMATTED CAPACITY (MB)	186
FORMATTED CAPACITY (36 SECTORS) (MB)	164
ACTUATOR TYPE	VOICE COIL
TRACKS	8,904
CYLINDERS	1,272
HEADS	7
DISCS	4
MEDIA TYPE	THIN FILM
RECORDING METHOD	RLL (2,7)
TRANSFER RATE (mbytes/sec)	1.25
SPINDLE SPEED (RPM)	3,600
AVERAGE LATENCY (mSEC)	8.33
BUFFER	32 or 64 Kbyte
Read Look-Ahead, Non-Adaptive, Single-Segmented	
INTERFACE	AT BUS
SECTORS PER DRIVE	320,040
TPI (TRACKS PER INCH)	1,350
BPI (BITS PER INCH)	28,103
AVERAGE ACCESS (ms)	15
SINGLE TRACK SEEK (ms)	4



## ST-1201A (94354-200) Swift AT (IDE)

ÜÄÄÄ\		
3 0 3 5		
3 0 3 G		ÜÄÄ Some have
3 0 3 G	AT (IDE) Cable	3 ÄÄ these pins
3 0 3 12 1Ü.....	ÄÄÄÄ\.....	0 0 0 0 0 (0 0) 6 off
		0 0 0 0 0 (0 0) 7 off
ON	OFF	1 2 3 4 5 6 7
		3 3 3 3 3 ÄÄÜ
1 Slave	Master	ÄÄÜ 3 3 3 3 3
2 5 Heads	7/9 Heads	ÄÄÄÄÜ 3 3 3 3
3 Slave installed	Slave not inst.	ÄÄÄÄÄÄÜ 3 3 3
4 7 byte ECC	4 byte ECC	ÄÄÄÄÄÄÄÄÜ 3 3
5 Factory test	Normal Oper.	ÄÄÄÄÄÄÄÄÄÜ 3
6/7 Some PWA's have these pins, factory use		ÄÄÄÄÄÄÄÄÜ

## SWIFT Shrouded AT Interface Connector Only

[illegible]

ST-1201A  
94354-200 Swift

UNFORMATTED CAPACITY (MB)	201
FORMATTED CAPACITY (36 SECTORS) (MB)	177
ACTUATOR TYPE	VOICE COIL
TRACKS	9,648
CYLINDERS	1,072
HEADS	9
DISCS	5
MEDIA TYPE	THIN FILM
RECORDING METHOD	RLL (2,7)
TRANSFER RATE (mbytes/sec)	1.25
SPINDLE SPEED (RPM)	3,600
AVERAGE LATENCY (mSEC)	8.33
BUFFER	32 or 64 Kbyte
Read Look-Ahead, Non-Adaptive, Single-Segmented	
INTERFACE	AT BUS
SECTORS PER DRIVE	347,328
TPI (TRACKS PER INCH)	1,350
BPI (BITS PER INCH)	28,103
AVERAGE ACCESS (ms)	15





### ST-1239A (94354-239 or 230) Swift AT (IDE)

[illegible]

## SWIFT Shrouded AT Interface Connector Only

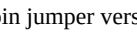
[illegible]

ST-1239A  
94354-239 or 230    Swift

UNFORMATTED CAPACITY (MB)	239
FORMATTED CAPACITY (36 SECTORS) (MB)	211
ACTUATOR TYPE	VOICE COIL
TRACKS	11,448
CYLINDERS	1,272
HEADS	9
DISCS	5
MEDIA TYPE	THIN FILM
RECORDING METHOD	RLL (2,7)
TRANSFER RATE (mbytes/sec)	1.25
SPINDLE SPEED (RPM)	3,600
AVERAGE LATENCY (mSEC)	8.33
BUFFER	32 or 64 Kbyte
Read Look-Ahead, Non-Adaptive, Single-Segmented	
INTERFACE	AT BUS
SECTORS PER DRIVE	412,128
TPI (TRACKS PER INCH)	1,543
BPI (BITS PER INCH)	28,103
AVERAGE ACCESS (ms)	15

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

6-pin jumper version


 /ÄÄÄÄÄÄ\  
 3O O O 3  
 Ä5ÄGÄGÄ12  
 fffffffN fffffffN fffffff  
 o o o 3.....13  
 o o o Ö fffffff34  
 3 3 3  
 3 0 1 Single Drive 0=open  
 3 1 1 Dual-Drive Master 1=closed  
 3 1 0 Dual-Drive Slave  
 3  
 ÄÄÄÄÄÄ Optional External LED

```

                                     /AAAAAA\
10-pin jumper version              3O O O O3
                                     A5AGAGÃ12
|||||||~|||||||~|||||||~|||||||~|||||||~
o o o o o 3.....13
o o o o o 0|||||||~|||||||~|||||||~34
3 3 3 3 3
3 3 3 3 A LT (Life Test, factory use only)
3 3 0 1   Single Drive           0=open
3 3 1 1   Dual-Drive Master      1=closed
3 3 0 0   Dual-Drive Slave
3 AAAAAA EWS (factory use only)
AAAAAAÃÃÃ Active Busy (Optional External LED)

```

## ST - 125A

UNFORMATTED CAPACITY (MB)	25
FORMATTED CAPACITY (26 SECTORS) (MB)	21.5
ACTUATOR TYPE	STEPPER
TRACKS	1,616
CYLINDERS	404
HEADS	4
DISCS	2
MEDIA TYPE	THIN FILM
RECORDING METHOD	RLL
TRANSFER RATE (mbits/sec)	7.5
SPINDLE SPEED (RPM)	3,600
INTERFACE	AT BUS
TPI (TRACKS PER INCH)	824
BPI (BITS PER INCH)	16,546
AVERAGE ACCESS (ms)	40/28*
SINGLE TRACK SEEK (ms)	8
MTBF (power-on hours)	150,000
POWER REQUIREMENTS: +12V START-UP (amps)	2.0
+12V TYPICAL (amps)	0.35
+5V TYPICAL (amps)	0.9
TYPICAL (watts)	9
MAXIMUM (watts)	29
BUFFERED STEP PULSE RATE (micro sec)	3-200
WRITE PRECOMP (cyl)	N/A
REDUCED WRITE CURRENT (cyl)	N/A
LANDING ZONE (cyl)	AUTO PARK
IBM AT DRIVE TYPE	6

\*ST125A-0/ST125A-1

Possible translation: 615 cyl, 4 heads, 17 sectors = 21,411,840

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

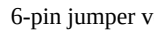
PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION


WARNING - Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

6-pin jumper version


 /ÄÄÄÄÄÄ\  
 3 O O O 3  
 Ä5ÄGÄGÄ12


 o o o 3 ..... 1 3  
 o o o 0 ..... 3 4  
 3 3 3

3 0 1 Single Drive 0=open  
 3 1 1 Dual-Drive Master 1=closed  
 3 1 0 Dual-Drive Slave  
 3

ÄÄÄÄÄÄ Optional External LED

```

                                     /AAAAAA\
10-pin jumper version              3O O O O3
                                     A5AGAGÃ12
|||||||~|||||||~|||||||~|||||||~|||||||~
o o o o o 3.....13
o o o o o 0|||||||~|||||||~|||||||~34
3 3 3 3 3
3 3 3 3 3 A LT (Life Test, factory use only)
3 3 0 1   Single Drive           0=open
3 3 1 1   Dual-Drive Master      1=closed
3 3 0 0   Dual-Drive Slave
3 AAAAAA EWS (factory use only)
AAAAAAÃÃÃ Active Busy (Optional External LED)

```

## ST - 138A

```

UNFORMATTED CAPACITY (MB) _____ 38
FORMATTED CAPACITY (26 SECTORS) (MB) _____ 32.1
ACTUATOR TYPE _____ STEPPER
TRACKS _____ 2,416
CYLINDERS _____ 604
HEADS _____ 4
DISCS _____ 2
MEDIA TYPE _____ THIN FILM
RECORDING METHOD _____ RLL
TRANSFER RATE (mbits/sec) _____ 7.5
SPINDLE SPEED (RPM) _____ 3,600
INTERFACE _____ AT BUS
TPI (TRACKS PER INCH) _____ 824
BPI (BITS PER INCH) _____ 22,430
AVERAGE ACCESS (ms) _____ 40/28*
SINGLE TRACK SEEK (ms) _____ 8
MTBF (power-on hours) _____ 150,000
POWER REQUIREMENTS: +12V START-UP (amps) _2.0
                    +12V TYPICAL (amps) _0.35
                    +5V TYPICAL (amps) _0.9
                    TYPICAL (watts) _____ 9
                    MAXIMUM (watts) _____ 29
BUFFERED STEP PULSE RATE (micro sec) _____ 3-200
WRITE PRECOMP (cyl) _____ N/A
REDUCED WRITE CURRENT (cyl) _____ N/A
LANDING ZONE (cyl) _____ AUTO PARK
IBM AT DRIVE TYPE _____ 3

```

\*ST138A-0/ST138A-1

Possible translation: 615 cyl, 6 heads, 17 sectors = 32,117,760

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

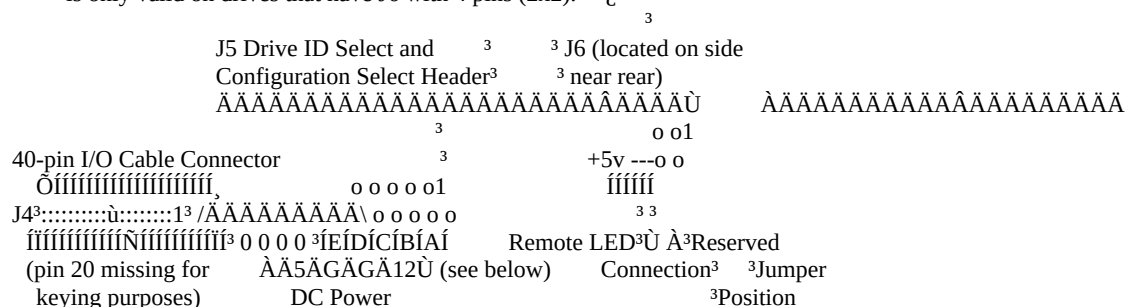
WARNING - Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

## ST-1400A AT Interface

NOTE: This figure and the following description of each jumper position is only valid on drives that have J6 with 4 pins (2x2).-->



J5

JUMPER | FUNCTION:

**A REFSIG:** This location provides a port for external connection of the synchronized spindle reference signal (pin-1) and ground (pin-2). The reference signal is bi-directional, single-ended, and terminated without an external resistor. It is also available on J4 pin-28 if the factory jumper is installed. The drive will self-determine if it is a master of slave for spindle synchronization.

**B HOST SLV/ACT:** When this shunt is installed, -SLAVE PRESENT (provided by the output of a 74HCT14) is applied to J4 pin-39 for systems that require this signal from the Master drive. If jumper "B" is installed, then jumper "E" must not be installed.

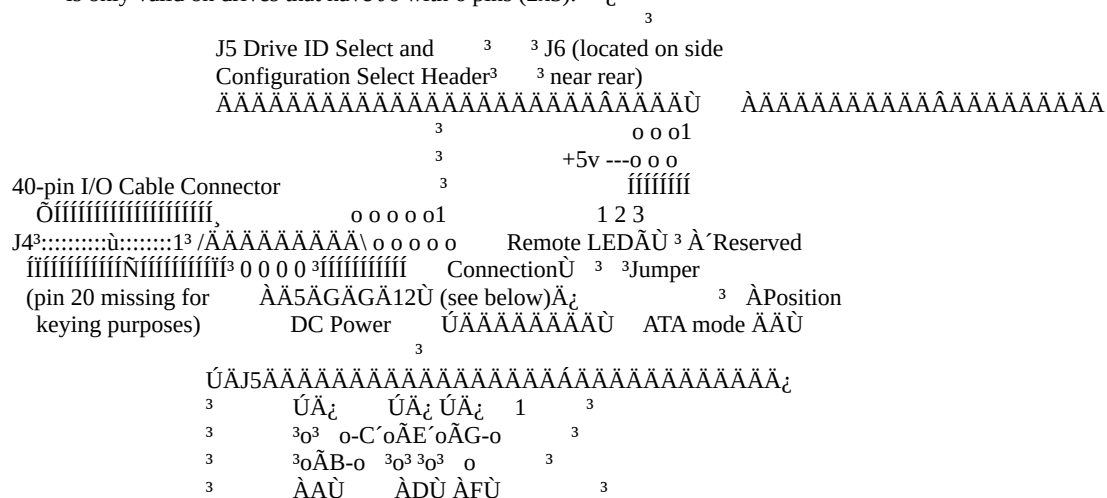
C MASTER: When this shunt is installed, the drive is configured as the Master. When not installed, the drive is a Slave.

**D SLAVE PRESENT:** When installed, this shunt indicates to the Master drive that a Slave is present. This shunt must be installed on the Master drive in a two-drive system.

**E ACTIVE:** When this shunt is installed, DASP- is made present on J4 pin-39. If "E" is installed, then "B" must not be installed.

=====

NOTE: This figure and the following description of each jumper position is only valid on drives that have J6 with 6 pins (2x3).-->



### J5 Jumper    Function Description

A	B	(A=vertical, pins 9 & 10; B=horizontal, pins 8 & 10)
OFF	OFF	Drive is the slave (Drive 1).
OFF	ON	Drive is the master (Drive 0) with slave (Drive 1) present.
ON*	OFF	Drive s the master (Drive 0).
C		(C=horizontal, pins 5 & 7)
ON		Slave (Drive 1) Present is connected to J4 pin 39. Jumpers "D" or "E" cannot be installed if jumper "C" is installed.
D		(D=vertical, pins 5 & 6)
ON*		DASP- is connected to J4 pin 39. Jumpers "C", "D", "F", or "G" cannot be installed if jumper "E" is installed.
OFF		REFSIG is not connected to J4 pin 39.
E		(E=horizontal, pins 3 & 5)
ON		REFSIG is connected to J4 pin 39. Jumpers "C", "D", "F", or "G" cannot be installed if jumper "E" is installed.
OFF		REFSIG is not connected to J4 pin 39.
F		(F=vertical, pins 3 & 4)
ON*		No external reference for REFSIG. Jumpers "E", "G", or "H" cannot be installed if jumper "F" is installed.
OFF		This location provides a port for external connection of the synchronized spindle reference signal (pin 3) and ground (pin 4).
G		(G=horizontal, pins 1 & 3)
ON		REFSIG is connected to J4 pin 28. Jumpers "E" or "F" cannot be installed if jumper "G" is installed.
OFF		REFSIG is not connected to J4 pin 28.

### J6 Jumper Function Description (2x3 jumper block)

- 1 Remote LED connection. Pin 6 is connected to +5v through a 147 ohm resistor. Pin 5 is the LED driver.
- 2 ATA mode. When the jumper is ON, IORDY is not connected to J4, DMACK- is connected to J4 pin 27, and DMARQ is connected to J4 pin 29. When the jumper is OFF, IORDY is connected to J4 pin 27, DMACK- is connected to J4 pin 29, and DMARQ is connected to J4 pin 21.
- 3 Reserved jumper position.

ST - 1400A

```

UNFORMATTED CAPACITY (MB) _____ 381.8
FORMATTED CAPACITY (xx SECTORS) (MB) ____ 331.7*
AVERAGE SECTORS PER TRACK _____ 62 (rounded down)
ACTUATOR TYPE _____ VOICE COIL

```



TRACKS	10,325
CYLINDERS	1,475
HEADS	7
DISCS	4
MEDIA TYPE	THIN FILM
RECORDING METHOD	ZBR RLL (1,7)
INTERNAL TRANSFER RATE (mbits/sec)	17 to 25
SPINDLE SPEED (RPM)	4,412
AVERAGE LATENCY (mSEC)	6.8
BUFFER	64 Kbyte
Read Look-Ahead, Non-Adaptive, Multi-Segmented Cache	
INTERFACE	AT
BYTES PER TRACK	36,819 avg.
TPI (TRACKS PER INCH)	1,760
BPI (BITS PER INCH)	
AVERAGE ACCESS (ms)	14
SINGLE TRACK SEEK (ms)	2.5
MAX FULL SEEK (ms)	26
MTBF (power-on hours)	150,000
POWER REQUIREMENTS: +12V START-UP (amps)	2.5
+12V TYPICAL (amps)	0.54
+5V TYPICAL (amps)	0.30
TYPICAL (watts)	8
MAXIMUM (watts)	15
WRITE PRECOMP (cyl)	N/A
REDUCED WRITE CURRENT (cyl)	N/A
LANDING ZONE (cyl)	AUTO PARK
IBM AT DRIVE TYPE	**

Possible translation: 1,018 cyl, 12 heads, 53 sectors = 331,493,376

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

\* Two spare sectors per cylinder, two spare cylinders per drive.

\*\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

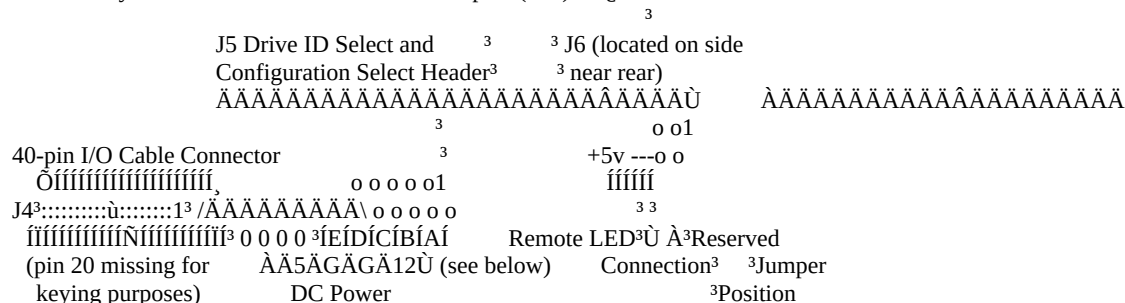
Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (11/27/91)

## ST-1401A AT Interface

NOTE: This figure and the following description of each jumper position is only valid on drives that have J6 with 4 pins (2x2).-->



J5

### JUMPER | FUNCTION:

A REFSIG: This location provides a port for external connection of the synchronized spindle reference signal (pin-1) and ground (pin-2). The reference signal is bi-directional, single-ended, and terminated without an external resistor. It is also available on J4 pin-28 if the factory jumper is installed. The drive will self-determine if it is a master of slave for spindle synchronization.

**B** HOST SLV/ACT: When this shunt is installed, -SLAVE PRESENT (provided by the output of a 74HCT14) is applied to J4 pin-39 for systems that require this signal from the Master drive. If jumper "B" is installed, then jumper "E" must not be installed.

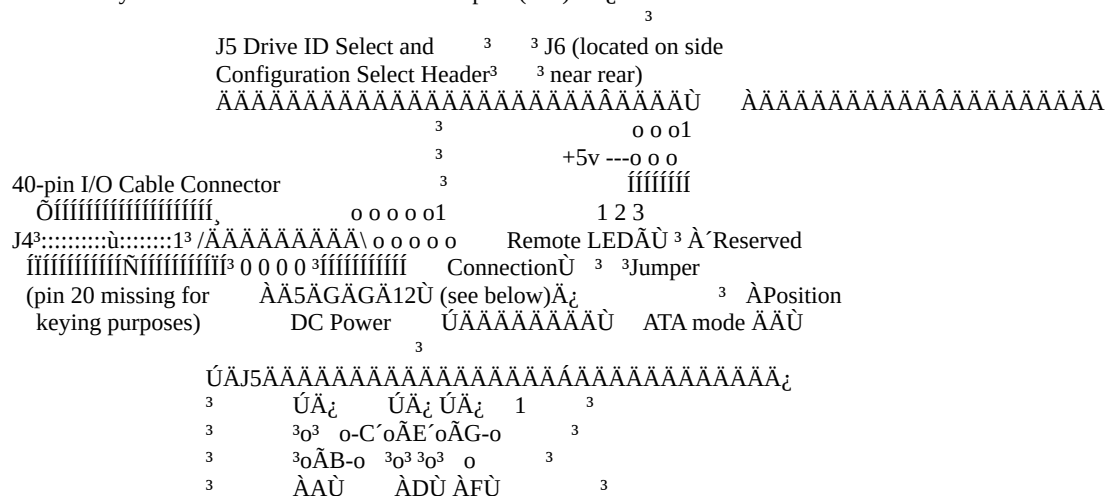
C MASTER: When this shunt is installed, the drive is configured as the Master. When not installed, the drive is a Slave.

**D SLAVE PRESENT:** When installed, this shunt indicates to the Master drive that a Slave is present. This shunt must be installed on the Master drive in a two-drive system.

E ACTIVE: When this shunt is installed, DASP- is made present on J4 pin-39. If "E" is installed, then "B" must not be installed.

=====

NOTE: This figure and the following description of each jumper position is only valid on drives that have J6 with 6 pins (2x3).-->



J5 Jumper    Function Description

A    B    (A=vertical, pins 9 & 10; B=horizontal, pins 8 & 10)	
OFF	OFF    Drive is the slave (Drive 1).
OFF	ON    Drive is the master (Drive 0) with slave (Drive 1) present.
ON*	OFF    Drive s the master (Drive 0).
C    (C=horizontal, pins 5 & 7)	
ON	Slave (Drive 1) Present is connected to J4 pin 39. Jumpers "D" or "E" cannot be installed if jumper "C" is installed.
D    (D=vertical, pins 5 & 6)	
ON*	DASP- is connected to J4 pin 39. Jumpers "C", "D", "F", or "G" cannot be installed if jumper "E" is installed.
OFF	REFSIG is not connected to J4 pin 39.
E    (E=horizontal, pins 3 & 5)	
ON	REFSIG is connected to J4 pin 39. Jumpers "C", "D", "F", or "G" cannot be installed if jumper "E" is installed.
OFF	REFSIG is not connected to J4 pin 39.
F    (F=vertical, pins 3 & 4)	
ON*	No external reference for REFSIG. Jumpers "E", "G", or "H" cannot be installed if jumper "F" is installed.
OFF	This location provides a port for external connection of the synchronized spindle reference signal (pin 3) and ground (pin 4).
G    (G=horizontal, pins 1 & 3)	
ON	REFSIG is connected to J4 pin 28. Jumpers "E" or "F" cannot be installed if jumper "G" is installed.
OFF	REFSIG is not connected to J4 pin 28.

J6 Jumper    Funtion Description (2x3 jumper block)

- 1    Remote LED connection. Pin 6 is connected to +5v through a 147 ohm resistor. Pin 5 is the LED driver.
- 2    ATA mode. When the jumper is ON, IORDY is not connected to J4, DMACK- is connected to J4 pin 27, and DMARQ is connected to J4 pin 29. When the jumper is OFF, IORDY is connected to J4 pin 27, DMACK- is connected to J4 pin 29, and DMARQ is connected to J4 pin 21.
- 3    Reserved jumper position.

ST - 1401A

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 395.7  
 FORMATTED CAPACITY (xx SECTORS) (MB) \_\_\_\_\_ 343.7\*  
 AVERAGE SECTORS PER TRACK \_\_\_\_\_ 65 (rounded down)  
 ACTUATOR TYPE \_\_\_\_\_ VOICE COIL  
 TRACKS \_\_\_\_\_ 10,188

CYLINDERS	_____	1,132
HEADS	_____	9
DISCS	_____	5
MEDIA TYPE	_____	THIN FILM
RECORDING METHOD	_____	ZBR RLL (1,7)
INTERNAL TRANSFER RATE (mbits/sec)	_____	20 to 25
SPINDLE SPEED (RPM)	_____	4,412
AVERAGE LATENCY (mSEC)	_____	6.8
BUFFER	_____	64 Kbyte
Read Look-Ahead, Non-Adaptive, Multi-Segmented Cache		
INTERFACE	_____	AT
BYTES PER TRACK	_____	38,803 avg.
TPI (TRACKS PER INCH)	_____	1,760
BPI (BITS PER INCH)	_____	
AVERAGE ACCESS (ms)	_____	12
SINGLE TRACK SEEK (ms)	_____	2.5
MAX FULL SEEK (ms)	_____	24
MTBF (power-on hours)	_____	150,000
POWER REQUIREMENTS: +12V START-UP (amps)	_____	2.5
+12V TYPICAL (amps) _____ 0.54		
+5V TYPICAL (amps) _____ 0.53		
TYPICAL (watts) _____ 8		
MAXIMUM (watts) _____ 15		
WRITE PRECOMP (cyl)	_____	N/A
REDUCED WRITE CURRENT (cyl)	_____	N/A
LANDING ZONE (cyl)	_____	AUTO PARK
IBM AT DRIVE TYPE	_____	**

Possible translation: 726 cyl, 15 heads, 61 sectors = 340,116,480

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

\* Two spare sector per cylinder, two spare cylinders per drive.

\*\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (4/12/91)

## ST-1480A AT Interface

NOTE: This figure and the following description of each jumper position is only valid on drives that have J6 with 4 pins (2x2).-->

J5 Drive ID Select and Configuration Select Header<sup>3</sup>

J6 (located on side near rear)

40-pin I/O Cable Connector

J4<sup>3</sup>:.....\1<sup>3</sup>/ÄÄÄÄÄÄÄÄ\o o o o o

(pin 20 missing for keying purposes)

DC Power

Remote LED<sup>3</sup>

Connection<sup>3</sup>

Jumper Position

## J5

JUMPER | FUNCTION:

**A REFSIG:** This location provides a port for external connection of the synchronized spindle reference signal (pin-1) and ground (pin-2). The reference signal is bi-directional, single-ended, and terminated without an external resistor. It is also available on J4 pin-28 if the factory jumper is installed. The drive will self-determine if it is a master of slave for spindle synchronization.

**B HOST SLV/ACT:** When this shunt is installed, -SLAVE PRESENT (provided by the output of a 74HCT14) is applied to J4 pin-39 for systems that require this signal from the Master drive. If jumper "B" is installed, then jumper "E" must not be installed.

C MASTER: When this shunt is installed, the drive is configured as the Master. When not installed, the drive is a Slave.

**D SLAVE PRESENT:** When installed, this shunt indicates to the Master drive that a Slave is present. This shunt must be installed on the Master drive in a two-drive system.

**E ACTIVE:** When this shunt is installed, DASP- is made present on J4 pin-39. If "E" is installed, then "B" must not be installed.

=====

NOTE: This figure and the following description of each jumper position is only valid on drives that have J6 with 6 pins (2x3).-->

J5 Drive ID Select and Configuration Select Header<sup>3</sup>  
J6 (located on side near rear)  
AAAAAAAAAAAAAAAAAAAAAAAAAAU AAAAAAAAAAAAAAAAAAAAAA  
<sup>3</sup> o o o l  
+5v ---o o o  
40-pin I/O Cable Connector<sup>3</sup>  
Oooooooooooooo, o o o o o l 1 2 3  
J43:.....ù:.....13 / \ AAAAAAAAA\ o o o o o Remote LEDÄÜ<sup>3</sup> Ä'Reserved  
ooooooooooooooooooooo 0 0 0 0 3oooooooooooo ConnectionÜ<sup>3</sup> Jumper<sup>3</sup>  
(pin 20 missing for keying purposes) ÄÄ5AGÄGÄ12Ü (see below)Ä; <sup>3</sup> ÄPosition  
DC Power ÜAAAAAAAAÄÜ ATA mode ÄÄÜ  
<sup>3</sup>  
ÜAJ5AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAÄ;  
<sup>3</sup> ÜÄ; ÜÄ; ÜÄ; 1 <sup>3</sup>  
<sup>3</sup> 3o<sup>3</sup> o-C'oÄE'oÄG-o <sup>3</sup>  
<sup>3</sup> 3oÄB-o 3o<sup>3</sup> 3o<sup>3</sup> o <sup>3</sup>  
<sup>3</sup> ÄAU ÄDU ÄFU <sup>3</sup>

**J5 Jumper    Function Description**

A    B    (A=vertical, pins 9 & 10; B=horizontal, pins 8 & 10)	
OFF	OFF    Drive is the slave (Drive 1).
OFF	ON    Drive is the master (Drive 0) with slave (Drive 1) present.
ON*	OFF    Drive s the master (Drive 0).
C    (C=horizontal, pins 5 & 7)	
ON	Slave (Drive 1) Present is connected to J4 pin 39. Jumpers "D" or "E" cannot be installed if jumper "C" is installed.
D    (D=vertical, pins 5 & 6)	
ON*	DASP- is connected to J4 pin 39. Jumpers "C", "D", "F", or "G" cannot be installed if jumper "E" is installed.
OFF	REFSIG is not connected to J4 pin 39.
E    (E=horizontal, pins 3 & 5)	
ON	REFSIG is connected to J4 pin 39. Jumpers "C", "D", "F", or "G" cannot be installed if jumper "E" is installed.
OFF	REFSIG is not connected to J4 pin 39.
F    (F=vertical, pins 3 & 4)	
ON*	No external reference for REFSIG. Jumpers "E", "G", or "H" cannot be installed if jumper "F" is installed.
OFF	This location provides a port for external connection of the synchronized spindle reference signal (pin 3) and ground (pin 4).
G    (G=horizontal, pins 1 & 3)	
ON	REFSIG is connected to J4 pin 28. Jumpers "E" or "F" cannot be installed if jumper "G" is installed.
OFF	REFSIG is not connected to J4 pin 28.

**J6 Jumper    Funtion Description (2x3 jumper block)**

- 1    Remote LED connection. Pin 6 is connected to +5v through a 147 ohm resistor. Pin 5 is the LED driver.
- 2    ATA mode. When the jumper is ON, IORDY is not connected to J4, DMACK- is connected to J4 pin 27, and DMARQ is connected to J4 pin 29. When the jumper is OFF, IORDY is connected to J4 pin 27, DMACK- is connected to J4 pin 29, and DMARQ is connected to J4 pin 21.
- 3    Reserved jumper position.

ST - 1480A

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 490.9  
 FORMATTED CAPACITY (xx SECTORS) (MB) \_\_\_\_\_ 426.1\*  
 AVERAGE SECTORS PER TRACK \_\_\_\_\_ 62 (rounded down)  
 ACTUATOR TYPE \_\_\_\_\_ VOICE COIL  
 TRACKS \_\_\_\_\_ 13,302

CYLINDERS \_\_\_\_\_ 1,475 (user)  
 HEADS \_\_\_\_\_ 9  
 DISCS \_\_\_\_\_ 5  
 MEDIA TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ ZBR RLL (1,7)  
 INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ 17 to 25  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 4,412  
 AVERAGE LATENCY (mSEC) \_\_\_\_\_ 6.8  
 BUFFER \_\_\_\_\_ 64 Kbyte  
     Read Look-Ahead, Non-Adaptive,  
     Multi-Segmented Cache  
 INTERFACE \_\_\_\_\_ AT  
 BYTES PER TRACK \_\_\_\_\_ 36,819 avg.  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 1,760  
 BPI (BITS PER INCH) \_\_\_\_\_  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 14  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 2.5  
 MAX FULL SEEK (ms) \_\_\_\_\_ 26  
 MTBF (power-on hours) \_\_\_\_\_ 150,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_2.5  
     +12V TYPICAL (amps) \_0.54  
     +5V TYPICAL (amps) \_0.3  
     TYPICAL (watts) \_\_\_\_\_ 8  
     MAXIMUM (watts) \_\_\_\_\_ 15  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ \*\*

Possible translation: 895 cyl, 15 heads, 62 sectors = 426,163,200

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

\* Two spare sectors per cylinder, 2 spare cylinders per unit.

\*\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
 ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (8/30/91)

**ST-157A**

```

/ÄÄÄÄÄÄ\
6-pin jumper version      3O O O 3
                          Ä5ÄGÄGÄ12
|||||N|||||N|||||
O O O 3:.....13
O O O Ô|||||34
3 3 3
3 0 1  Single Drive      0=open
3 1 1  Dual-Drive Master 1=closed
3 1 0  Dual-Drive Slave
3
ÄÄÄÄÄÄ Optional External LED

```

```

                                     /ÄÄÄÄÄÄÄ\
10-pin jumper version              ³O O O O³
                                     Ä5ÄGÄGÄ12

|||||N|||||N|||||N|||||N|||||N|||||N|||||N|||||N|||||N|||||N|||
o o o o o ³.....¹³
o o o o o Ö|||||N|||||N|||||N|||||N|||||N|||||N|||||N|||||N|||¾
³ ³ ³ ³
³ ³ ³ Ä LT (Life Test, factory use only)
³ ³ 0 1   Single Drive           0=open
³ ³ 1 1   Dual-Drive Master      1=closed
³ ³ 0 0   Dual-Drive Slave
³ ÄÄÄÄÄÄ EWS (factory use only)
ÄÄÄÄÄÄÄÄÄ Active Busy (Optional External LED)

```

## ST - 157A

```

UNFORMATTED CAPACITY (MB) _____ 57
FORMATTED CAPACITY (26 SECTORS) (MB) _____ 44.7
ACTUATOR TYPE _____ STEPPER
TRACKS _____ 3,360
CYLINDERS _____ 560
HEADS _____ 6
DISCS _____ 3
MEDIA TYPE _____ THIN FILM
RECORDING METHOD _____ RLL (2,7)
TRANSFER RATE (mbits/sec) _____ 7.5
SPINDLE SPEED (RPM) _____ 3,600
AVERAGE LATENCY (mSEC) _____ 8.3
BUFFER _____ 2 Kbyte
INTERFACE _____ AT BUS
SECTORS PER DRIVE _____ 87,360
TPI (TRACKS PER INCH) _____ 824
BPI (BITS PER INCH) _____ 20,280
AVERAGE ACCESS (ms) _____ 40/28*
SINGLE TRACK SEEK (ms) _____ 8
MAX FULL SEEK (ms) _____ /70
MTBF (power-on hours) _____ 150,000
POWER REQUIREMENTS: +12V START-UP (amps) _2.0
                     +12V TYPICAL (amps) _0.35
                     +5V TYPICAL (amps) _0.9
                     TYPICAL (watts) _9
                     MAXIMUM (watts) _29
BUFFERED STEP PULSE RATE (micro sec) _____ 3-200
WRITE PRECOMP (cyl) _____ N/A

```



REDUCED WRITE CURRENT (cyl) \_\_\_\_\_N/A  
LANDING ZONE (cyl) \_\_\_\_\_AUTO PARK  
IBM AT DRIVE TYPE \_\_\_\_\_36 (or 14, 17, 21)\*\*

\*ST157A-0/ST157A-1

Possible translation: 733 cyl, 7 heads, 17 sectors = 44,660,224

Possible translation: 1024 cyl, 5 heads, 17 sectors = 44,564,480

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

\*\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

WARNING - Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

## ST-2274A (94244-274) Wren 6 HH AT (IDE)

[illegible]

A	B	
0	0	Factory use only
0	1	Drive is Slave, motor start delay 20 sec from master start-up
1	0	Drive is Slave, no motor start delay
1	1	Drive is Master, motor starts at application of DC power
C	D	
0	0	Physical mode
0	1	Translate (logical) mode, sparing scheme is one sector
1	0	Translate (logical) mode, no sparing space allocated
1	1	Factory use only
E		
0		Slave present, only meaningful on master
1		No Slave present
F	G	
x	x	Factory test, position G may or may not be present by PWA

ST-2274A  
94244-274 WREN 6 HH

UNFORMATTED CAPACITY (MB)	274
FORMATTED CAPACITY (54 SECTORS) (MB)	241
ACTUATOR TYPE	VOICE COIL
TRACKS	8735
CYLINDERS	1747
HEADS	5
DISCS	3
MEDIA TYPE	THIN FILM
RECORDING METHOD	RLL (2,7)
TRANSFER RATE (mbytes/sec)	1.875
SPINDLE SPEED (RPM)	3,600
AVERAGE LATENCY (mSEC)	8.33
BUFFER	32 Kbyte
Read Look-Ahead, Non-Adaptive, Single-Segmented Buffer	
INTERFACE	AT
TPI (TRACKS PER INCH)	1459
BPI (BITS PER INCH)	31699
AVERAGE ACCESS (ms)	16
SINGLE TRACK SEEK (ms)	3
MAX FULL SEEK (ms)	33
MTBF (power-on hours)	100,000
POWER REQUIREMENTS: +12V START-UP (amps)	4.5
+12V TYPICAL (amps)	0.95
+5V START-UP (amps)	1.0
+5V TYPICAL (amps)	0.75
TYPICAL (watts)	15
MAXIMUM (watts)	59
BUFFERED STEP PULSE RATE (micro sec)	
WRITE PRECOMP (cyl)	N/A
REDUCED WRITE CURRENT (cyl)	N/A
LANDING ZONE (cyl)	AUTO PARK
IBM AT DRIVE TYPE	*

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

Possible Translation: 873 cyls, 10 heads, 54 sectors = 241,367,040

Possible Translation: 536 cyls, 16 heads, 55 sectors = 241,500,160

Possible translation: 873 cyl, 15 heads, 36 sectors = 241,367,040

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

WARNING - Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

[illegible]

ST-2383A  
94244-383 WREN 6 HH

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO

SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

Possible Translation: 873 cyls, 14 heads, 54 sectors = 337,913,856

Possible Translation: 737 cyls, 16 heads, 56 sectors = 338,100,224

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

WARNING - Already low-level formatted at the factory

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

```

      ÚÄÄMaster on /Slave off
      3      ÚÄÄÄÄÄÄÄÄÄÄÄ¿
      3Ú Leave as is³ O O O ³ Power
1      J3      33 1 J2  \ÄÄÄÄÄÄÄÄÄÄ/
:::AT:(IDE):Cable:::::::::::: :: :::::: 12 G G 5
      ~~~~~

```

UNFORMATTED CAPACITY (MB)	74
FORMATTED CAPACITY (26 SECTORS) (MB)	65.5
ACTUATOR TYPE	VOICE COIL
TRACKS	4740
CYLINDERS	948
HEADS	5
DISCS	3
MEDIA TYPE	THIN FILM
RECORDING METHOD	RLL
TRANSFER RATE (mbytes/sec)	0.937
SPINDLE SPEED (RPM)	3,600
BUFFER	32 Kbyte
Read Look-Ahead, Non-Adaptive, Single-Segmented Buffer	
INTERFACE	AT
TPI (TRACKS PER INCH)	960
BPI (BITS PER INCH)	13489
AVERAGE ACCESS (ms)	29
SINGLE TRACK SEEK (ms)	5
MTBF (power-on hours)	40,000
POWER REQUIREMENTS: +12V START-UP (amps)	4.5
+12V TYPICAL (amps)	1.5
+5V START-UP (amps)	0.6
+5V TYPICAL (amps)	0.4
TYPICAL (watts)	20
MAXIMUM (watts)	58
BUFFERED STEP PULSE RATE (micro sec)	
WRITE PRECOMP (cyl)	N/A
REDUCED WRITE CURRENT (cyl)	N/A
LANDING ZONE (cyl)	AUTO PARK
IBM AT DRIVE TYPE	4, *

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

WARNING - Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

[illegible]

Note: There are two different revisions of the ST280A

1. If you have a 94204-xxC, then you can connect two different model drives on the same host adapter. (i.e. a 94204-xxC and a 94354-xxx drive)
2. If you do not have a "C" after the model number, then you can only connect two similar Wren 2 94204-xx model drives.

ST-280A  
94204-71 WREN 2 HH

```

UNFORMATTED CAPACITY (MB) _____ 80.6
FORMATTED CAPACITY (27 SECTORS) (MB) _____ 71.3
ACTUATOR TYPE _____ VOICE COIL
TRACKS _____ 5160
CYLINDERS _____ 1032
HEADS _____ 5
DISCS _____ 3
MEDIA TYPE _____ THIN FILM
RECORDING METHOD _____ RLL
TRANSFER RATE (mbytes/sec) _____ 0.937
SPINDLE SPEED (RPM) _____ 3,600
BUFFER _____ 32 Kbyte
    Read Look-Ahead, Non-Adaptive,
    Single-Segmented Buffer
INTERFACE _____ AT
TPI (TRACKS PER INCH) _____ 960
BPI (BITS PER INCH) _____ 14357
AVERAGE ACCESS (ms) _____ 29
SINGLE TRACK SEEK (ms) _____ 5
MTBF (power-on hours) _____ 40,000
POWER REQUIREMENTS: +12V START-UP (amps) _4.5
    +12V TYPICAL (amps) _1.5
    +5V START-UP (amps) _0.6
    +5V TYPICAL (amps) _0.4
    TYPICAL (watts) _____ 20
    MAXIMUM (watts) _____ 58
BUFFERED STEP PULSE RATE (micro sec) _____
WRITE PRECOMP (cyl) _____ N/A
REDUCED WRITE CURRENT (cyl) _____ N/A
LANDING ZONE (cyl) _____ AUTO PARK

```



IBM AT DRIVE TYPE \_\_\_\_\_45, \*

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

Possible Translation: 1024 cyl, 8 heads, 17 sectors = 71,303,168

Possible Translation: 516 cyl, 10 heads, 27 sectors = 71,331,840

Possible Translation: 745 cyl, 11 heads, 17 sectors = 71,329,280

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

WARNING - Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)



# ST-3051A

[illegible][illegible]

ST-3051A

```

UNFORMATTED CAPACITY (MB) _____ N/A
FORMATTED CAPACITY (xx/17 SECTORS) (MB) _43.1
ACTUATOR TYPE _____ VOICE COIL
TRACKS _____
CYLINDERS _PHYSICAL/LOGICAL_____ xx/820
HEADS _____/6
DISCS (3.5 in) _____
MEDIA TYPE _____ THIN FILM
RECORDING METHOD _____ RLL (2,7)
TRANSFER RATE INTERNAL (mbits/sec) _____ up to 15
SPINDLE SPEED (RPM) _____ 3,211
AVERAGE LATENCY (mSEC) _____ 9.34
BUFFER _____ 32 KByte SeaCache
INTERFACE _____ AT BUS
SECTORS PER DRIVE _____ 84,270
TPI (TRACKS PER INCH) _____ 1,792
BPI (BITS PER INCH) _____ 31,005
AVERAGE ACCESS (ms) _____ 16
SINGLE TRACK SEEK (ms) _____ 3
MAX FULL SEEK (ms) _____ 28
MTBF (power-on hours) _____ 150,000
POWER REQUIREMENTS: +12V START-UP (amps) _0.9
POWER MANAGEMENT (Watts):
    ACTIVE _____ 5.3
    IDLE _____ 2.1
    STANDBY _____ 0.7
    SLEEP _____ 0.7
WRITE PRECOMP (cyl) _____ N/A
REDUCED WRITE CURRENT (cyl) _____ N/A
LANDING ZONE (cyl) _____ AUTO PARK
IBM AT DRIVE TYPE _____ 40, 44*

```

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE

AVAILABLE. (see below)

Possible translation: 820 cyl, 6 heads, 17 sectors = 42,823,680

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (5/13/91)

# ST-3096A

[illegible]

ST-3096A

```

UNFORMATTED CAPACITY (MB) _____ N/A
FORMATTED CAPACITY (xx/17 SECTORS) (MB) _____ 89.2
ACTUATOR TYPE _____ STRAIGHT ARM
TRACKS _____
CYLINDERS _____ PHYSICAL/LOGICAL _____ xx/1024
HEADS _____ PHYSICAL/LOGICAL _____ 3/10
DISCS (3.5 in) _____ 2
MEDIA TYPE _____ THIN FILM
RECORDING METHOD _____ RLL (2,7)
TRANSFER RATE INTERNAL (mbits/sec) _____ up to 15
SPINDLE SPEED (RPM) _____ 3,211
AVERAGE LATENCY (mSEC) _____ 9.34
BUFFER _____ 32 KByte SeaCache
INTERFACE _____ AT BUS
SECTORS PER DRIVE _____ 174,080
TPI (TRACKS PER INCH) _____ 1,792
BPI (BITS PER INCH) _____ 31,005
AVERAGE ACCESS (ms) _____ 14
SINGLE TRACK SEEK (ms) _____ 3
MAX FULL SEEK (ms) _____ 22
MTBF (power-on hours) _____ 150,000
POWER REQUIREMENTS: +12V START-UP (amps) _____ 0.9
POWER MANAGEMENT (Watts):
    ACTIVE _____ 5.3
    IDLE _____ 2.1
    STANDBY _____ 0.7
    SLEEP _____ 0.7
WRITE PRECOMP (cyl) _____ N/A
REDUCED WRITE CURRENT (cyl) _____ N/A
LANDING ZONE (cyl) _____ AUTO PARK
IBM AT DRIVE TYPE _____ *

```

Physical:

Height (inches/mm): 1.00/25.4

Width (inches/mm): 4.02/102.1  
Depth (inches/mm): 5.77/146.6  
Weight (lbs/kg): 1.3/0.59

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 1024 cyl, 10 heads, 17 sectors = 89,128,960  
Possible translation: 836 cyl, 8 heads, 26 sectors = 89,030,656

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (5/13/91)

# ST-3120A

[illegible]

## ST-3120A

```

UNFORMATTED CAPACITY (MB) _____N/A
FORMATTED CAPACITY (xx/17 SECTORS) (MB) _106.9
ACTUATOR TYPE _____VOICE COIL
TRACKS _____
CYLINDERS _PHYSICAL/LOGICAL_____xx/1024
HEADS _____PHYSICAL/LOGICAL_____3/12
DISCS (3.5 in) _____2
MEDIA TYPE _____THIN FILM
RECORDING METHOD _____RLL (2,7) ZBR
TRANSFER RATE INTERNAL (mbits/sec) _____up to 15
SPINDLE SPEED (RPM) _____3,211
AVERAGE LATENCY (mSEC) _____9.34
BUFFER _____32 KByte SeaCache
INTERFACE _____AT BUS
SECTORS PER DRIVE _____208,896
TPI (TRACKS PER INCH) _____1,792
BPI (BITS PER INCH) _____31,005
AVERAGE ACCESS (ms) _____15
SINGLE TRACK SEEK (ms) _____3
MAX FULL SEEK (ms) _____25
MTBF (power-on hours) _____150,000
POWER REQUIREMENTS: +12V START-UP (amps) _0.9
POWER MANAGEMENT (Watts):
    ACTIVE _____5.3
    IDLE _____2.1
    STANDBY _____0.7
    SLEEP _____0.7
WRITE PRECOMP (cyl) _____N/A
REDUCED WRITE CURRENT (cyl) _____N/A
LANDING ZONE (cyl) _____AUTO PARK
IBM AT DRIVE TYPE _____*

```

Physical:

Height (inches/mm): 1.00/25.4

Width (inches/mm): 4.02/102.1  
Depth (inches/mm): 5.77/146.6  
Weight (lbs/kg): 1.3/0.59

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 1024 cyl, 12 heads, 17 sectors = 106,954,752

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (5/13/91)







SINGLE TRACK SEEK (ms) \_\_\_\_\_ 3.5  
 MAX FULL SEEK (ms) \_\_\_\_\_ 25  
 MTBF (power-on hours) Office \_\_\_\_\_ 300,000  
 SHOCK (G's):  
     operating (Read/Write) \_\_\_\_\_ 2  
     nonoperating \_\_\_\_\_ 75  
 ACOUSTICS (typ/max dBA) \_\_\_\_\_ 30/36  
 POWER DISSIPATION (watts) \_\_\_\_\_  
 POWER REQUIREMENTS: +12V START-UP (amps) \_1.9  
 POWER MANAGEMENT (Watts):  
     ACTIVE \_\_\_\_\_ 6.6  
     IDLE \_\_\_\_\_ 2.75  
     STANDBY \_\_\_\_\_ 1  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO  
 IBM AT DRIVE TYPE \_\_\_\_\_ \*

Physical:

Height (inches/mm): 1/25.4  
 Width (inches/mm): 4.02/102.1  
 Depth (inches/mm): 5.77/146.6  
 Weight (lbs/kg): 1.5/0.68

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translations:

This translation is generally acceptable, as  
 is, for non-DOS operating systems:  
 2099 cyl, 16 heads, 63 sectors = 1,083,285,504

Other FULL-CAPACITY solutions for DOS operating  
 systems include third-party drive preparation  
 software, system BIOS which supports LBA mode  
 or bios driven host adapters. Otherwise,  
 capacity may be limited to:  
 1024 cyl, 16 heads, 63 sectors = 528,482,304 (Master)  
 1024 cyl, 16 heads, 63 sectors = 528,482,304 (Slave see Dual  
 Drive emulation jumper)

Note: A "custom" or "user-defined" CMOS drivetype may ask for a  
 numerical value for the Write Precompensation cylinder and for the  
 Landing Zone cylinder. A basic rule-of-thumb for drive models that do  
 not require the old Write Precomp technique or a Landing Zone because  
 they are Auto-Parking is to add 1 to the cylinder value being used. As  
 an example: If cylinders equaled 820, then both Write Precomp and  
 Landing Zone would be entered as 821. Some BIOS will convert this to  
 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
 ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it  
 is imperative that the values be written down and kept with your  
 permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product

offerings or specifications. (05/14/95)



Physical:

Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.02/102.1
Depth (inches/mm):	5.77/146.6
Weight (lbs/kg):	1.5/0.68

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 1024 cyl, 12 heads, 17 sectors = 106,954,752

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (05/12/93)

# ST-3144A

[illegible]

## ST-3144A

```

UNFORMATTED CAPACITY (MB) _____ N/A
FORMATTED CAPACITY (xx/17 SECTORS) (MB) _130.6
ACTUATOR TYPE _____ VOICE COIL
TRACKS _____
CYLINDERS _PHYSICAL/LOGICAL_____ xx/1,001
HEADS _____ PHYSICAL/LOGICAL_____ 3/15
DISCS (3.5 in) _____ 2
MEDIA TYPE _____ THIN FILM
RECORDING METHOD _____ RLL (2,7) ZBR
TRANSFER RATE INTERNAL (mbits/sec) _____ 10/12/15
SPINDLE SPEED (RPM) _____ 3,211
AVERAGE LATENCY (mSEC) _____ 9.34
BUFFER _____ 32 KByte SeaCache
INTERFACE _____ AT BUS
SECTORS PER DRIVE _____ 255,255
TPI (TRACKS PER INCH) _____ 1,791
BPI (BITS PER INCH) _____ 34,600
AVERAGE ACCESS (ms) _____ 16
SINGLE TRACK SEEK (ms) _____ 3
MAX FULL SEEK (ms) _____ 28
MTBF (power-on hours) _____ 150,000
POWER REQUIREMENTS: +12V START-UP (amps) _0.9
POWER MANAGEMENT (Watts):
    ACTIVE _____ 5.3
    IDLE _____ 2.1
    STANDBY _____ 0.7
    SLEEP _____ 0.7
WRITE PRECOMP (cyl) _____ N/A
REDUCED WRITE CURRENT (cyl) _____ N/A
LANDING ZONE (cyl) _____ AUTO PARK
IBM AT DRIVE TYPE _____ *

```

Physical:

Height (inches/mm): 1.00/25.4

Width (inches/mm): 4.02/102.1  
Depth (inches/mm): 5.77/146.6  
Weight (lbs/kg): 1.3/0.59

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 1001 cyl, 15 heads, 17 sectors = 130,690,560

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (10/09/91)





Physical:

Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.02/102.1
Depth (inches/mm):	5.77/146.6
Weight (lbs/kg):	1.5/0.68

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 1001 cyl, 15 heads, 17 sectors = 130,690,560

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (05/12/93)



Physical:

Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.02/102.1
Depth (inches/mm):	5.77/146.6
Weight (lbs/kg):	1.5/0.68

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 981 cyl, 10 heads, 34 sectors = 170,772,480

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (06/22/93)



Depth (inches/mm): 5.77/146.6  
Weight (lbs/kg): 1.3/0.59

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 1010 cyl, 12 heads, 34 sectors = 210,984,960

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (08/17/94)



Physical:

Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.02/102.1
Depth (inches/mm):	5.77/146.6
Weight (lbs/kg):	1.5/0.68

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 1024 cyl, 12 heads, 34 sectors = 213,909,504

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (05/12/93)



## ST-325A/X

Select a configuration block version for jumpers

Jumpers for 12 pin version   Jumpers for 18 pin version

ST - 325A/X

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 25  
FORMATTED CAPACITY (17 SECTORS) (MB) \_\_\_\_\_ 21.4  
AVERAGE SECTORS PER TRACK \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STEPPER  
TRACKS \_\_\_\_\_  
CYLINDERS \_(Physical/Logical)\_\_\_\_\_ xx/615  
HEADS \_\_\_\_\_ 2/4  
DISCS \_\_\_\_\_ 1  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL 2,7 (ZBR)  
INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ 12/14  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,048  
INTERFACE \_\_\_\_\_ AT/XT  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1290  
BPI (BITS PER INCH) \_\_\_\_\_ 28155/28922  
AVERAGE ACCESS (ms) \_\_\_\_\_ 28  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 7  
MTBF (power-on hours) \_\_\_\_\_ 150,000  
POWER REQUIREMENTS: +12V START-UP (amps) \_0.8  
                                  +12V TYPICAL (amps) \_0.10  
                                  +5V TYPICAL (amps) \_0.11  
                                  TYPICAL (watts) \_\_\_\_\_ 2.0  
                                  MAXIMUM (watts) \_\_\_\_\_  
BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_\_  
WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
IBM AT DRIVE TYPE \_\_\_\_\_ 6

Possible translation:    615 cyl, 4 heads, 17 sectors = 21,411,840

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

\* CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory for AT installations.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (5/6/91)





Width (inches/mm):	4.02/102.1
Depth (inches/mm):	5.77/146.6
Weight (lbs/kg):	1.3/0.59

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 1024 cyl, 12 heads, 34 sectors = 213,909,504

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (02/24/94)



TPI (TRACKS PER INCH) \_\_\_\_\_ 1,960  
 BPI (BITS PER INCH) \_\_\_\_\_ 38,000  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 12  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ <4  
 MAX FULL SEEK (ms) \_\_\_\_\_ 32  
 MTBF (power-on hours) Office \_\_\_\_\_ 200,000  
 POWER DISSIPATION (watts) \_\_\_\_\_  
 POWER REQUIREMENTS: +12V START-UP (amps) \_1.9  
 POWER MANAGEMENT (Watts):  
     ACTIVE \_\_\_\_\_ 5.5  
     IDLE \_\_\_\_\_ 2.75  
     STANDBY \_\_\_\_\_ 0.66  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO  
 IBM AT DRIVE TYPE \_\_\_\_\_ \*

Physical:

Height (inches/mm): 1.00/25.4  
 Width (inches/mm): 4.02/102.1  
 Depth (inches/mm): 5.77/146.6  
 Weight (lbs/kg): 1.5/0.68

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 978 cyl, 14 heads, 35 sectors = 245,360,640

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
 ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (03/30/93)



Physical:

Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.02/102.1
Depth (inches/mm):	5.77/146.6
Weight (lbs/kg):	1.5/0.68

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 1001 cyl, 15 heads, 34 sectors = 261,381,120

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (05/12/93)





Physical:

Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.02/102.1
Depth (inches/mm):	5.77/146.6
Weight (lbs/kg):	1.3/0.59

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 761 cyl, 14 heads, 50 sectors = 272,742,400

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (05/02/94)



Physical:

Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.02/102.1
Depth (inches/mm):	5.77/146.6
Weight (lbs/kg):	1.3/0.59

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 761 cyl, 14 heads, 50 sectors = 272,742,400

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (08/17/94)



TPI (TRACKS PER INCH) \_\_\_\_\_ 2,400  
 BPI (BITS PER INCH) \_\_\_\_\_ 52,602  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 12  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ <4  
 MAX FULL SEEK (ms) \_\_\_\_\_ 32  
 MTBF (power-on hours) Office \_\_\_\_\_ 250,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_1.9  
 POWER REQUIREMENTS: +5V \_\_\_\_\_ (amps) \_0.55  
 POWER MANAGEMENT (Watts):  
     ACTIVE \_\_\_\_\_ 5.75  
     IDLE \_\_\_\_\_ 3.0  
     STANDBY \_\_\_\_\_ 1.0  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO  
 IBM AT DRIVE TYPE \_\_\_\_\_ \*

Physical:

Height (inches/mm): 1.00/25.4  
 Width (inches/mm): 4.02/102.1  
 Depth (inches/mm): 5.77/146.6  
 Weight (lbs/kg): 1.5/0.68

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 767 cyl, 14 heads, 62 sectors = 340,867,072

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
 ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (03/30/93)



INTERFACE \_\_\_\_\_ AT  
 SECTORS PER DRIVE \_\_\_\_\_ 666,624  
 BYTES PER CYLINDER \_\_\_\_\_  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 3,000  
 BPI (BITS PER INCH) \_\_\_\_\_ 53,192  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 12  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ <4  
 MAX FULL SEEK (ms) \_\_\_\_\_ 32  
 MTBF (power-on hours) Office \_\_\_\_\_ 250,000  
 POWER DISSIPATION (watts) \_\_\_\_\_  
 POWER REQUIREMENTS: +12V START-UP (amps) \_1.9  
 POWER MANAGEMENT (Watts):  
     ACTIVE \_\_\_\_\_ 4.9  
     IDLE \_\_\_\_\_ 2.5  
     STANDBY \_\_\_\_\_ 0.3  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO  
 IBM AT DRIVE TYPE \_\_\_\_\_ \*

Physical:

Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.02/102.1
Depth (inches/mm):	5.77/146.6
Weight (lbs/kg):	1.5/0.68

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 768 cyl, 14 heads, 62 sectors = 341,311,488

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
 ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (11/08/93)





Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.02/102.1
Depth (inches/mm):	5.77/146.6
Weight (lbs/kg):	1.3/0.59

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 768 cyl, 14 heads, 62 sectors = 341,311,488

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (08/09/94)



Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.02/102.1
Depth (inches/mm):	5.77/146.6
Weight (lbs/kg):	1.3/0.59

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 899 cyl, 15 heads, 62 sectors = 428,067,840

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (08/09/94)



- (2) HSP/Assert "/DASP" signal: pin 39 on 40-pin AT/AT Interface connector. The Host Slave Present jumper and the Active LED jumper are mutually exclusive.
- (3) XT only. These jumpers are used to set the drive type information to be returned by the drive via the Drive Configuration register (I/O port 2) or the XT Interface.



- (2) HSP/Assert "/DASP" signal: pin 39 on 40-pin AT/AT Interface connector. The Host Slave Present jumper and the Active LED jumper are mutually exclusive.
- (3) XT only. These jumpers are used to set the drive type information to be returned by the drive via the Drive Configuration register (I/O port 2) or the XT Interface.



## ST-351A/X

Select a configuration block version for jumpers

Jumpers for 12 pin version   Jumpers for 18 pin version

### ST - 351A/X

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 51  
FORMATTED CAPACITY (17 SECTORS) (MB) \_\_\_\_\_ 42.82  
AVERAGE SECTORS PER TRACK \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STEPPER  
TRACKS \_\_\_\_\_  
CYLINDERS \_(Physical/Logical) \_\_\_\_\_ xx/820  
HEADS \_\_\_\_\_ 2/6  
DISCS \_\_\_\_\_ 1  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL 2,7 (ZBR)  
INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ 10/12/14  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,048  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 9.84  
INTERFACE \_\_\_\_\_ AT/XT  
SECTORS PER DRIVE \_\_\_\_\_ 83,640  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1290  
BPI (BITS PER INCH) \_\_\_\_\_ 27152/28155/28922  
AVERAGE ACCESS (ms) \_\_\_\_\_ 28  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 7  
MAX FULL SEEK (ms) \_\_\_\_\_ 65  
MTBF (power-on hours) \_\_\_\_\_ 150,000  
POWER REQUIREMENTS: +12V START-UP (amps) \_0.8  
                          +12V TYPICAL (amps) \_0.10  
                          +5V TYPICAL (amps) \_0.11  
                          TYPICAL (watts) \_\_\_\_\_ 2.0  
                          MAXIMUM (watts) \_\_\_\_\_  
BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_\_  
WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
IBM AT DRIVE TYPE \_\_\_\_\_ 40, 44\*

Possible translation:    820 cyl, 6 heads, 17 sectors = 42,823,680  
                              980 cyl, 5 heads, 17 sectors = 42,649,600  
                              977 cyl, 5 heads, 17 sectors = 42,519,040

Note: A "custom" or "user-definded" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

\* CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory for AT installations.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (5/6/91)

## ST-325A/X

### Jumpers for 12 pin version

ST - 352A/X

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 51  
FORMATTED CAPACITY (17 SECTORS) (MB) \_\_\_\_\_ 42.82  
AVERAGE SECTORS PER TRACK \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STEPPER  
TRACKS \_\_\_\_\_  
CYLINDERS \_(Physical/Logical)\_\_\_\_\_ xx/980  
HEADS \_\_\_\_\_ 2/5  
DISCS \_\_\_\_\_ 1  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL 2,7 (ZBR)  
INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ 10/12/14  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,048  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 9.84  
INTERFACE \_\_\_\_\_ AT/XT  
SECTORS PER DRIVE \_\_\_\_\_ 83,640  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1290  
BPI (BITS PER INCH) \_\_\_\_\_ 27152/28155/28922  
AVERAGE ACCESS (ms) \_\_\_\_\_ 28  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 7  
MAX FULL SEEK (ms) \_\_\_\_\_ 65  
MTBF (power-on hours) \_\_\_\_\_ 150,000  
POWER REQUIREMENTS: +12V START-UP (amps) \_0.8  
                          +12V TYPICAL (amps) \_0.10  
                          +5V TYPICAL (amps) \_0.11  
                          TYPICAL (watts) \_\_\_\_\_ 2.0  
                          MAXIMUM (watts) \_\_\_\_\_  
BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_\_  
WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
IBM AT DRIVE TYPE \_\_\_\_\_ 40, 44\*

Possible translation: 980 cyl, 5 heads, 17 sectors = 42,649,600  
                          977 cyl, 5 heads, 17 sectors = 42,519,040

Note: A "custom" or "user-definded" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

\* CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

ZBR = Zone Bit Recording = Variable sectors per track

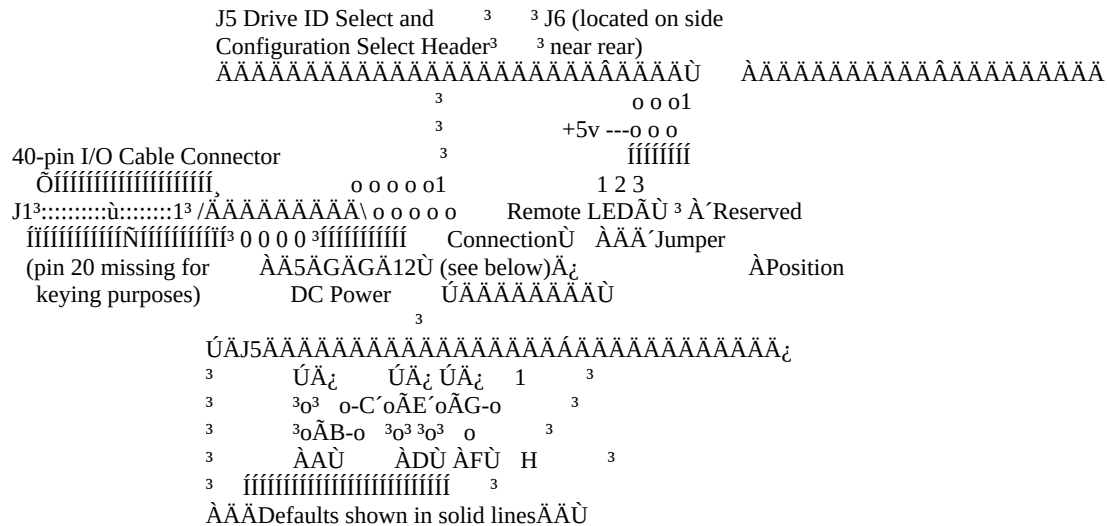
Already low-level formatted at the factory for AT installations.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your

permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (10/7/93)

## ST-3500A AT Interface



J5 Jumper Function Description (\* indicates default)

A B (A=vertical, pins 9 & 10; B=horizontal, pins 8 & 10)

OFF OFF Drive is the slave (Drive 1).

OFF ON Drive is the master (Drive 0) with slave (Drive 1) present.

ON\* OFF Drive is the master (Drive 0).

C (C=horizontal, pins 5 & 7)

ON Slave (Drive 1) Present is connected to J1 pin 39. Jumpers "D" or "E" cannot be installed if jumper "C" is installed.

D (D=vertical, pins 5 & 6)

ON\* DASP- is connected to J1 pin 39. Jumpers "C", "D", "F", or "G" cannot be installed if jumper "E" is installed.

OFF REFSIG is not connected to J1 pin 39.

E (E=horizontal, pins 3 & 5)

ON REFSIG is connected to J1 pin 39. Jumpers "C", "D", "F", or "G" cannot be installed if jumper "E" is installed.

OFF REFSIG is not connected to J1 pin 39.

F (F=vertical, pins 3 & 4)

ON\* No external reference for REFSIG. Jumpers "E", "G", or "H" cannot be installed if jumper "F" is installed.

OFF This location provides a port for external connection of the synchronized spindle reference signal (pin 3) and ground (pin 4).

G (G=horizontal, pins 1 & 3)

ON REFSIG is connected to J1 pin 28. Jumpers "E" or "F" cannot be installed if jumper "G" is installed.

OFF REFSIG is not connected to J1 pin 28.

H (H=vertical, pins 1 & 2)

ON Drive implements "CSEL" (Cable Select line in I/O connector)

feature. Implementation not defined yet. Jumpers A and B not used if jumper H is on. (This jumper is mutually exclusive with jumper "G").

OFF\* Drive select is based on use of jumper A or B.

#### J6 Jumper Function Description (2x3 jumper block)

- 1 Remote LED connection. Pin 6 is connected to +5v through a 147 ohm resistor. Pin 5 is the LED driver.
- 2 Reserved jumper position.
- 3 Reserved jumper position.

#### ST-3500A

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 502  
 FORMATTED CAPACITY (xx SECTORS) (MB) \_\_\_\_\_ 426  
 ACTUATOR TYPE \_\_\_\_\_ VOICE COIL  
 TRACKS \_\_\_\_\_ 10,829  
 CYLINDERS \_PHYSICAL\_\_\_\_\_ 1,547 (user)  
 HEADS \_\_\_\_\_ PHYSICAL \_\_\_\_\_ 7  
 DISCS (3.5 in) \_\_\_\_\_ 4  
 MEDIA TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ ZBR RLL (1,7)  
 TRANSFER RATE INTERNAL (mbits/sec) \_\_\_\_\_ 21.6 to 36  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 4,535  
 AVERAGE LATENCY (mSEC) \_\_\_\_\_ 6.61  
 BUFFER \_\_\_\_\_ 256 KByte SeaCache  
 Prefetch, Multi-Segmented  
 INTERFACE \_\_\_\_\_ AT BUS  
 SECTORS PER DRIVE \_\_\_\_\_  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 2150  
 AVERAGE ACCESS (ms) (read/write) \_\_\_\_\_ 9.9/10.6  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 2  
 MAX FULL SEEK (ms) \_\_\_\_\_ 21.5  
 MTBF (power-on hours) \_\_\_\_\_ 200,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_1.5  
                                   +12V TYPICAL (amps) \_\_0.4  
                                   +5V TYPICAL (amps) \_\_0.2  
                                   TYPICAL (watts) \_\_\_\_\_ 5  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ \*

#### Physical:

Height (inches/mm): 1.00/25.4  
 Width (inches/mm): 4.00/101.6  
 Depth (inches/mm): 5.75/146.1  
 Weight (lbs/kg): 1.8/0.80

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 895 cyl, 15 heads, 62 sectors = 426,163,200

Note: A "custom" or "user-defined" CMOS drivetype may ask for a

numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (10/12/92)





INTERFACE \_\_\_\_\_ AT  
 SECTORS PER DRIVE \_\_\_\_\_ 883,624  
 BYTES PER CYLINDER \_\_\_\_\_  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 2,400  
 BPI (BITS PER INCH) \_\_\_\_\_ 52,602  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 12  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ <4  
 MAX FULL SEEK (ms) \_\_\_\_\_ 32  
 MTBF (power-on hours) Office \_\_\_\_\_ 250,000  
 POWER DISSIPATION (watts) \_\_\_\_\_  
 POWER REQUIREMENTS: +12V START-UP (amps) \_1.9  
 POWER MANAGEMENT (Watts):  
     ACTIVE \_\_\_\_\_ 5.4  
     IDLE \_\_\_\_\_ 3.15  
     STANDBY \_\_\_\_\_ 0.9  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO  
 IBM AT DRIVE TYPE \_\_\_\_\_ \*

Physical:

Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.02/102.1
Depth (inches/mm):	5.77/146.6
Weight (lbs/kg):	1.5/0.68

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 1018 cyl, 14 heads, 62 sectors = 452,415,488

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
 ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

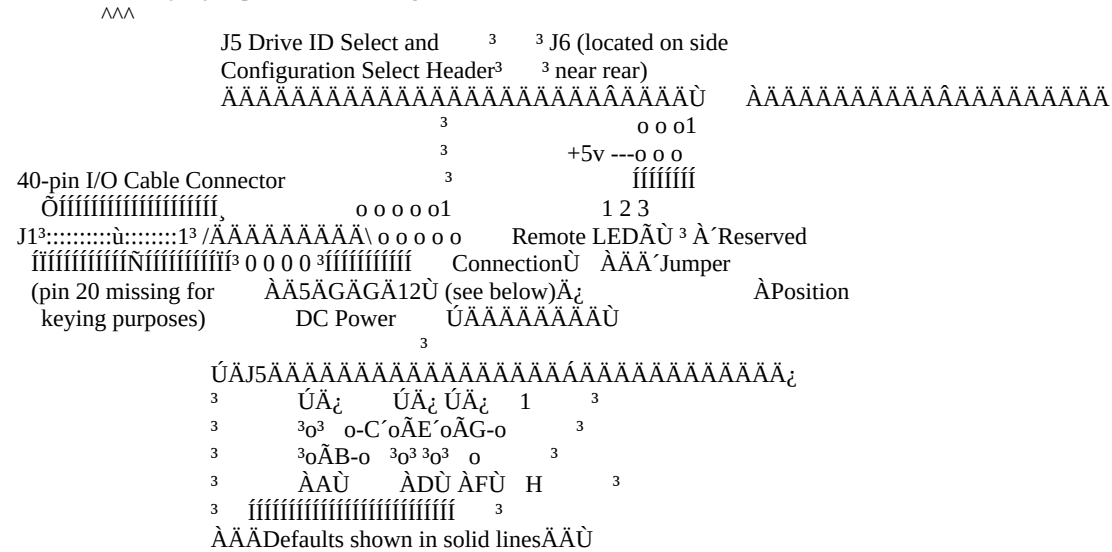
Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (08/09/94)

## ST-3600A

### Rear View

PCB with 2x3 style jumper block J6 on right side near rear.



### J5 Jumper Function Description (\* indicates default)

Defaults shown in solid lines

A B (A=vertical, pins 9 & 10; B=horizontal, pins 8 & 10)

OFF OFF Drive is the slave (Drive 1).

OFF ON Drive is the master (Drive 0) with slave (Drive 1) present.

ON\* OFF Drive is the master (Drive 0).

C (C=horizontal, pins 5 & 7)

ON Slave (Drive 1) Present is connected to J1 pin 39. Jumpers "D" or "E" cannot be installed if jumper "C" is installed.

OFF Slave Present is not connected to J1 pin 39.

D (D=vertical, pins 5 & 6)

ON\* DASP- is connected to J1 pin 39. Jumpers "C", "D", "F", or "G" cannot be installed if jumper "E" is installed.

OFF REFSIG is not connected to J1 pin 39.

E (E=horizontal, pins 3 & 5)

ON REFSIG is connected to J1 pin 39. Jumpers "C", "D", "F", or "G" cannot be installed if jumper "E" is installed.

OFF REFSIG is not connected to J1 pin 39.

F (F=vertical, pins 3 & 4)

ON\* No external reference for REFSIG. Jumpers "E", "G", or "H" cannot be installed if jumper "F" is installed.

OFF This location provides a port for external connection of the synchronized spindle reference signal (pin 3) and ground (pin 4).

G (G=horizontal, pins 1 & 3)

ON REFSIG is connected to J1 pin 28. Jumpers "E" or "F" cannot be installed if jumper "G" is installed.

OFF	REFSIG is not connected to J1 pin 28.
H	(H=vertical, pins 1 & 2)
ON	Drive implements "CSEL" (Cable Select line in I/O connector) feature. Implementation not defined yet. Jumpers A and B not used if jumper H is on. (This jumper is mutually exclusive with jumper "G").
OFF*	Drive select is based on use of jumper A or B.

J6 Jumper    Function Description (2x3 jumper block)

- |   |   |
|---|---|
| 1 | Remote LED cable connection. Pin 6 is connected to +5v through a 147 ohm resistor. Pin 5 is the LED driver. |
| 2 | Reserved jumper position.   |
| 3 | Reserved jumper position.   |

=====



Jumper F must also be installed to implement cable select.

OFF	J1 pin 28 not used for Cable Select function.
F	
ON	Cable select option enabled. Jumper E must also be installed to enable cable select.
OFF	Cable select option not enabled.
G	
ON	Optional feature #1 enabled
OFF	Optional feature #1 not enabled
H	
ON	Spindle synch reference signal is on I/O connector J1 pin 39.
OFF	Spindle synch reference signal is not on J1 pin 39.
J	
ON	Spindle synch reference signal is on I/O connector J1 pin 28.
OFF	Spindle synch reference signal is not on J1 pin 28.

J6 Jumper    Funtion Description (2x2 jumper block)

L	Remote LED cable connection (Not a jumper position). Do not install a jumper if remote LED cable is not plugged here.
R	
ON	No spindle synch reference is used. See also J5 position D, which duplicates the function of this jumper position. Either J5D or J6 R may be used to signify no spindle synch reference is used.
OFF	Spindle sync reference signal cable may be plugged into this jumper position, J5 D or the spindle synch reference may be taken from I/O cable pin 28 (if jumper J installed) or pin 39 (if jumper H installed).

## ST-3600A

ST-3600A

ST-3600A Jumpers w/2x3 right side jumpers

ST-3600A Jumpers w/2x2 right side jumpers

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 617  
FORMATTED CAPACITY (xx SECTORS) (MB) \_\_\_\_\_ 528  
ACTUATOR TYPE \_\_\_\_\_ VOICE COIL  
TRACKS \_\_\_\_\_ 13,104  
CYLINDERS \_\_ PHYSICAL \_\_\_\_\_ 1,872 (user)  
HEADS \_\_\_\_\_ PHYSICAL \_\_\_\_\_ 7  
DISCS (3.5 in) \_\_\_\_\_ 4  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ ZBR RLL (1,7)  
TRANSFER RATE INTERNAL (mbits/sec) \_\_\_\_\_ 19.6 to 36.0  
DMA SUPPORT \_\_\_\_\_ EISA Type B  
SPINDLE SPEED (RPM) \_\_\_\_\_ 4,535  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 6.61  
BUFFER \_\_\_\_\_ 256 KByte SeaCache  
Adaptive cache  
INTERFACE \_\_\_\_\_ AT BUS  
SECTORS PER DRIVE \_\_\_\_\_  
TPI (TRACKS PER INCH) \_\_\_\_\_ 2150  
AVERAGE ACCESS (ms) (read/write) \_\_\_\_\_ 10.5/11.2  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 2  
MAX FULL SEEK (ms) \_\_\_\_\_ 23  
MTBF (power-on hours) \_\_\_\_\_ 200,000  
POWER REQUIREMENTS: +12V START-UP (amps) \_1.5  
                                  +12V TYPICAL (amps) \_\_0.4  
                                  +5V TYPICAL (amps) \_\_0.2  
                                  TYPICAL (watts) \_\_\_\_\_ 5  
WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
IBM AT DRIVE TYPE \_\_\_\_\_ \*

### Physical:

Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.00/101.6
Depth (inches/mm):	5.75/146.1
Weight (lbs/kg):	1.8/0.80

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 1024 cyl, 16 heads, 63 sectors = 528,482,304

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (01/21/93)





Multi-Segmented  
 INTERFACE \_\_\_\_\_ AT  
 SECTORS PER DRIVE \_\_\_\_\_ 1,032,192  
 BYTES PER CYLINDER \_\_\_\_\_  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 3,000  
 BPI (BITS PER INCH) \_\_\_\_\_ 53,192  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 12  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ <4  
 MAX FULL SEEK (ms) \_\_\_\_\_ 32  
 MTBF (power-on hours) Office \_\_\_\_\_ 250,000  
 POWER DISSIPATION (watts) \_\_\_\_\_  
 POWER REQUIREMENTS: +12V START-UP (amps) \_1.9  
 POWER MANAGEMENT (Watts):  
     ACTIVE \_\_\_\_\_ 4.9  
     IDLE \_\_\_\_\_ 2.5  
     STANDBY \_\_\_\_\_ 0.3  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO  
 IBM AT DRIVE TYPE \_\_\_\_\_ \*

Physical:

Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.02/102.1
Depth (inches/mm):	5.77/146.6
Weight (lbs/kg):	1.5/0.68

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 1024 cyl, 16 heads, 63 sectors = 528,428,304

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (08/09/94)



Physical:

Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.02/102.1
Depth (inches/mm):	5.77/146.6
Weight (lbs/kg):	1.3/0.59

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translations:

This translation is generally acceptable, as is, for non-DOS operating systems:  
1057 cyl, 16 heads, 63 sectors = 545,513,472

DOS operating systems may require a system bios that accepts or translates larger values for the CMOS head parameter which lowers cylinders below 1024:  
528 cyl, 32 heads, 63 sectors = 544,997,376

Other FULL-CAPACITY solutions for DOS operating systems include third-party drive preparation software, system BIOS which supports LBA mode or bios driven host adapters. Otherwise, capacity may be limited to:  
1024 cyl, 16 heads, 63 sectors = 528,482,304

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (08/17/94)





AVERAGE ACCESS (ms) (read/write) \_\_\_\_\_ 12/14  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 3.5  
 MAX FULL SEEK (ms) \_\_\_\_\_ 25  
 MTBF (power-on hours) Office \_\_\_\_\_ 300,000  
 SHOCK (G's):  
     operating (Read/Write) \_\_\_\_\_ 2  
     nonoperating \_\_\_\_\_ 75  
 ACOUSTICS (typ/max dBA) \_\_\_\_\_ 30/36  
 POWER DISSIPATION (watts) \_\_\_\_\_  
 POWER REQUIREMENTS: +12V START-UP (amps) \_1.9  
 POWER MANAGEMENT (Watts):  
     ACTIVE \_\_\_\_\_ 6.6  
     IDLE \_\_\_\_\_ 2.75  
     STANDBY \_\_\_\_\_ 1  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO  
 IBM AT DRIVE TYPE \_\_\_\_\_ \*

Physical:

Height (inches/mm): 1/25.4  
 Width (inches/mm): 4.02/102.1  
 Depth (inches/mm): 5.77/146.6  
 Weight (lbs/kg): 1.5/0.68

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translations:

This translation is generally acceptable, as  
 is, for non-DOS operating systems:  
 1399 cyl, 16 heads, 63 sectors = 722,018,304

DOS operating systems may require a system bios  
 that accepts or translates larger values for the  
 CMOS head parameter which lowers cylinders below  
 1024:  
 699 cyl, 32 heads, 63 sectors = 721,502,208

Other FULL-CAPACITY solutions for DOS operating  
 systems include third-party drive preparation  
 software, system BIOS which supports LBA mode  
 or bios driven host adapters. Otherwise,  
 capacity may be limited to:  
 699 cyl, 16 heads, 63 sectors = 360,751,104 (Master)  
 699 cyl, 16 heads, 63 sectors = 360,751,104 (Slave see Dual  
 Drive emulation jumper)

Note: A "custom" or "user-defined" CMOS drivetype may ask for a  
 numerical value for the Write Precompensation cylinder and for the  
 Landing Zone cylinder. A basic rule-of-thumb for drive models that do  
 not require the old Write Precomp technique or a Landing Zone because  
 they are Auto-Parking is to add 1 to the cylinder value being used. As  
 an example: If cylinders equaled 820, then both Write Precomp and  
 Landing Zone would be entered as 821. Some BIOS will convert this to  
 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
 ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (05/14/95)





SHOCK (G's):

operating (Read/Write) \_\_\_\_\_ 2

nonoperating \_\_\_\_\_ 75

ACOUSTICS (dBa) (typ/max) \_\_\_\_\_ 30/38

POWER DISSIPATION (watts) \_\_\_\_\_

POWER REQUIREMENTS: +12V START-UP (amps) \_1.0

POWER MANAGEMENT (Watts):

ACTIVE \_\_\_\_\_ 6.5

IDLE \_\_\_\_\_ 3.0

STANDBY \_\_\_\_\_ .5

WRITE PRECOMP (cyl) \_\_\_\_\_ N/A

REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A

LANDING ZONE (cyl) \_\_\_\_\_ AUTO

IBM AT DRIVE TYPE \_\_\_\_\_ \*

Physical:

Height (inches/mm): 0.748/19

Width (inches/mm): 4.00/101.6

Depth (inches/mm): 5/127

Weight (lbs/kg): .75/0.34

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translations:

This translation is generally acceptable, as is, for non-DOS operating systems:

2100 cyl, 16 heads, 63 sectors = 1,083,801,600

DOS operating systems may require a system bios that accepts larger values for the CMOS head parameter which lowers cylinders below 1024:

525 cyl, 64 heads, 63 sectors = 1,083,801,600

Other FULL-CAPACITY solutions for DOS operating systems include third-party drive preparation software or bios driven host adapters. Otherwise, capacity may be limited to:

1024 cyl, 16 heads, 63 sectors = 528,482,304

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (5/14/95)





operating (Read/Write) \_\_\_\_\_ 2  
 nonoperating \_\_\_\_\_ 75  
 ACOUSTICS (dBa) (typ/max) \_\_\_\_\_ 30/38  
 POWER DISSIPATION (watts) \_\_\_\_\_  
 POWER REQUIREMENTS: +12V START-UP (amps) \_1.0  
 POWER MANAGEMENT (Watts):  
     ACTIVE \_\_\_\_\_ 6.5  
     IDLE \_\_\_\_\_ 3.0  
     STANDBY \_\_\_\_\_ .5  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO  
 IBM AT DRIVE TYPE \_\_\_\_\_ \*

Physical:

Height (inches/mm):     0.748/19  
 Width (inches/mm):     4.00/101.6  
 Depth (inches/mm):     5/127  
 Weight (lbs/kg):     .75/0.34

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translations:

This translation is generally acceptable, as  
 is, for non-DOS operating systems:

1050 cyl, 16 heads, 63 sectors = 541,900,800

DOS operating systems may require a system bios  
 that accepts larger values for the CMOS head  
 parameter which lowers cylinders below 1024:

525 cyl, 32 heads, 63 sectors = 541,900,800

Other FULL-CAPACITY solutions for DOS operating  
 systems include third-party drive preparation  
 software or bios driven host adapters. Otherwise,  
 capacity may be limited to:

1024 cyl, 16 heads, 63 sectors = 528,482,304

Note: A "custom" or "user-defined" CMOS drivetype may ask for a  
 numerical value for the Write Precompensation cylinder and for the  
 Landing Zone cylinder. A basic rule-of-thumb for drive models that do  
 not require the old Write Precomp technique or a Landing Zone because  
 they are Auto-Parking is to add 1 to the cylinder value being used. As  
 an example: If cylinders equaled 820, then both Write Precomp and  
 Landing Zone would be entered as 821. Some BIOS will convert this to  
 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it  
 is imperative that the values be written down and kept with your  
 permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product  
 offerings or specifications. (5/14/95)



SINGLE TRACK SEEK (ms) \_\_\_\_\_ 3.5  
 MAX FULL SEEK (ms) \_\_\_\_\_ 25  
 MTBF (power-on hours) Office \_\_\_\_\_ 300,000  
 SHOCK (G's):  
     operating (Read/Write) \_\_\_\_\_ 2  
     nonoperating \_\_\_\_\_ 75  
 ACOUSTICS (dBa) (typ/max) \_\_\_\_\_ 26/29  
 POWER DISSIPATION (watts) \_\_\_\_\_  
 POWER REQUIREMENTS: +12V START-UP (amps) \_1.2  
 POWER MANAGEMENT (Watts):  
     ACTIVE \_\_\_\_\_ 6.0  
     IDLE \_\_\_\_\_ <2.5  
     STANDBY \_\_\_\_\_ 1.25  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO  
 IBM AT DRIVE TYPE \_\_\_\_\_ \*

Physical:

Height (inches/mm):     0.748/19  
 Width (inches/mm):     4.00/101.6  
 Depth (inches/mm):     5/127  
 Weight (lbs/kg):       1.0/0.45

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translations:

This translation is generally acceptable, as  
 is, for non-DOS operating systems:  
 1057 cyl, 16 heads, 63 sectors = 545,513,472

DOS operating systems may require a system bios  
 that accepts larger values for the CMOS head  
 parameter which lowers cylinders below 1024:  
 528 cyl, 32 heads, 63 sectors = 544,997,376

Other FULL-CAPACITY solutions for DOS operating  
 systems include third-party drive preparation  
 software or bios driven host adapters. Otherwise,  
 capacity may be limited to:  
 1024 cyl, 16 heads, 63 sectors = 528,482,304

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
 ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (08/09/94)





ST-5850A  
Decathlon 850

UNFORMATTED CAPACITY \_\_\_\_\_  
 FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_ 854.7  
 ACTUATOR TYPE \_\_\_\_\_ VOICE COIL  
 CYLINDERS \_\_PHYSICAL\_\_\_\_\_ 4,085  
 HEADS \_\_\_\_\_ PHYSICAL\_\_\_\_\_ 4  
 DISCS (3.5 in) \_\_\_\_\_ 2  
 MEDIA TYPE \_\_\_\_\_ THIN FILM  
 HEAD TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ ZBR RLL (1,7)  
 INTERNAL TRANSFER RATE (Mbits/sec) \_\_\_\_\_ 32.45 to 61.65  
 EXTERNAL TRANSFER RATE (Mbytes/sec) \_\_\_\_\_ up to 16.6  
 PIO MODE \_\_\_\_\_ 4  
 DMA SUPPORT \_\_\_\_\_ EISA Type B  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 5,376  
 AVERAGE LATENCY (mSEC) \_\_\_\_\_ 5.56  
 BUFFER \_\_\_\_\_ 256 Kbyte SeaCache  
 Read/Write Multiple, Read Look-Ahead,  
 Multi-Segmented  
 INTERFACE \_\_\_\_\_ AT  
 SECTORS PER DRIVE (LBA mode) \_\_\_\_\_ 1,669,260  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 4,250  
 BPI (BITS PER INCH) \_\_\_\_\_ 69,355  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 12  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 3.5  
 MAX FULL SEEK (ms) \_\_\_\_\_ 25  
 MTBF (power-on hours) Office \_\_\_\_\_ 500,000  
 SHOCK (G's):  
     operating (Read/Write) \_\_\_\_\_ 2  
     nonoperating \_\_\_\_\_ 75  
 ACOUSTICS (dBa) (typ/max) \_\_\_\_\_ 30/38  
 POWER DISSIPATION (watts) \_\_\_\_\_  
 POWER REQUIREMENTS: +12V START-UP (amps) \_1.9  
 POWER MANAGEMENT (Watts):  
     ACTIVE \_\_\_\_\_ 7.0  
     IDLE \_\_\_\_\_ 3.10  
     STANDBY \_\_\_\_\_ 1.00  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO  
 IBM AT DRIVE TYPE \_\_\_\_\_ \*

Physical:

Height (inches/mm):	0.748/19
Width (inches/mm):	4.00/101.6
Depth (inches/mm):	5/127
Weight (lbs/kg):	1.0/0.45

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translations:

This translation is generally acceptable, as  
 is, for non-DOS operating systems:

1656 cyl, 16 heads, 63 sectors = 854,654,976

DOS operating systems may require a system bios

that accepts larger values for the CMOS head  
parameter which lowers cylinders below 1024:  
828 cyl, 32 heads, 63 sectors = 854,654,976

Other FULL-CAPACITY solutions for DOS operating  
systems include third-party drive preparation  
software or bios driven host adapters. Otherwise,  
capacity may be limited to:  
827 cyl, 16 heads, 63 sectors = 426,811,392 (Master)  
827 cyl, 16 heads, 63 sectors = 426,811,392 (Slave see Dual  
Drive emulation jumper)

Note: A "custom" or "user-defined" CMOS drivetype may ask for a  
numerical value for the Write Precompensation cylinder and for the  
Landing Zone cylinder. A basic rule-of-thumb for drive models that do  
not require the old Write Precomp technique or a Landing Zone because  
they are Auto-Parking is to add 1 to the cylinder value being used. As  
an example: If cylinders equaled 820, then both Write Precomp and  
Landing Zone would be entered as 821. Some BIOS will convert this to  
65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it  
is imperative that the values be written down and kept with your  
permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product  
offerings or specifications. (5/14/95)

## ST-72A

### ST-72A Solid State FlashDrive

FORMATTED CAPACITY \_\_\_\_\_ 2.6  
TRANSFER RATE To/From Memory (Mbytes/sec) up to 2.5  
TRANSFER RATE To/From Interface \_\_\_\_\_ up to 3.75  
CONTROLLER OVERHEAD (msec-Command to DRQ) <1.5  
STARTUP TIMES:  
Sleep to Write (msec) \_\_\_\_\_ <20  
Sleep to Read (msec) \_\_\_\_\_ <3  
INTERFACE \_\_\_\_\_ AT  
Auto Sense of interface type  
PCMCIA Card Type II  
MTBF (power-on hours) Office \_\_\_\_\_ 200,000  
SHOCK (G's):  
operating (Read/Write) \_\_\_\_\_ 500  
nonoperating \_\_\_\_\_ 500  
POWER REQUIREMENTS: Maximum Current (mA)  
Reading 5v \_\_\_\_\_ 100  
Writing 5v \_\_\_\_\_ 200  
Erasing 5v \_\_\_\_\_ 200  
Sleep \_\_\_\_\_ 5  
IBM AT DRIVE TYPE \_\_\_\_\_

#### Physical:

Height (inches/mm):	0.28/7.1
Width (inches/mm):	2/50.8
Depth (inches/mm):	3.026/76.85
Weight (oz/g):	1.23/35

Seagate reserves the right to change, without notice, product offerings or specifications. (11/08/93)

## ST-75A

### ST-75A Solid State FlashDrive

FORMATTED CAPACITY \_\_\_\_\_ 5.2  
TRANSFER RATE To/From Memory (Mbytes/sec) up to 2.5  
TRANSFER RATE To/From Interface \_\_\_\_\_ up to 3.75  
CONTROLLER OVERHEAD (msec-Command to DRQ) <1.5  
STARTUP TIMES:  
Sleep to Write (msec) \_\_\_\_\_ <20  
Sleep to Read (msec) \_\_\_\_\_ <3  
INTERFACE \_\_\_\_\_ AT  
Auto Sense of interface type  
PCMCIA Card Type II  
MTBF (power-on hours) Office \_\_\_\_\_ 200,000  
SHOCK (G's):  
operating (Read/Write) \_\_\_\_\_ 500  
nonoperating \_\_\_\_\_ 500  
POWER REQUIREMENTS: Maximum Current (mA)  
Reading 5v \_\_\_\_\_ 100  
Writing 5v \_\_\_\_\_ 200  
Erasing 5v \_\_\_\_\_ 200  
Sleep \_\_\_\_\_ 5  
IBM AT DRIVE TYPE \_\_\_\_\_

#### Physical:

Height (inches/mm):	0.28/7.1
Width (inches/mm):	2/50.8
Depth (inches/mm):	3.026/76.85
Weight (oz/g):	1.23/35

Seagate reserves the right to change, without notice, product offerings or specifications. (11/08/93)

## ST-710A

### ST-710A Solid State FlashDrive

FORMATTED CAPACITY \_\_\_\_\_ 10.4  
TRANSFER RATE To/From Memory (Mbytes/sec) up to 2.5  
TRANSFER RATE To/From Interface \_\_\_\_\_ up to 3.75  
CONTROLLER OVERHEAD (msec-Command to DRQ) <1.5  
STARTUP TIMES:  
Sleep to Write (msec) \_\_\_\_\_ <20  
Sleep to Read (msec) \_\_\_\_\_ <3  
INTERFACE \_\_\_\_\_ AT  
Auto Sense of interface type  
PCMCIA Card Type II  
MTBF (power-on hours) Office \_\_\_\_\_ 200,000  
SHOCK (G's):  
operating (Read/Write) \_\_\_\_\_ 500  
nonoperating \_\_\_\_\_ 500  
POWER REQUIREMENTS: Maximum Current (mA)  
Reading 5v \_\_\_\_\_ 100  
Writing 5v \_\_\_\_\_ 200  
Erasing 5v \_\_\_\_\_ 200  
Sleep \_\_\_\_\_ 5  
IBM AT DRIVE TYPE \_\_\_\_\_

#### Physical:

Height (inches/mm):	0.28/7.1
Width (inches/mm):	2/50.8
Depth (inches/mm):	3.026/76.85
Weight (oz/g):	1.23/35

Seagate reserves the right to change, without notice, product offerings or specifications. (11/08/93)

## ST-720A

### ST-720A Solid State FlashDrive

FORMATTED CAPACITY \_\_\_\_\_ 20.9  
TRANSFER RATE To/From Memory (Mbytes/sec) up to 2.5  
TRANSFER RATE To/From Interface \_\_\_\_\_ up to 3.75  
CONTROLLER OVERHEAD (msec-Command to DRQ) <1.5  
STARTUP TIMES:  
Sleep to Write (msec) \_\_\_\_\_ <20  
Sleep to Read (msec) \_\_\_\_\_ <3  
INTERFACE \_\_\_\_\_ AT  
Auto Sense of interface type  
PCMCIA Card Type II  
MTBF (power-on hours) Office \_\_\_\_\_ 200,000  
SHOCK (G's):  
operating (Read/Write) \_\_\_\_\_ 500  
nonoperating \_\_\_\_\_ 500  
POWER REQUIREMENTS: Maximum Current (mA)  
Reading 5v \_\_\_\_\_ 100  
Writing 5v \_\_\_\_\_ 200  
Erasing 5v \_\_\_\_\_ 200  
Sleep \_\_\_\_\_ 5  
IBM AT DRIVE TYPE \_\_\_\_\_

#### Physical:

Height (inches/mm):	0.28/7.1
Width (inches/mm):	2/50.8
Depth (inches/mm):	3.026/76.85
Weight (oz/g):	1.23/35

Seagate reserves the right to change, without notice, product offerings or specifications. (11/08/93)

## ST-740A

### ST-740A Solid State FlashDrive

FORMATTED CAPACITY \_\_\_\_\_ 41.9  
TRANSFER RATE To/From Memory (Mbytes/sec) up to 2.5  
TRANSFER RATE To/From Interface \_\_\_\_\_ up to 3.75  
CONTROLLER OVERHEAD (msec-Command to DRQ) <1.5  
STARTUP TIMES:  
Sleep to Write (msec) \_\_\_\_\_ <20  
Sleep to Read (msec) \_\_\_\_\_ <3  
INTERFACE \_\_\_\_\_ AT  
Auto Sense of interface type  
PCMCIA Card Type II  
MTBF (power-on hours) Office \_\_\_\_\_ 200,000  
SHOCK (G's):  
operating (Read/Write) \_\_\_\_\_ 500  
nonoperating \_\_\_\_\_ 500  
POWER REQUIREMENTS: Maximum Current (mA)  
Reading 5v \_\_\_\_\_ 100  
Writing 5v \_\_\_\_\_ 200  
Erasing 5v \_\_\_\_\_ 200  
Sleep \_\_\_\_\_ 5  
IBM AT DRIVE TYPE \_\_\_\_\_

#### Physical:

Height (inches/mm):	0.28/7.1
Width (inches/mm):	2/50.8
Depth (inches/mm):	3.026/76.85
Weight (oz/g):	1.23/35

Seagate reserves the right to change, without notice, product offerings or specifications. (11/08/93)

## ST-92AC

### ST-92AC Solid State FlashDrive

FORMATTED CAPACITY \_\_\_\_\_ 2.6  
TRANSFER RATE To/From Memory (Mbytes/sec) up to 2.5  
TRANSFER RATE To/From Interface \_\_\_\_\_ up to 3.75  
CONTROLLER OVERHEAD (msec-Command to DRQ) <1.5  
STARTUP TIMES:  
Sleep to Write (msec) \_\_\_\_\_ 20  
Sleep to Read (msec) \_\_\_\_\_ 3  
INTERFACE \_\_\_\_\_ AT  
Auto Sense of interface type  
PCMCIA Card Type II  
MTBF (power-on hours) Office \_\_\_\_\_ 200,000  
SHOCK (G's):  
operating (Read/Write) \_\_\_\_\_ 500  
nonoperating \_\_\_\_\_ 1000  
POWER REQUIREMENTS: Maximum Current (mA)  
Reading 5v \_\_\_\_\_ 150  
Writing 5v \_\_\_\_\_ 200  
Erasing 5v \_\_\_\_\_ 200  
Sleep \_\_\_\_\_ 3  
IBM AT DRIVE TYPE \_\_\_\_\_

#### Physical:

Height (inches/mm):	0.13/3.3
Width (inches/mm):	2.126/54
Depth (inches/mm):	3.37/85.6
Weight (oz/g):	1.2/34

Seagate reserves the right to change, without notice, product offerings or specifications. (11/09/93)



## ST-95AC

### ST-95AC Solid State FlashDrive

FORMATTED CAPACITY \_\_\_\_\_ 5.2  
TRANSFER RATE To/From Memory (Mbytes/sec) up to 2.5  
TRANSFER RATE To/From Interface \_\_\_\_\_ up to 3.75  
CONTROLLER OVERHEAD (msec-Command to DRQ) <1.5  
STARTUP TIMES:  
Sleep to Write (msec) \_\_\_\_\_ 20  
Sleep to Read (msec) \_\_\_\_\_ 3  
INTERFACE \_\_\_\_\_ AT  
Auto Sense of interface type  
PCMCIA Card Type II  
MTBF (power-on hours) Office \_\_\_\_\_ 200,000  
SHOCK (G's):  
operating (Read/Write) \_\_\_\_\_ 500  
nonoperating \_\_\_\_\_ 1000  
POWER REQUIREMENTS: Maximum Current (mA)  
Reading 5v \_\_\_\_\_ 150  
Writing 5v \_\_\_\_\_ 200  
Erasing 5v \_\_\_\_\_ 200  
Sleep \_\_\_\_\_ 3  
IBM AT DRIVE TYPE \_\_\_\_\_

#### Physical:

Height (inches/mm):	0.13/3.3
Width (inches/mm):	2.126/54
Depth (inches/mm):	3.37/85.6
Weight (oz/g):	1.2/34

Seagate reserves the right to change, without notice, product offerings or specifications. (11/09/93)

## ST-910AC

### ST-910AC Solid State FlashDrive

FORMATTED CAPACITY \_\_\_\_\_ 10.4  
TRANSFER RATE To/From Memory (Mbytes/sec) up to 2.5  
TRANSFER RATE To/From Interface \_\_\_\_\_ up to 3.75  
CONTROLLER OVERHEAD (msec-Command to DRQ) <1.5  
STARTUP TIMES:  
Sleep to Write (msec) \_\_\_\_\_ 20  
Sleep to Read (msec) \_\_\_\_\_ 3  
INTERFACE \_\_\_\_\_ AT  
Auto Sense of interface type  
PCMCIA Card Type II  
MTBF (power-on hours) Office \_\_\_\_\_ 200,000  
SHOCK (G's):  
operating (Read/Write) \_\_\_\_\_ 500  
nonoperating \_\_\_\_\_ 1000  
POWER REQUIREMENTS: Maximum Current (mA)  
Reading 5v \_\_\_\_\_ 150  
Writing 5v \_\_\_\_\_ 200  
Erasing 5v \_\_\_\_\_ 200  
Sleep \_\_\_\_\_ 3  
IBM AT DRIVE TYPE \_\_\_\_\_

#### Physical:

Height (inches/mm):	0.13/3.3
Width (inches/mm):	2.126/54
Depth (inches/mm):	3.37/85.6
Weight (oz/g):	1.2/34

Seagate reserves the right to change, without notice, product offerings or specifications. (11/09/93)

## ST-920AC

### ST-920AC Solid State FlashDrive

FORMATTED CAPACITY \_\_\_\_\_ 20.9  
TRANSFER RATE To/From Memory (Mbytes/sec) up to 2.5  
TRANSFER RATE To/From Interface \_\_\_\_\_ up to 3.75  
CONTROLLER OVERHEAD (msec-Command to DRQ) <1.5  
STARTUP TIMES:  
Sleep to Write (msec) \_\_\_\_\_ 20  
Sleep to Read (msec) \_\_\_\_\_ 3  
INTERFACE \_\_\_\_\_ AT  
Auto Sense of interface type  
PCMCIA Card Type II  
MTBF (power-on hours) Office \_\_\_\_\_ 200,000  
SHOCK (G's):  
operating (Read/Write) \_\_\_\_\_ 500  
nonoperating \_\_\_\_\_ 1000  
POWER REQUIREMENTS: Maximum Current (mA)  
Reading 5v \_\_\_\_\_ 150  
Writing 5v \_\_\_\_\_ 200  
Erasing 5v \_\_\_\_\_ 200  
Sleep \_\_\_\_\_ 3  
IBM AT DRIVE TYPE \_\_\_\_\_

#### Physical:

Height (inches/mm):	0.13/3.3
Width (inches/mm):	2.126/54
Depth (inches/mm):	3.37/85.6
Weight (oz/g):	1.2/34

Seagate reserves the right to change, without notice, product offerings or specifications. (11/09/93)



Weight (oz/kg): 6.5/0.18

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 820 cyl, 6 heads, 17 sectors = 42,823,680

Possible translation: 654 cyl, 4 heads, 32 sectors = 42,860,544

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (9/25/91)



Width (inches/mm):	2.76/70.10
Depth (inches/mm):	4.01/101.9
Weight (oz/kg):	6.0/0.17

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 980 cyl, 5 heads, 17 sectors = 42,649,600

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (10/21/91)





\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 669 cyl, 11 heads, 17 sectors = 64,052,736

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (9/25/91)

# ST-9080A

[illegible]

```

Drive is Master, no Slave drive present 00000000000000000000 0 0
Drive is Master, Seagate Slave drive present 0000000000000000 1 0
Drive is Slave to another Seagate 2.5" Master 0000000000000000 0 1
Reserved Position (Do Not Use) 000000000000000000000000000000 1 1

```

\* Drive uses +5vdc power supplied to the drive via the interface connector. The drive does NOT make use of a +12vdc power line.

pin-41	+5vdc (Logic)
pin-42	+5vdc (Motor)
pin-43	Ground
pin-44	Reserved

## ST-9080A

```

UNFORMATTED CAPACITY (MB) _____ N/A
FORMATTED CAPACITY (xx SECTORS) (MB) _____ 64.0
ACTUATOR TYPE _____ VOICE COIL
TRACKS _____
CYLINDERS  _PHYSICAL/LOGICAL_____ NA/823
HEADS _____ PHYSICAL/LOGICAL_____ 2/4
DISCS (2.5 in) _____ 1
MEDIA TYPE _____ THIN FILM
RECORDING METHOD _____ ZBR RLL (2,7)
TRANSFER RATE INTERNAL (mbits/sec) _____ up to 16
SPINDLE SPEED (RPM) _____ 3,449
AVERAGE LATENCY (mSEC) _____ 8.69
BUFFER _____ 32/64 KByte SeaCache
Multisegmented cache
INTERFACE _____ AT BUS
SECTORS PER DRIVE _____ 125,096
TPI (TRACKS PER INCH) _____ 2,650
BPI (BITS PER INCH) _____ 45,500
FCI (FLUX DENSITY) _____ 30,300
AVERAGE ACCESS (ms) _____ 16
SINGLE TRACK SEEK (ms) _____ 5
MAX FULL SEEK (ms) _____ 27
MTBF (power-on hours) _____ 150,000
SHOCK (G's) operating/nonoperating _____ 10/150
POWER REQUIREMENTS: +5V START-UP (amps) _____ 1.0
POWER MANAGEMENT (Watts):
    ACTIVE _____ 1.7
    IDLE _____ 0.7
    STANDBY _____ 0.16
    SLEEP _____ 0.16
WRITE PRECOMP (cyl) _____ N/A
REDUCED WRITE CURRENT (cyl) _____ N/A
LANDING ZONE (cyl) _____ AUTO PARK
IBM AT DRIVE TYPE _____ *

```

Physical:

Height (inches/mm):	0.49/12.5
Width (inches/mm):	2.76/70.10
Depth (inches/mm):	4.01/101.9
Weight (oz/kg):	4.8/0.136

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 823 cyl, 4 heads, 38 sectors = 64,049,152

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (12/02/92)



Width (inches/mm):	2.76/70.10
Depth (inches/mm):	4.01/101.85
Weight (oz/kg):	6.5/0.18

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 980 cyl, 10 heads, 17 sectors = 85,299,200

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (10/21/91)

# ST-9100AG

TOP ÜÄ 44-pin I/O Connector (\* see below)

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3                  3 3

pin-20 removed for keying ÄÄÄÄÄÄÄÄÄÄÄÄÜ 3 3  
3 3

```
Drive is Master, no Slave drive present ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ 0 0
```

```
Drive is Master, Seagate Slave drive present 1 0
```

Drive is Slave to another Seagate 2.5" Master ÄÄÄÄÄÄÄÄÄÄ 0 1

[illegible]

\* Drive uses +5vdc power supplied to the drive via the interface connector. The drive does NOT make use of a +12vdc power line.

pin-41 +5vdc (Logic)

pin-42 +5vdc (Motor)

pin-43 Ground

pin-44 Reserved

ST-9100AG

UNFORMATTED CAPACITY	_____	
FORMATTED CAPACITY (xx SECTORS)	_____	85.7
ACTUATOR TYPE	_____	VOICE COIL
TRACKS	_____	
CYLINDERS	_____	
HEADS	_____	2
DISCS (2.5 in)	_____	1
MEDIA TYPE	_____	THIN FILM
HEAD TYPE	_____	THIN FILM
RECORDING METHOD	_____	ZBR RLL (1,7)
INTERNAL TRANSFER RATE (mbits/sec)	_____	up to 22.4
SPINDLE SPEED (RPM)	_____	3,545
AVERAGE LATENCY (mSEC)	_____	8.46
BUFFER	_____	120 Kbyte
Adaptive cache, write cache optional		
INTERFACE	_____	AT
SECTORS PER DRIVE	_____	167,552
TPI (TRACKS PER INCH)	_____	2,650
BPI (BITS PER INCH)	_____	58,200
AVERAGE ACCESS (ms)	_____	16
SINGLE TRACK SEEK (ms)	_____	5
MAX FULL SEEK (ms)	_____	27
MTBF (power-on hours) Office	_____	300,000
SHOCK (G's) operating/nonoperating	_____	100/150
SafeRite shock sensor		
POWER REQUIREMENTS: +5V START-UP (amps)	_____	0.92
POWER MANAGEMENT (Watts):		
ACTIVE	_____	1.6
IDLE	_____	0.6
STANDBY	_____	0.12
SLEEP	_____	0.09
WRITE PRECOMP (cyl)	_____	N/A
REDUCED WRITE CURRENT (cyl)	_____	N/A
LANDING ZONE (cyl)	_____	AUTO
IBM AT DRIVE TYPE	_____	*

Physical:

Height (inches/mm):	.049/12.5
Width (inches/mm):	2.76/70.10
Depth (inches/mm):	4.01/101.85
Weight (oz/kg):	4.8/0.136

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 748 cyl, 14 heads, 16 sectors = 85,786,624

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (06/22/93)

# ST-9140AG

TOP      ÜÄ 44-pin I/O Connector (\* see below)  
3                      0 0

[illegible]

pin-20 removed for keying ÅÅÅÅÅÅÅÅÅÅÅÅÛ

3 3  
3 3

Drive is Master, no Slave drive present ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ 0 0

```
Drive is Master, Seagate Slave drive present              1 0
```

Drive is Slave to another Seagate 2.5" Master ÄÄÄÄÄÄÄÄÄÄÄÄ 0 1

[illegible]

\* Drive uses +5vdc power supplied to the drive via the interface connector. The drive does NOT make use of a +12vdc power line.

pin-41 +5vdc (Logic)

pin-42 +5vdc (Motor)

pin-43 Ground

pin-44 Reserved

ST-9140AG

```

UNFORMATTED CAPACITY _____
FORMATTED CAPACITY (xx SECTORS) _____ 127.9
ACTUATOR TYPE _____ VOICE COIL
TRACKS _____
CYLINDERS _____
HEADS _____ 4
DISCS (2.5 in) _____ 2
MEDIA TYPE _____ THIN FILM
HEAD TYPE _____ THIN FILM
RECORDING METHOD _____ ZBR RLL (1,7)
INTERNAL TRANSFER RATE (mbits/sec) _____ up to 22.4
SPINDLE SPEED (RPM) _____ 3,545
AVERAGE LATENCY (mSEC) _____ 8.46
BUFFER _____ 120 Kbyte
Adaptive cache, write cache optional
INTERFACE _____ AT
SECTORS PER DRIVE _____ 249,900
TPI (TRACKS PER INCH) _____ 2,760
BPI (BITS PER INCH) _____ 57,120
AVERAGE ACCESS (ms) _____ 16
SINGLE TRACK SEEK (ms) _____ 5
MAX FULL SEEK (ms) _____ 27
MTBF (power-on hours) Office _____ 300,000
SHOCK (G's) operating/nonoperating _____ 100/150
SafeRite shock sensor
POWER REQUIREMENTS: +5V START-UP (amps) _____ 0.92
POWER MANAGEMENT (Watts):
    ACTIVE _____ 1.7
    IDLE _____ 0.6
    STANDBY _____ 0.12
    SLEEP _____ 0.09
WRITE PRECOMP (cyl) _____ N/A
REDUCED WRITE CURRENT (cyl) _____ N/A
LANDING ZONE (cyl) _____ AUTO
IBM AT DRIVE TYPE _____ *

```



Physical:

Height (inches/mm):	.049/12.5
Width (inches/mm):	2.76/70.10
Depth (inches/mm):	4.01/101.85
Weight (oz/kg):	5.7/0.162

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 980 cyl, 15 heads, 17 sectors = 127,948,800

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (06/22/93)



Depth (inches/mm): 4.01/101.85  
Weight (oz/kg): 7.0/0.20

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 980 cyl, 15 heads, 17 sectors = 127,948,800

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (10/21/91)

**ST-9145AG**

TOP ÚÄ 44-pin I/O Connector (\* see below)

3 0 0

.....1 0 0

IPIWIAAAAAAAAAAAAAAAAAAAAAA

3 3 3

pin-20 removed for keying AAAAAAAAAAAAAAAAAAAU 3 3

3 3

```
Drive is Master, no Slave drive present                      0 0
Drive is Master, Seagate Slave drive present                1 0
Drive is Slave to another Seagate 2.5" Master                0 1
Reserved Position (Do Not Use)                              1 1
```

\* Drive uses +5vdc power supplied to the drive via the interface connector. The drive does NOT make use of a +12vdc power line.

pin-41	+5vdc (Logic)
pin-42	+5vdc (Motor)
pin-43	Ground
pin-44	Reserved

ST-9145A

UNFORMATTED CAPACITY (MB)	145
FORMATTED CAPACITY (xx SECTORS) (MB)	127.9
ACTUATOR TYPE	VOICE COIL
TRACKS (USER)	PHYSICAL/LOGICAL 5852/14700
CYLINDERS	PHYSICAL/LOGICAL 1463/980
HEADS	PHYSICAL/LOGICAL 4/15
DISCS (2.5 in)	2
MEDIA TYPE	THIN FILM
RECORDING METHOD	ZBR RLL (2,7)
TRANSFER RATE INTERNAL (mbits/sec)	up to 16
SPINDLE SPEED (RPM)	3,449
AVERAGE LATENCY (mSEC)	8.69
BUFFER	32/64 KByte SeaCache
Multisegmented cache	
INTERFACE	AT BUS
SECTORS PER DRIVE	249,900
TPI (TRACKS PER INCH)	2,650
BPI (BITS PER INCH)	45,500
FCI (FLUX DENSITY)	30,300
AVERAGE ACCESS (ms)	16
SINGLE TRACK SEEK (ms)	5
MAX FULL SEEK (ms)	27
MTBF (power-on hours)	150,000
SHOCK (G's) operating/nonoperating	100/150
POWER REQUIREMENTS: +5V START-UP (amps)	1.2
POWER MANAGEMENT (Watts):	
ACTIVE	1.8
IDLE	0.7
STANDBY	0.17
SLEEP	0.17
WRITE PRECOMP (cyl)	N/A
REDUCED WRITE CURRENT (cyl)	N/A
LANDING ZONE (cyl)	AUTO PARK
IBM AT DRIVE TYPE	*

Physical:

Height (inches/mm):	0.75/19.0
Width (inches/mm):	2.76/70.10
Depth (inches/mm):	4.01/101.9
Weight (oz/kg):	4.8/0.136

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 980 cyl, 15 heads, 17 sectors = 127,948,800

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

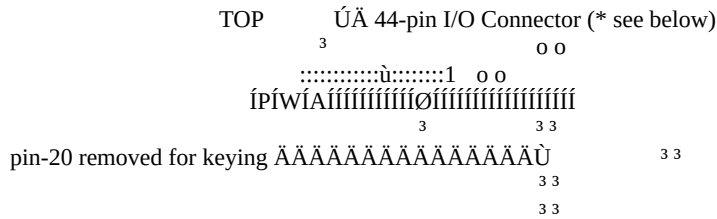
PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (05/12/93)

## ST-9150AG (Marathon 130sl)



Drive is Master, no Slave drive present  
Drive is Master, Seagate Slave drive present  
Drive is Slave to another Seagate 2.5" Master  
Reserved Position (Do Not Use)

- \* Drive uses +5vdc power supplied to the drive via the interface connector. The drive does NOT make use of a +12vdc power line.
- pin-41 +5vdc (Logic)
- pin-42 +5vdc (Motor)
- pin-43 Ground
- pin-44 Reserved

### ST-9150AG Marathon 130sl

UNFORMATTED CAPACITY \_\_\_\_\_  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_131.0  
ACTUATOR TYPE \_\_\_\_\_ROTARY VOICE COIL  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_  
HEADS \_\_\_\_\_2  
DISCS (2.5 in) \_\_\_\_\_1  
MEDIA TYPE \_\_\_\_\_THIN FILM  
HEAD TYPE \_\_\_\_\_THIN FILM  
RECORDING METHOD \_\_\_\_\_ZBR RLL (1,7)  
INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_up to 29.5  
EXTERNAL TRANSFER RATE (Mbytes) \_\_\_\_\_up to 13.3  
SPINDLE SPEED (RPM) \_\_\_\_\_3,980  
AVERAGE LATENCY (mSEC) \_\_\_\_\_7.54  
BUFFER \_\_\_\_\_120 Kbyte  
Adaptive cache, write cache optional  
INTERFACE \_\_\_\_\_AT  
SECTORS PER DRIVE \_\_\_\_\_256,009  
TPI (TRACKS PER INCH) \_\_\_\_\_3,282  
BPI (BITS PER INCH) \_\_\_\_\_59,124  
FCI (FLUX CHANGES PER INCH) \_\_\_\_\_44,360  
AVERAGE ACCESS (ms) \_\_ (read/write) \_\_\_\_\_16/20  
SINGLE TRACK SEEK (ms) \_\_ (read/write) \_\_\_\_\_6/7  
MAX FULL SEEK (ms) \_\_ (read/write) \_\_\_\_\_26/28  
MTBF (power-on hours) Office \_\_\_\_\_300,000  
SHOCK (G's) operating/nonoperating \_\_\_\_\_100/150  
SafeRite shock sensor  
ACOUSTICS \_\_ (dBA Max) \_\_ (idle/seek) \_\_\_\_\_28/30  
POWER REQUIREMENTS: +5V START-UP (amps) \_\_\_\_\_0.60  
POWER MANAGEMENT (Watts):  
ACTIVE \_\_\_\_\_1.7  
IDLE \_\_\_\_\_0.73  
STANDBY \_\_\_\_\_0.16  
SLEEP \_\_\_\_\_0.10  
WRITE PRECOMP (cyl) \_\_\_\_\_N/A

REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
LANDING ZONE (cyl) \_\_\_\_\_ AUTO  
IBM AT DRIVE TYPE \_\_\_\_\_ \*

Physical:

Height (inches/mm):	.504/12.80
Width (inches/mm):	2.76/70.10
Depth (inches/mm):	4.01/101.85
Weight (oz/kg):	5.4/0.154

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 419 cyl, 13 heads, 47 sectors = 131,076,608

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (08/09/94)

## ST-9190AG (Marathon 170sl)

[illegible]

```
Drive is Master, no Slave drive present 00000000000000000000 0 0
Drive is Master, Seagate Slave drive present 0000000000000000 1 0
Drive is Slave to another Seagate 2.5" Master 0000000000000000 0 1
Reserved Position (Do Not Use) 0000000000000000000000000000 1 1
```

\* Drive uses +5vdc power supplied to the drive via the interface connector. The drive does NOT make use of a +12vdc power line.

pin-41	+5vdc (Logic)
pin-42	+5vdc (Motor)
pin-43	Ground
pin-44	Reserved

ST-9190AG  
Marathon 170sl

UNFORMATTED CAPACITY	_____	
FORMATTED CAPACITY (xx SECTORS)	_____	171.6
ACTUATOR TYPE	_____	ROTARY VOICE COIL
TRACKS	_____	
CYLINDERS	_____	
HEADS	_____	4
DISCS (2.5 in)	_____	2
MEDIA TYPE	_____	THIN FILM
HEAD TYPE	_____	THIN FILM
RECORDING METHOD	_____	ZBR RLL (1,7)
INTERNAL TRANSFER RATE (mbits/sec)	_____	up to 22.4
SPINDLE SPEED (RPM)	_____	3,545
AVERAGE LATENCY (mSEC)	_____	8.46
BUFFER	_____	120 Kbyte
Adaptive cache, write cache optional		
INTERFACE	_____	AT
SECTORS PER DRIVE	_____	335,232
TPI (TRACKS PER INCH)	_____	2,760
BPI (BITS PER INCH)	_____	57,120
AVERAGE ACCESS (ms)	_____	16
SINGLE TRACK SEEK (ms)	_____	5
MAX FULL SEEK (ms)	_____	27
MTBF (power-on hours) Office	_____	300,000
SHOCK (G's) operating/nonoperating	_____	100/150
SafeRite shock sensor		
POWER REQUIREMENTS: +5V START-UP (amps)	_____	0.92
POWER MANAGEMENT (Watts):		
ACTIVE	_____	1.7
IDLE	_____	0.6
STANDBY	_____	0.12
SLEEP	_____	0.09
WRITE PRECOMP (cyl)	_____	N/A
REDUCED WRITE CURRENT (cyl)	_____	N/A
LANDING ZONE (cyl)	_____	AUTO
IBM AT DRIVE TYPE	_____	*



Physical:

Height (inches/mm):	.49/12.5
Width (inches/mm):	2.76/70.10
Depth (inches/mm):	4.01/101.85
Weight (oz/kg):	5.7/0.162

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 873 cyl, 16 heads, 24 sectors = 171,638,784

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

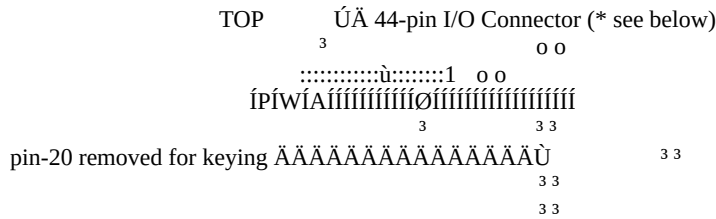
PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (08/09/94)

## ST-9235AG and ST-9235A



Drive is Master, no Slave drive present ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ 0 0  
 Drive is Master, Seagate Slave drive present ÄÄÄÄÄÄÄÄÄÄÄÄÄÄ 1 0  
 Drive is Slave to another Seagate 2.5" Master ÄÄÄÄÄÄÄÄÄÄÄÄÄÄ 0 1  
 Reserved Position (Do Not Use) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ 1 1

- \* Drive uses +5vdc power supplied to the drive via the interface connector. The drive does NOT make use of a +12vdc power line.
- pin-41 +5vdc (Logic)
- pin-42 +5vdc (Motor)
- pin-43 Ground
- pin-44 Reserved

### ST-9235AG

UNFORMATTED CAPACITY \_\_\_\_\_  
 FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_ 209.7  
 ACTUATOR TYPE \_\_\_\_\_ ROTARY VOICE COIL  
 TRACKS \_\_\_\_\_  
 CYLINDERS \_\_\_\_\_  
 HEADS \_\_\_\_\_ 6  
 DISCS (2.5 in) \_\_\_\_\_ 3  
 MEDIA TYPE \_\_\_\_\_ THIN FILM  
 HEAD TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ ZBR RLL (2,7)  
 INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ up to 16  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 3,449  
 AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.69  
 BUFFER \_\_\_\_\_ 64 Kbyte  
 Multisegmented cache  
 INTERFACE \_\_\_\_\_ AT  
 SECTORS PER DRIVE \_\_\_\_\_ 409,760  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 2,750  
 BPI (BITS PER INCH) \_\_\_\_\_ 45,500  
 FCI (FLUX DENSITY) \_\_\_\_\_ 30,300  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 16  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 5  
 MAX FULL SEEK (ms) \_\_\_\_\_ 27  
 MTBF (power-on hours) Office \_\_\_\_\_ 150,000  
 SHOCK (G's):  
 ST9235A operating/nonoperating \_\_\_\_\_ 10/150  
 ST9235AG operating/nonoperating \_\_\_\_\_ 100/150  
 SafeRite shock sensor  
 POWER REQUIREMENTS: +5V START-UP (amps) \_\_\_\_ 1.2  
 POWER MANAGEMENT (Watts):  
 ACTIVE \_\_\_\_\_ 1.8  
 IDLE \_\_\_\_\_ 0.7  
 STANDBY \_\_\_\_\_ 0.17  
 SLEEP \_\_\_\_\_ 0.17  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A

REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
LANDING ZONE (cyl) \_\_\_\_\_ AUTO  
IBM AT DRIVE TYPE \_\_\_\_\_ \*

Physical:

Height (inches/mm):	0.75/19.05
Width (inches/mm):	2.76/70.10
Depth (inches/mm):	4.01/101.85
Weight (ozs/kg):	7.25/0.21

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 985 cyl, 13 heads, 32 sectors = 209,797,120

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (05/12/93)

## ST-9240AG (Marathon 210sl)

[illegible]

```
Drive is Master, no Slave drive present                      0 0
Drive is Master, Seagate Slave drive present                1 0
Drive is Slave to another Seagate 2.5" Master                0 1
Reserved Position (Do Not Use)                              1 1
```

\* Drive uses +5vdc power supplied to the drive via the interface connector. The drive does NOT make use of a +12vdc power line.

pin-41	+5vdc (Logic)
pin-42	+5vdc (Motor)
pin-43	Ground
pin-44	Reserved

ST-9240AG  
Marathon 210sl

UNFORMATTED CAPACITY	_____	
FORMATTED CAPACITY (xx SECTORS)	_____	210.4
ACTUATOR TYPE	_____	ROTARY VOICE COIL
TRACKS	_____	
CYLINDERS	_____	
HEADS	_____	4
DISCS (2.5 in)	_____	2
MEDIA TYPE	_____	THIN FILM
HEAD TYPE	_____	THIN FILM
RECORDING METHOD	_____	ZBR RLL (1,7)
INTERNAL TRANSFER RATE (mbits/sec)	_____	up to 29.5
EXTERNAL TRANSFER RATE (Mbytes)	_____	up to 13.3
SPINDLE SPEED (RPM)	_____	3,980
AVERAGE LATENCY (mSEC)	_____	7.54
BUFFER	_____	120 Kbyte
Adaptive cache, write cache optional		
INTERFACE	_____	AT
SECTORS PER DRIVE	_____	411,008
TPI (TRACKS PER INCH)	_____	3,282
BPI (BITS PER INCH)	_____	59,124
FCI (FLUX CHANGES PER INCH)	_____	44,360
AVERAGE ACCESS (ms) __ (read/write)	_____	16/20
SINGLE TRACK SEEK (ms) __ (read/write)	_____	6/7
MAX FULL SEEK (ms) __ (read/write)	_____	26/28
MTBF (power-on hours) Office	_____	300,000
SHOCK (G's) operating/nonoperating	_____	100/150
SafeRite shock sensor		
ACOUSTICS __ (dBA Max) __ (idle/seek)	_____	28/30
POWER REQUIREMENTS: +5V START-UP (amps)	_____	0.60
POWER MANAGEMENT (Watts):		
ACTIVE	_____	1.7
IDLE	_____	0.73
STANDBY	_____	0.16
SLEEP	_____	0.10
WRITE PRECOMP (cyl)	_____	N/A

REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
LANDING ZONE (cyl) \_\_\_\_\_ AUTO  
IBM AT DRIVE TYPE \_\_\_\_\_ \*

Physical:

Height (inches/mm):	.504/12.80
Width (inches/mm):	2.76/70.10
Depth (inches/mm):	4.01/101.85
Weight (oz/kg):	5.4/0.154

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 988 cyl, 8 heads, 52 sectors = 210,436,096

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (08/09/94)

**ST-9295AG**[illegible]

\* Drive uses +5vdc power supplied to the drive via the interface connector. The drive does NOT make use of a +12vdc power line.

pin-41	+5vdc (Logic)
pin-42	+5vdc (Motor)
pin-43	Ground
pin-44	Reserved

ST-9295AG

```

UNFORMATTED CAPACITY _____
FORMATTED CAPACITY (xx SECTORS) _____ 261
AVERAGE SECTORS PER TRACK _____ rounded down
ACTUATOR TYPE _____ STRAIGHT ARM
TRACKS _____
CYLINDERS _____ (user)
HEADS _____
DISCS (2.5 in) _____
MEDIA TYPE _____ THIN FILM
HEAD TYPE _____ THIN FILM
RECORDING METHOD _____ ZBR RLL (2,7)
INTERNAL TRANSFER RATE (mbits/sec) _____ up to 22.4
SPINDLE SPEED (RPM) _____ 3,450
AVERAGE LATENCY (mSEC) _____ 8.69
BUFFER _____ 120 Kbyte
    Adaptive cache
INTERFACE _____ AT
BYTES PER TRACK _____
SECTORS PER DRIVE _____ 509,765
TPI (TRACKS PER INCH) _____ x,xxx
BPI (BITS PER INCH) _____ xx,xxx
AVERAGE ACCESS (ms) _____ 16
SINGLE TRACK SEEK (ms) _____ 5
MAX FULL SEEK (ms) _____ 27
MTBF (power-on hours) Office _____ 300,000
SHOCK (G's) operating/nonoperating _____ 100/150
    SafeRite shock sensor
POWER REQUIREMENTS: +5V START-UP (amps) __ 1.2
POWER MANAGEMENT (Watts):
    ACTIVE _____ 1.8
    IDLE _____ 0.7
    STANDBY _____ 0.17
WRITE PRECOMP (cyl) _____ N/A
REDUCED WRITE CURRENT (cyl) _____ N/A
LANDING ZONE (cyl) _____ AUTO

```

IBM AT DRIVE TYPE \_\_\_\_\_ \*

Physical:

Height (inches/mm):	0.75/19.05
Width (inches/mm):	2.76/70.10
Depth (inches/mm):	4.01/101.85
Weight (ozs/kg):	7.25/0.21

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: cyl, heads, sectors =

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION

ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (12/07/92)

## ST-9300AG (Marathon 260sl)

[illegible]

```
Drive is Master, no Slave drive present 00000000000000000000 0 0
Drive is Master, Seagate Slave drive present 0000000000000000 1 0
Drive is Slave to another Seagate 2.5" Master 0000000000000000 0 1
Reserved Position (Do Not Use) 0000000000000000000000000000 1 1
```

\* Drive uses +5vdc power supplied to the drive via the interface connector. The drive does NOT make use of a +12vdc power line.

pin-41	+5vdc (Logic)
pin-42	+5vdc (Motor)
pin-43	Ground
pin-44	Reserved

ST-9300AG  
Marathon 260sl

UNFORMATTED CAPACITY	_____	
FORMATTED CAPACITY (xx SECTORS)	_____	262.1
ACTUATOR TYPE	_____	ROTARY VOICE COIL
TRACKS	_____	
CYLINDERS	_____	
HEADS	_____	4
DISCS (2.5 in)	_____	2
MEDIA TYPE	_____	THIN FILM
HEAD TYPE	_____	THIN FILM
RECORDING METHOD	_____	ZBR RLL (1,7)
INTERNAL TRANSFER RATE (mbits/sec)	_____	up to 29.5
EXTERNAL TRANSFER RATE (Mbytes)	_____	up to 13.3
SPINDLE SPEED (RPM)	_____	3,980
AVERAGE LATENCY (mSEC)	_____	7.54
BUFFER	_____	120 Kbyte
Adaptive cache, write cache optional		
INTERFACE	_____	AT
SECTORS PER DRIVE	_____	512,100
TPI (TRACKS PER INCH)	_____	3,282
BPI (BITS PER INCH)	_____	59,124
FCI (FLUX CHANGES PER INCH)	_____	44,360
AVERAGE ACCESS (ms) __ (read/write)	_____	16/20
SINGLE TRACK SEEK (ms) __ (read/write)	_____	6/7
MAX FULL SEEK (ms) __ (read/write)	_____	26/28
MTBF (power-on hours) Office	_____	300,000
SHOCK (G's) operating/nonoperating	_____	100/150
SafeRite shock sensor		
ACOUSTICS __ (dBA Max) __ (idle/seek)	_____	28/30
POWER REQUIREMENTS: +5V START-UP (amps)	_____	0.60
POWER MANAGEMENT (Watts):		
ACTIVE	_____	1.7
IDLE	_____	0.73
STANDBY	_____	0.16
SLEEP	_____	0.10
WRITE PRECOMP (cyl)	_____	N/A



REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
LANDING ZONE (cyl) \_\_\_\_\_ AUTO  
IBM AT DRIVE TYPE \_\_\_\_\_ \*

Physical:

Height (inches/mm):	.504/12.80
Width (inches/mm):	2.76/70.10
Depth (inches/mm):	4.01/101.85
Weight (oz/kg):	5.4/0.154

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 569 cyl, 15 heads, 60 sectors = 262,195,200

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (08/09/94)

## ST-9385AG (Marathon 340)

TOP      ÜÄ 44-pin I/O Connector (\* see below)  
3                      0 0

.....ù.....1 o o  
ÍΠΨΑΙΙΙΙΙΙΙΙΙΙΟΙΙΙΙΙΙΙΙΙΙΙΙ  
                    3                3 3

pin-20 removed for keying ÄÄÄÄÄÄÄÄÄÄÄÄÜ 3 3  
3 3

Drive is Master, no Slave drive present ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ 0 0

```
Drive is Master, Seagate Slave drive present 1 0
```

Drive is Slave to another Seagate 2.5" Master ÄÄÄÄÄÄÄÄÄÄÄ 0 1

[illegible]

\* Drive uses +5vdc power supplied to the drive via the interface connector. The drive does NOT make use of a +12vdc power line.

pin-41 +5vdc (Logic)

pin-42 +5vdc (Motor)

pin-43 Ground

pin-44 Reserved

ST-9385AG

Marathon 340

FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_ 340  
 AVERAGE SECTORS PER TRACK \_\_\_\_\_ rounded down  
 ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
 TRACKS \_\_\_\_\_  
 CYLINDERS \_\_\_\_\_ (user)  
 HEADS \_\_\_\_\_ 6  
 DISCS (2.5 in) \_\_\_\_\_ 3  
 MEDIA TYPE \_\_\_\_\_ THIN FILM  
 HEAD TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ ZBR RLL (1,7)  
 INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ 16.2 to 27.7  
 EXTERNAL TRANSFER RATE (Mbytes) \_\_\_\_\_ up to 13.3  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 3,980  
 AVERAGE LATENCY (mSEC) \_\_\_\_\_ 7.54  
 BUFFER \_\_\_\_\_ 120 Kbyte  
 Multisegmented cache  
 INTERFACE \_\_\_\_\_ AT  
 SECTORS PER DRIVE \_\_\_\_\_ 666,876  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 3,282  
 BPI (BITS PER INCH) \_\_\_\_\_ 59,124  
 FCI (FLUX DENSITY) \_\_\_\_\_ 44,360  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 16  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 5  
 MAX FULL SEEK (ms) \_\_\_\_\_ 27  
 MTBF (power-on hours) Office \_\_\_\_\_ 300,000  
 ACOUSTICS (typ/max dBA) \_\_\_\_\_ 30/33  
 SHOCK (G's):  
     operating/nonoperating \_\_\_\_\_ 100/200  
     SafeRite shock sensor  
 POWER REQUIREMENTS: +5V START-UP (amps) \_\_ 1.2  
 POWER MANAGEMENT (Watts):

operating/nonoperating \_\_\_\_\_100/200

### SafeRite shock sensor

POWER REQUIREMENTS: +5V START-UP (amps) \_\_1.2

POWER MANAGEMENT (Watts):

ACTIVE \_\_\_\_\_1.85

IDLE \_\_\_\_\_0.9

STANDBY \_\_\_\_\_0.3

SLEEP \_\_\_\_\_ 0.25  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO  
 IBM AT DRIVE TYPE \_\_\_\_\_ \*

Physical:

Height (inches/mm): 0.75/19.05  
 Width (inches/mm): 2.76/70.10  
 Depth (inches/mm): 4.01/101.85  
 Weight (ozs/kg): 7.4/0.21

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 934 cyl, 14 heads, 51 sectors = 341,440,512

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

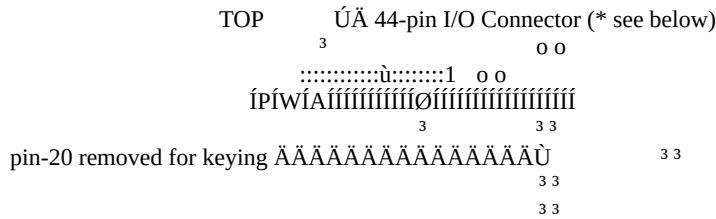
PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
 ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (08/17/94)

## ST-9420AG (Marathon 420sl)



Drive is Master, no Slave drive present

Drive is Master, Seagate Slave drive present

Drive is Slave to another Seagate 2.5" Master

Cable Select

\* Drive uses +5vdc power supplied to the drive  
via the interface connector. The drive does  
NOT make use of a +12vdc power line.

pin-41 +5vdc (Logic)

pin-42 +5vdc (Motor)

pin-43 Ground

pin-44 Reserved

### ST-9420AG Marathon 420sl

UNFORMATTED CAPACITY \_\_\_\_\_  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_ 420.8  
ACTUATOR TYPE \_\_\_\_\_ ROTARY VOICE COIL  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_  
HEADS \_\_\_\_\_ 4  
DISCS (2.5 in) \_\_\_\_\_ 2  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ ZBR PRML  
INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ up to 44  
EXTERNAL TRANSFER RATE (Mbytes) \_\_\_\_\_ up to 16.6  
PIO MODE (highest) \_\_\_\_\_ 4  
DMA MODE (highest) \_\_\_\_\_ 2  
SPINDLE SPEED (RPM) \_\_\_\_\_ 4,500  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 6.67  
BUFFER \_\_\_\_\_ 120 Kbyte  
Read/Write Multiple, Read Look-Ahead,  
Multi-Segmented, Adaptive  
INTERFACE \_\_\_\_\_ ATA  
SECTORS PER DRIVE (LBA mode) \_\_\_\_\_ 822,016  
TPI (TRACKS PER INCH) \_\_\_\_\_ 3,807  
BPI (BITS PER INCH) \_\_\_\_\_ 90,000  
FCI (FLUX CHANGES PER INCH) \_\_\_\_\_ 67,500  
AVERAGE ACCESS (ms) \_\_ (read/write) \_\_\_\_\_ 16/20  
SINGLE TRACK SEEK (ms) \_\_ (read/write) \_\_\_\_\_ 6/7  
MAX FULL SEEK (ms) \_\_ (read/write) \_\_\_\_\_ 26/28  
MTBF (power-on hours) Office \_\_\_\_\_ 300,000  
CONTACT START-STOP CYCLES \_\_\_\_\_ 50,000  
SHOCK (G's) operating/nonoperating \_\_\_\_\_ 100/150  
SafeRite shock sensor  
ACOUSTICS \_\_ (dBA Max) \_\_ (idle/seek) \_\_\_\_\_ 28/30  
POWER REQUIREMENTS: +5V START-UP (amps) \_\_\_\_\_ 0.660  
POWER MANAGEMENT (Watts):  
ACTIVE \_\_\_\_\_ 1.95

IDLE	_____	0.90
STANDBY	_____	0.25
SLEEP	_____	0.15
WRITE PRECOMP (cyl)	_____	N/A
REDUCED WRITE CURRENT (cyl)	_____	N/A
LANDING ZONE (cyl)	_____	AUTO
IBM AT DRIVE TYPE	_____	*

Physical:

Height (inches/mm):	.504/12.80
Width (inches/mm):	2.76/70.10
Depth (inches/mm):	4.01/101.85
Weight (oz/kg):	5.7/0.162

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 988 cyl, 16 heads, 52 sectors = 420,872,192

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

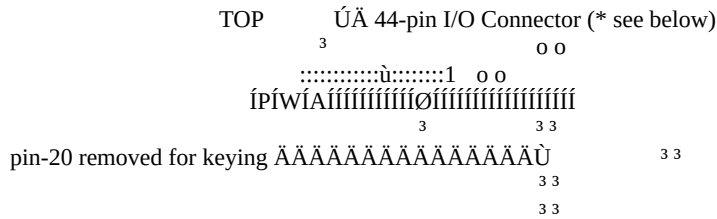
PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (01/24/95)

## ST-9550AG (Marathon 455)



Drive is Master, no Slave drive present  
Drive is Master, Seagate Slave drive present  
Drive is Slave to another Seagate 2.5" Master  
Reserved Position (Do Not Use)

- \* Drive uses +5vdc power supplied to the drive via the interface connector. The drive does NOT make use of a +12vdc power line.
- pin-41 +5vdc (Logic)
- pin-42 +5vdc (Motor)
- pin-43 Ground
- pin-44 Reserved

ST-9550AG  
Marathon 455

UNFORMATTED CAPACITY \_\_\_\_\_  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_455  
AVERAGE SECTORS PER TRACK \_\_\_\_\_rounded down  
ACTUATOR TYPE \_\_\_\_\_ROTARY VOICE COIL  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_(user)  
HEADS \_\_\_\_\_8  
DISCS (2.5 in) \_\_\_\_\_4  
MEDIA TYPE \_\_\_\_\_THIN FILM  
HEAD TYPE \_\_\_\_\_THIN FILM  
RECORDING METHOD \_\_\_\_\_ZBR RLL (1,7)  
INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_16.2 to 27.7  
EXTERNAL TRANSFER RATE (Mbytes) \_\_\_\_\_up to 13.3  
SPINDLE SPEED (RPM) \_\_\_\_\_3,980  
AVERAGE LATENCY (mSEC) \_\_\_\_\_7.54  
BUFFER \_\_\_\_\_120 Kbyte  
Multisegmented cache  
INTERFACE \_\_\_\_\_AT  
SECTORS PER DRIVE \_\_\_\_\_889,248  
TPI (TRACKS PER INCH) \_\_\_\_\_3,282  
BPI (BITS PER INCH) \_\_\_\_\_59,124  
FCI (FLUX DENSITY) \_\_\_\_\_44,360  
AVERAGE ACCESS (ms) \_\_\_\_\_16  
SINGLE TRACK SEEK (ms) \_\_\_\_\_5  
MAX FULL SEEK (ms) \_\_\_\_\_27  
MTBF (power-on hours) Office \_\_\_\_\_300,000  
ACOUSTICS (typ/max dBA) \_\_\_\_\_30/33  
SHOCK (G's):  
operating/nonoperating \_\_\_\_\_100/200  
SafeRite shock sensor  
POWER REQUIREMENTS: +5V START-UP (amps) \_\_\_\_\_1.2  
POWER MANAGEMENT (Watts):  
ACTIVE \_\_\_\_\_1.85  
IDLE \_\_\_\_\_0.9

STANDBY \_\_\_\_\_ 0.3  
 SLEEP \_\_\_\_\_ 0.25  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO  
 IBM AT DRIVE TYPE \_\_\_\_\_ \*

Physical:

Height (inches/mm): 0.75/19.05  
 Width (inches/mm): 2.76/70.10  
 Depth (inches/mm): 4.01/101.85  
 Weight (ozs/kg): 7.4/0.21

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 942 cyl, 16 heads, 59 sectors = 455,294,976

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
 ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (08/17/94)

## ST-9655AG (Marathon 520)

[illegible]

```
Drive is Master, no Slave drive present                      0 0
Drive is Master, Seagate Slave drive present                1 0
Drive is Slave to another Seagate 2.5" Master                0 1
Reserved Position (Do Not Use)                              1 1
```

\* Drive uses +5vdc power supplied to the drive via the interface connector. The drive does NOT make use of a +12vdc power line.

pin-41	+5vdc (Logic)
pin-42	+5vdc (Motor)
pin-43	Ground
pin-44	Reserved

ST-9655AG  
Marathon 520

UNFORMATTED CAPACITY _____	
FORMATTED CAPACITY (xx SECTORS) _____	524
AVERAGE SECTORS PER TRACK _____	rounded down
ACTUATOR TYPE _____	ROTARY VOICE COIL
TRACKS _____	
CYLINDERS _____	(user)
HEADS _____	8
DISCS (2.5 in) _____	4
MEDIA TYPE _____	THIN FILM
HEAD TYPE _____	THIN FILM
RECORDING METHOD _____	ZBR RLL (1,7)
INTERNAL TRANSFER RATE (mbytes/sec) _____	16.1 to 28.2
EXTERNAL TRANSFER RATE (Mbytes) _____	up to 13.3
SPINDLE SPEED (RPM) _____	3,980
AVERAGE LATENCY (mSEC) _____	7.54
BUFFER _____	120 Kbyte
Multisegmented cache	
INTERFACE _____	AT
SECTORS PER DRIVE _____	1,024,128
TPI (TRACKS PER INCH) _____	3,227
BPI (BITS PER INCH) _____	72,100
FCI (FLUX DENSITY) _____	44,360
AVERAGE ACCESS (ms) _____	16
SINGLE TRACK SEEK (ms) _____	6
MAX FULL SEEK (ms) _____	26
MTBF (power-on hours) Office _____	300,000
ACOUSTICS (typ/max dBA) _____	30/33
SHOCK (G's):	
operating/nonoperating _____	100/100
SafeRite shock sensor	
POWER REQUIREMENTS: +5V START-UP (amps) __1.2	
POWER MANAGEMENT (Watts):	
ACTIVE _____	1.85
IDLE _____	0.9



STANDBY \_\_\_\_\_ 0.3  
 SLEEP \_\_\_\_\_ 0.25  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO  
 IBM AT DRIVE TYPE \_\_\_\_\_ \*

Physical:

Height (inches/mm): 0.75/19.05  
 Width (inches/mm): 2.76/70.10  
 Depth (inches/mm): 4.01/101.85  
 Weight (ozs/kg): 7.4/0.21

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 1016 cyl, 16 heads, 63 sectors = 524,353,536

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
 ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (08/17/94)



[illegible]

ST-1111E  
94356-111 Swift

```

UNFORMATTED CAPACITY (MB) _____ 111
FORMATTED CAPACITY (36 SECTORS) (MB) _____ 98 **
ACTUATOR TYPE _____ VOICE COIL
TRACKS _____ 5,360
CYLINDERS _____ 1,072
HEADS _____ 5
DISCS _____ 3
MEDIA TYPE _____ THIN FILM
RECORDING METHOD _____ RLL (2,7)
TRANSFER RATE (mbytes/sec) _____ 1.25
SPINDLE SPEED (RPM) _____ 3,600
AVERAGE LATENCY (mSEC) _____ 8.33
INTERFACE _____ ESDI
SECTORS PER DRIVE _____ 192,960
TPI (TRACKS PER INCH) _____ 1,350
BPI (BITS PER INCH) _____ 28,103
AVERAGE ACCESS (ms) _____ 15
SINGLE TRACK SEEK (ms) _____ 4
MAX FULL SEEK (ms) _____ 35
MTBF (power-on hours) _____ 150,000
POWER REQUIREMENTS: +12V START-UP (amps) _2.5
                     +12V TYPICAL (amps) _0.7
                     +5V START-UP (amps) _0.75
                     +5V TYPICAL (amps) _0.4
                     TYPICAL (watts) _____ 11
                     MAXIMUM (watts) _____ 33.75
BUFFERED STEP PULSE RATE (micro sec) _____ 6-200
WRITE PRECOMP (cyl) _____ N/A (1073)
REDUCED WRITE CURRENT (cyl) _____ N/A (1073)
LANDING ZONE (cyl) _____ AUTO PARK
IBM AT DRIVE TYPE _____ *

```



[illegible]

ST-1156E  
94356-155 Swift

```

UNFORMATTED CAPACITY (MB) _____155
FORMATTED CAPACITY (36 SECTORS) (MB) _____138 **
ACTUATOR TYPE _____VOICE COIL
TRACKS _____7,504
CYLINDERS _____1,072
HEADS _____7
DISCS _____4
MEDIA TYPE _____THIN FILM
RECORDING METHOD _____RLL
TRANSFER RATE (mbytes/sec) _____1.25
SPINDLE SPEED (RPM) _____3,600
INTERFACE _____ESDI
TPI (TRACKS PER INCH) _____1,350
BPI (BITS PER INCH) _____28,103
AVERAGE ACCESS (ms) _____15
SINGLE TRACK SEEK (ms) _____4
MTBF (power-on hours) _____70,000
POWER REQUIREMENTS: +12V START-UP (amps) _2.5
                    +12V TYPICAL (amps) _0.7
                    +5V START-UP (amps) _0.75
                    +5V TYPICAL (amps) _0.4
                    TYPICAL (watts) _____11
                    MAXIMUM (watts) _____33.75
BUFFERED STEP PULSE RATE (micro sec) _____6-200
WRITE PRECOMP (cyl) _____N/A (1073)
REDUCED WRITE CURRENT (cyl) _____N/A (1073)
LANDING ZONE (cyl) _____AUTO PARK
IBM AT DRIVE TYPE _____*

```

\* MAY REQUIRE A CONTROLLER WITH BIOS SUPPORT, OR FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

\*\* ESDI controllers which offer an Alternate/Spare sector per track option will format to a capacity = Cyl\*Hd\*(SPT-1)\*512 bytes

#### Swift Remote LED Option

##### Front View of Drive Without the Plastic Bezel

$\begin{matrix} \text{ÚÄÄÄÄÄÄÄ} \\ {}^3\text{A}^3\text{B}^3 \quad \text{B} = \text{Anode} \\ \text{ÄÄÄÄÄÄÄÄ}' \quad \text{D} = \text{Cathode} \\ {}^3\text{C}^3\text{D}^3 \end{matrix}$   
 ...iiiiiiiiiiiiiiiiiiiiiiiPíWíAííí...

- ø Default jumper at C-D for LED mounted on drive PWA
- ø To use remote LED, remove jumper and extend B (Anode) and D (Cathode).
- ø Swift LED kit 75912397 allows connection to a remote LED
- ø Swift LED kit 95913369 has an LED for attachment to the system front bezel or a 5.25-inch frame kit

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

[illegible]

ST-1201E  
94356-200 Swift

```

UNFORMATTED CAPACITY (MB) _____ 201
FORMATTED CAPACITY (36 SECTORS) (MB) _____ 177 **
ACTUATOR TYPE _____ VOICE COIL
TRACKS _____ 9,648
CYLINDERS _____ 1,072
HEADS _____ 9
DISCS _____ 5
MEDIA TYPE _____ THIN FILM
RECORDING METHOD _____ RLL (2,7)
TRANSFER RATE (mbytes/sec) _____ 1.25
SPINDLE SPEED (RPM) _____ 3,600
AVERAGE LATENCY (mSEC) _____ 8.33
INTERFACE _____ ESDI
SECTORS PER DRIVE _____ 347,328
TPI (TRACKS PER INCH) _____ 1,350
BPI (BITS PER INCH) _____ 28,103
AVERAGE ACCESS (ms) _____ 15
SINGLE TRACK SEEK (ms) _____ 4
MAX FULL SEEK (ms) _____ 35
MTBF (power-on hours) _____ 150,000
POWER REQUIREMENTS: +12V START-UP (amps) _2.5
                    +12V TYPICAL (amps) _0.7
                    +5V START-UP (amps) _0.75
                    +5V TYPICAL (amps) _0.4
                    TYPICAL (watts) _____ 11
                    MAXIMUM (watts) _____ 12
BUFFERED STEP PULSE RATE (micro sec) _____ 6-200
WRITE PRECOMP (cyl) _____ N/A (1073)
REDUCED WRITE CURRENT (cyl) _____ N/A (1073)
LANDING ZONE (cyl) _____ AUTO PARK
IBM AT DRIVE TYPE _____ *

```

\*\* ESDI controllers which offer an Alternate/Spare sector per track option will format to a capacity = Cyl\*Hd\*(SPT-1)\*512 bytes

### Swift Remote LED Option

### Front View of Drive Without the Plastic Bezel

[illegible]

- Ø Default jumper at C-D for LED mounted on drive PWA
- Ø To use remote LED, remove jumper and extend B (Anode) and D (Cathode).
- Ø Swift LED kit 75912397 allows connection to a remote LED
- Ø Swift LED kit 95913369 has an LED for attachment to the system front bezel or a 5.25-inch frame kit

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)





\*\* ESDI controllers which offer an Alternate/Spare sector per track option will format to a capacity =  $Cyl * Hd * (SPT-1) * 512$  bytes

Seagate reserves the right to change, without notice, product offerings or specifications. (11/11/92)



option will format to a capacity =  $\text{Cyl} * \text{Hd} * (\text{SPT}-1) * 512$  bytes

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)



option will format to a capacity =  $\text{Cyl} * \text{Hd} * (\text{SPT}-1) * 512$  bytes

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)



\*\* ESDI controllers which offer an Alternate/Spare sector per track option will format to a capacity =  $\text{Cyl} * \text{Hd} * (\text{SPT}-1) * 512$  bytes

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)





Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

## ST-4384E (94186-383H) Wren 5 FH ESDI

[illegible]

ST-4384E  
94186-383H WREN 5 FH

```

UNFORMATTED CAPACITY (MB) _____383
FORMATTED CAPACITY (34 SECTORS) (MB) _____319 **
ACTUATOR TYPE _____VOICE COIL
TRACKS _____18360
CYLINDERS _____1224
HEADS _____15
DISCS _____8
MEDIA TYPE _____THIN FILM
RECORDING METHOD _____RLL (2,7)
TRANSFER RATE (mbytes/sec) _____1.25
SPINDLE SPEED (RPM) _____3,600
AVERAGE LATENCY (mSEC) _____8.33
INTERFACE _____ESDI
TPI (TRACKS PER INCH) _____1280
BPI (BITS PER INCH) _____19600
AVERAGE ACCESS (ms) _____14.5
SINGLE TRACK SEEK (ms) _____3
MAX FULL SEEK (ms) _____29
MTBF (power-on hours) _____100,000
POWER REQUIREMENTS: +12V START-UP (amps) _4.5
                    +12V TYPICAL (amps) _2.0
                    +5V START-UP (amps) _1.4
                    +5V TYPICAL (amps) _0.8
                    TYPICAL (watts) _____23
                    MAXIMUM (watts) _____61
BUFFERED STEP PULSE RATE (micro sec) _____
WRITE PRECOMP (cyl) _____N/A
REDUCED WRITE CURRENT (cyl) _____N/A
LANDING ZONE (cyl) _____AUTO PARK
IBM AT DRIVE TYPE _____*

```

\* MAY REQUIRE A CONTROLLER WITH BIOS SUPPORT, OR FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

\*\* ESDI controllers which offer an Alternate/Spare sector per track option will format to a capacity = Cyl\*Hd\*(SPT-1)\*512 bytes

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)



Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

**ST-4766E (94196-766) (94196-383 same jumpers) Wren 6 FH ESDI**

[illegible]

ST-4766E  
94196-766 WREN 6 FH

```

UNFORMATTED CAPACITY (MB) _____766
FORMATTED CAPACITY (53 SECTORS) (MB) _____664 **
ACTUATOR TYPE _____VOICE COIL
TRACKS _____24480
CYLINDERS _____1632
HEADS _____15
DISCS _____8
MEDIA TYPE _____THIN FILM
RECORDING METHOD _____RLL (2,7)
TRANSFER RATE (mbytes/sec) _____1.875
SPINDLE SPEED (RPM) _____3,600
AVERAGE LATENCY (mSEC) _____8.33
INTERFACE _____ESDI
TPI (TRACKS PER INCH) _____1459
BPI (BITS PER INCH) _____30500
AVERAGE ACCESS (ms) _____15.5
SINGLE TRACK SEEK (ms) _____3
MAX FULL SEEK (ms) _____37
MTBF (power-on hours) _____150,000
POWER REQUIREMENTS: +12V START-UP (amps) _4.5
                    +12V TYPICAL (amps) _1.6
                    +5V START-UP (amps) _0.8
                    +5V TYPICAL (amps) _1.2
                    TYPICAL (watts) _____20
                    MAXIMUM (watts) _____58
BUFFERED STEP PULSE RATE (micro sec) _____
WRITE PRECOMP (cyl) _____N/A
REDUCED WRITE CURRENT (cyl) _____N/A
LANDING ZONE (cyl) _____AUTO PARK
IBM AT DRIVE TYPE _____*

```

\* MAY REQUIRE A CONTROLLER WITH BIOS SUPPORT, OR FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

\*\* ESDI controllers which offer an Alternate/Spare sector per track option will format to a capacity = Cyl\*Hd\*(SPT-1)\*512 bytes

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)



## ST-4767ES Wren Runner 2 FH ESDI

[illegible]

ST-4767E

```

UNFORMATTED CAPACITY (MB) _____ 788
FORMATTED CAPACITY (63 SECTORS) (MB) _____ 676 **
ACTUATOR TYPE _____ VOICE COIL
TRACKS _____ 20,985
CYLINDERS _____ 1399
HEADS _____ 15
DISCS _____ 8
MEDIA TYPE _____ THIN FILM
RECORDING METHOD _____ RLL (1,7)
TRANSFER RATE (mbytes/sec) _____ 3
INTERNAL TRANSFER RATE (mbits/sec) _____ 24
SPINDLE SPEED (RPM) _____ 4,800
AVERAGE LATENCY (mSEC) _____ 6.25
INTERFACE _____ ESDI
TPI (TRACKS PER INCH) _____ 1,600
BPI (BITS PER INCH) _____ 32,049
AVERAGE ACCESS (ms) _____ 11.9
SINGLE TRACK SEEK (ms) _____ 2.5
MAX FULL SEEK (ms) _____ 25
MTBF (power-on hours) _____ 150,000
POWER REQUIREMENTS: +12V START-UP (amps) _4.5
                    +12V TYPICAL (amps) _2.0
                    +5V START-UP (amps) _1.2
                    +5V TYPICAL (amps) _0.8
                    TYPICAL (watts) _____ 27
                    MAXIMUM (watts) _____
BUFFERED STEP PULSE RATE (micro sec) _____
WRITE PRECOMP (cyl) _____ N/A
REDUCED WRITE CURRENT (cyl) _____ N/A
LANDING ZONE (cyl) _____ AUTO PARK
IBM AT DRIVE TYPE _____ *

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\* MAY REQUIRE A CONTROLLER WITH BIOS SUPPORT, OR FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

\*\* ESDI controllers which offer an Alternate/Spare sector per track option will format to a capacity =  $\text{Cyl} * \text{Hd} * (\text{SPT} - 1) * 512$  bytes

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

## ST-4769ES Wren Runner 2 FH ESDI

[illegible]

ST-4769E

UNFORMATTED CAPACITY (MB)	_____
FORMATTED CAPACITY (53 SECTORS) (MB)	_____ 631
ACTUATOR TYPE	_____ VOICE COIL
TRACKS	_____ 23,280
CYLINDERS	_____ 1552
HEADS	_____ 15
DISCS	_____ 8
MEDIA TYPE	_____ THIN FILM
RECORDING METHOD	_____ RLL (1,7)
INTERNAL TRANSFER RATE (mbits/sec)	_____ 22
SPINDLE SPEED (RPM)	_____ 4,800
AVERAGE LATENCY (mSEC)	_____ 6.25
INTERFACE	_____ ESDI
TPI (TRACKS PER INCH)	_____ 1,600
BPI (BITS PER INCH)	_____ 29,378
AVERAGE ACCESS (ms)	_____ 12.9
SINGLE TRACK SEEK (ms)	_____ 2.5
MAX FULL SEEK (ms)	_____ 27
MTBF (power-on hours)	_____ 150,000
POWER REQUIREMENTS: +12V START-UP (amps)	_____ 4.5
+12V TYPICAL (amps)	_____ 2.0
+5V START-UP (amps)	_____ 1.2
+5V TYPICAL (amps)	_____ 0.8
TYPICAL (watts)	_____ 27
MAXIMUM (watts)	_____
BUFFERED STEP PULSE RATE (micro sec)	_____
WRITE PRECOMP (cyl)	_____ N/A
REDUCED WRITE CURRENT (cyl)	_____ N/A
LANDING ZONE (cyl)	_____ AUTO PARK
IBM AT DRIVE TYPE	_____ *

\* MAY REQUIRE A CONTROLLER WITH BIOS SUPPORT, OR FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

\*\* ESDI controllers which offer an Alternate/Spare sector per track

option will format to a capacity =  $\text{Cyl} * \text{Hd} * (\text{SPT}-1) * 512$  bytes

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## ST-41201K (97509-12G) Elite-1.2

ST-41201K  
97509-12G Elite-1.2

UNFORMATTED CAPACITY \_\_\_\_\_ 1,200  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 2,101  
HEADS \_\_\_\_\_ 17  
DISCS (5.25 in) \_\_\_\_\_ 10  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ 24  
EXTERNAL TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 3  
SPINDLE SPEED (RPM) \_\_\_\_\_ 5,400  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 5.56  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ IPI-2  
BYTES PER TRACK \_\_\_\_\_ 33,600  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_ 571,200  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1,801  
BPI (BITS PER INCH) \_\_\_\_\_ 17,591-33,344  
AREAL DENSITY (Mbits/sq in) \_\_\_\_\_ 60.0  
AVERAGE ACCESS (ms) \_\_\_\_\_ 11.5  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 1.7  
MAX FULL SEEK (ms) \_\_\_\_\_ 22.5  
MTBF (power-on hours) Class A Room \_\_\_\_\_ 250,000  
MTBF (power-on hours) Office \_\_\_\_\_ 150,000  
POWER DISSIPATION (watts) \_\_\_\_\_ 50  
POWER REQUIREMENTS:  
    TYPICAL (watts) \_\_\_\_\_ 44  
    IDLE (watts) \_\_\_\_\_ 40  
USER MANUAL PART NUMBER \_\_\_\_\_ 83327320  
REFERENCE MANUAL PART NUMBER \_\_\_\_\_ 83327330  
OTHER \_\_\_\_\_ Dual Access,  
    Synchronized Spindles, Sweep Cycle Capability

### Physical:

Height (inches/mm): 3.25/82.6  
Width (inches/mm): 5.57/146.1  
Depth (inches/mm): 9.90/252.5  
Weight (lbs/kg): 9/4.1

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-41800K Elite 2

ST-41800K  
Elite 2

UNFORMATTED CAPACITY \_\_\_\_\_ 1,986  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 2,627  
HEADS \_\_\_\_\_ 18  
DISCS (5.25 in) \_\_\_\_\_ 11  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ 60  
EXTERNAL TRANSFER RATE (mbyte/sec) \_\_\_\_\_ 7.5  
SPINDLE SPEED (RPM) \_\_\_\_\_ 5,400  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 5.55  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ IPI-2  
BYTES PER TRACK \_\_\_\_\_ 84,000  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_ 756,000  
TPI (TRACKS PER INCH) \_\_\_\_\_ 2,250  
BPI (BITS PER INCH) \_\_\_\_\_ 37,836  
AVERAGE ACCESS (ms) \_\_\_\_\_ 11.5  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 1.7  
MAX FULL SEEK (ms) \_\_\_\_\_ 22.5  
MTBF (power-on hours) Class A Room \_\_\_\_\_ 250,000  
MTBF (power-on hours) Office \_\_\_\_\_ 150,000  
POWER DISSIPATION (watts) \_\_\_\_\_  
POWER REQUIREMENTS:  
    +12V START-UP (amps) \_\_\_\_\_  
    +12V TYPICAL (amps) \_\_\_\_\_  
    +5V START-UP (amps) \_\_\_\_\_  
    +5V TYPICAL (amps) \_\_\_\_\_  
    TYPICAL (watts) \_\_\_\_\_ 35  
    IDLE (watts) \_\_\_\_\_ 31  
USER MANUAL PART NUMBER \_\_\_\_\_  
OTHER \_\_\_\_\_ Dual Access,  
Synchronized Spindles, Sweep Cycle Capability

### Physical:

Height (inches/mm):	3.25/82.6
Width (inches/mm):	5.75/146.1
Depth (inches/mm):	8.5/216
Weight (lbs/kg):	7.8/3.6

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-43200K Elite 3 2HP

ST-43200K  
Elite 3 2HP

UNFORMATTED CAPACITY \_\_\_\_\_ 3,338  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 2,627  
HEADS \_\_\_\_\_ 20  
DISCS (5.25 in) \_\_\_\_\_ 11  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ ZBR RLL (1,7)  
INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ 72 to 108  
INTERNAL TRANSFER RATE (mbyte/sec) \_\_\_\_\_ 12.0 avg  
EXTERNAL TRANSFER RATE (mbyte/sec) \_\_\_\_\_ 25  
SPINDLE SPEED (RPM) \_\_\_\_\_ 5,400  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 5.55  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ IPI-2  
BYTES PER TRACK \_\_\_\_\_ 100,800 to 151,200  
SECTORS PER DRIVE \_\_\_\_\_ 2,984,520  
BYTES PER CYLINDER \_\_\_\_\_ 1,008,000 to 1,512,000  
TPI (TRACKS PER INCH) \_\_\_\_\_  
BPI (BITS PER INCH) \_\_\_\_\_  
AVERAGE ACCESS (ms) \_\_\_\_\_ 11.5  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 1.7  
MAX FULL SEEK (ms) \_\_\_\_\_ 22.5  
MTBF (power-on hours) Class A Room \_\_\_\_\_ 250,000  
MTBF (power-on hours) Office \_\_\_\_\_ 150,000  
POWER DISSIPATION (watts) \_\_\_\_\_  
POWER REQUIREMENTS:  
    +12V START-UP (amps) \_  
    +12V TYPICAL (amps) \_  
    +5V START-UP (amps) \_  
    +5V TYPICAL (amps) \_  
    TYPICAL (watts) \_\_\_\_\_ 35  
    IDLE (watts) \_ \_\_\_\_\_ 31  
USER MANUAL PART NUMBER \_\_\_\_\_  
OTHER \_\_\_\_\_ Dual Access,  
Synchronized Spindles, Sweep Cycle Capability,  
Writes/Reads Two Heads Parallel

### Physical:

Height (inches/mm):	3.25/82.6
Width (inches/mm):	5.75/146.1
Depth (inches/mm):	8.5/216
Weight (lbs/kg):	7.8/3.6

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)



## ST-6515K (97159-500) FSD-515

ST-6515K  
97159-500 FSD-515

UNFORMATTED CAPACITY \_\_\_\_\_ 516  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 711  
HEADS \_\_\_\_\_ 24  
DISCS (9 in) \_\_\_\_\_ 7  
MEDIA TYPE \_\_\_\_\_ OXIDE  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
EXTERNAL TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 1.80  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ IPI-2  
BYTES PER TRACK \_\_\_\_\_ 30,240  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_ 302,400  
TPI (TRACKS PER INCH) \_\_\_\_\_ 960  
BPI (BITS PER INCH) \_\_\_\_\_ 9,167-15,040  
AREAL DENSITY (Mbits/sq in) \_\_\_\_\_ 14.6  
AVERAGE ACCESS (ms) \_\_\_\_\_ 18  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 5  
MAX FULL SEEK (ms) \_\_\_\_\_ 40  
MTBF (power-on hours) Class A Room \_\_\_\_\_  
MTBF (power-on hours) Office \_\_\_\_\_ 30,000  
POWER DISSIPATION (watts) \_\_\_\_\_ 225  
USER MANUAL PART NUMBER \_\_\_\_\_  
OTHER \_\_\_\_\_ Dual Access,  
Sweep Cycle Capability, Remote/Integral Power Supply

### Physical:

Height (inches/mm):	10.20/259
Width (inches/mm):	8.50/216
Depth (inches/mm):	30.0/757
Weight (lbs/kg):	82/36.4

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## ST-8100K

### ST-8100K Solid State Disc

UNFORMATTED CAPACITY \_\_\_\_\_ 100  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
SECTORS PER TRACK (Logical) \_\_\_\_\_ 1-256  
CYLINDERS (Logical) \_\_\_\_\_ 1-992  
HEADS (Logical) \_\_\_\_\_ 1-32  
MEDIA TYPE \_\_\_\_\_ SOLID STATE  
HEAD TYPE \_\_\_\_\_ SOLID STATE  
RECORDING METHOD \_\_\_\_\_ 1 Mbit DRAM  
BACKUP MEMORY \_\_\_\_\_ 3.5" disc drive  
BATTERY LIFE \_\_\_\_\_ 3 yrs.  
TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 2.5-10.0  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ IPI-2  
AVERAGE ACCESS (ms) \_\_\_\_\_ 0.1  
MTBF (power-on hours) Class A Room \_\_\_\_\_  
MTBF (power-on hours) Office \_\_\_\_\_ 100,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 89/304  
USER MANUAL PART NUMBER \_\_\_\_\_  
OTHER \_\_\_\_\_

#### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.26/209.8
Depth (inches/mm):	15.75/400.05
Weight (lbs/kg):	31/14.09

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-81154K (97229-1150) Sabre 5 2HP

ST-81154K  
97229-1150 Sabre 5 2HP

UNFORMATTED CAPACITY \_\_\_\_\_ 1,154  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 1,635  
HEADS (Logical/Physical) \_\_\_\_\_ 7/14  
DISCS (8 in) \_\_\_\_\_ 9  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
EXTERNAL TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 6.0  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ IPI-2  
BYTES PER TRACK \_\_\_\_\_ 100,800  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_ 705,600  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1,289  
BPI (BITS PER INCH) \_\_\_\_\_ 16,420-24,307  
AREAL DENSITY (Mbits/sq in) \_\_\_\_\_ 32.6  
AVERAGE ACCESS (ms) \_\_\_\_\_ 15  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 4  
MAX FULL SEEK (ms) \_\_\_\_\_ 30  
MTBF (power-on hours) Class A Room \_\_\_\_\_ 250,000  
MTBF (power-on hours) Office \_\_\_\_\_ 150,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 110/375  
USER MANUAL PART NUMBER \_\_\_\_\_ 83326010  
DIAGRAMS MANUAL PART NUMBER \_\_\_\_\_ 83325730  
MAINT. MANUAL PART NUMBER \_\_\_\_\_ 83325720  
PARTS MANUAL PART NUMBER \_\_\_\_\_ 83325700  
THEORY MANUAL PART NUMBER \_\_\_\_\_ 83325690  
OTHER \_\_\_\_\_ Dual Access,  
Synchronized Spindles, Sweep Cycle Capability,  
Writes/Reads Two Heads Parallel

### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.50/216
Depth (inches/mm):	14.7/373.38
Weight (lbs/kg):	32/15

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-81236K (97209-12G) Sabre 5

ST-81236K  
97209-12G Sabre 5

UNFORMATTED CAPACITY \_\_\_\_\_ 1,236  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 1,635  
HEADS \_\_\_\_\_ 15  
DISCS (8 in) \_\_\_\_\_ 9  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
EXTERNAL TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 3.0  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ IPI-2  
BYTES PER TRACK \_\_\_\_\_ 50,400  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_ 756,000  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1,289  
BPI (BITS PER INCH) \_\_\_\_\_ 16,420-24,307  
AREAL DENSITY (Mbits/sq in) \_\_\_\_\_ 32.6  
AVERAGE ACCESS (ms) \_\_\_\_\_ 15  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 4  
MAX FULL SEEK (ms) \_\_\_\_\_ 30  
MTBF (power-on hours) Class A Room \_\_\_\_\_ 250,000  
MTBF (power-on hours) Office \_\_\_\_\_ 150,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 95/324.2  
USER MANUAL PART NUMBER \_\_\_\_\_ 83326010  
DIAGRAMS MANUAL PART NUMBER \_\_\_\_\_ 83325730  
MAINT. MANUAL PART NUMBER \_\_\_\_\_ 83325720  
PARTS MANUAL PART NUMBER \_\_\_\_\_ 83325700  
THEORY MANUAL PART NUMBER \_\_\_\_\_ 83325690  
OTHER \_\_\_\_\_ Dual Access,  
Synchronized Spindles, Sweep Cycle Capability

### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.50/216
Depth (inches/mm):	14.7/373.38
Weight (lbs/kg):	32/15

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-8134K

ST-8134K

UNFORMATTED CAPACITY \_\_\_\_\_ 134  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
SECTORS PER TRACK (Logical) \_\_\_\_\_ 1-256  
CYLINDERS (Logical) \_\_\_\_\_ 1-992  
HEADS (Logical) \_\_\_\_\_ 1-32  
MEDIA TYPE \_\_\_\_\_ SOLID STATE  
HEAD TYPE \_\_\_\_\_ SOLID STATE  
RECORDING METHOD \_\_\_\_\_ 1 Mbit DRAM  
BACKUP MEMORY \_\_\_\_\_ 3.5" disc drive  
BATTERY LIFE \_\_\_\_\_ 3 yrs.  
TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 2.5-10.0  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ IPI-2  
AVERAGE ACCESS (ms) \_\_\_\_\_ 0.1  
MTBF (power-on hours) Class A Room \_\_\_\_\_  
MTBF (power-on hours) Office \_\_\_\_\_ 90,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 92/314  
USER MANUAL PART NUMBER \_\_\_\_\_  
OTHER \_\_\_\_\_

### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.26/209.8
Depth (inches/mm):	15.75/400.05
Weight (lbs/kg):	32/14.55

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-8135K

### ST-8135K Solid State Disc

UNFORMATTED CAPACITY \_\_\_\_\_ 134  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
SECTORS PER TRACK (Logical) \_\_\_\_\_ 1-256  
CYLINDERS (Logical) \_\_\_\_\_ 1-992  
HEADS (Logical) \_\_\_\_\_ 1-32  
MEDIA TYPE \_\_\_\_\_ SOLID STATE  
HEAD TYPE \_\_\_\_\_ SOLID STATE  
RECORDING METHOD \_\_\_\_\_ 4 Mbit DRAM  
BACKUP MEMORY \_\_\_\_\_ 3.5" disc drive  
BATTERY LIFE \_\_\_\_\_ 3 yrs.  
TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 2.5-10.0  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ IPI-2  
AVERAGE ACCESS (ms) \_\_\_\_\_ 0.1  
MTBF (power-on hours) Office \_\_\_\_\_ 150,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 98/334  
USER MANUAL PART NUMBER \_\_\_\_\_  
OTHER \_\_\_\_\_

#### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.26/209.8
Depth (inches/mm):	15.75/400.05
Weight (lbs/kg):	33/14.97

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-8167K

### ST-8167K Solid State Disc

UNFORMATTED CAPACITY \_\_\_\_\_ 167  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
SECTORS PER TRACK (Logical) \_\_\_\_\_ 1-256  
CYLINDERS (Logical) \_\_\_\_\_ 1-992  
HEADS (Logical) \_\_\_\_\_ 1-32  
MEDIA TYPE \_\_\_\_\_ SOLID STATE  
HEAD TYPE \_\_\_\_\_ SOLID STATE  
RECORDING METHOD \_\_\_\_\_ 1 Mbit DRAM  
BACKUP MEMORY \_\_\_\_\_ 3.5" disc drive  
BATTERY LIFE \_\_\_\_\_ 3 yrs.  
TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 2.5-10.0  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ IPI-2  
AVERAGE ACCESS (ms) \_\_\_\_\_ 0.1  
MTBF (power-on hours) Office \_\_\_\_\_ 80,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 95/324  
USER MANUAL PART NUMBER \_\_\_\_\_  
OTHER \_\_\_\_\_

#### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.26/209.8
Depth (inches/mm):	15.75/400.05
Weight (lbs/kg):	33/14.97

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-8201K

### ST-8201K Solid State Disc

UNFORMATTED CAPACITY \_\_\_\_\_ 201  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
SECTORS PER TRACK (Logical) \_\_\_\_\_ 1-256  
CYLINDERS (Logical) \_\_\_\_\_ 1-992  
HEADS (Logical) \_\_\_\_\_ 1-32  
MEDIA TYPE \_\_\_\_\_ SOLID STATE  
HEAD TYPE \_\_\_\_\_ SOLID STATE  
RECORDING METHOD \_\_\_\_\_ 4 Mbit DRAM  
BACKUP MEMORY \_\_\_\_\_ 3.5" disc drive  
BATTERY LIFE \_\_\_\_\_ 3 yrs.  
TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 2.5-10.0  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ IPI-2  
AVERAGE ACCESS (ms) \_\_\_\_\_ 0.1  
MTBF (power-on hours) Office \_\_\_\_\_ 120,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 101/344  
USER MANUAL PART NUMBER \_\_\_\_\_  
OTHER \_\_\_\_\_

#### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.26/209.8
Depth (inches/mm):	15.75/400.05
Weight (lbs/kg):	33/14.97

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)



## ST-82030K Sabre 6

ST-82030K  
Sabre 6

UNFORMATTED CAPACITY \_\_\_\_\_ 2,030  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 2,120  
HEADS \_\_\_\_\_ 19  
DISCS (8 in) \_\_\_\_\_ 11  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
EXTERNAL TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 3.0  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ IPI-2  
BYTES PER TRACK \_\_\_\_\_ 50,400  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_ 957,600  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1,880  
BPI (BITS PER INCH) \_\_\_\_\_ 20,789  
AVERAGE ACCESS (ms) \_\_\_\_\_ 11  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 2  
MAX FULL SEEK (ms) \_\_\_\_\_ 26  
MTBF (power-on hours) Class A Room \_\_\_\_\_ 250,000  
MTBF (power-on hours) Office \_\_\_\_\_ 150,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 95/324.2  
USER MANUAL PART NUMBER \_\_\_\_\_ 83327230  
OTHER \_\_\_\_\_ Dual Access,  
Synchronized Spindles, Sweep Cycle Capability

### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.50/216
Depth (inches/mm):	14.7/373.3
Weight (lbs/kg):	32/13

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-82105K (97289-21G) Sabre 6 8HP

ST-82105K  
97289-21G Sabre 6 8HP

UNFORMATTED CAPACITY \_\_\_\_\_ 2,105  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 2,611  
HEADS (Logical/Physical) \_\_\_\_\_ 2/16  
DISCS (8 in) \_\_\_\_\_ 11  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
EXTERNAL TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 24.3  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ IPI-2  
BYTES PER TRACK \_\_\_\_\_ 403,199  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_ 806,400  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1,880  
BPI (BITS PER INCH) \_\_\_\_\_ 24,200  
AREAL DENSITY (Mbits/sq in) \_\_\_\_\_  
AVERAGE ACCESS (ms) \_\_\_\_\_ 12  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 2  
MAX FULL SEEK (ms) \_\_\_\_\_ 26  
MTBF (power-on hours) Class A Room \_\_\_\_\_ 100,000  
MTBF (power-on hours) Office \_\_\_\_\_ 80,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 255/870  
USER MANUAL PART NUMBER \_\_\_\_\_  
OTHER \_\_\_\_\_ Dual Access,  
Synchronized Spindles, Sweep Cycle Capability,  
Writes/Reads Eight Heads Parallel

### Physical:

Height (inches/mm):	8.44/214.4
Width (inches/mm):	8.72/221.5
Depth (inches/mm):	29.5/749.3
Weight (lbs/kg):	55/25

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-82368K (97299-23G) Sabre 6 9HP

ST-82368K  
97299-23G Sabre 6 9HP

UNFORMATTED CAPACITY \_\_\_\_\_ 2,368  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 2,611  
HEADS (Logical/Physical) \_\_\_\_\_ 2/18  
DISCS (8 in) \_\_\_\_\_ 11  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
EXTERNAL TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 27.3  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ IPI-2  
BYTES PER TRACK \_\_\_\_\_ 453,599  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_ 907,200  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1,880  
BPI (BITS PER INCH) \_\_\_\_\_ 24,200  
AREAL DENSITY (Mbits/sq in) \_\_\_\_\_  
AVERAGE ACCESS (ms) \_\_\_\_\_ 12  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 2  
MAX FULL SEEK (ms) \_\_\_\_\_ 26  
MTBF (power-on hours) Class A Room \_\_\_\_\_ 100,000  
MTBF (power-on hours) Office \_\_\_\_\_ 80,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 275/938  
USER MANUAL PART NUMBER \_\_\_\_\_ 83327350  
PARTS MANUAL PART NUMBER \_\_\_\_\_ 83327360  
MAINT. MANUAL PART NUMBER \_\_\_\_\_ 83327370  
OTHER \_\_\_\_\_ Dual Access,  
Synchronized Spindles, Sweep Cycle Capability,  
Writes/Reads Nine Heads Parallel

### Physical:

Height (inches/mm):	8.44/214.4
Width (inches/mm):	8.72/221.5
Depth (inches/mm):	29.5/749.3
Weight (lbs/kg):	55/25

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-82500K (97209-25G) Sabre 6

ST-82500K  
97209-25G Sabre 6

UNFORMATTED CAPACITY \_\_\_\_\_ 2,500  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 2,611  
HEADS \_\_\_\_\_ 19  
DISCS (8 in) \_\_\_\_\_ 11  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
EXTERNAL TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 3.04  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ IPI-2  
BYTES PER TRACK \_\_\_\_\_ 50,400  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_ 957,600  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1,880  
BPI (BITS PER INCH) \_\_\_\_\_ 24,200  
AREAL DENSITY (Mbits/sq in) \_\_\_\_\_  
AVERAGE ACCESS (ms) \_\_\_\_\_ 12  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 2  
MAX FULL SEEK (ms) \_\_\_\_\_ 26  
MTBF (power-on hours) Class A Room \_\_\_\_\_ 250,000  
MTBF (power-on hours) Office \_\_\_\_\_ 150,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 95/324.2  
USER MANUAL PART NUMBER \_\_\_\_\_ 83327210  
MAINT. MANUAL PART NUMBER \_\_\_\_\_ 83327230  
PARTS MANUAL PART NUMBER \_\_\_\_\_ 83327240  
THEORY MANUAL PART NUMBER \_\_\_\_\_ 83327530  
OTHER \_\_\_\_\_ Dual Access,  
Synchronized Spindles, Sweep Cycle Capability

### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.50/216
Depth (inches/mm):	14.7/373.3
Weight (lbs/kg):	28/13

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-8268K

### ST-8268K Solid State Disc

UNFORMATTED CAPACITY \_\_\_\_\_ 268  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
SECTORS PER TRACK (Logical) \_\_\_\_\_ 1-256  
CYLINDERS (Logical) \_\_\_\_\_ 1-992  
HEADS (Logical) \_\_\_\_\_ 1-32  
MEDIA TYPE \_\_\_\_\_ SOLID STATE  
HEAD TYPE \_\_\_\_\_ SOLID STATE  
RECORDING METHOD \_\_\_\_\_ 4 Mbit DRAM  
BACKUP MEMORY \_\_\_\_\_ 3.5" disc drive  
BATTERY LIFE \_\_\_\_\_ 3 yrs.  
TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 2.5-10.0  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ IPI-2  
AVERAGE ACCESS (ms) \_\_\_\_\_ 0.1  
MTBF (power-on hours) Office \_\_\_\_\_ 100,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 104/355  
USER MANUAL PART NUMBER \_\_\_\_\_  
OTHER \_\_\_\_\_

#### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.26/209.8
Depth (inches/mm):	15.75/400.05
Weight (lbs/kg):	33/14.97

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-83050K Sabre 7 2HP

ST-83050K  
Sabre 7 2HP

UNFORMATTED CAPACITY \_\_\_\_\_ 3,050  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 2,655  
HEADS \_\_\_\_\_ 18  
DISCS (8 in) \_\_\_\_\_ 11  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (1,7)  
EXTERNAL TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 9.34  
SPINDLE SPEED (RPM) \_\_\_\_\_ 4,365  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 6.87  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ IPI-2  
BYTES PER TRACK \_\_\_\_\_ 127,680  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_ 1,149,120  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1,912  
BPI (BITS PER INCH) \_\_\_\_\_ 32,202  
AVERAGE ACCESS (ms) \_\_\_\_\_ 12  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 2  
MAX FULL SEEK (ms) \_\_\_\_\_ 26  
MTBF (power-on hours) Class A Room \_\_\_\_\_ 250,000  
MTBF (power-on hours) Office \_\_\_\_\_ 150,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 110/375  
USER MANUAL PART NUMBER \_\_\_\_\_ 83327210  
OTHER \_\_\_\_\_ Dual Access,  
Synchronized Spindles, Sweep Cycle Capability  
Writes/Reads Two Heads Parallel

### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.50/216
Depth (inches/mm):	14.7/373.3
Weight (lbs/kg):	26/13

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-83220K Sabre 7

ST-83220K  
Sabre 7

UNFORMATTED CAPACITY \_\_\_\_\_ 3,220  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 2,655  
HEADS \_\_\_\_\_ 19  
DISCS (8 in) \_\_\_\_\_ 11  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (1,7)  
EXTERNAL TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 4.67  
SPINDLE SPEED (RPM) \_\_\_\_\_ 4,365  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 6.87  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ IPI-2  
BYTES PER TRACK \_\_\_\_\_ 63,840  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_ 1,212,960  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1,912  
BPI (BITS PER INCH) \_\_\_\_\_ 32,202  
AVERAGE ACCESS (ms) \_\_\_\_\_ 12  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 2.2  
MAX FULL SEEK (ms) \_\_\_\_\_ 26  
MTBF (power-on hours) Class A Room \_\_\_\_\_ 250,000  
MTBF (power-on hours) Office \_\_\_\_\_ 150,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 95/324.2  
USER MANUAL PART NUMBER \_\_\_\_\_ 83327210  
OTHER \_\_\_\_\_ Dual Access,  
Synchronized Spindles, Sweep Cycle Capability

### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.50/216
Depth (inches/mm):	14.7/373.3
Weight (lbs/kg):	28/13

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-8335K

### ST-8335K Solid State Disc

UNFORMATTED CAPACITY \_\_\_\_\_ 335  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
SECTORS PER TRACK (Logical) \_\_\_\_\_ 1-256  
CYLINDERS (Logical) \_\_\_\_\_ 1-992  
HEADS (Logical) \_\_\_\_\_ 1-32  
MEDIA TYPE \_\_\_\_\_ SOLID STATE  
HEAD TYPE \_\_\_\_\_ SOLID STATE  
RECORDING METHOD \_\_\_\_\_ 4 Mbit DRAM  
BACKUP MEMORY \_\_\_\_\_ 3.5" disc drive  
BATTERY LIFE \_\_\_\_\_ 3 yrs.  
TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 2.5-10.0  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ IPI-2  
AVERAGE ACCESS (ms) \_\_\_\_\_ 0.1  
MTBF (power-on hours) Office \_\_\_\_\_ 85,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 107/365  
USER MANUAL PART NUMBER \_\_\_\_\_  
OTHER \_\_\_\_\_

#### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.26/209.8
Depth (inches/mm):	15.75/400.05
Weight (lbs/kg):	33/14.97

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)



## ST-833K

### ST-833K Solid State Disc

UNFORMATTED CAPACITY \_\_\_\_\_33  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
SECTORS PER TRACK (Logical) \_\_\_\_\_1-256  
CYLINDERS (Logical) \_\_\_\_\_1-992  
HEADS (Logical) \_\_\_\_\_1-32  
MEDIA TYPE \_\_\_\_\_SOLID STATE  
HEAD TYPE \_\_\_\_\_SOLID STATE  
RECORDING METHOD \_\_\_\_\_1 Mbit DRAM  
BACKUP MEMORY \_\_\_\_\_3.5" disc drive  
BATTERY LIFE \_\_\_\_\_3 yrs.  
TRANSFER RATE (mbytes/sec) \_\_\_\_\_2.5-10.0  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_IPI-2  
AVERAGE ACCESS (ms) \_\_\_\_\_0.1  
MTBF (power-on hours) Office \_\_\_\_\_150,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_83/284  
USER MANUAL PART NUMBER \_\_\_\_\_  
OTHER \_\_\_\_\_

#### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.26/209.8
Depth (inches/mm):	15.75/400.05
Weight (lbs/kg):	29/13.18

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-8402K

### ST-8402K Solid State Disc

UNFORMATTED CAPACITY \_\_\_\_\_ 402  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
SECTORS PER TRACK (Logical) \_\_\_\_\_ 1-256  
CYLINDERS (Logical) \_\_\_\_\_ 1-992  
HEADS (Logical) \_\_\_\_\_ 1-32  
MEDIA TYPE \_\_\_\_\_ SOLID STATE  
HEAD TYPE \_\_\_\_\_ SOLID STATE  
RECORDING METHOD \_\_\_\_\_ 4 Mbit DRAM  
BACKUP MEMORY \_\_\_\_\_ 3.5" disc drive  
BATTERY LIFE \_\_\_\_\_ 3 yrs.  
TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 2.5-10.0  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ IPI-2  
AVERAGE ACCESS (ms) \_\_\_\_\_ 0.1  
MTBF (power-on hours) Office \_\_\_\_\_ 75,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 110/375  
USER MANUAL PART NUMBER \_\_\_\_\_  
OTHER \_\_\_\_\_

#### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.26/209.8
Depth (inches/mm):	15.75/400.05
Weight (lbs/kg):	33/14.97

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-867K

### ST-867K Solid State Disc

UNFORMATTED CAPACITY \_\_\_\_\_ 67  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
SECTORS PER TRACK (Logical) \_\_\_\_\_ 1-256  
CYLINDERS (Logical) \_\_\_\_\_ 1-992  
HEADS (Logical) \_\_\_\_\_ 1-32  
MEDIA TYPE \_\_\_\_\_ SOLID STATE  
HEAD TYPE \_\_\_\_\_ SOLID STATE  
RECORDING METHOD \_\_\_\_\_ 1 Mbit DRAM  
BACKUP MEMORY \_\_\_\_\_ 3.5" disc drive  
BATTERY LIFE \_\_\_\_\_ 3 yrs.  
TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 2.5-10.0  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ IPI-2  
AVERAGE ACCESS (ms) \_\_\_\_\_ 0.1  
MTBF (power-on hours) Office \_\_\_\_\_ 120,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 86/294  
USER MANUAL PART NUMBER \_\_\_\_\_  
OTHER \_\_\_\_\_

#### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.26/209.8
Depth (inches/mm):	15.75/400.05
Weight (lbs/kg):	30/13.64

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-868K

### ST-868K Solid State Disc

UNFORMATTED CAPACITY \_\_\_\_\_ 67  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
SECTORS PER TRACK (Logical) \_\_\_\_\_ 1-256  
CYLINDERS (Logical) \_\_\_\_\_ 1-992  
HEADS (Logical) \_\_\_\_\_ 1-32  
MEDIA TYPE \_\_\_\_\_ SOLID STATE  
HEAD TYPE \_\_\_\_\_ SOLID STATE  
RECORDING METHOD \_\_\_\_\_ 4 Mbit DRAM  
BACKUP MEMORY \_\_\_\_\_ 3.5" disc drive  
BATTERY LIFE \_\_\_\_\_ 3 yrs.  
TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 2.5-10.0  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ IPI-2  
AVERAGE ACCESS (ms) \_\_\_\_\_ 0.1  
MTBF (power-on hours) Office \_\_\_\_\_ 200,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 95/324  
USER MANUAL PART NUMBER \_\_\_\_\_  
OTHER \_\_\_\_\_

#### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.26/209.8
Depth (inches/mm):	15.75/400.05
Weight (lbs/kg):	33/14.97

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-8851K (97209-850) Sabre 4

ST-8851K  
97209-850 Sabre 4

UNFORMATTED CAPACITY \_\_\_\_\_ 851  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 1,381  
HEADS \_\_\_\_\_ 15  
DISCS (8 in) \_\_\_\_\_ 9  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
EXTERNAL TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 2.46  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ IPI-2  
BYTES PER TRACK \_\_\_\_\_ 41,088  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_ 616,320  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1,089  
BPI (BITS PER INCH) \_\_\_\_\_ 19,816  
AVERAGE ACCESS (ms) \_\_\_\_\_ 15  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 4  
MAX FULL SEEK (ms) \_\_\_\_\_ 30  
MTBF (power-on hours) Class A Room \_\_\_\_\_ 100,000  
MTBF (power-on hours) Office \_\_\_\_\_ 100,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 95/324.2  
USER MANUAL PART NUMBER \_\_\_\_\_ 83326010  
OTHER \_\_\_\_\_ Dual Access,  
Synchronized Spindles, Sweep Cycle Capability

### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.50/216
Depth (inches/mm):	14.7/373.38
Weight (lbs/kg):	32/15

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)













**ST-151 ST412 MFM**

[illegible]

## ST - 151

UNFORMATTED CAPACITY (MB)	50.8
FORMATTED CAPACITY (17 SECTORS) (MB)	42.5
ACTUATOR TYPE	VOICE COIL
TRACKS	4,885
CYLINDERS	977
HEADS	5
DISCS	3
MEDIA TYPE	THIN FILM
RECORDING METHOD	MFM
TRANSFER RATE (mbits/sec)	5.0
SPINDLE SPEED (RPM)	3,600
AVERAGE LATENCY (mSEC)	8.33
INTERFACE	ST412
SECTORS PER DRIVE	83,045
TPI (TRACKS PER INCH)	1,300
BPI (BITS PER INCH)	14,108
AVERAGE ACCESS (ms)	24
SINGLE TRACK SEEK (ms)	8
MAX FULL SEEK (ms)	44
MTBF (power-on hours)	150,000
POWER REQUIREMENTS: +12V START-UP (amps)	2.0
+12V TYPICAL (amps)	0.45
+5V TYPICAL (amps)	0.5
TYPICAL (watts)	8
MAXIMUM (watts)	27
BUFFERED STEP PULSE RATE (micro sec)	3-200
WRITE PRECOMP (cyl)	N/A (978)
REDUCED WRITE CURRENT (cyl)	N/A (978)
LANDING ZONE (cyl)	AUTO PARK
IBM AT DRIVE TYPE	17 or 11*

\* MAY REQUIRE A CONTROLLER WITH BIOS SUPPORT, OR FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

## ST-212 ST412 MFM

UNFORMATTED CAPACITY (MB)	12.76
FORMATTED CAPACITY (17 SECTORS) (MB)	10.0
ACTUATOR TYPE	STEPPER
TRACKS	1,224
CYLINDERS	306
HEADS	4
DISCS	1
MEDIA TYPE	OXIDE
RECORDING METHOD	MFM
TRANSFER RATE (mbits/sec)	5.0
SPINDLE SPEED (RPM)	3,600
INTERFACE	ST412
TPI (TRACKS PER INCH)	550
BPI (BITS PER INCH)	10,560
AVERAGE ACCESS (ms)	65
SINGLE TRACK SEEK (ms)	23
MTBF (power-on hours)	11,000
POWER REQUIREMENTS: +12V START-UP (amps)	3.2
+12V TYPICAL (amps)	1.0
+5V TYPICAL (amps)	1.0
TYPICAL (watts)	17
MAXIMUM (watts)	44.4
BUFFERED STEP PULSE RATE (micro sec)	5-500
WRITE PRECOMP (cyl)	128
REDUCED WRITE CURRENT (cyl)	N/A (307)
LANDING ZONE (cyl)	319
IBM AT DRIVE TYPE	1

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

## ST-213 ST412 MFM

```

                                     /ÄÄ3Ä2Ä1Ä\
                                     ³ O O O O ³ Power
                                     ÄÄÄÄÄÄÄÄÄÄÄÜ
                                     5 G G 12

      0 0 0 0 0 0 0 0
    ÜData Cable 0 0 0 0 0 0 0 0 ÜController Cable 1
iiiiiiiiii ii 3 3 3 3 3 3 3 3 iiiiiiiiiiiiiiiii iii iiiiiiiiiiiii
      3 3 3 3 3 3 3 3 ÜÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ1
      3 3 3 3 3 3 3 3 ÄÄTerminatorÄÜ
      3 3 3 3 3 3 3 3

Drive Select->1 2 3 4 3 3 3 Ä Radial
      3 3 3 3 3 ÄÄÄ Reserved
      3 ÄÄÜ ³ ÄÄÄÄÄ Write Fault
      3 ³ ÄÄÄÄÄÄÄ Factory Test
      3 ÄÄÄÄÄÄÄÄÄÄÄ Never Used (Drive Select 3 and 4)
      Ä If twisted cable, use Drive Select 2

```

### ST - 213

```

UNFORMATTED CAPACITY (MB) _____ 12.8
FORMATTED CAPACITY (17 SECTORS) (MB) _____ 10.7
ACTUATOR TYPE _____ STEPPER
TRACKS _____ 1,230
CYLINDERS _____ 615
HEADS _____ 2
DISCS _____ 1
MEDIA TYPE _____ OXIDE
RECORDING METHOD _____ MFM
TRANSFER RATE (mbits/sec) _____ 5.0
SPINDLE SPEED (RPM) _____ 3,600
INTERFACE _____ ST412
TPI (TRACKS PER INCH) _____ 588
BPI (BITS PER INCH) _____ 9,827
AVERAGE ACCESS (ms) _____ 65
SINGLE TRACK SEEK (ms) _____ 20
MTBF (power-on hours) _____ 20,000
POWER REQUIREMENTS: +12V START-UP (amps) _2.2
                    +12V TYPICAL (amps) __0.9
                    +5V TYPICAL (amps) __0.8
                    TYPICAL (watts) _____ 14.8
                    MAXIMUM (watts) _____ 30.4
BUFFERED STEP PULSE RATE (micro sec) _____ 5-200
WRITE PRECOMP (cyl) _____ 300
REDUCED WRITE CURRENT (cyl) _____ N/A (616)
LANDING ZONE (cyl) _____ 670
IBM AT DRIVE TYPE _____ N/A

```

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)





## ST-252 ST412 MFM

(same as ST-251 with Terminator that cannot be removed, therefore drive must be installed at the end of the daisychain cable.)

```

                                /ÄÄ3Ä2Ä1Ä\
                                3 O O O 3 Power
                                ÄÄÄÄÄÄÄÄÄÄÄ
    ÜData Cable 0 0 0 0 0 0 0 ÜController Cable 1 5 G G 12
    ffffffff ff 3 3 3 3 3 3 3 ffffffff ffff ffffffff
    3 3 3 3 3 3 3 ÜÄÄÄÄÄÄÄÄÄÄÄÄÄÄ1
    3 3 3 3 3 3 3 ÄÄTerminatorÄÜ- cannot be removed
    3 3 3 3 3 3 3
  
```

Drive Select->1 2 3 4 3 3 3 Ä Radial  
 3 3 3 3 ÄÄÄ Reserved  
 3 ÄÄÜ 3 ÄÄÄÄÄ Write Fault  
 3 3 ÄÄÄÄÄÄÄ Factory Test  
 3 ÄÄÄÄÄÄÄÄÄÄ Never Used (Drive Select 3 and 4)  
 Ä If twisted cable, use Drive Select 2

ST - 252

```

UNFORMATTED CAPACITY (MB) _____ 51.2
FORMATTED CAPACITY (17 SECTORS) (MB) _____ 42.8
ACTUATOR TYPE _____ STEPPER
TRACKS _____ 4,920
CYLINDERS _____ 820
HEADS _____ 6
DISCS _____ 3
MEDIA TYPE _____ THIN FILM
RECORDING METHOD _____ MFM
TRANSFER RATE (mbits/sec) _____ 5.0
SPINDLE SPEED (RPM) _____ 3,600
INTERFACE _____ ST412
TPI (TRACKS PER INCH) _____ 777
BPI (BITS PER INCH) _____ 9,935
AVERAGE ACCESS (ms) _____ 40/28*
SINGLE TRACK SEEK (ms) _____ 8
MTBF (power-on hours) _____ 100,000
POWER REQUIREMENTS: +12V START-UP (amps) _2.0/2.5*
                    +12V TYPICAL (amps) _0.5
                    +5V TYPICAL (amps) _1.0/1.2*
                    TYPICAL (watts) _____ 11/12*
                    MAXIMUM (watts) _____ 29/36*
BUFFERED STEP PULSE RATE (micro sec) _____ 3-200
WRITE PRECOMP (cyl) _____ N/A (821)
REDUCED WRITE CURRENT (cyl) _____ N/A (821)
LANDING ZONE (cyl) _____ AUTO PARK
IBM AT DRIVE TYPE _____ 44, 40, or 3**
  
```

\*ST251-0/ST251-1

\*\*MAY REQUIRE PARTITIONING SOFTWARE

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)



## ST-253 (94205-51) Wren 2 HH ST412 MFM

Drive Select ÚÄÄÄÄÄÄÄÄÄÄÄ¿  
 0 0 0 0 0 0 0 1 Terminator ³ O O O O ³ Power  
 0 0 0 0 0 0 0 ÚÄÄÄÄÄÄÄÄÄÄÄ¿ \ÄÄÄÄÄÄÄÄÄÄ/  
 1 2 3 4 R r reserved ÄÄÄÄÄÄÄÄÄÄÄÄÜ 1 12 G G 5  
 11111111 11 1111111111111111 11 1111111111111111  
   3   3           ÄÄController Cable  
   3   ÄÄÄRadial  
 ÄÄÄÄÄÄÄÄÄÄÄÄIf twisted cable, use Drive Select 2

ST-253  
 94205-51 WREN 2 HH

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 51  
 FORMATTED CAPACITY (17 SECTORS) (MB) \_\_\_\_\_ 43  
 ACTUATOR TYPE \_\_\_\_\_ VOICE COIL  
 TRACKS \_\_\_\_\_ 4,795  
 CYLINDERS \_\_\_\_\_ 989  
 HEADS \_\_\_\_\_ 5  
 DISCS \_\_\_\_\_ 3  
 MEDIA TYPE \_\_\_\_\_ OXIDE  
 RECORDING METHOD \_\_\_\_\_ MFM  
 TRANSFER RATE (mbits/sec) \_\_\_\_\_ 5.0  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
 INTERFACE \_\_\_\_\_ ST412  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 960  
 BPI (BITS PER INCH) \_\_\_\_\_ 9,535  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 28  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 5  
 MTBF (power-on hours) \_\_\_\_\_ 40,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_4.5  
                           +12V TYPICAL (amps) \_1.5  
                           +5V START-UP (amps) \_1.0  
                           +5V TYPICAL (amps) \_0.4  
                           TYPICAL (watts) \_\_\_\_\_ 20  
                           MAXIMUM (watts) \_\_\_\_\_ ??  
 BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_\_ 8-200  
 WRITE PRECOMP (cyl) \_\_\_\_\_ 128  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ \*, 17 is close

\* MAY REQUIRE A CONTROLLER WITH BIOS SUPPORT, OR FORMATTING  
 AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP  
 HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

Seagate reserves the right to change, without notice, product  
 offerings or specifications. (6/26/90)

**ST-4026 ST412 MFM**

			/Ä4Ä3Ä2Ä1Ä\ 3 O O O O 3 Power ÄÄÄÄÄÄÄÄÄÄÜ
ÚData Cable	ÚController Cable	1	5 G G 12
			ÚÄ1
0 0 0 0			3 3
0 0 0 0			3 ÄÄ Resistor
Drive Select->1 2 3 4			3 3 Termination Pack
3 3 3			ÄÄÜ
3 ÄÄÜ			
3 3			
3 ÄÄNever Used (Drive Select 3 and 4)			
ÄÄÄÄÄIf twisted cable, use Drive Select 2			

ST - 4026

UNFORMATTED CAPACITY (MB)	25.6
FORMATTED CAPACITY (17 SECTORS) (MB)	21.4
ACTUATOR TYPE	VOICE COIL
TRACKS	2,460
CYLINDERS	615
HEADS	4
DISCS	3
MEDIA TYPE	THIN FILM
RECORDING METHOD	MFM
TRANSFER RATE (mbits/sec)	5.0
SPINDLE SPEED (RPM)	3,600
INTERFACE	ST412
TPI (TRACKS PER INCH)	625
BPI (BITS PER INCH)	9,617
AVERAGE ACCESS (ms)	40
SINGLE TRACK SEEK (ms)	8
MTBF (power-on hours)	15,000
POWER REQUIREMENTS: +12V START-UP (amps)	4.0
+12V TYPICAL (amps)	1.5
+5V TYPICAL (amps)	1.5
TYPICAL (watts)	25.5
MAXIMUM (watts)	55
BUFFERED STEP PULSE RATE (micro sec)	25-50
WRITE PRECOMP (cyl)	N/A (616)
REDUCED WRITE CURRENT (cyl)	N/A (616)
LANDING ZONE (cyl)	AUTO PARK
IBM AT DRIVE TYPE	2

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

**ST-4038 ST412 MFM**

## ST - 4038

UNFORMATTED CAPACITY (MB)	38.2
FORMATTED CAPACITY (17 SECTORS) (MB)	31.9
ACTUATOR TYPE	VOICE COIL
TRACKS	3,665
CYLINDERS	733
HEADS	5
DISCS	3
MEDIA TYPE	OXIDE
RECORDING METHOD	MFM
TRANSFER RATE (mbits/sec)	5.0
SPINDLE SPEED (RPM)	3,600
INTERFACE	ST412
TPI (TRACKS PER INCH)	750
BPI (BITS PER INCH)	9,617
AVERAGE ACCESS (ms)	40
SINGLE TRACK SEEK (ms)	8
MTBF (power-on hours)	25,000
POWER REQUIREMENTS: +12V START-UP (amps)	4.0
+12V TYPICAL (amps)	1.5
+5V TYPICAL (amps)	1.5
TYPICAL (watts)	25.5
MAXIMUM (watts)	56
BUFFERED STEP PULSE RATE (micro sec)	10-70
WRITE PRECOMP (cyl)	300
REDUCED WRITE CURRENT (cyl)	N/A (734)
LANDING ZONE (cyl)	AUTO PARK
IBM AT DRIVE TYPE	22, 20 or 8

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

## ST-4038M ST412 MFM

UNFORMATTED CAPACITY (MB)	38.2
FORMATTED CAPACITY (17 SECTORS) (MB)	31.9
ACTUATOR TYPE	VOICE COIL
TRACKS	3,665
CYLINDERS	733
HEADS	5
DISCS	3
MEDIA TYPE	THIN FILM
RECORDING METHOD	MFM
TRANSFER RATE (mbits/sec)	5.0
SPINDLE SPEED (RPM)	3,600
INTERFACE	ST412
TPI (TRACKS PER INCH)	750
BPI (BITS PER INCH)	9,617
AVERAGE ACCESS (ms)	40
SINGLE TRACK SEEK (ms)	8
MTBF (power-on hours)	15,000
POWER REQUIREMENTS: +12V START-UP (amps)	4.0
+12V TYPICAL (amps)	1.5
+5V TYPICAL (amps)	1.5
TYPICAL (watts)	25.5
MAXIMUM (watts)	56
BUFFERED STEP PULSE RATE (micro sec)	10-70
WRITE PRECOMP (cyl)	N/A (734)
REDUCED WRITE CURRENT (cyl)	N/A (734)
LANDING ZONE (cyl)	AUTO PARK
IBM AT DRIVE TYPE	8

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

## ST-4051 ST412 MFM

/Ä4Ä3Ä2Ä1Ä\  
 ³ O O O O ³ Power  
 ÄÄÄÄÄÄÄÄÄÄÄÄÜ  
 1 5 G G 12  
 ÚData Cable  
 ÜÜÜÜÜÜÜÜ ÜÜ ÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜ ÜÜ ÜÜÜÜÜÜÜÜ  
 ÜÜÜÜÜÜÜÜÜÜ ÜÜ ÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜ ÜÜ ÜÜÜÜÜÜÜÜ  
 ÜÜÜÜÜÜÜÜÜÜ ÜÜ ÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜ ÜÜ ÜÜÜÜÜÜÜÜ  
 Drive Select->1 2 3 4 ³³³³³ ³ÄÄ Resistor Termination Pack  
 ³³³³³³³³ ³³  
 ³ ÄÄÜ ³³³³ ÄÜ  
 ³ ³ ³³³³  
 ³ ³ ³³³³  
 ³ ³ ³³³ Ä Radial  
 ³ ³ ³³ ÄÄÄ Recovery Mode  
 ³ ³ ³ ÄÄÄÄÄ Write Fault  
 ³ ³ ÄÄÄÄÄÄÄ Not Connected  
 ³ ÄÄÄÄÄÄÄÄÄÄ Never Used (Drive Select 3 and 4)  
 Ä If twisted cable, use Drive Select 2

ST - 4051

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 50.88  
 FORMATTED CAPACITY (17 SECTORS) (MB) \_\_\_\_\_ 42.52  
 ACTUATOR TYPE \_\_\_\_\_ VOICE COIL  
 TRACKS \_\_\_\_\_ 4,885  
 CYLINDERS \_\_\_\_\_ 977  
 HEADS \_\_\_\_\_ 5  
 DISCS \_\_\_\_\_ 3  
 MEDIA TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ MFM  
 TRANSFER RATE (mbits/sec) \_\_\_\_\_ 5.0  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
 INTERFACE \_\_\_\_\_ ST412  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 960  
 BPI (BITS PER INCH) \_\_\_\_\_ 9,720  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 40  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 8  
 MTBF (power-on hours) \_\_\_\_\_ 15,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_4.0  
                                   +12V TYPICAL (amps) \_1.5  
                                   +5V TYPICAL (amps) \_1.5  
                                   TYPICAL (watts) \_\_\_\_\_ 25.5  
                                   MAXIMUM (watts) \_\_\_\_\_ 55  
 BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_\_ 10-70  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A (978)  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A (978)  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ 11 or 17\*

\* MAY REQUIRE A CONTROLLER WITH BIOS SUPPORT, OR FORMATTING  
 AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP  
 HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

Seagate reserves the right to change, without notice, product  
 offerings or specifications. (6/26/90)

## ST-4053 ST412 MFM

Ú12ÄGÄGÄ5Ä¿  
 3 0 0 0 3  
 ÚData Cable                      ÚController Cable    1    \Ä1Ä2Ä3Ä4Ä/  
 ffffff ff                      ffffff fff    ffffff  
     0 0 0 0 0 0 0 0            1ÄÄÄÄÄÄÄÄÄÄÄ¿  
     0 0 0 0 0 0 0 0            ÄÄÄÄÄÄÄÄÄÄÄÜ  
 Drive Select->1 2 3 4 3 3 3 3      ÄResistor Termination Pack  
                  3 3 3 3 3 3 3  
                  3 ÄÄÜ 3 3 3 3  
                  3 3 3 3 3 Ä Radial  
                  3 3 3 3 ÄÄÄ Recovery Mode  
                  3 3 3 ÄÄÄÄÄ Write Fault  
                  3 3 ÄÄÄÄÄÄÄ Not Connected  
                  3 ÄÄÄÄÄÄÄÄÄÄÄ Never Used (Drive Select 3 and 4)  
                  Ä If twisted cable, use Drive Select 2

ST - 4053

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 53.3  
 FORMATTED CAPACITY (17 SECTORS) (MB) \_\_\_\_\_ 44.5  
 ACTUATOR TYPE \_\_\_\_\_ VOICE COIL  
 TRACKS \_\_\_\_\_ 5,120  
 CYLINDERS \_\_\_\_\_ 1,024  
 HEADS \_\_\_\_\_ 5  
 DISCS \_\_\_\_\_ 3  
 MEDIA TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ MFM  
 TRANSFER RATE (mbits/sec) \_\_\_\_\_ 5.0  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
 INTERFACE \_\_\_\_\_ ST412  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 1,031  
 BPI (BITS PER INCH) \_\_\_\_\_ 9,792  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 28  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 6  
 MTBF (power-on hours) \_\_\_\_\_ 40,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_ 4.0  
                  +12V TYPICAL (amps) \_ 1.3  
                  +5V TYPICAL (amps) \_ 1.3  
                  TYPICAL (watts) \_\_\_\_\_ 23  
                  MAXIMUM (watts) \_\_\_\_\_ 55  
 BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_\_ 3-70  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A (1025)  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A (1025)  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ 36 (11 or 17\*)

\* MAY REQUIRE A CONTROLLER WITH BIOS SUPPORT, OR FORMATTING  
 AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP  
 HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

Seagate reserves the right to change, without notice, product  
 offerings or specifications. (6/26/90)

## ST-406 ST412 MFM

### OPTION SHUNT BLOCK

ÚÄÄ\ÄÄÄ/ÄÄ¿  
1<sup>3</sup> R      3<sup>16</sup>  
2<sup>3</sup> NC     3<sup>15</sup>  
3<sup>3</sup> NC     3<sup>14</sup>  
4<sup>3</sup> NC     3<sup>13</sup>  
5<sup>3</sup> DS4    3<sup>12</sup>  
6<sup>3</sup> DS3    3<sup>11</sup>  
7<sup>3</sup> DS2    3<sup>10</sup>  
8<sup>3</sup> DS1    3<sup>9</sup>  
ÄÄÄÄÄÄÄÄÄÜ

DS1,DS2,DS3,DS4=DRIVE SELECTED  
R=RADIAL OPERATION

ST - 406

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 6.38  
FORMATTED CAPACITY (17 SECTORS) (MB) \_\_\_\_\_ 5.0  
ACTUATOR TYPE \_\_\_\_\_ STEPPER  
TRACKS \_\_\_\_\_ 612  
CYLINDERS \_\_\_\_\_ 306  
HEADS \_\_\_\_\_ 2  
DISCS \_\_\_\_\_ 1  
MEDIA TYPE \_\_\_\_\_ OXIDE  
RECORDING METHOD \_\_\_\_\_ MFM  
TRANSFER RATE (mbits/sec) \_\_\_\_\_ 5.0  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
INTERFACE \_\_\_\_\_ ST412  
TPI (TRACKS PER INCH) \_\_\_\_\_ 345  
BPI (BITS PER INCH) \_\_\_\_\_ 9,074  
AVERAGE ACCESS (ms) \_\_\_\_\_ 85  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ < 16.67  
MTBF (power-on hours) \_\_\_\_\_ 11,000  
POWER REQUIREMENTS: +12V START-UP (amps) \_3.5  
                                  +12V TYPICAL (amps) \_1.6  
                                  +5V TYPICAL (amps) \_1.1  
                                  TYPICAL (watts) \_\_\_\_\_ 24.7  
                                  MAXIMUM (watts) \_\_\_\_\_ 50  
BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_\_ 5-500  
WRITE PRECOMP (cyl) \_\_\_\_\_ 128  
REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A (307)  
LANDING ZONE (cyl) \_\_\_\_\_ 319  
IBM AT DRIVE TYPE \_\_\_\_\_ N/A

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

## ST-4085 (94155-85) Wren 2 ST412 MFM

[illegible]

ST-4085  
94155-85 WREN 2 FH

```

UNFORMATTED CAPACITY (MB) _____ 85
FORMATTED CAPACITY (17 SECTORS) (MB) _____ 71
ACTUATOR TYPE _____ VOICE COIL
TRACKS _____ 8,192
CYLINDERS _____ 1,024
HEADS _____ 8
DISCS _____ 5
MEDIA TYPE _____ OXIDE
RECORDING METHOD _____ MFM
TRANSFER RATE (mbits/sec) _____ 5.0
SPINDLE SPEED (RPM) _____ 3,600
INTERFACE _____ ST412
TPI (TRACKS PER INCH) _____ 980
BPI (BITS PER INCH) _____ 9,400
AVERAGE ACCESS (ms) _____ 28
SINGLE TRACK SEEK (ms) _____ 5
MTBF (power-on hours) _____ 40,000
POWER REQUIREMENTS: +12V START-UP (amps) _4.5
                     +12V TYPICAL (amps) _2.0
                     +5V START-UP (amps) _1.3
                     +5V TYPICAL (amps) _0.75
                     TYPICAL (watts) _____ 28
                     MAXIMUM (watts) _____ 61
BUFFERED STEP PULSE RATE (micro sec) _____ 8-200
WRITE PRECOMP (cyl) _____ N/A (or 128 for
                                the "85P" version)
REDUCED WRITE CURRENT (cyl) _____ N/A (1024)
LANDING ZONE (cyl) _____ AUTO PARK
IBM AT DRIVE TYPE _____ 45, *

```

\* MAY REQUIRE A CONTROLLER WITH BIOS SUPPORT, OR FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)



## ST-4086 (94155-86) Wren 2 ST412 MFM

ST-4086  
94155-86 WREN 2 FH

```

UNFORMATTED CAPACITY (MB) _____ 86
FORMATTED CAPACITY (17 SECTORS) (MB) _____ 72
ACTUATOR TYPE _____ VOICE COIL
TRACKS _____ 8,325
CYLINDERS _____ 925
HEADS _____ 9
DISCS _____ 5
MEDIA TYPE _____ OXIDE
RECORDING METHOD _____ MFM
TRANSFER RATE (mbits/sec) _____ 5.0
SPINDLE SPEED (RPM) _____ 3,600
INTERFACE _____ ST412
TPI (TRACKS PER INCH) _____ 960
BPI (BITS PER INCH) _____ 9,274
AVERAGE ACCESS (ms) _____ 28
SINGLE TRACK SEEK (ms) _____ 5
MTBF (power-on hours) _____ 40,000
POWER REQUIREMENTS: +12V START-UP (amps) _4.5
                     +12V TYPICAL (amps) _2.0
                     +5V START-UP (amps) _1.3
                     +5V TYPICAL (amps) _0.75
                     TYPICAL (watts) _____ 28
                     MAXIMUM (watts) _____ 61
BUFFERED STEP PULSE RATE (micro sec) _____ 8-200
WRITE PRECOMP (cyl) _____ N/A (926)
REDUCED WRITE CURRENT (cyl) _____ N/A (926)
LANDING ZONE (cyl) _____ AUTO PARK
IBM AT DRIVE TYPE _____ 46, *

```

\* MAY REQUIRE A CONTROLLER WITH BIOS SUPPORT, OR FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

**ST-4096 ST412 MFM**

		Ú12ÄGÄGÄ5Ä¿ 3 0 0 0 3
ÚData Cable	ÚController Cable	1 \Ä1Ä2Ä3Ä4Ä/
ffffffffff ff	ffffffffffffffffffff fff ffffffffff	
0 0 0 0 0 0 0 0	1ÄÄÄÄÄÄÄÄÄÄÄÄÄ¿	
0 0 0 0 0 0 0 0	ÄÄÄÄÄÄÄÄÄÄÄÄÄÜ	
Drive Select->1	ÄResistor Termination Pack	
3 3 3 3 3 3 3		
3 ÄÄÜ 3 3 3 3		
3 3 3 3 Ä Radial		
3 3 3 3 ÄÄÄ Recovery Mode		
3 3 3 3 ÄÄÄÄÄ Write Fault		
3 3 ÄÄÄÄÄÄÄ Not Connected		
3 ÄÄÄÄÄÄÄÄÄÄ Never Used (Drive Select 3 and 4)		
Ä If twisted cable, use Drive Select 2		

ST - 4096

UNFORMATTED CAPACITY (MB)	96.0
FORMATTED CAPACITY (17 SECTORS) (MB)	80.2
ACTUATOR TYPE	VOICE COIL
TRACKS	9,216
CYLINDERS	1,024
HEADS	9
DISCS	5
MEDIA TYPE	THIN FILM
RECORDING METHOD	MFM
TRANSFER RATE (mbits/sec)	5.0
SPINDLE SPEED (RPM)	3,600
AVERAGE LATENCY (mSEC)	8.3
INTERFACE	ST412
SECTORS PER DRIVE	156,672
TPI (TRACKS PER INCH)	1,031
BPI (BITS PER INCH)	9,792
AVERAGE ACCESS (ms)	28
SINGLE TRACK SEEK (ms)	6
MAX FULL SEEK (ms)	55
MTBF (power-on hours)	40,000
POWER REQUIREMENTS: +12V START-UP (amps)	4.0
+12V TYPICAL (amps)	1.3**
+5V TYPICAL (amps)	1.3
TYPICAL (watts)	23**
MAXIMUM (watts)	55
BUFFERED STEP PULSE RATE (micro sec)	3-70
WRITE PRECOMP (cyl)	N/A (1025)
REDUCED WRITE CURRENT (cyl)	N/A (1025)
LANDING ZONE (cyl)	AUTO PARK
IBM AT DRIVE TYPE	35 or 12*

\* MAY REQUIRE A CONTROLLER WITH BIOS SUPPORT, OR FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

**\*\*1.5 amps/25 watts FOR 2-BOARD ST-4096 ONLY**

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

**ST-4097 (94155-96) Wren 2 ST412 MFM**

ST-4097  
94155-96 WREN 2 FH

```

UNFORMATTED CAPACITY (MB) _____ 96
FORMATTED CAPACITY (17 SECTORS) (MB) _____ 80
ACTUATOR TYPE _____ VOICE COIL
TRACKS _____ 9,216
CYLINDERS _____ 1,024
HEADS _____ 9
DISCS _____ 5
MEDIA TYPE _____ OXIDE
RECORDING METHOD _____ MFM
TRANSFER RATE (mbits/sec) _____ 5.0
SPINDLE SPEED (RPM) _____ 3,600
INTERFACE _____ ST412
TPI (TRACKS PER INCH) _____ 980
BPI (BITS PER INCH) _____ 9,400
AVERAGE ACCESS (ms) _____ 28
SINGLE TRACK SEEK (ms) _____ 5
MTBF (power-on hours) _____ 40,000
POWER REQUIREMENTS: +12V START-UP (amps) _4.5
                    +12V TYPICAL (amps) _2.0
                    +5V START-UP (amps) _1.3
                    +5V TYPICAL (amps) _0.75
                    TYPICAL (watts) _____ 28
                    MAXIMUM (watts) _____ 61
BUFFERED STEP PULSE RATE (micro sec) _____ 8-200
WRITE PRECOMP (cyl) _____ N/A (or 128 for
                    the "97P" version)
REDUCED WRITE CURRENT (cyl) _____ N/A (1024)
LANDING ZONE (cyl) _____ AUTO PARK
IBM AT DRIVE TYPE _____ 35 *

```

\* MAY REQUIRE A CONTROLLER WITH BIOS SUPPORT, OR FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

## ST-412 ST412 MFM

### OPTION SHUNT BLOCK

ÚÄÄ\ÄÄÄ/ÄÄ¿  
1<sup>3</sup> R   <sup>3</sup> 16  
2<sup>3</sup> NC   <sup>3</sup> 15  
3<sup>3</sup> NC   <sup>3</sup> 14  
4<sup>3</sup> NC   <sup>3</sup> 13  
5<sup>3</sup> DS4   <sup>3</sup> 12  
6<sup>3</sup> DS3   <sup>3</sup> 11  
7<sup>3</sup> DS2   <sup>3</sup> 10  
8<sup>3</sup> DS1   <sup>3</sup> 9  
ÄÄÄÄÄÄÄÄÄÄÙ

DS1,DS2,DS3,DS4=DRIVE SELECTED  
R=RADIAL OPERATION

ST - 412

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 12.76  
FORMATTED CAPACITY (17 SECTORS) (MB) \_\_\_\_\_ 10.0  
ACTUATOR TYPE \_\_\_\_\_ STEPPER  
TRACKS \_\_\_\_\_ 1,224  
CYLINDERS \_\_\_\_\_ 306  
HEADS \_\_\_\_\_ 4  
DISCS \_\_\_\_\_ 2  
MEDIA TYPE \_\_\_\_\_ OXIDE  
RECORDING METHOD \_\_\_\_\_ MFM  
TRANSFER RATE (mbits/sec) \_\_\_\_\_ 5.0  
INTERFACE \_\_\_\_\_ ST412  
TPI (TRACKS PER INCH) \_\_\_\_\_ 345  
BPI (BITS PER INCH) \_\_\_\_\_ 9,074  
AVERAGE ACCESS (ms) \_\_\_\_\_ 85  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ < 16.67  
MTBF (power-on hours) \_\_\_\_\_ 11,000  
POWER REQUIREMENTS: +12V START-UP (amps) \_3.5  
                          +12V TYPICAL (amps) \_1.7  
                          +5V TYPICAL (amps) \_1.1  
                          TYPICAL (watts) \_\_\_\_\_ 25.9  
                          MAXIMUM (watts) \_\_\_\_\_ 50  
BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_\_ 5-500  
WRITE PRECOMP (cyl) \_\_\_\_\_ 128  
REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A (307)  
LANDING ZONE (cyl) \_\_\_\_\_ 319  
IBM AT DRIVE TYPE \_\_\_\_\_ 1

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

## ST-419 ST412 MFM

### OPTION SHUNT BLOCK

ÚÄÄ\ÄÄÄ/ÄÄ¿  
1<sup>3</sup> R    3<sup>16</sup>  
2<sup>3</sup> NC   3<sup>15</sup>  
3<sup>3</sup> NC   3<sup>14</sup>  
4<sup>3</sup> NC   3<sup>13</sup>  
5<sup>3</sup> DS4   3<sup>12</sup>  
6<sup>3</sup> DS3   3<sup>11</sup>  
7<sup>3</sup> DS2   3<sup>10</sup>  
8<sup>3</sup> DS1   3<sup>9</sup>  
ÄÄÄÄÄÄÄÄÄÄÙ

DS1,DS2,DS3,DS4=DRIVE SELECTED  
R=RADIAL OPERATION

ST - 419

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 19.14  
FORMATTED CAPACITY (32 SECTORS) (MB) \_\_\_\_\_ 15.0  
ACTUATOR TYPE \_\_\_\_\_ STEPPER  
TRACKS \_\_\_\_\_ 612  
CYLINDERS \_\_\_\_\_ 306  
HEADS \_\_\_\_\_ 6  
DISCS \_\_\_\_\_ 3  
MEDIA TYPE \_\_\_\_\_ OXIDE  
RECORDING METHOD \_\_\_\_\_ MFM  
TRANSFER RATE (mbits/sec) \_\_\_\_\_ 5.0  
INTERFACE \_\_\_\_\_ ST412  
TPI (TRACKS PER INCH) \_\_\_\_\_ 345  
BPI (BITS PER INCH) \_\_\_\_\_ 9,074  
AVERAGE ACCESS (ms) \_\_\_\_\_ 85  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ < 16.67  
MTBF (power-on hours) \_\_\_\_\_ 11,000  
POWER REQUIREMENTS: +12V START-UP (amps) \_3.5  
                          +12V TYPICAL (amps) \_1.6  
                          +5V TYPICAL (amps) \_1.1  
                          TYPICAL (watts) \_\_\_\_\_ 24.7  
                          MAXIMUM (watts) \_\_\_\_\_ 50  
BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_\_ 5-500  
WRITE PRECOMP (cyl) \_\_\_\_\_ 128  
REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A (307)  
LANDING ZONE (cyl) \_\_\_\_\_ 319  
IBM AT DRIVE TYPE \_\_\_\_\_ N/A

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

## ST-506 ST506 MFM

UNFORMATTED CAPACITY (MB)	6.38
FORMATTED CAPACITY (17 SECTORS) (MB)	5.0
ACTUATOR TYPE	STEPPER
TRACKS	612
CYLINDERS	153
HEADS	4
DISCS	2
MEDIA TYPE	OXIDE
RECORDING METHOD	MFM
TRANSFER RATE (mbits/sec)	5.0
INTERFACE	ST506
TPI (TRACKS PER INCH)	255
BPI (BITS PER INCH)	7,690
AVERAGE ACCESS (ms)	85
SINGLE TRACK SEEK (ms)	3
MTBF (power-on hours)	11,000
POWER REQUIREMENTS: +12V START-UP (amps)	3.5
+12V TYPICAL (amps)	1.6
+5V TYPICAL (amps)	0.7
TYPICAL (watts)	22.7
MAXIMUM (watts)	47
BUFFERED STEP PULSE RATE (micro sec)	3 ms ONLY
WRITE PRECOMP (cyl)	128
REDUCED WRITE CURRENT (cyl)	128
LANDING ZONE (cyl)	157
IBM AT DRIVE TYPE	N/A

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)



## ST-71P

### ST-71P Solid State FlashCard

FORMATTED CAPACITY \_\_\_\_\_ 1.8  
TRANSFER RATE To/From Memory (Mbytes/sec) up to 2.5  
TRANSFER RATE To/From Interface \_\_\_\_\_ up to 6  
CONTROLLER OVERHEAD (msec-Command to DRQ) <1.5  
STARTUP TIMES:  
Sleep to Write (msec) \_\_\_\_\_ <3  
Sleep to Read (msec) \_\_\_\_\_ <2  
INTERFACE \_\_\_\_\_ PCMCIA/ATA  
Auto Sense of interface type  
PCMCIA Card Type II  
MTBF (power-on hours) Office \_\_\_\_\_ 250,000  
SHOCK (G's):  
operating (Read/Write) \_\_\_\_\_ 1000  
nonoperating \_\_\_\_\_ 1000  
POWER REQUIREMENTS: Maximum Current (mA)  
Reading 5v/12v \_\_\_\_\_ 100/NA  
Writing 5v/12v \_\_\_\_\_ 100/30  
Erasing 5v/12v \_\_\_\_\_ 100/20  
IBM AT DRIVE TYPE \_\_\_\_\_

#### Physical:

Height (inches/mm):	0.196/5
Width (inches/mm):	2.126/54.0
Depth (inches/mm):	3.37/85.6
Weight (oz/g):	1.34/38

Seagate reserves the right to change, without notice, product offerings or specifications. (11/08/93)



## ST-71P5

### ST-71P5 Solid State FlashCard

FORMATTED CAPACITY \_\_\_\_\_ 1.8  
TRANSFER RATE To/From Memory (Mbytes/sec) up to 3  
TRANSFER RATE To/From Interface \_\_\_\_\_ up to 6  
CONTROLLER OVERHEAD (msec-Command to DRQ) <1.25  
STARTUP TIMES:  
Sleep to Write (msec) \_\_\_\_\_ <2.5  
Sleep to Read (msec) \_\_\_\_\_ <2  
INTERFACE \_\_\_\_\_ PCMCIA/ATA  
Auto Sense of interface type  
PCMCIA Card Type II  
MTBF (power-on hours) Office \_\_\_\_\_ 500,000  
SHOCK (G's):  
operating (Read/Write) \_\_\_\_\_ 1000  
nonoperating \_\_\_\_\_ 1000  
POWER REQUIREMENTS: Maximum Current (mA)  
Reading 5v/12v \_\_\_\_\_ /NA  
Writing 5v/12v \_\_\_\_\_ /NA  
Erasing 5v/12v \_\_\_\_\_ /NA  
IBM AT DRIVE TYPE \_\_\_\_\_

#### Physical:

Height (inches/mm):	0.196/5
Width (inches/mm):	2.126/54.0
Depth (inches/mm):	3.37/85.6
Weight (oz/g):	1.34/38

Seagate reserves the right to change, without notice, product offerings or specifications. (11/08/93)

## ST-72P

### ST-72P Solid State FlashCard

FORMATTED CAPACITY \_\_\_\_\_ 2.6  
TRANSFER RATE To/From Memory (Mbytes/sec) up to 2.5  
TRANSFER RATE To/From Interface \_\_\_\_\_ up to 6  
CONTROLLER OVERHEAD (msec-Command to DRQ) <1.5  
STARTUP TIMES:  
Sleep to Write (msec) \_\_\_\_\_ <3  
Sleep to Read (msec) \_\_\_\_\_ <2  
INTERFACE \_\_\_\_\_ PCMCIA/ATA  
Auto Sense of interface type  
PCMCIA Card Type II  
MTBF (power-on hours) Office \_\_\_\_\_ 250,000  
SHOCK (G's):  
operating (Read/Write) \_\_\_\_\_ 1000  
nonoperating \_\_\_\_\_ 1000  
POWER REQUIREMENTS: Maximum Current (mA)  
Reading 5v/12v \_\_\_\_\_ 100/NA  
Writing 5v/12v \_\_\_\_\_ 100/30  
Erasing 5v/12v \_\_\_\_\_ 100/20  
IBM AT DRIVE TYPE \_\_\_\_\_

#### Physical:

Height (inches/mm):	0.196/5
Width (inches/mm):	2.126/54.0
Depth (inches/mm):	3.37/85.6
Weight (oz/g):	1.34/38

Seagate reserves the right to change, without notice, product offerings or specifications. (11/08/93)

## ST-72P5

### ST-72P5 Solid State FlashCard

FORMATTED CAPACITY \_\_\_\_\_ 2.6  
TRANSFER RATE To/From Memory (Mbytes/sec) up to 3  
TRANSFER RATE To/From Interface \_\_\_\_\_ up to 6  
CONTROLLER OVERHEAD (msec-Command to DRQ) <1.25  
STARTUP TIMES:  
Sleep to Write (msec) \_\_\_\_\_ <2.5  
Sleep to Read (msec) \_\_\_\_\_ <2  
INTERFACE \_\_\_\_\_ PCMCIA/ATA  
Auto Sense of interface type  
PCMCIA Card Type II  
MTBF (power-on hours) Office \_\_\_\_\_ 500,000  
SHOCK (G's):  
operating (Read/Write) \_\_\_\_\_ 1000  
nonoperating \_\_\_\_\_ 1000  
POWER REQUIREMENTS: Maximum Current (mA)  
Reading 5v/12v \_\_\_\_\_ /NA  
Writing 5v/12v \_\_\_\_\_ /NA  
Erasing 5v/12v \_\_\_\_\_ /NA  
IBM AT DRIVE TYPE \_\_\_\_\_

#### Physical:

Height (inches/mm):	0.196/5
Width (inches/mm):	2.126/54.0
Depth (inches/mm):	3.37/85.6
Weight (oz/g):	1.34/38

Seagate reserves the right to change, without notice, product offerings or specifications. (11/08/93)

## ST-75P

### ST-75P Solid State FlashCard

FORMATTED CAPACITY \_\_\_\_\_ 5.2  
TRANSFER RATE To/From Memory (Mbytes/sec) up to 2.5  
TRANSFER RATE To/From Interface \_\_\_\_\_ up to 6  
CONTROLLER OVERHEAD (msec-Command to DRQ) <1.5  
STARTUP TIMES:  
Sleep to Write (msec) \_\_\_\_\_ <3  
Sleep to Read (msec) \_\_\_\_\_ <2  
INTERFACE \_\_\_\_\_ PCMCIA/ATA  
Auto Sense of interface type  
PCMCIA Card Type II  
MTBF (power-on hours) Office \_\_\_\_\_ 250,000  
SHOCK (G's):  
operating (Read/Write) \_\_\_\_\_ 1000  
nonoperating \_\_\_\_\_ 1000  
POWER REQUIREMENTS: Maximum Current (mA)  
Reading 5v/12v \_\_\_\_\_ 100/NA  
Writing 5v/12v \_\_\_\_\_ 100/30  
Erasing 5v/12v \_\_\_\_\_ 100/20  
IBM AT DRIVE TYPE \_\_\_\_\_

#### Physical:

Height (inches/mm):	0.196/5
Width (inches/mm):	2.126/54.0
Depth (inches/mm):	3.37/85.6
Weight (oz/g):	1.34/38

Seagate reserves the right to change, without notice, product offerings or specifications. (11/08/93)

## ST-75P5

### ST-75P5 Solid State FlashCard

FORMATTED CAPACITY \_\_\_\_\_ 5.2  
TRANSFER RATE To/From Memory (Mbytes/sec) up to 3  
TRANSFER RATE To/From Interface \_\_\_\_\_ up to 6  
CONTROLLER OVERHEAD (msec-Command to DRQ) <1.25  
STARTUP TIMES:  
Sleep to Write (msec) \_\_\_\_\_ <2.5  
Sleep to Read (msec) \_\_\_\_\_ <2  
INTERFACE \_\_\_\_\_ PCMCIA/ATA  
Auto Sense of interface type  
PCMCIA Card Type II  
MTBF (power-on hours) Office \_\_\_\_\_ 500,000  
SHOCK (G's):  
operating (Read/Write) \_\_\_\_\_ 1000  
nonoperating \_\_\_\_\_ 1000  
POWER REQUIREMENTS: Maximum Current (mA)  
Reading 5v/12v \_\_\_\_\_ /NA  
Writing 5v/12v \_\_\_\_\_ /NA  
Erasing 5v/12v \_\_\_\_\_ /NA  
IBM AT DRIVE TYPE \_\_\_\_\_

#### Physical:

Height (inches/mm):	0.196/5
Width (inches/mm):	2.126/54.0
Depth (inches/mm):	3.37/85.6
Weight (oz/g):	1.34/38

Seagate reserves the right to change, without notice, product offerings or specifications. (11/08/93)

## ST-710P

### ST-710P Solid State FlashCard

FORMATTED CAPACITY \_\_\_\_\_ 10.4  
TRANSFER RATE To/From Memory (Mbytes/sec) up to 2.5  
TRANSFER RATE To/From Interface \_\_\_\_\_ up to 6  
CONTROLLER OVERHEAD (msec-Command to DRQ) <1.5  
STARTUP TIMES:  
Sleep to Write (msec) \_\_\_\_\_ <3  
Sleep to Read (msec) \_\_\_\_\_ <2  
INTERFACE \_\_\_\_\_ PCMCIA/ATA  
Auto Sense of interface type  
PCMCIA Card Type II  
MTBF (power-on hours) Office \_\_\_\_\_ 250,000  
SHOCK (G's):  
operating (Read/Write) \_\_\_\_\_ 1000  
nonoperating \_\_\_\_\_ 1000  
POWER REQUIREMENTS: Maximum Current (mA)  
Reading 5v/12v \_\_\_\_\_ 100/NA  
Writing 5v/12v \_\_\_\_\_ 100/30  
Erasing 5v/12v \_\_\_\_\_ 100/20  
IBM AT DRIVE TYPE \_\_\_\_\_

#### Physical:

Height (inches/mm):	0.196/5
Width (inches/mm):	2.126/54.0
Depth (inches/mm):	3.37/85.6
Weight (oz/g):	1.34/38

Seagate reserves the right to change, without notice, product offerings or specifications. (11/08/93)

## ST-710P5

### ST-710P5 Solid State FlashCard

FORMATTED CAPACITY \_\_\_\_\_ 10.4  
TRANSFER RATE To/From Memory (Mbytes/sec) up to 3  
TRANSFER RATE To/From Interface \_\_\_\_\_ up to 6  
CONTROLLER OVERHEAD (msec-Command to DRQ) <1.25  
STARTUP TIMES:  
Sleep to Write (msec) \_\_\_\_\_ <2.5  
Sleep to Read (msec) \_\_\_\_\_ <2  
INTERFACE \_\_\_\_\_ PCMCIA/ATA  
Auto Sense of interface type  
PCMCIA Card Type II  
MTBF (power-on hours) Office \_\_\_\_\_ 500,000  
SHOCK (G's):  
operating (Read/Write) \_\_\_\_\_ 1000  
nonoperating \_\_\_\_\_ 1000  
POWER REQUIREMENTS: Maximum Current (mA)  
Reading 5v/12v \_\_\_\_\_ /NA  
Writing 5v/12v \_\_\_\_\_ /NA  
Erasing 5v/12v \_\_\_\_\_ /NA  
IBM AT DRIVE TYPE \_\_\_\_\_

#### Physical:

Height (inches/mm):	0.196/5
Width (inches/mm):	2.126/54.0
Depth (inches/mm):	3.37/85.6
Weight (oz/g):	1.34/38

Seagate reserves the right to change, without notice, product offerings or specifications. (11/08/93)

## ST-720P

### ST-720P Solid State FlashCard

FORMATTED CAPACITY \_\_\_\_\_ 20.9  
TRANSFER RATE To/From Memory (Mbytes/sec) up to 2.5  
TRANSFER RATE To/From Interface \_\_\_\_\_ up to 6  
CONTROLLER OVERHEAD (msec-Command to DRQ) <1.5  
STARTUP TIMES:  
Sleep to Write (msec) \_\_\_\_\_ <3  
Sleep to Read (msec) \_\_\_\_\_ <2  
INTERFACE \_\_\_\_\_ PCMCIA/ATA  
Auto Sense of interface type  
PCMCIA Card Type II  
MTBF (power-on hours) Office \_\_\_\_\_ 250,000  
SHOCK (G's):  
operating (Read/Write) \_\_\_\_\_ 1000  
nonoperating \_\_\_\_\_ 1000  
POWER REQUIREMENTS: Maximum Current (mA)  
Reading 5v/12v \_\_\_\_\_ 100/NA  
Writing 5v/12v \_\_\_\_\_ 100/30  
Erasing 5v/12v \_\_\_\_\_ 100/20  
IBM AT DRIVE TYPE \_\_\_\_\_

#### Physical:

Height (inches/mm):	0.196/5
Width (inches/mm):	2.126/54.0
Depth (inches/mm):	3.37/85.6
Weight (oz/g):	1.34/38

Seagate reserves the right to change, without notice, product offerings or specifications. (11/08/93)



## ST-720P5

### ST-720P5 Solid State FlashCard

FORMATTED CAPACITY \_\_\_\_\_ 20.9  
TRANSFER RATE To/From Memory (Mbytes/sec) up to 3  
TRANSFER RATE To/From Interface \_\_\_\_\_ up to 6  
CONTROLLER OVERHEAD (msec-Command to DRQ) <1.25  
STARTUP TIMES:  
Sleep to Write (msec) \_\_\_\_\_ <2.5  
Sleep to Read (msec) \_\_\_\_\_ <2  
INTERFACE \_\_\_\_\_ PCMCIA/ATA  
Auto Sense of interface type  
PCMCIA Card Type II  
MTBF (power-on hours) Office \_\_\_\_\_ 500,000  
SHOCK (G's):  
operating (Read/Write) \_\_\_\_\_ 1000  
nonoperating \_\_\_\_\_ 1000  
POWER REQUIREMENTS: Maximum Current (mA)  
Reading 5v/12v \_\_\_\_\_ /NA  
Writing 5v/12v \_\_\_\_\_ /NA  
Erasing 5v/12v \_\_\_\_\_ /NA  
IBM AT DRIVE TYPE \_\_\_\_\_

#### Physical:

Height (inches/mm):	0.196/5
Width (inches/mm):	2.126/54.0
Depth (inches/mm):	3.37/85.6
Weight (oz/g):	1.34/38

Seagate reserves the right to change, without notice, product offerings or specifications. (11/08/93)

## ST-7050P

ST-7050P

UNFORMATTED CAPACITY \_\_\_\_\_  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_ 42.7  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ (user)  
HEADS \_\_\_\_\_ 2  
DISCS (1.8 in) \_\_\_\_\_ 1  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ ZBR RLL (1,7)  
INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ up to 16  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,545  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.46  
BUFFER \_\_\_\_\_ 32 Kbyte  
Multisegmented adaptive cache  
INTERFACE \_\_\_\_\_ PCMCIA/ATA  
Auto Sense of interface type  
PCMCIA Type III form factor  
SECTORS PER DRIVE \_\_\_\_\_ 83,520  
TPI (TRACKS PER INCH) \_\_\_\_\_ 2,748  
BPI (BITS PER INCH) \_\_\_\_\_ 53,200  
FCI (FLUX CHANGES PER INCH) \_\_\_\_\_ 39,447  
AVERAGE ACCESS (ms) \_\_\_\_\_ 18  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 6  
MAX FULL SEEK (ms) \_\_\_\_\_ 28  
MTBF (power-on hours) Office \_\_\_\_\_ 300,000  
SHOCK (G's):  
    operating \_\_\_\_\_ 10  
    nonoperating \_\_\_\_\_ 300  
POWER REQUIREMENTS: +5V START-UP (amps) \_\_\_\_\_ 0.45  
POWER MANAGEMENT (Watts):  
    ACTIVE \_\_\_\_\_ 1.2  
    IDLE \_\_\_\_\_ 0.42  
    STANDBY \_\_\_\_\_ 0.1  
    SLEEP \_\_\_\_\_ 0.06  
WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
LANDING ZONE (cyl) \_\_\_\_\_ AUTO  
IBM AT DRIVE TYPE \_\_\_\_\_ 0

### Physical:

Height (inches/mm):	0.413/10.5
Width (inches/mm):	2.13/54.0
Depth (inches/mm):	3.38/85.7
Weight (oz/g):	3/85

\* MAY REQUIRE FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE. (see below)

Possible translation: 580 cyl, 9 heads, 16 sectors = 42,762,240

Note: A "custom" or "user-defined" CMOS drivetype may ask for a numerical value for the Write Precompensation cylinder and for the Landing Zone cylinder. A basic rule-of-thumb for drive models that do not require the old Write Precomp technique or a Landing Zone because

they are Auto-Parking is to add 1 to the cylinder value being used. As an example: If cylinders equaled 820, then both Write Precomp and Landing Zone would be entered as 821. Some BIOS will convert this to 65535 or -1, which are functionally equivalent to "none (not used)".

PHYSICAL/LOGICAL equivalent to NATIVE/TRANSLATION  
ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Since a User-definable or Custom translation geometry may be used, it is imperative that the values be written down and kept with your permanent records for retrieval in the event of CMOS battery failure.

Seagate reserves the right to change, without notice, product offerings or specifications. (02/24/94)

## ST-1106R ST412 RLL

```

ÚData Cable      ÚController Cable  1  \ÄÄÄÜ
ffffffffff ff  fffffffffffffffffffff ffffff

      0 0 0 0 0 0 0 0 ÚÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ1
      0 0 0 0 0 0 0 0 ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÜ
      3 3 3 3 4 3 2 1  Ä Resistor Termination Pack

(front corner)  3 3 3 3 ÄÄÄÄÄÄÄÄ
Úo Optional    3 3 3 3 3
Äo LED         3 3 3 3 ÄÄÄÄÄÄ Drive Selects
Connector      3 3 3 ÄÄÄÄÄÄÄÄÄÄÄÄ Factory Test
               3 3 ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Not Used
               3 ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Recovery Mode
               ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Radial

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## ST-1106R

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UNFORMATTED CAPACITY (MB) _____ 106.6
FORMATTED CAPACITY (26 SECTORS) (MB) _____ 91
ACTUATOR TYPE _____ VOICE COIL
TRACKS _____ 3,908
CYLINDERS _____ 977
HEADS _____ 7
DISCS _____ 4
MEDIA TYPE _____ THIN FILM
RECORDING METHOD _____ RLL
TRANSFER RATE (mbits/sec) _____ 7.5
SPINDLE SPEED (RPM) _____ 3,600
INTERFACE _____ ST412
TPI (TRACKS PER INCH) _____ 1,900
BPI (BITS PER INCH) _____ 21,162
AVERAGE ACCESS (ms) _____ 24
SINGLE TRACK SEEK (ms) _____ 8
MTBF (power-on hours) _____ 50,000
POWER REQUIREMENTS: +12V START-UP (amps) _2.0
                    +12V TYPICAL (amps) _0.45
                    +5V START-UP (amps) _
                    +5V TYPICAL (amps) _0.5
                    TYPICAL (watts) _____ 8
                    MAXIMUM (watts) _____
BUFFERED STEP PULSE RATE (micro sec) _____
WRITE PRECOMP (cyl) _____ N/A (978)
REDUCED WRITE CURRENT (cyl) _____ N/A (978)
LANDING ZONE (cyl) _____ AUTO PARK
IBM AT DRIVE TYPE _____ *

```

\* MAY REQUIRE A CONTROLLER WITH BIOS SUPPORT, OR FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

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íííííí íí íííííííííííí íí Ú Controller Cable
ÄData Cable ÚÄÄÄÄÄÄÄÄÄÄÄ¿ 1 ÜÄÄÄÄÄÄÄÄÄÄÄ¿
1ÄÄÄÄÄÄÄÄÄÄÜ Terminator 1 2 3 4 R Ext
ÄÄÄÄÄÄÄÄÄÄ ³³
³ ³³
³ ³³
³ ³³
³ ³³
Drive Selects ÄÄÄÄÄÄÜ ³³
Radial Select ÄÄÄÄÄÄÄÄÄÄÄÄÜ³
External spindle clock ÄÄÄÄÜ

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UNFORMATTED CAPACITY (MB) _____150
FORMATTED CAPACITY (26 SECTORS) (MB) _____128
ACTUATOR TYPE _____VOICE COIL
TRACKS _____9,648
CYLINDERS _____1,072
HEADS _____9
DISCS _____5
MEDIA TYPE _____THIN FILM
RECORDING METHOD _____RLL
TRANSFER RATE (mbits/sec) _____7.5
SPINDLE SPEED (RPM) _____3,600
INTERFACE _____ST412
TPI (TRACKS PER INCH) _____1,350
BPI (BITS PER INCH) _____21,030
AVERAGE ACCESS (ms) _____15
SINGLE TRACK SEEK (ms) _____4
MTBF (power-on hours) _____150,000
POWER REQUIREMENTS: +12V START-UP (amps) _2.5
                    +12V TYPICAL (amps) _0.7
                    +5V START-UP (amps) _0.75
                    +5V TYPICAL (amps) _0.4
                    TYPICAL (watts) _____10
                    MAXIMUM (watts) _____12
BUFFERED STEP PULSE RATE (micro sec) _____6-200
WRITE PRECOMP (cyl) _____300
REDUCED WRITE CURRENT (cyl) _____N/A (1073)
LANDING ZONE (cyl) _____AUTO PARK
IBM AT DRIVE TYPE _____*

```

### Front View of Drive Without the Plastic Bezel

ÚÄÄÄÄÄÄÄ¿  
<sup>3</sup>A<sup>3</sup>B<sup>3</sup> B = Anode  
 ÄÄÄÄÄÄÄÄ´ D = Cathode  
<sup>3</sup>C<sup>3</sup>D<sup>3</sup>  
 ...||||||||||||||||||||||||||PÍWÍÁÍÍÍ...

- ø Default jumper at C-D for LED mounted on drive PWA
- ø To use remote LED, remove jumper and extend B (Anode) and D (Cathode).
- ø Swift LED kit 75912397 allows connection to a remote LED
- ø Swift LED kit 95913369 has an LED for attachment to the system front bezel or a 5.25-inch frame kit

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

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 3 O 3G  
 3 O 35  
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ST - 138R

UNFORMATTED CAPACITY (MB)	38.4
FORMATTED CAPACITY (26 SECTORS) (MB)	32.7
ACTUATOR TYPE	STEPPER
TRACKS	2,460
CYLINDERS	615
HEADS	4
DISCS	2
MEDIA TYPE	THIN FILM
RECORDING METHOD	RLL (2,7)
TRANSFER RATE (mbits/sec)	7.5
SPINDLE SPEED (RPM)	3,600
AVERAGE LATENCY (mSEC)	8.3
INTERFACE	ST412
SECTORS PER DRIVE	63,960
TPI (TRACKS PER INCH)	824
BPI (BITS PER INCH)	22,430
AVERAGE ACCESS (ms)*	40/28
SINGLE TRACK SEEK (ms)	8
MAX FULL SEEK (ms)	/70
MTBF (power-on hours)	150,000
POWER REQUIREMENTS: +12V START-UP (amps)	2.0
+12V TYPICAL (amps)	0.35
+5V TYPICAL (amps)	0.8
TYPICAL (watts)	8
MAXIMUM (watts)	28
BUFFERED STEP PULSE RATE (micro sec)	3-200
WRITE PRECOMP (cyl)	N/A (616)
REDUCED WRITE CURRENT (cyl)	N/A (616)
LANDING ZONE (cyl)	AUTO PARK
IBM AT DRIVE TYPE	**

**\*\* MAY REQUIRE A CONTROLLER WITH BIOS SUPPORT, OR FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP**

HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)



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 3 O 312  
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ST - 157R

```

UNFORMATTED CAPACITY (MB) _____ 57.7
FORMATTED CAPACITY (26 SECTORS) (MB) _____ 49.1
ACTUATOR TYPE _____ STEPPER
TRACKS _____ 3,690
CYLINDERS _____ 615
HEADS _____ 6
DISCS _____ 3
MEDIA TYPE _____ THIN FILM
RECORDING METHOD _____ RLL
TRANSFER RATE (mbits/sec) _____ 7.5
SPINDLE SPEED (RPM) _____ 3,600
INTERFACE _____ ST412
TPI (TRACKS PER INCH) _____ 824
BPI (BITS PER INCH) _____ 22,430
AVERAGE ACCESS (ms)* _____ 40/28
SINGLE TRACK SEEK (ms) _____ 8
MTBF (power-on hours) _____ 150,000
POWER REQUIREMENTS: +12V START-UP (amps) _2.0
                    +12V TYPICAL (amps) _0.35
                    +5V TYPICAL (amps) _0.8
                    TYPICAL (watts) _____ 8
                    MAXIMUM (watts) _____ 28
BUFFERED STEP PULSE RATE (micro sec) _____ 3-200
WRITE PRECOMP (cyl) _____ N/A (616)
REDUCED WRITE CURRENT (cyl) _____ N/A (616)
LANDING ZONE (cyl) _____ AUTO PARK
IBM AT DRIVE TYPE _____ **

```

\* MAY REQUIRE A CONTROLLER WITH BIOS SUPPORT, OR FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)





## ST-238R ST412 RLL

```

                                     /ÄÄ3Ä2Ä1Ä\
                                     ³ O O O O ³ Power
ÄÄÄÄÄÄÄÄÄÄÄÄÜ
                                     5 G G 12

      0 0 0 0 0 0 0 0
    ÜData Cable 0 0 0 0 0 0 0 0 ÜController Cable 1
ffffffffff 3 3 3 3 3 3 3 3 fffffffffff fff fffffffffff
      3 3 3 3 3 3 3 3 ÜÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ1
      3 3 3 3 3 3 3 3 ÄÄTerminatorÄÜ
      3 3 3 3 3 3 3 3
Drive Select->1 2 3 4 3 3 3 Ä Radial
      3 3 3 3 3 ÄÄÄ Reserved
      3 ÄÄÜ ³ ÄÄÄÄÄ Write Fault
      3 ³ ÄÄÄÄÄÄÄ Factory Test
      3 ÄÄÄÄÄÄÄÄÄÄÄ Never Used (Drive Select 3 and 4)
      Ä If twisted cable, use Drive Select 2

```

### ST - 238R

```

UNFORMATTED CAPACITY (MB) _____ 38.4
FORMATTED CAPACITY (26 SECTORS) (MB) _____ 32.7
ACTUATOR TYPE _____ STEPPER
TRACKS _____ 2,460
CYLINDERS _____ 615
HEADS _____ 4
DISCS _____ 2
MEDIA TYPE _____ OXIDE
RECORDING METHOD _____ RLL (2,7)
TRANSFER RATE (mbits/sec) _____ 7.5
SPINDLE SPEED (RPM) _____ 3,600
AVERAGE LATENCY (mSEC) _____ 8.3
INTERFACE _____ ST412
SECTORS PER DRIVE _____ 63,960
TPI (TRACKS PER INCH) _____ 588
BPI (BITS PER INCH) _____ 14,740
AVERAGE ACCESS (ms) _____ 65
SINGLE TRACK SEEK (ms) _____ 20
MAX FULL SEEK (ms) _____ 150
MTBF (power-on hours) _____ 100,000
POWER REQUIREMENTS: +12V START-UP (amps) _2.4
                    +12V TYPICAL (amps) _0.9
                    +5V TYPICAL (amps) _0.8
                    TYPICAL (watts) _____ 14.8
                    MAXIMUM (watts) _____ 33
BUFFERED STEP PULSE RATE (micro sec) _____ 5-200
WRITE PRECOMP (cyl) _____ N/A (616)
REDUCED WRITE CURRENT (cyl) _____ N/A (616)
LANDING ZONE (cyl) _____ 670
IBM AT DRIVE TYPE _____ *

```

\* MAY REQUIRE A CONTROLLER WITH BIOS SUPPORT, OR FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

## ST-250R ST412 RLL

```

                                /ÄÄ3Ä2Ä1Ä\
                                ³ O O O O ³ Power
                                ÄÄÄÄÄÄÄÄÄÄÄÜ
                                5 G G 12

      0 0 0 0 0 0 0 0
    ÜData Cable 0 0 0 0 0 0 0 0 ÜController Cable 1
iiiiiiiiii ïï ³³³³³³³³ ïïiiiiiiiiiiiiii ïï ïïiiiiiiiiii
      ³³³³³³³³ ÜÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ1
      ³³³³³³³³ ÄÄTerminatorÄÜ
      ³³³³³³³³
Drive Select->1 2 3 4 ³³³³ Ä Radial
      ³³³³³ ÄÄÄ Reserved
      ³ ÄÄÜ ³ ÄÄÄÄÄ Write Fault
      ³ ³ ÄÄÄÄÄÄÄ Factory Test
      ³ ÄÄÄÄÄÄÄÄÄÄÄ Never Used (Drive Select 3 and 4)
      Ä If twisted cable, use Drive Select 2

```

### ST - 250R

```

UNFORMATTED CAPACITY (MB) _____ 50.0
FORMATTED CAPACITY (31 SECTORS) (MB) _____ 42.3
ACTUATOR TYPE _____ STEPPER
TRACKS _____ 2,668
CYLINDERS _____ 667
HEADS _____ 4
DISCS _____ 2
MEDIA TYPE _____ THIN FILM
RECORDING METHOD _____ RLL
TRANSFER RATE (mbits/sec) _____ 7.5
SPINDLE SPEED (RPM) _____ 3,000
INTERFACE _____ ST412
TPI (TRACKS PER INCH) _____ 588
BPI (BITS PER INCH) _____ 18,897
AVERAGE ACCESS (ms) _____ 70
SINGLE TRACK SEEK (ms) _____ 20
MTBF (power-on hours) _____ 100,000
POWER REQUIREMENTS: +12V START-UP (amps) _2.4
                    +12V TYPICAL (amps) __0.9
                    +5V TYPICAL (amps) __0.8
                    TYPICAL (watts) _____ 14.8
                    MAXIMUM (watts) _____ 33
BUFFERED STEP PULSE RATE (micro sec) _____ 5-200
WRITE PRECOMP (cyl) _____ N/A (668)
REDUCED WRITE CURRENT (cyl) _____ N/A (668)
LANDING ZONE (cyl) _____ 670
IBM AT DRIVE TYPE _____ N/A*

```

\*MUST BE USED WITH THE ST11R CONTROLLER OR 16-BIT CONTROLLER; MAY REQUIRE PARTITIONING SOFTWARE

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)



## ST-278R ST412 RLL

(same as ST-277R with Terminator that cannot be removed, therefore drive must be installed at the end of the daisychain cable.)

```

                                /ÄÄ3Ä2Ä1Ä\
                                3 O O O 3 Power
                                ÄÄÄÄÄÄÄÄÄÄÄ
    ÜData Cable 0 0 0 0 0 0 0 ÜController Cable 1 5 G G 12
    ffffffff ff 3 3 3 3 3 3 3 ffffffff ffffffff fff ffffffff
    3 3 3 3 3 3 3 ÜÄÄÄÄÄÄÄÄÄÄÄÄÄÄ1
    3 3 3 3 3 3 3 ÄÄTerminatorÄÜ- cannot be removed
    3 3 3 3 3 3 3

```

Drive Select->1 2 3 4 3 3 3 Ä Radial  
 3 3 3 3 ÄÄÄ Reserved  
 3 ÄÄÜ 3 ÄÄÄÄÄ Write Fault  
 3 3 ÄÄÄÄÄÄÄ Factory Test  
 3 ÄÄÄÄÄÄÄÄÄÄ Never Used (Drive Select 3 and 4)  
 Ä If twisted cable, use Drive Select 2

### ST - 278R

```

UNFORMATTED CAPACITY (MB) _____ 76.9
FORMATTED CAPACITY (26 SECTORS) (MB) _____ 65.5
ACTUATOR TYPE _____ STEPPER
TRACKS _____ 4,920
CYLINDERS _____ 820
HEADS _____ 6
DISCS _____ 3
MEDIA TYPE _____ THIN FILM
RECORDING METHOD _____ RLL
TRANSFER RATE (mbits/sec) _____ 7.5
SPINDLE SPEED (RPM) _____ 3,600
INTERFACE _____ ST412
TPI (TRACKS PER INCH) _____ 777
BPI (BITS PER INCH) _____ 14,902
AVERAGE ACCESS (ms)* _____ 40/28
SINGLE TRACK SEEK (ms) _____ 8
MTBF (power-on hours) _____ 70,000
POWER REQUIREMENTS: +12V START-UP (amps) _2.0/2.5*
                    +12V TYPICAL (amps) _0.5
                    +5V TYPICAL (amps) _1.0/1.2*
                    TYPICAL (watts) _____ 11/12*
                    MAXIMUM (watts) _____ 29/36*
BUFFERED STEP PULSE RATE (micro sec) _____ 3-200
WRITE PRECOMP (cyl) _____ N/A (821)
REDUCED WRITE CURRENT (cyl) _____ N/A (821)
LANDING ZONE (cyl) _____ AUTO PARK
IBM AT DRIVE TYPE _____ **

```

\*ST277R-0/ST277R-1

\* MAY REQUIRE A CONTROLLER WITH BIOS SUPPORT, OR FORMATTING AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)







## ST-4144R ST412 RLL

Ú12ÄGÄGÄ5Ä¿  
 3 0 0 0 3  
 ÚData Cable                      ÚController Cable    1    \Ä1Ä2Ä3Ä4Ä/  
 ffffff ff                      ffffff fff    ffffff  
     0 0 0 0 0 0 0 0            1ÄÄÄÄÄÄÄÄÄÄÄ¿  
     0 0 0 0 0 0 0 0            ÄÄÄÄÄÄÄÄÄÄÄÜ  
 Drive Select->1 2 3 4 3 3 3 3      ÄResistor Termination Pack  
     3 3 3 3 3 3 3  
     3 ÄÄÜ 3 3 3 3  
     3 3 3 3 3 Ä Radial  
     3 3 3 3 ÄÄÄ Recovery Mode  
     3 3 3 ÄÄÄÄÄ Write Fault  
     3 3 ÄÄÄÄÄÄÄ Not Connected  
     3 ÄÄÄÄÄÄÄÄÄÄÄ Never Used (Drive Select 3 and 4)  
     Ä If twisted cable, use Drive Select 2

### ST - 4144R

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 144.0  
 FORMATTED CAPACITY (26 SECTORS) (MB) \_\_\_\_\_ 122.7  
 ACTUATOR TYPE \_\_\_\_\_ VOICE COIL  
 TRACKS \_\_\_\_\_ 9,216  
 CYLINDERS \_\_\_\_\_ 1,024  
 HEADS \_\_\_\_\_ 9  
 DISCS \_\_\_\_\_ 5  
 MEDIA TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
 TRANSFER RATE (mbits/sec) \_\_\_\_\_ 7.5  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
 AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.3  
 INTERFACE \_\_\_\_\_ ST412  
 SECTORS PER DRIVE \_\_\_\_\_ 239,616  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 1,031  
 BPI (BITS PER INCH) \_\_\_\_\_ 14,688  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 28  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 6  
 MAX FULL SEEK (ms) \_\_\_\_\_ 55  
 MTBF (power-on hours) \_\_\_\_\_ 40,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_4.0  
     +12V TYPICAL (amps) \_1.3  
     +5V TYPICAL (amps) \_1.3  
     TYPICAL (watts) \_\_\_\_\_ 23  
     MAXIMUM (watts) \_\_\_\_\_ 55  
 BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_\_ 3-70  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A (1025)  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A (1025)  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ \*

\* MAY REQUIRE A CONTROLLER WITH BIOS SUPPORT, OR FORMATTING  
 AND PARTITIONING SOFTWARE. ALSO, CHECK TO SEE IF YOUR CMOS SETUP  
 HAS A "CUSTOM" OR "USER DEFINABLE" DRIVE TYPE AVAILABLE.

Seagate reserves the right to change, without notice, product  
 offerings or specifications. (6/26/90)







[illegible]

## ST - 1096N

UNFORMATTED CAPACITY (MB)	N/A
FORMATTED CAPACITY (26 SECTORS) (MB)	83.9
ACTUATOR TYPE	VOICE COIL
TRACKS	6,342
CYLINDERS	906
HEADS	7
DISCS	4
MEDIA TYPE	THIN FILM
RECORDING METHOD	RLL (2,7)
TRANSFER RATE (mbits/sec)	7.5
SPINDLE SPEED (RPM)	3,600
AVERAGE LATENCY (mSEC)	8.3
BUFFER	2 Kbyte SeaCache
INTERFACE	SCSI
SECTORS PER DRIVE	163,986
TPI (TRACKS PER INCH)	1,300
BPI (BITS PER INCH)	19,893
AVERAGE ACCESS (ms)	20
SINGLE TRACK SEEK (ms)	8
MAX FULL SEEK (ms)	44
MTBF (power-on hours)	150,000
POWER REQUIREMENTS: +12V START-UP (amps)	2.0
+12V TYPICAL (amps)	0.5
+5V TYPICAL (amps)	0.6
TYPICAL (watts)	9
MAXIMUM (watts)	33.75
BUFFERED STEP PULSE RATE (micro sec)	3-200
WRITE PRECOMP (cyl)	N/A (907)
REDUCED WRITE CURRENT (cyl)	N/A (907)
LANDING ZONE (cyl)	AUTO PARK
IBM AT DRIVE TYPE	0 or NONE

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)











ZBR = Zone Bit Recording = Variable sectors per track

Formatted at the factory with 12 spare sectors per cylinder  
and two spare cylinders at inner tracks per unit.

Seagate reserves the right to change, without notice, product  
offerings or specifications. (08/09/94)

## ST-11201N SCSI-2 Fast Wide

ST - 11201N

UNFORMATTED CAPACITY (MB)	1,248
FORMATTED CAPACITY (xx SECTORS) (MB)	1,054
AVERAGE SECTORS PER TRACK	73
ACTUATOR TYPE	VOICE COIL
TRACKS	28,080
CYLINDERS	1,872 (user)
HEADS	15
DISCS (3.5 in)	8
MEDIA TYPE	THIN FILM
RECORDING METHOD	ZBR RLL (1,7)
INTERNAL TRANSFER RATE (mbits/sec)	22 to 40
EXTERNAL TRANSFER RATE (mbyte/sec)	4 Async
EXTERNAL TRANSFER RATE (mbyte/sec)	10 Sync
SPINDLE SPEED (RPM)	5,411
AVERAGE LATENCY (mSEC)	5.4
BUFFER	240 Kbyte
Read Look-Ahead, Adaptive, Multi-Segmented Cache	
INTERFACE	SCSI-2 Fast Wide
BYTES PER TRACK	41,660 avg.
SECTORS PER DRIVE	2,059,139
TPI (TRACKS PER INCH)	2,150
AVERAGE ACCESS (ms) (read/write)	10.5/12.0 *
SINGLE TRACK SEEK (ms)	2.6 *
MAX FULL SEEK (ms)	26.6 *
MTBF (power-on hours)	200,000
POWER REQUIREMENTS: +12V START-UP (amps)	2.0
+12V TYPICAL (amps) 0.5	
+5V TYPICAL (amps) 0.4	
TYPICAL (watts) 11	
IDLE (watts) 9	
LANDING ZONE (cyl)	AUTO PARK
IBM AT DRIVE TYPE	0 or NONE

\* Including on-board controller overhead (0.6ms less without overhead).

Already low-level formatted at the factory.

ZBR = Zone Bit Recording = Variable sectors per track

Formatted at the factory with 12 spare sectors per cylinder and two spare cylinders at inner tracks per unit.

Seagate reserves the right to change, without notice, product offerings or specifications. (10/22/92)







MEDIA TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ RLL  
 TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 1.25  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
 BUFFER \_\_\_\_\_ 32 or 64 Kbyte  
 Read Look-Ahead, Non-Adaptive,  
 Single-Segmented  
 INTERFACE \_\_\_\_\_ SCSI  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 1,543  
 BPI (BITS PER INCH) \_\_\_\_\_ 30,000 max  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 15  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 4  
 MTBF (power-on hours) \_\_\_\_\_ 150,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_2.5  
 +12V TYPICAL (amps) \_\_0.7  
 +5V START-UP (amps) \_\_0.75  
 +5V TYPICAL (amps) \_\_0.4  
 TYPICAL (watts) \_\_\_\_\_ 11  
 MAXIMUM (watts) \_\_\_\_\_ 34  
 BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_\_ 6-200  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A (1269)  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A (1269)  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ 0 or NONE

Already low-level formatted at the factory.

#### Swift Remote LED Option

Front View of Drive Without the Plastic Bezel

ÚÄÄÄÄÄÄÄÄÄÄÄ  
<sup>3</sup>A <sup>3</sup>B <sup>3</sup> B = Anode  
 ÄÄÄÄÄÄÄÄÄÄ' D = Cathode  
<sup>3</sup>C <sup>3</sup>D <sup>3</sup>  
 ...||||||||||||||||||||||||||||||PíWíAííí...

- ø Default jumper at C-D for LED mounted on drive PWA
- ø To use remote LED, remove jumper and extend B (Anode) and D (Cathode).
- ø Swift LED kit 75912397 allows connection to a remote LED
- ø Swift LED kit 95913369 has an LED for attachment to the system front bezel or a 5.25-inch frame kit

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)





### Swift Remote LED Option

### Front View of Drive Without the Plastic Bezel

[illegible]

- Ø Default jumper at C-D for LED mounted on drive PWA
- Ø To use remote LED, remove jumper and extend B (Anode) and D (Cathode).
- Ø Swift LED kit 75912397 allows connection to a remote LED
- Ø Swift LED kit 95913369 has an LED for attachment to the system front bezel or a 5.25-inch frame kit

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)



MEDIA TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ RLL  
 TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 1  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
 BUFFER \_\_\_\_\_ 32 or 64 Kbyte  
 Read Look-Ahead, Non-Adaptive,  
 Single-Segmented  
 INTERFACE \_\_\_\_\_ SCSI  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 1,350  
 BPI (BITS PER INCH) \_\_\_\_\_ 22,840  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 15  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 4  
 MTBF (power-on hours) \_\_\_\_\_ 70,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_2.5  
 +12V TYPICAL (amps) \_\_0.7  
 +5V START-UP (amps) \_\_0.75  
 +5V TYPICAL (amps) \_\_0.4  
 TYPICAL (watts) \_\_\_\_\_ 11  
 MAXIMUM (watts) \_\_\_\_\_ 34  
 BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_\_ 6-200  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A (1069)  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A (1069)  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ 0 or NONE

Already low-level formatted at the factory.

#### Swift Remote LED Option

Front View of Drive Without the Plastic Bezel

ÚÄÄÄÄÄÄÄÄÄÄÄ  
<sup>3</sup>A <sup>3</sup>B <sup>3</sup> B = Anode  
 ÄÄÄÄÄÄÄÄÄÄ' D = Cathode  
<sup>3</sup>C <sup>3</sup>D <sup>3</sup>  
 ...|||||PÍWÍÁííí...

- ø Default jumper at C-D for LED mounted on drive PWA
- ø To use remote LED, remove jumper and extend B (Anode) and D (Cathode).
- ø Swift LED kit 75912397 allows connection to a remote LED
- ø Swift LED kit 95913369 has an LED for attachment to the system front bezel or a 5.25-inch frame kit

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)



MEDIA TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
 TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 1.25  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
 AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
 BUFFER \_\_\_\_\_ 32 or 64 Kbyte  
 Read Look-Ahead, Non-Adaptive,  
 Single-Segmented  
 INTERFACE \_\_\_\_\_ SCSI  
 SECTORS PER DRIVE \_\_\_\_\_ 310,170  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 1,543  
 BPI (BITS PER INCH) \_\_\_\_\_ 30,000 max  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 15  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 4  
 MAX FULL SEEK (ms) \_\_\_\_\_ 35  
 MTBF (power-on hours) \_\_\_\_\_ 150,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_2.5  
                                   +12V TYPICAL (amps) \_0.7  
                                   +5V START-UP (amps) \_0.75  
                                   +5V TYPICAL (amps) \_0.4  
                                   TYPICAL (watts) \_\_\_\_\_ 11  
                                   MAXIMUM (watts) \_\_\_\_\_ 34  
 BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_\_ 6-200  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A (1269)  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A (1269)  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ 0 or NONE

Already low-level formatted at the factory.

#### Swift Remote LED Option

Front View of Drive Without the Plastic Bezel

ÚÄÄÄÄÄÄÄÄÄÄÄ  
   <sup>3</sup>A <sup>3</sup>B <sup>3</sup>      B = Anode  
   ÄÄÄÄÄÄÄÄÄÄ'   D = Cathode  
   <sup>3</sup>C <sup>3</sup>D <sup>3</sup>  
 ...||||||||||||||||||||||||||||||P|W|A|I|I|...

- ø Default jumper at C-D for LED mounted on drive PWA
- ø To use remote LED, remove jumper and extend B (Anode) and D (Cathode).
- ø Swift LED kit 75912397 allows connection to a remote LED
- ø Swift LED kit 95913369 has an LED for attachment to the system front bezel or a 5.25-inch frame kit

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)







MTBF (power-on hours) \_\_\_\_\_ 500,000  
SHOCK (G's):  
    operating (Read/Write) \_\_\_\_\_ 10  
    nonoperating \_\_\_\_\_ 60  
ACOUSTICS (typ/max dBA) \_\_\_\_\_/  
POWER REQUIREMENTS: +12V START-UP (amps) \_2.0  
    +12V TYPICAL (amps) \_\_0.54  
    +5V START-UP (amps) \_\_0.8  
    +5V TYPICAL (amps) \_\_0.43  
    TYPICAL (watts) \_\_\_\_\_9  
    MAXIMUM (watts) \_\_\_\_\_  
WRITE PRECOMP (cyl) \_\_\_\_\_N/A  
REDUCED WRITE CURRENT (cyl) \_\_\_\_\_N/A  
LANDING ZONE (cyl) \_\_\_\_\_AUTO PARK  
IBM AT DRIVE TYPE \_\_\_\_\_0 or NONE

Physical:

Height (inches/mm):	1.63/41.4
Width (inches/mm):	4.00/101.6
Depth (inches/mm):	5.75/146.1
Weight (lbs/kg):	2.5/0.99

Already low-level formatted at the factory with six spare sectors per cylinder and two spare cylinders/unit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (08/09/94)



Note: The model ST-11900WC drive cannot furnish terminator power, because no pins on the 80 pin I/O connector are devoted to terminator power.

ÉÍÍÍÍÍÍÍÍÍ»  
 ° FRONT VIEW ° (Both ST-11900W and ST-11900WC)  
 ÈÍÍÍÍÍÍÍÍÍ¼

[illegible]

If these ID jumper are used, then  
ID jumpers shown in left side view J5  
or 80 pin I/O cable ARE NOT USED.

ST-11900W  
Hawk 2

```

UNFORMATTED CAPACITY (MB) _____2003
FORMATTED CAPACITY (xx SECTORS) (MB) _____1700
AVERAGE SECTORS PER TRACK _____83 rounded down
ACTUATOR TYPE _____ROTARY VOICE COIL
TRACKS _____39,315
CYLINDERS _____2,621 user
HEADS _____PHYSICAL_____15
DISCS (3.5 in) _____8
MEDIA TYPE _____THIN FILM
RECORDING METHOD _____ZBR RLL (1,7)
INTERNAL TRANSFER RATE (mbits/sec) _____26.8 to 45.6
EXTERNAL TRANSFER RATE (mbyte/sec) _____20 Sync
SPINDLE SPEED (RPM) _____5,411
AVERAGE LATENCY (mSEC) _____5.54
BUFFER _____256/1024 KByte
    Read Look-Ahead, Adaptive,
    Multi-Segmented Cache
INTERFACE _____SCSI-2 FAST WIDE
                                ASA

```

SECTORS PER DRIVE \_\_\_\_\_  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 3000  
 AVERAGE ACCESS (ms) (read/write) \_\_\_\_\_ 9.0/10.5  
     Drive level without controller overhead  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 1  
 MAX FULL SEEK (ms) \_\_\_\_\_ 19  
 MTBF (power-on hours) \_\_\_\_\_ 500,000  
 SHOCK (G's):  
     operating (Read/Write) \_\_\_\_\_ 10  
     nonoperating \_\_\_\_\_ 60  
 ACOUSTICS (typ/max dBA) \_\_\_\_\_/  
 POWER REQUIREMENTS: +12V START-UP (amps) \_2.0  
     +12V TYPICAL (amps) \_\_0.54  
     +5V START-UP (amps) \_\_0.8  
     +5V TYPICAL (amps) \_\_0.43  
     TYPICAL (watts) \_\_\_\_\_ 9  
     MAXIMUM (watts) \_\_\_\_\_  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ 0 or NONE

Physical:

Height (inches/mm):	1.63/41.4
Width (inches/mm):	4.00/101.6
Depth (inches/mm):	5.75/146.1
Weight (lbs/kg):	2.5/0.99

Already low-level formatted at the factory with six spare sectors per cylinder and two spare cylinders/unit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (08/09/94)



HEADS \_\_\_\_\_ PHYSICAL \_\_\_\_\_ 15  
 DISCS (3.5 in) \_\_\_\_\_ 8  
 MEDIA TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ ZBR RLL (1,7)  
 INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ 34.3 to 56.5  
 EXTERNAL TRANSFER RATE (mbyte/sec) \_\_\_\_\_ 5 Async  
 EXTERNAL TRANSFER RATE (mbyte/sec) \_\_\_\_\_ 10 Sync  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 7,200  
 AVERAGE LATENCY (mSEC) \_\_\_\_\_ 4.17  
 BUFFER \_\_\_\_\_ 1024 KByte  
     Read Look-Ahead, Adaptive,  
     Multi-Segmented Cache  
 INTERFACE \_\_\_\_\_ SCSI-2 FAST  
 BYTES PER TRACK \_\_\_\_\_ 50,888 average  
 SECTORS PER DRIVE \_\_\_\_\_ 3,291,790  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 3,047  
 BPI (BITS PER INCH) \_\_\_\_\_ 52,187  
 AVERAGE ACCESS (ms) (read/write) \_\_\_\_\_ 8.0/9.0  
     Drive level without controller overhead  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 0.6/0.9  
 MAX FULL SEEK (ms) \_\_\_\_\_ 17/19  
 MTBF (power-on hours) \_\_\_\_\_ 500,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_2.18  
     +12V TYPICAL (amps) \_\_0.83 idle  
     +5V START-UP (amps) \_\_1.0  
     +5V TYPICAL (amps) \_\_0.76 idle  
     IDLE (watts) \_\_\_\_\_ 12.5  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ 0 or NONE

Physical:

Height (inches/mm):	1.63/41.4
Width (inches/mm):	4.00/101.6
Depth (inches/mm):	5.97/151.6
Weight (lbs/kg):	2.3/1.04

Already low-level formatted at the factory with 6 spare sectors per cylinder and 1 spare cylinder/unit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (08/08/94)



CYLINDERS \_\_\_\_\_ 2,706 user  
 HEADS \_\_\_\_\_ PHYSICAL \_\_\_\_\_ 15  
 DISCS (3.5 in) \_\_\_\_\_ 8  
 MEDIA TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ ZBR RLL (1,7)  
 INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ 34.3 to 56.5  
 EXTERNAL TRANSFER RATE (mbyte/sec) \_\_\_\_\_ 20 Sync  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 7,200  
 AVERAGE LATENCY (mSEC) \_\_\_\_\_ 4.17  
 BUFFER \_\_\_\_\_ W/WD \_\_\_\_\_ 1024/512 KByte  
     Read Look-Ahead, Adaptive,  
     Multi-Segmented Cache  
 INTERFACE \_\_\_\_\_ SCSI-2 FAST WIDE  
 BYTES PER TRACK \_\_\_\_\_ 50,888 average  
 SECTORS PER DRIVE \_\_\_\_\_ 3,291,790  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 3,047  
 BPI (BITS PER INCH) \_\_\_\_\_ 52,187  
 AVERAGE ACCESS (ms) (read/write) \_\_\_\_\_ 8.0/9.0  
     Drive level without controller overhead  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 0.6/0.9  
 MAX FULL SEEK (ms) \_\_\_\_\_ 17/19  
 MTBF (power-on hours) \_\_\_\_\_ 500,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_\_\_\_\_ 2.18  
     +12V TYPICAL (amps) \_\_\_\_\_ 0.83 idle  
     +5V START-UP (amps) \_\_\_\_\_ 1.0  
     +5V TYPICAL (amps) \_\_\_\_\_ 0.76 idle  
     IDLE (watts) \_\_\_\_\_ 12.5  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ 0 or NONE

Physical:

Height (inches/mm):	1.63/41.4
Width (inches/mm):	4.00/101.6
Depth (inches/mm):	5.97/151.6
Weight (lbs/kg):	2.3/1.04

Already low-level formatted at the factory with 6 spare sectors per cylinder and 1 spare cylinders per unit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (08/08/94)





MEDIA TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
 TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 1.25  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
 AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
 BUFFER \_\_\_\_\_ 32 or 64 Kbyte  
 Read Look-Ahead, Non-Adaptive,  
 Single-Segmented  
 INTERFACE \_\_\_\_\_ SCSI  
 SECTORS PER DRIVE \_\_\_\_\_ 335,790  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 1,350  
 BPI (BITS PER INCH) \_\_\_\_\_ 28,282  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 15  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 4  
 MAX FULL SEEK (ms) \_\_\_\_\_ 35  
 MTBF (power-on hours) \_\_\_\_\_ 150,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_2.5  
 +12V TYPICAL (amps) \_0.7  
 +5V START-UP (amps) \_0.75  
 +5V TYPICAL (amps) \_0.4  
 TYPICAL (watts) \_\_\_\_\_ 11  
 MAXIMUM (watts) \_\_\_\_\_ 34  
 BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_\_ 6-200  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A (1069)  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A (1069)  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ 0 or NONE

Already low-level formatted at the factory.

#### Swift Remote LED Option

Front View of Drive Without the Plastic Bezel

ÚÄÄÄÄÄÄÄÄÄÄÄ  
<sup>3</sup>A <sup>3</sup>B <sup>3</sup> B = Anode  
 ÄÄÄÄÄÄÄÄÄÄ D = Cathode  
<sup>3</sup>C <sup>3</sup>D <sup>3</sup>  
 ...||||||||||||||||||||||||||||||P|W|A|I|I|...

- ø Default jumper at C-D for LED mounted on drive PWA
- ø To use remote LED, remove jumper and extend B (Anode) and D (Cathode).
- ø Swift LED kit 75912397 allows connection to a remote LED
- ø Swift LED kit 95913369 has an LED for attachment to the system front bezel or a 5.25-inch frame kit

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)



MEDIA TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
 TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 1.25  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
 AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
 BUFFER \_\_\_\_\_ 32 or 64 Kbyte  
 Read Look-Ahead, Non-Adaptive,  
 Single-Segmented  
 INTERFACE \_\_\_\_\_ SCSI  
 SECTORS PER DRIVE \_\_\_\_\_ 398,790  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 1,543  
 BPI (BITS PER INCH) \_\_\_\_\_ 30,000 max  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 15  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 4  
 MAX FULL SEEK (ms) \_\_\_\_\_ 35  
 MTBF (power-on hours) \_\_\_\_\_ 150,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_2.5  
 +12V TYPICAL (amps) \_0.7  
 +5V START-UP (amps) \_0.75  
 +5V TYPICAL (amps) \_0.4  
 TYPICAL (watts) \_\_\_\_\_ 11  
 MAXIMUM (watts) \_\_\_\_\_ 34  
 BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_\_ 6-200  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A (1269)  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A (1269)  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ 0 or NONE

Already low-level formatted at the factory.

#### Swift Remote LED Option

Front View of Drive Without the Plastic Bezel

ÚÄÄÄÄÄÄÄÄÄÄÄ  
<sup>3</sup>A <sup>3</sup>B <sup>3</sup> B = Anode  
 ÄÄÄÄÄÄÄÄÄÄ D = Cathode  
<sup>3</sup>C <sup>3</sup>D <sup>3</sup>  
 ...||||||||||||||||||||||||||||||P|W|A|I|I|...

- ø Default jumper at C-D for LED mounted on drive PWA
- ø To use remote LED, remove jumper and extend B (Anode) and D (Cathode).
- ø Swift LED kit 75912397 allows connection to a remote LED
- ø Swift LED kit 95913369 has an LED for attachment to the system front bezel or a 5.25-inch frame kit

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)





MTBF (power-on hours) \_\_\_\_\_ 500,000  
SHOCK (G's):  
    operating (Read/Write) \_\_\_\_\_ 10  
    nonoperating \_\_\_\_\_ 60  
ACOUSTICS (typ/max dBA) \_\_\_\_\_/  
POWER REQUIREMENTS: +12V START-UP (amps) \_2.0  
    +12V TYPICAL (amps) \_\_0.54  
    +5V START-UP (amps) \_\_0.8  
    +5V TYPICAL (amps) \_\_0.43  
    TYPICAL (watts) \_\_\_\_\_9  
    MAXIMUM (watts) \_\_\_\_\_  
WRITE PRECOMP (cyl) \_\_\_\_\_N/A  
REDUCED WRITE CURRENT (cyl) \_\_\_\_\_N/A  
LANDING ZONE (cyl) \_\_\_\_\_AUTO PARK  
IBM AT DRIVE TYPE \_\_\_\_\_0 or NONE

Physical:

Height (inches/mm):	1.63/41.4
Width (inches/mm):	4.00/101.6
Depth (inches/mm):	5.75/146.1
Weight (lbs/kg):	2.5/0.99

Already low-level formatted at the factory with twelve spare sectors per cylinder and two spare cylinders/unit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (08/09/94)





Note: The model ST-12400WC drive cannot furnish terminator power, because no pins on the 80 pin I/O connector are devoted to terminator power.

° FRONT VIEW ° (ST-12400W only)

[illegible]

If these ID jumper are used, then  
ID jumpers shown in rear view Aux-J1  
or 80 pin I/O cable ARE NOT USED.

ÉÍÍÍÍÍÍÍÍÍÍ»  
° FRONT VIEW ° (ST-12400WC only)  
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[illegible]

ST-12400W  
Hawk 2

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UNFORMATTED CAPACITY (MB) _____ 2537
FORMATTED CAPACITY (xx SECTORS) (MB) _____ 2148
AVERAGE SECTORS PER TRACK _____ 84 rounded down
ACTUATOR TYPE _____ ROTARY VOICE COIL
TRACKS _____ 49,799
CYLINDERS _____ 2,621 user
HEADS _____ PHYSICAL _____ 19
DISCS (3.5 in) _____ 10
MEDIA TYPE _____ THIN FILM
RECORDING METHOD _____ ZBR RLL (1,7)
INTERNAL TRANSFER RATE (mbits/sec) _____ 26.8 to 45.6
EXTERNAL TRANSFER RATE (mbyte/sec) _____ 20 Sync
SPINDLE SPEED (RPM) _____ 5,411
AVERAGE LATENCY (mSEC) _____ 5.54
BUFFER _____ 256/1024 KByte

```

Read Look-Ahead, Adaptive,

Multi-Segmented Cache  
INTERFACE \_\_\_\_\_ SCSI-2 FAST  
\_\_\_\_\_ ASA  
SECTORS PER DRIVE \_\_\_\_\_  
TPI (TRACKS PER INCH) \_\_\_\_\_ 3000  
AVERAGE ACCESS (ms) (read/write) \_\_\_\_\_ 9.3/10.8  
Drive level without controller overhead  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 1  
MAX FULL SEEK (ms) \_\_\_\_\_ 21  
MTBF (power-on hours) \_\_\_\_\_ 500,000  
SHOCK (G's):  
operating (Read/Write) \_\_\_\_\_ 10  
nonoperating \_\_\_\_\_ 60  
ACOUSTICS (typ/max dBA) \_\_\_\_\_  
POWER REQUIREMENTS: +12V START-UP (amps) \_2.4  
+12V TYPICAL (amps) \_\_0.57  
+5V START-UP (amps) \_\_0.8  
+5V TYPICAL (amps) \_\_0.42  
TYPICAL (watts) \_\_\_\_\_ 8.9  
MAXIMUM (watts) \_\_\_\_\_ 10.8  
WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
IBM AT DRIVE TYPE \_\_\_\_\_ 0 or NONE

Physical:

Height (inches/mm):	1.63/41.4
Width (inches/mm):	4.00/101.6
Depth (inches/mm):	5.75/146.1
Weight (lbs/kg):	2.5/0.99

Already low-level formatted at the factory with twelve spare sectors per cylinder and two spare cylinders/unit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (08/26/94)



Seagate reserves the right to change, without notice, product offerings or specifications. (08/26/94)





Seagate reserves the right to change, without notice, product offerings or specifications. (08/08/94)





Seagate reserves the right to change, without notice, product offerings or specifications. (08/04/94)

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                                     /ÄÄÄ¿
                                     3 O 312
                                     3 O 3G
                                     3 O 3G
                                     3 O 35
                                     \ÄÄÄÛ
SCSI Connector
|||||P|W|A||||N||||||||||||||||||||N|||||||
0 0 0 0 0 3:.....13
0 0 0 0 0 Ö||||||||||||||||||||||34
4 2 1 3 P ÚÄÄÄÄÄÄÄ1ÚÄÄÄÄÄÄÄ1ÚÄÄÄÄÄÄÄ1
ÄÄÄÄÄÄ 33 ÄÄÄÄÄÄÛÄÄÄÄÄÄÛÄÄÄÄÄÄÛÄ
 3 33 Ä Resistor Termination Packs
3 33
3 3 ÄÄ Parity Check enable
3 ÄÄÄÄ Not Used
ÄÄÄÄÄÄÄÄ Drive ID's, ID 0 (none) for single drive system

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## ST - 138N

UNFORMATTED CAPACITY (MB)	38
FORMATTED CAPACITY (26 SECTORS) (MB)	32.2
ACTUATOR TYPE	STEPPER
TRACKS	2,452
CYLINDERS	615
HEADS	4
DISCS	2
MEDIA TYPE	THIN FILM
RECORDING METHOD	RLL
TRANSFER RATE (mbits/sec)	7.5
SPINDLE SPEED (RPM)	3,600
INTERFACE	SCSI
TPI (TRACKS PER INCH)	824
BPI (BITS PER INCH)	22,430
AVERAGE ACCESS (ms)	40/28*
SINGLE TRACK SEEK (ms)	8
MTBF (power-on hours)	150,000
POWER REQUIREMENTS: +12V START-UP (amps)	2.0
+12V TYPICAL (amps)	0.35
+5V TYPICAL (amps)	0.9
TYPICAL (watts)	9
MAXIMUM (watts)	29
BUFFERED STEP PULSE RATE (micro sec)	3-200
WRITE PRECOMP (cyl)	N/A (616)
REDUCED WRITE CURRENT (cyl)	N/A (616)
LANDING ZONE (cyl)	AUTO PARK
IBM AT DRIVE TYPE	0 or NONE

\*ST138R-0/ST138R-1

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

ÈIIIIIIIIII»  
° REAR VIEW °  
ÈIIIIIIIIII¼

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Öiiiiiiiiiiiiiiiiiiii1,
J43:.....3 /AAAAAA\
iiiiPwIAiiiiiiiiiii3 0 0 0 3ii
ÜAAAAAA1 ÜAAAAAA1 ÜAAAAAA1 Ä5ÄGÄGÄ12Ü
ÄAAAAAAÜ ÄAAAAAAÜ ÄAAAAAAÜ
ÄTerminating ResistorsÜ

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ÉÍÍÍÍÍÍÍÍÍÍÍÍ»  
° LEFT SIDE VIEW °  
ÈÍÍÍÍÍÍÍÍÍÍÍÍ¼

[illegible]

ÉÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍ»  
° RIGHT SIDE VIEW °  
ÈÌÌÌÌÌÌÌÌÌÌÌÌÌÌÌÌÌÌÌ¼

BACK OF DRIVE  $\tilde{\text{O}}\text{f}1$ , J5<sup>3:::3</sup> OF DRIVE  $\text{P}\text{I}\text{W}\text{f}\text{A}\text{I}$  OF DRIVE  
 ID 4  $\text{Ä}\text{Ü}^3\text{Ä}$  ID 1 If these ID jumpers are used,  
 ID 2 then ID jumpers shown in front  
 view ARE NOT USED.

ÉIIIIIIIIIIII»  
° FRONT VIEW °  
ÈIIIIIIIIIIII¼

If these ID jumper are used,  
 then ID jumpers shown in right side  
 view ARE NOT USED.

ID 1  $\bar{U}^{333} \bar{A}$  Remote LED  
 ID 2  $\bar{A} \bar{U}^3 \bar{A} \bar{A}$  Spindle Synchronization  
 ID 4

ST - 1400N

UNFORMATTED CAPACITY (MB)	_____	383
FORMATTED CAPACITY (xx SECTORS) (MB)	_____	331*
AVERAGE SECTORS PER TRACK	_____	62
ACTUATOR TYPE	_____	VOICE COIL
TRACKS	_____	10,332
CYLINDERS	_____	1476 (user)
HEADS	_____	7
DISCS	_____	4
MEDIA TYPE	_____	THIN FILM
RECORDING METHOD	_____	ZBR RLL (1,7)
INTERNAL TRANSFER RATE (mbits/sec)	_____	17 to 25
SPINDLE SPEED (RPM)	_____	4,412
AVERAGE LATENCY (mSEC)	_____	6.8
BUFFER	_____	64 Kbyte
Read Look-Ahead, Adaptive,		
Multi-Segmented Cache		
INTERFACE	_____	SCSI-2
BYTES PER TRACK	_____	28,830 avg.
SECTORS PER DRIVE	_____	640,584
TPI (TRACKS PER INCH)	_____	1,760
BPI (BITS PER INCH)	_____	
AVERAGE ACCESS (ms)	_____	14
SINGLE TRACK SEEK (ms)	_____	2.5
MAX FULL SEEK (ms)	_____	26
MTBF (power-on hours)	_____	150,000
POWER REQUIREMENTS: +12V START-UP (amps)	_____	2.5
		+12V TYPICAL (amps) __0.54
		+5V TYPICAL (amps) __0.53
		TYPICAL (watts) _____9.1
		MAXIMUM (watts) _____15
BUFFERED STEP PULSE RATE (micro sec)	_____	
WRITE PRECOMP (cyl)	_____	N/A
REDUCED WRITE CURRENT (cyl)	_____	N/A
LANDING ZONE (cyl)	_____	AUTO PARK
IBM AT DRIVE TYPE	_____	0 or NONE

\* 512 bytes per sector, one spare sector per track,  
two spare cylinders per unit.

Already low-level formatted at the factory.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (4/12/91)

## ST-1401N SCSI-2

ÉÍÍÍÍÍÍÍÍÍÍ»  
° REAR VIEW °  
ÈÍÍÍÍÍÍÍÍÍÍ¼

50 pin I/O Cable Connection  
 Öiiiiiiiiiiiiiiiiiiiiiii1,  
 J43.....³ /ÄÄÄÄÄÄÄÄ\  
 ïiiïPïWíAïiiiiiiiiiii³ 0 0 0 0 ³Ï  
 ÚÄÄÄÄÄÄÄÚ ÜÄÄÄÄÄÄÜ ÜÄÄÄÄÄÄÄ1 ÄÄ5ÄGÄGÄ12Ü  
 ÄÄÄÄÄÄÄÜ ÄÄÄÄÄÄÄÜ ÄÄÄÄÄÄÄÜ  
 ÀTerminating ResistorsÙ

ÉÍÍÍÍÍÍÍÍÍÍÍÍ»  
° LEFT SIDE VIEW °  
ÈÍÍÍÍÍÍÍÍÍÍÍÍ¼

[illegible]

ÉÍÏÎÌËÊË»  
° RIGHT SIDE VIEW °  
ÈÌÏÎÌËÊË¼

BACK  $\tilde{O}f1,$  FRONT  
 OF  $J5^{3:::3}$  OF  
 DRIVE  $\text{|||||Pw|A|||||}$  DRIVE  
 ID 4  $\tilde{A}\tilde{U}^3\tilde{A}$  ID 1 If these ID jumpers are used,  
 ID 2 then ID jumpers shown in front  
 view ARE NOT USED.

ÉÍÍÍÍÍÍÍÍÍÍÍÍ»  
° FRONT VIEW °  
ÈÍÍÍÍÍÍÍÍÍÍÍÍ¼

If these ID jumper are used,  
 then ID jumpers shown in right side  
 view ARE NOT USED.

ID 1 Û<sup>333</sup>À Remote LED  
 ID 2 ÄÛ<sup>3</sup>ÄÄ Spindle Synchronization

ID 4

ST - 1401N

UNFORMATTED CAPACITY (MB)	390
FORMATTED CAPACITY (xx SECTORS) (MB)	338*
AVERAGE SECTORS PER TRACK	66
ACTUATOR TYPE	VOICE COIL
TRACKS	9,900
CYLINDERS	1,100 (user)
HEADS	9
DISCS	5
MEDIA TYPE	THIN FILM
RECORDING METHOD	ZBR RLL (1,7)
INTERNAL TRANSFER RATE (mbits/sec)	20 to 25
SPINDLE SPEED (RPM)	4,412
AVERAGE LATENCY (mSEC)	6.8
BUFFER	64 Kbyte
Read Look-Ahead, Adaptive,	
Multi-Segmented Cache	
INTERFACE	SCSI-2
BYTES PER TRACK	39,394 avg.
SECTORS PER DRIVE	653,400
TPI (TRACKS PER INCH)	1760
BPI (BITS PER INCH)	
AVERAGE ACCESS (ms)	12
SINGLE TRACK SEEK (ms)	2.5
MAX FULL SEEK (ms)	24
MTBF (power-on hours)	150,000
POWER REQUIREMENTS: +12V START-UP (amps)	2.5
+12V TYPICAL (amps) 0.7	
+5V TYPICAL (amps) 0.7	
TYPICAL (watts) 9.1	
MAXIMUM (watts) 15	
BUFFERED STEP PULSE RATE (micro sec)	
WRITE PRECOMP (cyl)	N/A
REDUCED WRITE CURRENT (cyl)	N/A
LANDING ZONE (cyl)	AUTO PARK
IBM AT DRIVE TYPE	0 or NONE

\* 512 bytes per sector, one spare sector per track,  
two spare cylinders per unit.

Already low-level formatted at the factory.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product  
offerings or specifications. (4/12/91)

ÈIIIIIIIIII»  
° REAR VIEW °  
ÈIIIIIIIIII¼

```

Öiiiiiiiiiiiiiiiiiiii1,
J43:.....3 /AAAAAA\
iiiiPwIAiiiiiiiiiii3 0 0 0 3ii
ÜAAAAAA1 ÜAAAAAA1 ÜAAAAAA1 Ä5ÄGÄGÄ12Ü
ÄAAAAAAÜ ÄAAAAAAÜ ÄAAAAAAÜ
ÄTerminating ResistorsÜ

```

ÉÍÍÍÍÍÍÍÍÍÍÍÍ»  
° LEFT SIDE VIEW °  
ÈÍÍÍÍÍÍÍÍÍÍÍÍ¼

[illegible]

ÉÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍ»  
° RIGHT SIDE VIEW °  
ÈÌÌÌÌÌÌÌÌÌÌÌÌÌÌÌÌ¼

BACK OF DRIVE  $\tilde{\text{O}}\text{f}\text{f}_1$ , J5<sup>3:::3</sup> OF DRIVE  $\text{P}\text{I}\text{W}\text{f}\text{A}\text{I}$  OF DRIVE  
 ID 4  $\text{Ä}\text{Ü}^3\text{Ä}\text{Ä}$  ID 1 If these ID jumpers are used,  
 ID 2 then ID jumpers shown in front  
 view ARE NOT USED.

ÉÍÍÍÍÍÍÍÍÍÍ»  
° FRONT VIEW °  
ÈÍÍÍÍÍÍÍÍÍÍ¼

ST - 1480N

UNFORMATTED CAPACITY (MB)	492
FORMATTED CAPACITY (xx SECTORS) (MB)	426*
AVERAGE SECTORS PER TRACK	62
ACTUATOR TYPE	VOICE COIL
TRACKS	13,302
CYLINDERS	1476 (user)
HEADS	9
DISCS	5
MEDIA TYPE	THIN FILM
RECORDING METHOD	ZBR
INTERNAL TRANSFER RATE (mbits/sec)	17 to 25
SPINDLE SPEED (RPM)	4,412
AVERAGE LATENCY (mSEC)	6.8
BUFFER	64 Kbyte
Read Look-Ahead, Adaptive,	
Multi-Segmented Cache	
INTERFACE	SCSI-2
BYTES PER TRACK	37,037 avg
SECTORS PER DRIVE	823,608
TPI (TRACKS PER INCH)	1760
BPI (BITS PER INCH)	
AVERAGE ACCESS (ms)	14
SINGLE TRACK SEEK (ms)	2.5
MAX FULL SEEK (ms)	26
MTBF (power-on hours)	150,000
POWER REQUIREMENTS: +12V START-UP (amps)	2.5
+12V TYPICAL (amps)	0.54
+5V TYPICAL (amps)	0.53
TYPICAL (watts)	9.1
MAXIMUM (watts)	15
BUFFERED STEP PULSE RATE (micro sec)	
WRITE PRECOMP (cyl)	N/A
REDUCED WRITE CURRENT (cyl)	N/A
LANDING ZONE (cyl)	AUTO PARK
IBM AT DRIVE TYPE	0 or NONE

\* 512 bytes per sector, one spare sector per track,  
two spare cylinders per unit.

Already low-level formatted at the factory.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (4/12/91)





ST - 1481N

UNFORMATTED CAPACITY (MB)	_____	492
FORMATTED CAPACITY (xx SECTORS) (MB)	_____	426
AVERAGE SECTORS PER TRACK	_____	62
ACTUATOR TYPE	_____	VOICE COIL
TRACKS	_____	13,302
CYLINDERS	_____	1,476
HEADS	_____	9
DISCS (3.5 in)	_____	5
MEDIA TYPE	_____	THIN FILM
RECORDING METHOD	_____	ZBR RLL (1,7)
INTERNAL TRANSFER RATE (mbits/sec)	_____	17 to 25
SPINDLE SPEED (RPM)	_____	4,412
AVERAGE LATENCY (mSEC)	_____	6.8
BUFFER	_____	256 Kbyte
Read Look-Ahead, Adaptive,		
Multi-Segmented Cache		
INTERFACE	_____	SCSI-2 Fast
SECTORS PER DRIVE	_____	823,608
TPI (TRACKS PER INCH)	_____	1760
BPI (BITS PER INCH)	_____	
AVERAGE ACCESS (ms)	_____	14
SINGLE TRACK SEEK (ms)	_____	2.5
MAX FULL SEEK (ms)	_____	26
MTBF (power-on hours)	_____	150,000
POWER REQUIREMENTS: +12V START-UP (amps) _2.5		
+12V TYPICAL (amps) _0.54		
+5V TYPICAL (amps) _0.53/0.8(ND)		
TYPICAL (watts) _____9/11.0(ND)		
MAXIMUM (watts) _____15		
WRITE PRECOMP (cyl)	_____	N/A
REDUCED WRITE CURRENT (cyl)	_____	N/A
LANDING ZONE (cyl)	_____	AUTO PARK
IBM AT DRIVE TYPE	_____	0 or NONE

Already low-level formatted at the factory.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (4/12/91)



invalid)

## ST-15150N

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UNFORMATTED CAPACITY (MB) _____ 5062
FORMATTED CAPACITY (xx SECTORS) (MB) _____ 4294
AVERAGE SECTORS PER TRACK _____ 107 rounded down
ACTUATOR TYPE _____ ROTARY VOICE COIL
TRACKS _____ 77,931
CYLINDERS _____ 3,711 user
HEADS _____ PHYSICAL _____ 21
DISCS (3.5 in) _____ 11
MEDIA TYPE _____ THIN FILM
RECORDING METHOD _____ ZBR RLL (1,7)
INTERNAL TRANSFER RATE (mbits/sec) _____ 47.4 to 71.9
EXTERNAL TRANSFER RATE (mbyte/sec) _____ 4 Async
EXTERNAL TRANSFER RATE (mbyte/sec) _____ 10 Sync
SPINDLE SPEED (RPM) _____ 7,200
AVERAGE LATENCY (mSEC) _____ 4.17
BUFFER _____ 1024 KByte
    Read Look-Ahead, Adaptive,
    Multi-Segmented Cache
INTERFACE _____ SCSI-2 FAST
                                ASA II
BYTES PER TRACK _____ 64,773 average
SECTORS PER DRIVE _____ 8,388,315
TPI (TRACKS PER INCH) _____ 4,048
BPI (BITS PER INCH) _____ 73,820
AVERAGE ACCESS (ms) (read/write) _____ 8.0/9.0
    Drive level without controller overhead
SINGLE TRACK SEEK (ms) _____ 0.6/0.9
MAX FULL SEEK (ms) _____ 17/19
MTBF (power-on hours) _____ 800,000
SHOCK (G's):
    operating (Read/Write) _____ 2
    nonoperating _____ 50
ACOUSTICS (typ/max dBA) _____ 4.7/
POWER REQUIREMENTS: +12V START-UP (amps) _2.18
                    +12V TYPICAL (amps) _0.83 idle
                    +5V START-UP (amps) _1.0
                    +5V TYPICAL (amps) _0.76 idle
                    IDLE (watts) _____ 14
LANDING ZONE (cyl) _____ AUTO PARK
IBM AT DRIVE TYPE _____ 0 or NONE

```

Physical:

Height (inches/mm):	1.63/41.4
Width (inches/mm):	4.00/101.6
Depth (inches/mm):	5.97/151.6
Weight (lbs/kg):	2.3/1.04

Already low-level formatted at the factory with 9 spare sectors per cylinder and 1 spare cylinder per unit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (08/26/94)





Seagate reserves the right to change, without notice, product offerings or specifications. (08/08/94)







MTBF (power-on hours) \_\_\_\_\_ 800,000  
SHOCK (G's):  
    operating (Read/Write) \_\_\_\_\_ 10  
    nonoperating \_\_\_\_\_ 60  
ACOUSTICS (typ/max dBA) \_\_\_\_\_  
POWER REQUIREMENTS: +12V START-UP (amps) \_2.4  
    +12V TYPICAL (amps) \_\_0.54  
    +5V START-UP (amps) \_\_0.61  
    +5V TYPICAL (amps) \_\_0.36  
    TYPICAL (watts) \_\_\_\_\_ 9  
    MAXIMUM (watts) \_\_\_\_\_ 11  
LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
IBM AT DRIVE TYPE \_\_\_\_\_ 0 or NONE

Physical:

Height (inches/mm):	1.62/41.1
Width (inches/mm):	4.00/101.6
Depth (inches/mm):	5.74/145.8
Weight (lbs/kg):	2.1/0.93

Already low-level formatted at the factory with twelve spare sectors per cylinder (all twelve spare sectors are on one track) and two spare cylinders/unit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (10/24/94)





# ASA II

SECTORS PER DRIVE \_\_\_\_\_  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 3000  
 AVERAGE ACCESS (ms) (read/write) \_\_\_\_\_ 9.0/10.5  
     Drive level without controller overhead  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 1  
 MAX FULL SEEK (ms) \_\_\_\_\_ 22  
 MTBF (power-on hours) \_\_\_\_\_ 800,000  
 SHOCK (G's):  
     operating (Read/Write) \_\_\_\_\_ 10  
     nonoperating \_\_\_\_\_ 60  
 ACOUSTICS (typ/max dBA) \_\_\_\_\_/  
 POWER REQUIREMENTS: +12V START-UP (amps) \_2.4  
     +12V TYPICAL (amps) \_\_0.6  
     +5V START-UP (amps) \_\_0.8  
     +5V TYPICAL (amps) \_\_0.43  
     TYPICAL (watts) \_\_\_\_\_ 9  
     MAXIMUM (watts) \_\_\_\_\_  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ 0 or NONE

## Physical:

Height (inches/mm):	1.63/41.4
Width (inches/mm):	4.00/101.6
Depth (inches/mm):	5.75/146.1
Weight (lbs/kg):	2.5/0.99

Already low-level formatted at the factory with twelve spare sectors per cylinder and two spare cylinders/unit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (08/09/94)





ST - 1581N

UNFORMATTED CAPACITY (MB)	613
FORMATTED CAPACITY (xx SECTORS) (MB)	525
AVERAGE SECTORS PER TRACK	77
ACTUATOR TYPE	VOICE COIL
TRACKS	13,302
CYLINDERS	1,476
HEADS	9
DISCS (3.5 in)	5
MEDIA TYPE	THIN FILM
RECORDING METHOD	ZBR RLL (1,7)
INTERNAL TRANSFER RATE (mbits/sec)	20 to 32
SPINDLE SPEED (RPM)	4,412
AVERAGE LATENCY (mSEC)	6.8
BUFFER	256 Kbyte
Read Look-Ahead, Adaptive,	
Multi-Segmented Cache	
INTERFACE	SCSI-2 Fast
SECTOR PER DRIVE	1,022,868
TPI (TRACKS PER INCH)	1760
BPI (BITS PER INCH)	
AVERAGE ACCESS (ms)	14
SINGLE TRACK SEEK (ms)	2.5
MAX FULL SEEK (ms)	26
MTBF (power-on hours)	150,000
POWER REQUIREMENTS: +12V START-UP (amps) 2.5	
+12V TYPICAL (amps) 0.54	
+5V TYPICAL (amps) 0.53/0.8(ND)	
TYPICAL (watts) 9/11.0(ND)	
MAXIMUM (watts) 15	
WRITE PRECOMP (cyl)	N/A
REDUCED WRITE CURRENT (cyl)	N/A
LANDING ZONE (cyl)	AUTO PARK
IBM AT DRIVE TYPE	0 or NONE

Already low-level formatted at the factory.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (4/12/91)



## ST-177N SCSI

[illegible]

## ST - 177N

UNFORMATTED CAPACITY (MB)	N/A
FORMATTED CAPACITY (26 SECTORS) (MB)	60.8
ACTUATOR TYPE	VOICE COIL
TRACKS	4,606
CYLINDERS	921
HEADS	5
DISCS	3
MEDIA TYPE	THIN FILM
RECORDING METHOD	RLL
TRANSFER RATE (mbits/sec)	7.5
SPINDLE SPEED (RPM)	3,600
INTERFACE	SCSI
TPI (TRACKS PER INCH)	1,300
BPI (BITS PER INCH)	19,893
AVERAGE ACCESS (ms)	20
SINGLE TRACK SEEK (ms)	8
MTBF (power-on hours)	150,000
POWER REQUIREMENTS: +12V START-UP (amps)	2.0
+12V TYPICAL (amps)	0.5
+5V TYPICAL (amps)	0.6
TYPICAL (watts)	9
MAXIMUM (watts)	27
BUFFERED STEP PULSE RATE (micro sec)	3-200
WRITE PRECOMP (cyl)	N/A (922)
REDUCED WRITE CURRENT (cyl)	N/A (922)
LANDING ZONE (cyl)	AUTO PARK
IBM AT DRIVE TYPE	0 or NONE

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)



»  
° FRONT VIEW °  
¼

TOP (HDA) J6 1,  
\* BOTTOM ¼  
3 123456  
LED Æ Æ  
333333  
ID 4 Æ Reserved  
ID 2 Æ Remote LED (pin-3 +5v)  
ID 1 Æ Spindle Synchronization  
(pin-6 REF SIG+)

If these ID jumper are used, then  
ID jumpers shown in left side  
view ARE NOT USED.

ST - 1830N

UNFORMATTED CAPACITY (MB) 834  
FORMATTED CAPACITY (xx SECTORS) (MB) 702  
AVERAGE SECTORS PER TRACK 79  
ACTUATOR TYPE VOICE COIL  
TRACKS 17,225  
CYLINDERS 1,325 (user)  
HEADS 13  
DISCS (3.5 in) 7  
MEDIA TYPE THIN FILM  
RECORDING METHOD ZBR RLL (1,7)  
INTERNAL TRANSFER RATE (mbits/sec) 28.4 to 41.2  
EXTERNAL TRANSFER RATE (mbyte/sec) 4 Async  
EXTERNAL TRANSFER RATE (mbyte/sec) 10 Sync  
SPINDLE SPEED (RPM) 4,535  
AVERAGE LATENCY (mSEC) 6.61  
BUFFER 256 Kbyte  
Read Look-Ahead, Adaptive,  
Multi-Segmented Cache  
INTERFACE SCSI-2 Fast  
BYTES PER TRACK 48,419 avg.  
TPI (TRACKS PER INCH) 2,150  
AVERAGE ACCESS (ms) (read/write) TBD  
Drive level without controller overhead  
SINGLE TRACK SEEK (ms) TBD  
MAX FULL SEEK (ms) TBD  
MTBF (power-on hours) 200,000  
SHOCK (G's):  
operating (Read/Write) 10  
nonoperating 60  
ACOUSTICS (typ/max dBA) /  
POWER REQUIREMENTS: +12V START-UP (amps) 2.0  
+12V TYPICAL (amps) 0.5  
+5V TYPICAL (amps) 0.4  
TYPICAL (watts) 11  
IDLE (watts) 9  
LANDING ZONE (cyl) AUTO PARK  
IBM AT DRIVE TYPE 0 or NONE

Already low-level formatted at the factory.  
ZBR = Zone Bit Recording = Variable sectors per track

Formatted at the factory with 1 spare sector per track  
and two spare cylinders at inner tracks per unit.

Seagate reserves the right to change, without notice, product  
offerings or specifications. (10/12/93)



»  
° FRONT VIEW °  
¼

TOP (HDA) J6 1,  
\* BOTTOM ¼  
3 123456  
LED Æ Æ  
333333  
ID 4 Æ Reserved  
ID 2 Æ Remote LED (pin-3 +5v)  
ID 1 Æ Spindle Synchronization  
(pin-6 REF SIG+)

If these ID jumper are used, then  
ID jumpers shown in left side  
view ARE NOT USED.

ST - 1950N

UNFORMATTED CAPACITY (MB) 953  
FORMATTED CAPACITY (xx SECTORS) (MB) 803  
AVERAGE SECTORS PER TRACK 76  
ACTUATOR TYPE VOICE COIL  
TRACKS 20,475  
CYLINDERS 1,575 (user)  
HEADS 13  
DISCS (3.5 in) 7  
MEDIA TYPE THIN FILM  
RECORDING METHOD ZBR RLL (1,7)  
INTERNAL TRANSFER RATE (mbits/sec) 25.2 to 41.2  
EXTERNAL TRANSFER RATE (mbyte/sec) 4 Async  
EXTERNAL TRANSFER RATE (mbyte/sec) 10 Sync  
SPINDLE SPEED (RPM) 4,535  
AVERAGE LATENCY (mSEC) 6.61  
BUFFER 256 Kbyte  
Read Look-Ahead, Adaptive,  
Multi-Segmented Cache  
INTERFACE SCSI-2 Fast  
BYTES PER TRACK 46,550 avg.  
TPI (TRACKS PER INCH) 2,150  
AVERAGE ACCESS (ms) (read/write) TBD  
Drive level without controller overhead  
SINGLE TRACK SEEK (ms) TBD  
MAX FULL SEEK (ms) TBD  
MTBF (power-on hours) 200,000  
SHOCK (G's):  
operating (Read/Write) 10  
nonoperating  
ACOUSTICS (typ/max dBA) /  
POWER REQUIREMENTS: +12V START-UP (amps) 2.0  
+12V TYPICAL (amps) 0.5  
+5V TYPICAL (amps) 0.4  
TYPICAL (watts) 11  
IDLE (watts) 9  
LANDING ZONE (cyl) AUTO PARK  
IBM AT DRIVE TYPE 0 or NONE

Already low-level formatted at the factory.  
ZBR = Zone Bit Recording = Variable sectors per track

Formatted at the factory with 1 spare sector per track  
and two spare cylinders at inner tracks per unit.

Seagate reserves the right to change, without notice, product  
offerings or specifications. (10/12/93)







Formatted at the factory with 1 spare sector per track  
and two spare cylinders at inner tracks per unit.

Seagate reserves the right to change, without notice, product  
offerings or specifications. (08/09/94)





## ST-2125N (94221-125) Wren 5 HH SCSI

SCSI Cable	4 2 1 P	Power
Öiiiiiiiiiiiiiiiiiii, A B C D E F G H o o o o	3 0 0 0 0 3	Ú12ÄGÄGÄ5Ä¿
3:.....13 o o o o o o o o o o o o o o \ÄÄÄÄÄÄÄÄÄ/		
iiiiiiiiiiiiiiiiiiiiiiPíWíAiiiiiiiiiiNiiiiiiiiiiiiiiiiii		
	3 3	Ú¿ Ú¿ Ú¿
A-B Not used	3 3	33 33 33
B-C Terminator power from Bus	3 3	33 33 33
C-D Terminator power from Drive	3 3	À1 À1 À1
D-E Not used	3 3	Terminator
E-F Not used	3 3	SIPs, pin-1
F-G Continuous test seeks	3 3	toward rear.
G-H Motor Start option enable	3 3	
	3	ÄÄ Parity check
	3	

Drive Select ID Û  
(ID 0 for single  
drive system)

ST-2125N  
94221-125/M WREN 5 HH

UNFORMATTED CAPACITY (MB) \_\_\_\_\_125  
 FORMATTED CAPACITY (xx SECTORS) (MB) \_\_\_\_\_107  
 AVERAGE SECTORS PER TRACK \_\_\_\_\_45  
 ACTUATOR TYPE \_\_\_\_\_VOICE COIL  
 TRACKS \_\_\_\_\_4632  
 CYLINDERS \_\_\_\_\_1544  
 HEADS \_\_\_\_\_3  
 DISCS \_\_\_\_\_2  
 MEDIA TYPE \_\_\_\_\_THIN FILM  
 RECORDING METHOD \_\_\_\_\_ZBR RLL (2,7)  
 TRANSFER RATE (mbytes/sec) \_\_\_\_\_1.125-1.875  
 SPINDLE SPEED (RPM) \_\_\_\_\_3,600  
 AVERAGE LATENCY (mSEC) \_\_\_\_\_8.33  
 BUFFER \_\_\_\_\_32 Kbyte  
 Read Look-Ahead, Non-Adaptive,  
 Single-Segmented Buffer  
 INTERFACE \_\_\_\_\_SCSI  
 TPI (TRACKS PER INCH) \_\_\_\_\_1280  
 BPI (BITS PER INCH) \_\_\_\_\_19213  
 AVERAGE ACCESS (ms) \_\_\_\_\_18  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_4  
 MAX FULL SEEK (ms) \_\_\_\_\_40  
 MTBF (power-on hours) \_\_\_\_\_100,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_4.5  
                           +12V TYPICAL (amps) \_\_0.9  
                           +5V START-UP (amps) \_\_1.3  
                           +5V TYPICAL (amps) \_\_1.0  
                           TYPICAL (watts) \_\_\_\_\_16  
                           MAXIMUM (watts) \_\_\_\_\_61  
 BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_\_  
 WRITE PRECOMP (cyl) \_\_\_\_\_N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_N/A  
 LANDING ZONE (cyl) \_\_\_\_\_AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_0 or NONE

Already low-level formatted at the factory.  
 ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

## ST-2209N (94221-209/M) Wren 5 HH SCSI

SCSI Cable	4 2 1 P	Power
Öiiiiiiiiiiiiiiiiiii, A B C D E F G H o o o o 3 0 0 0 3		Ú12ÄGÄGÄ5Ä¿
3:.....13 o o o o o o o o o o o o o o o \ÄÄÄÄÄÄÄÄÄ/		
iiiiiiiiiiiiiiiiiiiiiiPíWíAiiiiiiiiiiNiiiiiiiiiiiiiiiiii		
	3 3	Ú¿ Ú¿ Ú¿
A-B Not used	3 3	33 33 33
B-C Terminator power from Bus	3 3	33 33 33
C-D Terminator power from Drive	3 3	À1 À1 À1
D-E Not used	3 3	Terminator
E-F Not used	3 3	SIPs, pin-1
F-G Continuous test seeks	3 3	toward rear.
G-H Motor Start option enable	3 3	
	3	ÄÄ Parity check
	3	

Drive Select ID Û  
(ID 0 for single  
drive system)

ST-2209N  
94221-209/M WREN 5 HH

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 209  
 FORMATTED CAPACITY (xx SECTORS) (MB) \_\_\_\_\_ 179  
 AVERAGE SECTORS PER TRACK \_\_\_\_\_ 45  
 ACTUATOR TYPE \_\_\_\_\_ VOICE COIL  
 TRACKS \_\_\_\_\_ 7720  
 CYLINDERS \_\_\_\_\_ 1544  
 HEADS \_\_\_\_\_ 5  
 DISCS \_\_\_\_\_ 3  
 MEDIA TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ ZBR (RLL (2,7)  
 TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 1.125-1.875  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
 AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
 BUFFER \_\_\_\_\_ 32 Kbyte  
 Read Look-Ahead, Non Adaptive,  
 Single-Segmented Buffer  
 INTERFACE \_\_\_\_\_ SCSI  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 1280  
 BPI (BITS PER INCH) \_\_\_\_\_ 19213  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 18  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 4  
 MAX FULL SEEK (ms) \_\_\_\_\_ 40  
 MTBF (power-on hours) \_\_\_\_\_ 100,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_4.5  
                           +12V TYPICAL (amps) \_\_0.9  
                           +5V START-UP (amps) \_\_1.3  
                           +5V TYPICAL (amps) \_\_1.0  
                           TYPICAL (watts) \_\_\_\_\_ 16  
                           MAXIMUM (watts) \_\_\_\_\_ 61  
 BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_\_  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ 0 or NONE

Already low-level formatted at the factory.  
 ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)







Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)



Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)



## ST-277N SCSI

5 G G 12  
 /ÄÄ3Ä2Ä1Ä\  
 ÜSCSI Cable  
 3 O O O O 3 Power  
 1 ÄÄÄÄÄÄÄÄÄÄ  
 1 2 4 3 P 1ÄÄÄÄÜ 1ÄÄÄÄÜ 1ÄÄÄÄÜ Terminating Resistors  
 ÄÄÄÄÄ 3 ÄÄ Parity Check enable  
 3 ÄÄÄÄÄ Some PWA's have an extra jumper here  
 ÄÄÄÄÄÄÄÄÄÄ ID Selects, ID 0 (none) for single drive system

### ST - 277N

UNFORMATTED CAPACITY (MB) \_\_\_\_\_77  
 FORMATTED CAPACITY (26/34\* SECTORS) (MB) \_64.9  
 ACTUATOR TYPE \_\_\_\_\_STEPPER  
 TRACKS \_\_\_\_\_4,920/3,768\*  
 CYLINDERS \_\_\_\_\_820/628\*  
 HEADS \_\_\_\_\_6  
 DISCS \_\_\_\_\_3  
 MEDIA TYPE \_\_\_\_\_THIN FILM  
 RECORDING METHOD \_\_\_\_\_RLL (2,7)  
 TRANSFER RATE (mbits/sec) \_\_\_\_\_7.5/10\*  
 SPINDLE SPEED (RPM) \_\_\_\_\_3,600  
 AVERAGE LATENCY (mSEC) \_\_\_\_\_8.3  
 INTERFACE \_\_\_\_\_SCSI  
 SECTORS PER DRIVE \_\_\_\_\_126,875  
 TPI (TRACKS PER INCH) \_\_\_\_\_777  
 BPI (BITS PER INCH) \_\_\_\_\_14,902/19,869\*  
 AVERAGE ACCESS (ms) \_\_\_\_\_40/28\*  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_8  
 MAX FULL SEEK (ms) \_\_\_\_\_/70  
 MTBF (power-on hours) \_\_\_\_\_70,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_2.0/2.5\*  
     +12V TYPICAL (amps) \_0.5  
     +5V TYPICAL (amps) \_1.2/1.4\*  
     TYPICAL (watts) \_\_\_\_\_12/13\*  
     MAXIMUM (watts) \_\_\_\_\_30/37\*  
 BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_\_3-200  
 WRITE PRECOMP (cyl) \_\_\_\_\_N/A (821/629\*)  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_N/A (821/629\*)  
 LANDING ZONE (cyl) \_\_\_\_\_AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_0 or NONE

\*ST277N-0/ST277N-1

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)

## ST-296N SCSI

5 G G 12  
 /Ä4Ä3Ä2Ä1Ä\  
 ÚSCSI Cable  
 3 O O O O 3 Power  
 1 ÄÄÄÄÄÄÄÄÄÄ  
 1 2 4 3 P 1ÄÄÄÄÜ 1ÄÄÄÄÜ 1ÄÄÄÄÜ Terminating Resistors  
 ÄÄÄÄÄ 3 ÄÄ Parity Check enable  
 3 ÄÄÄÄÄ Some PWA's have an extra jumper here  
 ÄÄÄÄÄÄÄÄÄÄ ID Selects, ID 0 (none) for single drive system

### ST - 296N

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 96  
 FORMATTED CAPACITY (34 SECTORS) (MB) \_\_\_\_\_ 84.9  
 ACTUATOR TYPE \_\_\_\_\_ STEPPER  
 TRACKS \_\_\_\_\_ 4,920  
 CYLINDERS \_\_\_\_\_ 820  
 HEADS \_\_\_\_\_ 6  
 DISCS \_\_\_\_\_ 3  
 MEDIA TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
 TRANSFER RATE (mbits/sec) \_\_\_\_\_ 10  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
 AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.3  
 INTERFACE \_\_\_\_\_ SCSI  
 SECTORS PER DRIVE \_\_\_\_\_ 165,851  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 777  
 BPI (BITS PER INCH) \_\_\_\_\_ 19,869  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 28  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 8  
 MAX FULL SEEK (ms) \_\_\_\_\_ /70  
 MTBF (power-on hours) \_\_\_\_\_ 70,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_ 2.5  
                                   +12V TYPICAL (amps) \_ 0.5  
                                   +5V TYPICAL (amps) \_ 1.4  
                                   TYPICAL (watts) \_\_\_\_\_ 13  
                                   MAXIMUM (watts) \_\_\_\_\_ 37  
 BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_\_ 3-200  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A (821)  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A (821)  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ 0 or NONE

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)









SHOCK (G's):

operating (Read/Write) \_\_\_\_\_10  
nonoperating \_\_\_\_\_75

ACOUSTICS (typ/max dBA) \_\_\_\_\_/

POWER REQUIREMENTS: +12V START-UP (amps) \_1.5

+12V TYPICAL (amps) \_\_0.5

+5V START-UP (amps) \_\_

+5V TYPICAL (amps) \_\_\_\_0.2

TYPICAL (watts) \_\_\_\_\_7

MAXIMUM (watts) \_\_\_\_\_

WRITE PRECOMP (cyl) \_\_\_\_\_N/A

REDUCED WRITE CURRENT (cyl) \_\_\_\_\_N/A

LANDING ZONE (cyl) \_\_\_\_\_AUTO PARK

IBM AT DRIVE TYPE \_\_\_\_\_0 or NONE

Physical:

Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.02/102.1
Depth (inches/mm):	5.77/146.6
Weight (lbs/kg):	1.5/0.68

Already low-level formatted at the factory with 1 spare sector per track and 2 spare cylinders/unit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (08/09/94)



Note: The model ST-31200WC drive cannot furnish terminator power, because no pins on the 80 pin I/O connector are devoted to terminator power.

° FRONT VIEW ° (Both ST-31200W and ST-31200WC)

[illegible]

If these ID jumper are used, then  
ID jumpers shown in left side view J5  
or 80 pin I/O cable ARE NOT USED.

ST-31200W  
Hawk 1LP

```

UNFORMATTED CAPACITY (MB) _____1258.8
FORMATTED CAPACITY (xx SECTORS) (MB) _____1055.28
AVERAGE SECTORS PER TRACK _____84
ACTUATOR TYPE _____ROTARY VOICE COIL
TRACKS _____24,300
CYLINDERS _____2,700 user
HEADS _____PHYSICAL_____9
DISCS (3.5 in) _____5
MEDIA TYPE _____THIN FILM
RECORDING METHOD _____ZBR RLL (1,7)
INTERNAL TRANSFER RATE (mbits/sec) _____26.8 to 47.2
EXTERNAL TRANSFER RATE (mbyte/sec) _____20 Sync
SPINDLE SPEED (RPM) _____5411
AVERAGE LATENCY (mSEC) _____5.54
BUFFER _____256/1024 KByte
    Read Look-Ahead, Adaptive,
    Multi-Segmented Cache

```

INTERFACE \_\_\_\_\_ SCSI-2 FAST WIDE

ASA

TPI (TRACKS PER INCH) \_\_\_\_\_ 3000

AVERAGE ACCESS (ms) (read/write) \_\_\_\_\_ 9.3/10.5

Drive level without controller overhead

SINGLE TRACK SEEK (ms) (read/write) \_\_\_\_\_ 1.2/1.7

MAX FULL SEEK (ms) (read/write) \_\_\_\_\_ 19.4/20.4

MTBF (power-on hours) \_\_\_\_\_ 500,000

SHOCK (G's):

operating (Read/Write) \_\_\_\_\_ 10

nonoperating \_\_\_\_\_ 75

ACOUSTICS (typ/max dBA) \_\_\_\_\_ /

POWER REQUIREMENTS: +12V START-UP (amps) \_1.9

+12V TYPICAL (amps) \_\_0.37

+5V START-UP (amps) \_\_0.65

+5V TYPICAL (amps) \_\_0.45

TYPICAL (watts) \_\_\_\_\_ 7

MAXIMUM (watts) \_\_\_\_\_

WRITE PRECOMP (cyl) \_\_\_\_\_ N/A

REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A

LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK

IBM AT DRIVE TYPE \_\_\_\_\_ 0 or NONE

Physical:

Height (inches/mm): 1.00/25.4

Width (inches/mm): 4.02/102.1

Depth (inches/mm): 5.77/146.6

Weight (lbs/kg): 1.5/0.68

Already low-level formatted at the factory with 9 spare sector per cylinder and 2 spare cylinders/unit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (10/24/94)





\* BOTTOM 0123456  
 3 J6 333333  
 LED 333333  
 ID 4 333333 Reserved  
 ID 2 333333 Remote LED (pin-3 +5v)  
 ID 1 333333 Reserved

If these ID jumper are used, then ID jumpers shown in left side view J5 ARE NOT USED.

ST-31230N  
Hawk 2LP

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 1280  
 FORMATTED CAPACITY (xx SECTORS) (MB) \_\_\_\_\_ 1060  
 AVERAGE SECTORS PER TRACK \_\_\_\_\_ 103  
 ACTUATOR TYPE \_\_\_\_\_ ROTARY VOICE COIL  
 TRACKS \_\_\_\_\_ 19,960  
 CYLINDERS \_\_\_\_\_ 3992  
 HEADS \_\_\_\_\_ PHYSICAL \_\_\_\_\_ 5  
 DISCS (3.5 in) \_\_\_\_\_ 3  
 MEDIA TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ ZBR RLL (1,7)  
 INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ 33.9 to 56.7  
 EXTERNAL TRANSFER RATE (mbyte/sec) \_\_\_\_\_ 5.2 Async  
 EXTERNAL TRANSFER RATE (mbyte/sec) \_\_\_\_\_ 10 Sync  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 5411  
 AVERAGE LATENCY (mSEC) \_\_\_\_\_ 5.54  
 BUFFER \_\_\_\_\_ 512 KByte  
 Read Look-Ahead, Adaptive,  
 Multi-Segmented Cache  
 INTERFACE \_\_\_\_\_ SCSI-2 FAST  
 \_\_\_\_\_ ASA II  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 4200  
 AVERAGE ACCESS (ms) (read/write) \_\_\_\_\_ 10.4/11.4  
 Including controller overhead  
 SINGLE TRACK SEEK (ms) (read/write) \_\_\_\_\_ 2.1/2.5  
 MAX FULL SEEK (ms) (read/write) \_\_\_\_\_ 20.4/21.4  
 MTBF (power-on hours) \_\_\_\_\_ 800,000  
 SHOCK (G's):  
 operating (Read/Write) \_\_\_\_\_ 10  
 nonoperating \_\_\_\_\_ 75  
 ACOUSTICS (typ/max dBA) \_\_\_\_\_  
 POWER REQUIREMENTS: +12V START-UP (amps) \_\_\_\_\_ 2.0  
 +12V TYPICAL (amps) \_\_\_\_\_ 0.35  
 +5V START-UP (amps) \_\_\_\_\_ 0.61  
 +5V TYPICAL (amps) \_\_\_\_\_ 0.35  
 TYPICAL (watts) \_\_\_\_\_ 6  
 MAXIMUM (watts) \_\_\_\_\_ 9  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ 0 or NONE

Physical:

Height (inches/mm): 1.00/25.4  
 Width (inches/mm): 4.02/101.6  
 Depth (inches/mm): 5.74/145.8  
 Weight (lbs/kg): 1.5/0.68

Already low-level formatted at the factory with 1 spare sector  
 per head (all spare sectors are on one track) and 2 spare

cylinders per unit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (08/26/94)

Èíííííííííí»  
 ° REAR VIEW ° (ST-31230W/WD only)  
 Èíííííííííí¼  
 (TOP) Auxiliary  
 ÜÄÄ Ä1¿íííííííííí\  
 Í( ××××××××××××××××1)Í³:.....³³ 0 0 0 0 ÆÍ  
 \ÄÄÄÄÄÄÄÄÄÄÄÄ³ÄÄÄÄ/ Ä ÄÄ ÜÄÄ5ÄGÄGÄ12Ü  
 68 pin I/O CableÜ  
 Connection Male  
 333333  
 333333  
 333333  
 333333  
 Auxiliary option header 333333  
 pin-11 +5v ÄÄÄÄÄÄÄÄÄÄÜ³³³³³  
 pin-10 GND ÄÄÄÄÄÄÄÄÄÄÜ³³³³³  
 SCSI ID = 8 ÄÄÄÄÄÄÄÄÄÄÄÜ³³³  
 SCSI ID = 4 ÄÄÄÄÄÄÄÄÄÄÄÄ³³  
 or pin-6 REFIND+ ÄÄÄÄÄÄÜ³³  
 SCSI ID = 2 ÄÄÄÄÄÄÄÄÄÄÄÄÄÜ³  
 SCSI ID = 1 ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÜ  
 SCSI ID = 0 (none)

J1 /AAA\AAA\AAA\AAA\AAA\AAA\AAA\AAA\ TOP (HDA)  
 \AAA\AAA\AAA\AAA\AAA\AAA\AAA\AAA/ BOTTOM  
 J2 J3 J4

pins 1- 4 = +12v                      41 - 44 = 12v GND  
34 - 36 = +5v                          74 - 76 = 5v GND  
37 = SYNC                                77 = LEDC  
38 = MTRON                              78 = DLYDST  
39 = SCSIA0                              79 = SCSIA1  
40 = SCSIA2                              80 = SCSIA3

Mating NC connector: AMP US p/n: 2-557103-1 straight-in, Male 80-pin  
2-557101-1 right angle to PCB


 »  
 ° RIGHT SIDE VIEW ° (Both ST-31230W and ST-31230WC)  
 «  

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BACK    Ōĭ                  J2 12345678                  TOP (HDA)   FRONT  
OF   J1A'////////////////////////PIWIA'//////////////////////// OF  
DRIVE   Ōĭ34                  ::::::::::                  BOTTOM       DRIVE

33333333

[illegible]



ASA II

TPI (TRACKS PER INCH) \_\_\_\_\_ 4200  
 AVERAGE ACCESS (ms) (read/write) \_\_\_\_\_ 10.4/11.4  
     Drive level with controller overhead  
 SINGLE TRACK SEEK (ms) (read/write) \_\_\_\_\_ 2.1/2.5  
 MAX FULL SEEK (ms) (read/write) \_\_\_\_\_ 20.4/21.4  
 MTBF (power-on hours) \_\_\_\_\_ 800,000  
 SHOCK (G's):  
     operating (Read/Write) \_\_\_\_\_ 10  
     nonoperating \_\_\_\_\_ 75  
 ACOUSTICS (typ/max dBA) \_\_\_\_\_/  
 POWER REQUIREMENTS: +12V START-UP (amps) \_2.0  
     +12V TYPICAL (amps) \_\_0.35  
     +5V START-UP (amps) \_\_0.61  
     +5V TYPICAL (amps) \_\_\_\_0.36  
     TYPICAL (watts) \_\_\_\_\_  
     MAXIMUM (watts) \_\_\_\_\_  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ 0 or NONE

Physical:

Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.02/102.1
Depth (inches/mm):	5.77/146.6
Weight (lbs/kg):	1.5/0.68

Already low-level formatted at the factory with 1 spare sector per track and 2 spare cylinders/unit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (10/24/94)

ÉÍÍÍÍÍÍÍÍÍÍ»  
° REAR VIEW ° (ST-31250N/ND)  
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[illegible]
$$\begin{array}{r} 3 \\ 3 \\ 3 \end{array} \quad \begin{array}{r} 00 \\ 21 \end{array}$$

3		o o	(o o)	o o	o o	OóO <sub>o</sub> ,	3
3		o o	oOo,	Oo,o	OoÑo,	o o	3
3		OóO <sub>o</sub> ,	o <sup>3</sup> O <sup>3</sup>	3o <sup>3</sup> O	3o <sup>3</sup> O <sup>3</sup>	o o	3
3		2ííí1	2 ÔÍ1	2Í¼1	2ííí1	2 1	3
3	A	B	C	D	E		3

AAAÜ

- A - Term. power from drive (default)
- B - Term. power to SCSI bus (only option available for differential ND)
- C - Term. power from SCSI bus
- D - Term. power to SCSI bus and drive
- E - Enable SCSI terminator (jumper on pins 5-6)

É¸¸¸¸¸¸¸¸¸¸¸¸¸¸¸»  
° RIGHT SIDE VIEW ° (ST-31250N)  
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BACK OF DRIVE      J2 123456789      TOP (HDA) FRONT OF DRIVE  
 DRIVE      33333333      BOTTOM DRIVE

1-2 Reserved  $\overline{AA}\overline{A}\overline{U}^{3333}\overline{AA}\overline{A}\overline{A}\overline{A}$  Reserved 7-9  
 3 Parity Disable  $\overline{AA}\overline{A}\overline{A}\overline{U}^{33}\overline{AA}\overline{A}\overline{A}\overline{A}\overline{A}$  Delay Motor Start 6  
 4 Write Protect  $\overline{AA}\overline{A}\overline{A}\overline{A}\overline{U}\overline{AA}\overline{A}\overline{A}\overline{A}\overline{A}\overline{A}$  Motor Start Enable 5

ÉÍÍÍÍÍÍÍÍÍ»  
° FRONT VIEW ° (ST-31250N)  
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[illegible]

ST-31250N  
Barracuda 2LP

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 1205.3  
FORMATTED CAPACITY (xx SECTORS) (MB) \_\_\_\_\_ 1020.9  
AVERAGE SECTORS PER TRACK \_\_\_\_\_ 107 rounded down  
ACTUATOR TYPE \_\_\_\_\_ ROTARY VOICE COIL  
TRACKS \_\_\_\_\_ 18,555  
CYLINDERS \_\_\_\_\_ 3,711 user  
HEADS \_\_\_\_\_ PHYSICAL \_\_\_\_\_ 5  
DISCS (3.5 in) \_\_\_\_\_ 3  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ ZBR RLL (1,7)  
INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ 47.5 to 72.0  
EXTERNAL TRANSFER RATE (mbyte/sec) \_\_\_\_\_ 5 Async  
EXTERNAL TRANSFER RATE (mbyte/sec) \_\_\_\_\_ 2.5 to 10 Sync  
SPINDLE SPEED (RPM) \_\_\_\_\_ 7,200  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 4.17  
BUFFER \_\_\_\_\_ 512 KByte  
Read Look-Ahead, Adaptive,  
Multi-Segmented Cache  
INTERFACE \_\_\_\_\_ SCSI-2 FAST  
ASA II  
BYTES PER TRACK \_\_\_\_\_ 64,160 average  
SECTORS PER DRIVE \_\_\_\_\_  
TPI (TRACKS PER INCH) \_\_\_\_\_ 4,048  
BPI (BITS PER INCH) \_\_\_\_\_ 73,820  
AVERAGE ACCESS (ms) (read/write) \_\_\_\_\_ 8.0/9.0  
Drive level without controller overhead  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 0.6/0.9  
MAX FULL SEEK (ms) \_\_\_\_\_ 17/19  
MTBF (power-on hours) \_\_\_\_\_ 800,000  
SHOCK (G's):  
operating (Read/Write) \_\_\_\_\_ 2  
nonoperating \_\_\_\_\_ 50  
ACOUSTICS (typ/max dBA) \_\_\_\_\_ 4.7/  
POWER REQUIREMENTS: +12V START-UP (amps) \_\_\_\_\_ 1.26  
+12V TYPICAL (amps) \_\_\_\_\_ 0.88 idle  
+5V START-UP (amps) \_\_\_\_\_ 0.91  
+5V TYPICAL (amps) \_\_\_\_\_ 0.33 idle  
IDLE (watts) \_\_\_\_\_  
LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
IBM AT DRIVE TYPE \_\_\_\_\_ 0 or NONE

Physical:

Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.00/101.6
Depth (inches/mm):	5.75/146.05
Weight (lbs/g):	1.2/545

Already low-level formatted at the factory with 9 spare sectors  
per cylinder and 1 spare cylinder per unit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product  
offerings or specifications. (08/25/94)







SINGLE TRACK SEEK (ms) \_\_\_\_\_ 0.6/0.9  
MAX FULL SEEK (ms) \_\_\_\_\_ 17/19  
MTBF (power-on hours) \_\_\_\_\_ 800,000  
SHOCK (G's):  
    operating (Read/Write) \_\_\_\_\_ 2  
    nonoperating \_\_\_\_\_ 50  
ACOUSTICS (typ/max dBA) \_\_\_\_\_ 4.7/  
POWER REQUIREMENTS: +12V START-UP (amps) \_1.26  
    +12V TYPICAL (amps) \_\_0.88 idle  
    +5V START-UP (amps) \_\_0.91  
    +5V TYPICAL (amps) \_\_\_\_0.33 idle  
    IDLE (watts) \_\_\_\_\_  
LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
IBM AT DRIVE TYPE \_\_\_\_\_ 0 or NONE

Physical:

Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.00/101.6
Depth (inches/mm):	5.75/146.05
Weight (lbs/g):	1.2/545

Already low-level formatted at the factory with 9 spare sectors  
per cylinder and 1 spare cylinder per unit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product  
offerings or specifications. (08/25/94)





+12V TYPICAL (amps) \_\_0.36  
+5V START-UP (amps) \_\_  
+5V TYPICAL (amps) \_\_0.54  
TYPICAL (watts) \_\_\_\_\_7  
MAXIMUM (watts) \_\_\_\_\_  
WRITE PRECOMP (cyl) \_\_\_\_\_N/A  
REDUCED WRITE CURRENT (cyl) \_\_\_\_\_N/A  
LANDING ZONE (cyl) \_\_\_\_\_AUTO PARK  
IBM AT DRIVE TYPE \_\_\_\_\_0 or NONE

Physical:

Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.02/102.1
Depth (inches/mm):	5.77/146.6
Weight (lbs/kg):	1.5/0.68

Already low-level formatted at the factory with 1 spare sector per track and 2 spare cylinders/unit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (08/08/94)



\* BOTTOM 0123456  
 3 J6 333333  
 LED 333333  
 ID 4 333333 Reserved  
 ID 2 333333 Remote LED (pin-3 +5v)  
 ID 1 333333 Reserved

If these ID jumper are used, then ID jumpers shown in left side view J5 ARE NOT USED.

ST-32430N  
Hawk 2LP

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 2590  
 FORMATTED CAPACITY (xx SECTORS) (MB) \_\_\_\_\_ 2140  
 AVERAGE SECTORS PER TRACK \_\_\_\_\_ 116  
 ACTUATOR TYPE \_\_\_\_\_ ROTARY VOICE COIL  
 TRACKS \_\_\_\_\_ 19,960  
 CYLINDERS \_\_\_\_\_ 3992  
 HEADS \_\_\_\_\_ PHYSICAL \_\_\_\_\_ 9  
 DISCS (3.5 in) \_\_\_\_\_ 5  
 MEDIA TYPE \_\_\_\_\_ THIN FILM  
 RECORDING METHOD \_\_\_\_\_ ZBR RLL (1,7)  
 INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ 35.8 to 62.2  
 EXTERNAL TRANSFER RATE (mbyte/sec) \_\_\_\_\_ 5.2 Async  
 EXTERNAL TRANSFER RATE (mbyte/sec) \_\_\_\_\_ 10 Sync  
 SPINDLE SPEED (RPM) \_\_\_\_\_ 5411  
 AVERAGE LATENCY (mSEC) \_\_\_\_\_ 5.54  
 BUFFER \_\_\_\_\_ 512 KByte  
 Read Look-Ahead, Adaptive,  
 Multi-Segmented Cache  
 INTERFACE \_\_\_\_\_ SCSI-2 FAST  
 \_\_\_\_\_ ASA II  
 TPI (TRACKS PER INCH) \_\_\_\_\_ 4200  
 AVERAGE ACCESS (ms) (read/write) \_\_\_\_\_ 10.4/11.4  
 Including controller overhead  
 SINGLE TRACK SEEK (ms) (read/write) \_\_\_\_\_ 2.1/2.5  
 MAX FULL SEEK (ms) (read/write) \_\_\_\_\_ 20.4/21.4  
 MTBF (power-on hours) \_\_\_\_\_ 800,000  
 SHOCK (G's):  
 operating (Read/Write) \_\_\_\_\_ 10  
 nonoperating \_\_\_\_\_ 75  
 ACOUSTICS (typ/max dBA) \_\_\_\_\_  
 POWER REQUIREMENTS: +12V START-UP (amps) \_\_\_\_\_ 2.0  
 +12V TYPICAL (amps) \_\_\_\_\_ 0.35  
 +5V START-UP (amps) \_\_\_\_\_ 0.61  
 +5V TYPICAL (amps) \_\_\_\_\_ 0.35  
 TYPICAL (watts) \_\_\_\_\_ 6  
 MAXIMUM (watts) \_\_\_\_\_ 9  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ 0 or NONE

Physical:

Height (inches/mm): 1.00/25.4  
 Width (inches/mm): 4.02/101.6  
 Depth (inches/mm): 5.74/145.8  
 Weight (lbs/kg): 1.5/0.68

Already low-level formatted at the factory with 1 spare sector  
 per head (all spare sectors are on one track) and 2 spare

cylinders per unit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (08/26/94)





Note: The model ST-32430WC drive cannot furnish terminator power, because no pins on the 80 pin I/O connector are devoted to terminator power.

° FRONT VIEW ° (Both ST-32430W and ST-32430WC)

```

TOP (HDA)      J6   Öííííí1,
íîþíwíAíííííííííííííííííííííííµ:::~ÆÍ
        *       BOTTOM      Ôíííííí¾
    3                          333333
LED ÄÛ                                333333
                                    333333
                                    333333
Auxiliary option header 333333
pin-11 +5v   ÄÄÄÄÄÄÄÄÄÛ³³³³³
pin-10 GND   ÄÄÄÄÄÄÄÄÄÄÛ³³³³
SCSI ID = 8  ÄÄÄÄÄÄÄÄÄÄÄÛ³³³
or pin-8 BUSY ÄÄÄÄÛ          ³³³
SCSI ID = 4  ÄÄÄÄÄÄÄÄÄÄÄÄÛ³³
or pin-6 REFIND+ ÄÛ          ³³
SCSI ID = 2  ÄÄÄÄÄÄÄÄÄÄÄÄÄÛ³
SCSI ID = 1  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÛ
SCSI ID = 0 (none)
```

If these ID jumper are used, then  
ID jumpers shown in left side view J5  
or 80 pin I/O cable ARE NOT USED.

ST-32430W  
Hawk 2LP

```

UNFORMATTED CAPACITY (MB) _____ 2600
FORMATTED CAPACITY (xx SECTORS) (MB) _____ 2147
AVERAGE SECTORS PER TRACK _____ 116
ACTUATOR TYPE _____ ROTARY VOICE COIL
TRACKS _____ 35,928
CYLINDERS _____ 3992
HEADS _____ PHYSICAL _____ 9
DISCS (3.5 in) _____ 5
MEDIA TYPE _____ THIN FILM
RECORDING METHOD _____ ZBR RLL (1,7)
INTERNAL TRANSFER RATE (mbits/sec) _____ 35.8 to 62.2
EXTERNAL TRANSFER RATE (mbytes/sec) _____ 20 Sync.
SPINDLE SPEED (RPM) _____ 5411
AVERAGE LATENCY (mSEC) _____ 5.54
BUFFER _____ 512 KByte
    Read Look-Ahead, Adaptive,
    Multi-Segmented Cache
INTERFACE _____ SCSI-2 FAST Wide

```

ASA II

TPI (TRACKS PER INCH) \_\_\_\_\_ 4200  
 AVERAGE ACCESS (ms) (read/write) \_\_\_\_\_ 10.4/11.4  
     Drive level with controller overhead  
 SINGLE TRACK SEEK (ms) (read/write) \_\_\_\_\_ 2.1/2.5  
 MAX FULL SEEK (ms) (read/write) \_\_\_\_\_ 20.4/21.4  
 MTBF (power-on hours) \_\_\_\_\_ 800,000  
 SHOCK (G's):  
     operating (Read/Write) \_\_\_\_\_ 10  
     nonoperating \_\_\_\_\_ 75  
 ACOUSTICS (typ/max dBA) \_\_\_\_\_/  
 POWER REQUIREMENTS: +12V START-UP (amps) \_2.0  
     +12V TYPICAL (amps) \_\_0.35  
     +5V START-UP (amps) \_\_0.61  
     +5V TYPICAL (amps) \_\_0.36  
     TYPICAL (watts) \_\_\_\_\_ 7  
     MAXIMUM (watts) \_\_\_\_\_  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_ 0 or NONE

Physical:

Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.02/102.1
Depth (inches/mm):	5.77/146.6
Weight (lbs/kg):	1.5/0.68

Already low-level formatted at the factory with 8 spare sectors per cylinder and 2 spare cylinders/unit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (10/24/94)



offerings or specifications. (5/6/91)



ST-32550N  
Barracuda 2LP

```

UNFORMATTED CAPACITY (MB) _____ 2541.3
FORMATTED CAPACITY (xx SECTORS) (MB) _____ 2147.4
AVERAGE SECTORS PER TRACK _____ 108 rounded down
ACTUATOR TYPE _____ ROTARY VOICE COIL
TRACKS _____ 38,610
CYLINDERS _____ 3,510 user
HEADS _____ PHYSICAL _____ 11
DISCS (3.5 in) _____ 6
MEDIA TYPE _____ THIN FILM
RECORDING METHOD _____ ZBR RLL (1,7)
INTERNAL TRANSFER RATE (mbits/sec) _____ 49.4 to 72.0
EXTERNAL TRANSFER RATE (mbyte/sec) _____ 5 Async
EXTERNAL TRANSFER RATE (mbyte/sec) _____ 2.5 to 10 Sync
SPINDLE SPEED (RPM) _____ 7,200
AVERAGE LATENCY (mSEC) _____ 4.17
BUFFER _____ 512 KByte
    Read Look-Ahead, Adaptive,
    Multi-Segmented Cache
INTERFACE _____ SCSI-2 FAST
                                ASA II
BYTES PER TRACK _____ 64,160 average
SECTORS PER DRIVE _____
TPI (TRACKS PER INCH) _____ 4,048
BPI (BITS PER INCH) _____ 72,680
AVERAGE ACCESS (ms) (read/write) _____ 8.0/9.0
    Drive level without controller overhead
SINGLE TRACK SEEK (ms) _____ 0.6/0.9
MAX FULL SEEK (ms) _____ 17/19
MTBF (power-on hours) _____ 800,000
SHOCK (G's):
    operating (Read/Write) _____ 2
    nonoperating _____ 50
ACOUSTICS (typ/max dBA) _____ 4.7/
POWER REQUIREMENTS: +12V START-UP (amps) _1.26
                    +12V TYPICAL (amps) __0.88 idle
                    +5V START-UP (amps) __0.91
                    +5V TYPICAL (amps) __0.33 idle
                    IDLE (watts) _____
LANDING ZONE (cyl) _____ AUTO PARK
IBM AT DRIVE TYPE _____ 0 or NONE

```

Physical:

Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.00/101.6
Depth (inches/mm):	5.75/146.05
Weight (lbs/g):	1.2/545

Already low-level formatted at the factory with 9 spare sectors per cylinder and 1 spare cylinder per unit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (08/25/94)







SINGLE TRACK SEEK (ms) \_\_\_\_\_ 0.6/0.9  
MAX FULL SEEK (ms) \_\_\_\_\_ 17/19  
MTBF (power-on hours) \_\_\_\_\_ 800,000  
SHOCK (G's):  
    operating (Read/Write) \_\_\_\_\_ 2  
    nonoperating \_\_\_\_\_ 50  
ACOUSTICS (typ/max dBA) \_\_\_\_\_ 4.7/  
POWER REQUIREMENTS: +12V START-UP (amps) \_1.26  
    +12V TYPICAL (amps) \_\_0.88 idle  
    +5V START-UP (amps) \_\_0.91  
    +5V TYPICAL (amps) \_\_\_\_0.33 idle  
    IDLE (watts) \_\_\_\_\_  
LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
IBM AT DRIVE TYPE \_\_\_\_\_ 0 or NONE

Physical:

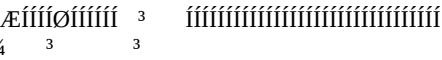
Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.00/101.6
Depth (inches/mm):	5.75/146.05
Weight (lbs/g):	1.2/545

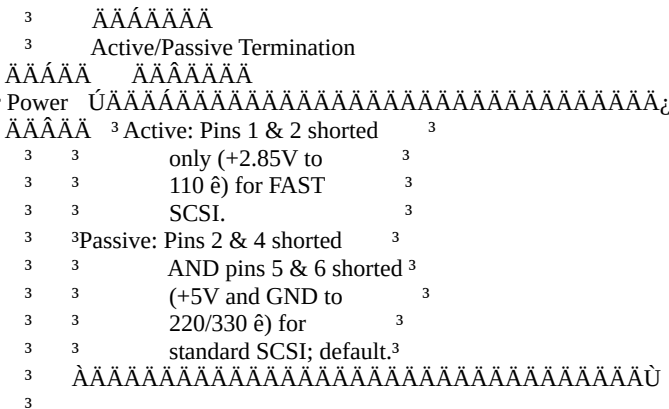
Already low-level formatted at the factory with 9 spare sectors  
per cylinder and 1 spare cylinder per unit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product  
offerings or specifications. (08/25/94)

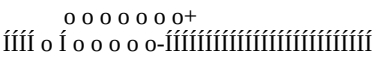
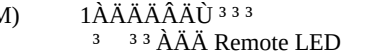


DC Power 

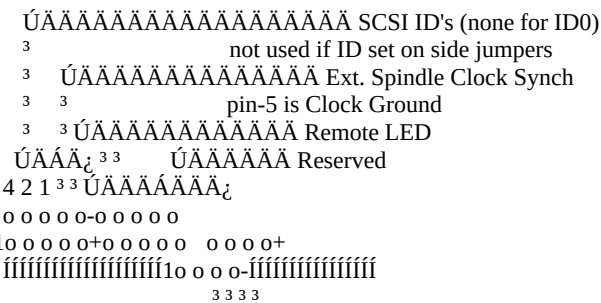
Terminator Power:   
Active/Passive Termination  
Active: Pins 1 & 2 shorted only (+2.85V to 110 Ω) for FAST SCSI.  
Passive: Pins 2 & 4 shorted AND pins 5 & 6 shorted (+5V and GND to 220/330 Ω) for standard SCSI; default.

Terminator Power: From SCSI Connector Pins 1 & 2  
From Power Connector (default) Pins 1 & 3  
To SCSI Connector Only Pins 3 & 4  
From Power Connector and Pins 1 & 2 AND to SCSI Bus ----- 3 & 4  
Terminating Resistors not Installed Pins 2 & 4

ST-3283N  
Front View (board part number 260035, early version)

(TOP)   
(BOTTOM)   
Remote LED  
Reserved  
Ext. Spindle Clock Synch  
pin-9 is Clock Ground  
Reserved  
Reserved  
Reserved pin-3 removed for key  
Reserved

ST-3283N  
Front View

(TOP)   
SCSI ID's (none for ID0)  
not used if ID set on side jumpers  
Ext. Spindle Clock Synch  
pin-5 is Clock Ground  
Remote LED  
Reserved  
Reserved  
Remote LED  
Ext. Spindle Clock Synch  
pin-5 is Clock Ground  
Remote Start Enable

ÄÄÄÄÄÄÄÄ Parity Enable

## ST-3283N

### ST-3283N jumpers

#### ST-3283N

UNFORMATTED CAPACITY \_\_\_\_\_  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_ 248.62  
AVERAGE SECTORS PER TRACK \_\_\_\_\_ 57 rounded down  
ACTUATOR TYPE \_\_\_\_\_ ROTARY VOICE COIL  
TRACKS \_\_\_\_\_ 8,455  
CYLINDERS \_\_\_\_\_ 1,689 (user)  
HEADS \_\_\_\_\_ 5  
DISCS (3.5 in) \_\_\_\_\_ 3  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ ZBR RLL (1,7)  
INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ 15.0 to 24.4  
EXTERNAL TRANSFER RATE (mbyte/sec) \_\_\_\_\_ 4 Async  
EXTERNAL TRANSFER RATE (mbyte/sec) \_\_\_\_\_ 10 Sync  
SPINDLE SPEED (RPM) \_\_\_\_\_ 4,500  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 6.67  
BUFFER \_\_\_\_\_ 128 Kbyte SeaCache  
Read Look-Ahead Multisegmented cache  
INTERFACE \_\_\_\_\_ SCSI-2 Fast  
SECTORS PER DRIVE \_\_\_\_\_ 485,601  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1,960  
BPI (BITS PER INCH) \_\_\_\_\_ 38,000  
AVERAGE ACCESS (ms) \_\_\_\_\_ 12  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ <4  
MAX FULL SEEK (ms) \_\_\_\_\_ 32  
MTBF (power-on hours) Office \_\_\_\_\_ 250,000  
POWER REQUIREMENTS: +12V START-UP (amps) \_1.5  
POWER MANAGEMENT (Watts):  
    ACTIVE \_\_\_\_\_ 5.7  
    IDLE \_\_\_\_\_ 3.0  
    STANDBY \_\_\_\_\_ 1.0  
WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
LANDING ZONE (cyl) \_\_\_\_\_ AUTO  
IBM AT DRIVE TYPE \_\_\_\_\_ 0

Formatted at the factory with 2 alternate cylinders. Total physical cylinders equal 1691.

#### Physical:

Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.02/102.1
Depth (inches/mm):	5.77/146.6
Weight (lbs/kg):	1.5/0.68

Note: If FAST SCSI transfer rates are used, then the active termination options must be used. If the transfer rates are 5.0 MBytes/sec and below, either method of termination can be used. Although active and passive terminated devices can be installed on the same bus, both ends of the cable should be terminated in the same manner, either both active or both passive.

Note: If your application requires no terminators, remove the terminators from the circuit board. Merely removing the terminator

power source selection jumper does not disconnect the terminator resistors from the circuit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (08/08/94)







Depth (inches/mm): 5.77/146.6  
Weight (lbs/kg): 1.5/0.68

Note: If FAST SCSI transfer rates are used, then the active termination options must be used. If the transfer rates are 5.0 MBytes/sec and below, either method of termination can be used. Although active and passive terminated devices can be installed on the same bus, both ends of the cable should be terminated in the same manner, either both active or both passive.

Note: If your application requires no terminators, remove the terminators from the circuit board. Merely removing the terminator power source selection jumper does not disconnect the terminator resistors from the circuit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (08/08/94)





Weight (lbs/kg): 1.5/0.68

Note: If FAST SCSI transfer rates are used, then the active termination options must be used. If the transfer rates are 5.0 MBytes/sec and below, either method of termination can be used. Although active and passive terminated devices can be installed on the same bus, both ends of the cable should be terminated in the same manner, either both active or both passive.

Note: If your application requires no terminators, remove the terminators from the circuit board. Merely removing the terminator power source selection jumper does not disconnect the terminator resistors from the circuit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (08/08/94)



° FRONT VIEW °  


TOP (HDA) J6 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34  
 \* BOTTOM 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34  
 3 123456  
 LED 333333  
 ID 4 333333 Reserved  
 ID 2 333333 Remote LED (pin-3 +5v)  
 ID 1 333333 Spindle Synchronization (pin-6 REF SIG+)

If these ID jumper are used, then  
 ID jumpers shown in left side  
 view ARE NOT USED.

ST-3500N

UNFORMATTED CAPACITY (MB) 502  
 FORMATTED CAPACITY (xx SECTORS) (MB) 426  
 AVERAGE SECTORS PER TRACK 76  
 ACTUATOR TYPE ROTARY VOICE COIL  
 TRACKS 10,829  
 CYLINDERS PHYSICAL 1,547 (user)  
 HEADS PHYSICAL 7  
 DISCS (3.5 in) 4  
 MEDIA TYPE THIN FILM  
 RECORDING METHOD ZBR RLL (1,7)  
 INTERNAL TRANSFER RATE (mbits/sec) 21.7 to 31.9  
 EXTERNAL TRANSFER RATE (mbyte/sec) 4 Async  
 EXTERNAL TRANSFER RATE (mbyte/sec) 10 Sync  
 SPINDLE SPEED (RPM) 4,535  
 AVERAGE LATENCY (mSEC) 6.61  
 BUFFER 240 KByte  
 Read Look-Ahead, Adaptive,  
 Multi-Segmented Cache  
 INTERFACE SCSI-2 FAST  
 SECTORS PER DRIVE  
 TPI (TRACKS PER INCH) 2150  
 AVERAGE ACCESS (ms) (read/write) 9.9/11.4  
 SINGLE TRACK SEEK (ms) 2  
 MAX FULL SEEK (ms) 26  
 MTBF (power-on hours) 200,000  
 POWER REQUIREMENTS: +12V START-UP (amps) 1.5  
 +12V TYPICAL (amps) 0.4  
 +5V START-UP (amps)  
 +5V TYPICAL (amps) 0.2  
 TYPICAL (watts) 5  
 MAXIMUM (watts)  
 WRITE PRECOMP (cyl) N/A  
 REDUCED WRITE CURRENT (cyl) N/A  
 LANDING ZONE (cyl) AUTO PARK  
 IBM AT DRIVE TYPE 0 or NONE

Already low-level formatted at the factory with one spare sector  
 per track and two spare cylinders/unit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (08/08/94)







Depth (inches/mm): 5.77/146.6  
Weight (lbs/kg): 1.5/0.68

Note: If FAST SCSI transfer rates are used, then the active termination options must be used. If the transfer rates are 5.0 MBytes/sec and below, either method of termination can be used. Although active and passive terminated devices can be installed on the same bus, both ends of the cable should be terminated in the same manner, either both active or both passive.

Note: If your application requires no terminators, remove the terminators from the circuit board. Merely removing the terminator power source selection jumper does not disconnect the terminator resistors from the circuit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (08/08/94)





ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (08/08/94)







Weight (lbs/kg): 1.5/0.68

Already low-level formatted at the factory with one spare sector per track and two spare cylinders/unit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (04/05/95)





SHOCK (G's):

operating (Read/Write) \_\_\_\_\_10  
nonoperating \_\_\_\_\_75

ACOUSTICS (typ/max dBA) \_\_\_\_\_/

POWER REQUIREMENTS: +12V START-UP (amps) \_1.5

+12V TYPICAL (amps) \_\_0.5

+5V START-UP (amps) \_\_

+5V TYPICAL (amps) \_\_\_\_0.2

TYPICAL (watts) \_\_\_\_\_7

MAXIMUM (watts) \_\_\_\_\_

WRITE PRECOMP (cyl) \_\_\_\_\_N/A

REDUCED WRITE CURRENT (cyl) \_\_\_\_\_N/A

LANDING ZONE (cyl) \_\_\_\_\_AUTO PARK

IBM AT DRIVE TYPE \_\_\_\_\_0 or NONE

Physical:

Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.02/102.1
Depth (inches/mm):	5.77/146.6
Weight (lbs/kg):	1.5/0.68

Already low-level formatted at the factory with one spare sector per track and two spare cylinders/unit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (08/09/94)



333333  
333333

Auxiliary option header 333333

pin-11 +5v   ÄÄÄÄÄÄÄÄÄÄÛ<sup>333333</sup>  
pin-10 GND   ÄÄÄÄÄÄÄÄÄÄÛ<sup>333333</sup>  
SCSI ID = 8   ÄÄÄÄÄÄÄÄÄÄÛ<sup>333</sup>  
or pin-8 BUSY   ÄÄÄÄÛ<sup>333</sup>  
SCSI ID = 4   ÄÄÄÄÄÄÄÄÄÄÛ<sup>333</sup>  
or pin-6 REFIND+   ÄÛ<sup>33</sup>  
SCSI ID = 2   ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÛ<sup>3</sup>  
SCSI ID = 1   ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÛ<sup>3</sup>  
SCSI ID = 0 (none)

If these ID jumper are used, then  
ID jumpers shown in left side view J5  
or 80 pin I/O cable ARE NOT USED.

ST-3620W  
Hawk 1LP

UNFORMATTED CAPACITY (MB) \_\_\_\_\_ 651.8  
FORMATTED CAPACITY (xx SECTORS) (MB) \_\_\_\_\_ 545.9  
AVERAGE SECTORS PER TRACK \_\_\_\_\_ 78  
ACTUATOR TYPE \_\_\_\_\_ ROTARY VOICE COIL  
TRACKS \_\_\_\_\_ 24,300  
CYLINDERS \_\_\_\_\_ 2,700 user  
HEADS \_\_\_\_\_ PHYSICAL \_\_\_\_\_ 5  
DISCS (3.5 in) \_\_\_\_\_ 3  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ ZBR RLL (1,7)  
INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ 24.4 to 42.4  
EXTERNAL TRANSFER RATE (mbyte/sec) \_\_\_\_\_ 20 Sync  
SPINDLE SPEED (RPM) \_\_\_\_\_ 5411  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 5.54  
BUFFER \_\_\_\_\_ 256/1024 KByte  
Read Look-Ahead, Adaptive,  
Multi-Segmented Cache  
INTERFACE \_\_\_\_\_ SCSI-2 FAST WIDE  
TPI (TRACKS PER INCH) \_\_\_\_\_ 3000  
AVERAGE ACCESS (ms) (read/write) \_\_\_\_\_ 9.3/10.5  
Drive level without controller overhead  
SINGLE TRACK SEEK (ms) (read/write) \_\_\_\_\_ 1.2/1.7  
MAX FULL SEEK (ms) (read/write) \_\_\_\_\_ 19.4/20.4  
MTBF (power-on hours) \_\_\_\_\_ 500,000  
SHOCK (G's):  
operating (Read/Write) \_\_\_\_\_ 10  
nonoperating \_\_\_\_\_ 75  
ACOUSTICS (typ/max dBA) \_\_\_\_\_/  
POWER REQUIREMENTS: +12V START-UP (amps) \_\_\_\_\_ 1.9  
+12V TYPICAL (amps) \_\_\_\_\_ 0.37  
+5V START-UP (amps) \_\_\_\_\_ 0.65  
+5V TYPICAL (amps) \_\_\_\_\_ 0.45  
TYPICAL (watts) \_\_\_\_\_ 7  
MAXIMUM (watts) \_\_\_\_\_  
WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
IBM AT DRIVE TYPE \_\_\_\_\_ 0 or NONE

Physical:

Height (inches/mm):	1.00/25.4
Width (inches/mm):	4.02/102.1
Depth (inches/mm):	5.77/146.6
Weight (lbs/kg):	1.5/0.68

Already low-level formatted at the factory with 9 spare sector per cylinder and 2 spare cylinders/unit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (10/24/94)







Weight (lbs/kg): 1.5/0.68

Note: If FAST SCSI transfer rates are used, then the active termination options must be used. If the transfer rates are 5.0 MBytes/sec and below, either method of termination can be used. Although active and passive terminated devices can be installed on the same bus, both ends of the cable should be terminated in the same manner, either both active or both passive.

Note: If your application requires no terminators, remove the terminators from the circuit board. Merely removing the terminator power source selection jumper does not disconnect the terminator resistors from the circuit.

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (08/08/94)





Seagate reserves the right to change, without notice, product offerings or specifications. (03/24/94)



Seagate reserves the right to change, without notice, product offerings or specifications. (03/24/94)





Already low-level formatted at the factory.

Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)



MEDIA TYPE _____	THIN FILM
HEAD TYPE _____	THIN FILM
RECORDING METHOD _____	ZBR RLL (2,7)
INTERNAL TRANSFER RATE (mbits/sec) _____	26 to 36
EXTERNAL TRANSFER RATE (mbytes/sec) _____	5
SPINDLE SPEED (RPM) _____	5,400
AVERAGE LATENCY (mSEC) _____	5.56
COMMAND OVERHEAD (msec) _____	<0.5
BUFFER _____	256 Kbyte
Read Look-Ahead, Adaptive, Multi-Segmented Cache	
INTERFACE _____	SCSI-2
BYTES PER TRACK _____	36,400 to 50,400
SECTORS PER DRIVE _____	2,768,896
BYTES PER CYLINDER _____	618,800 to 856,800
TPI (TRACKS PER INCH) _____	
BPI (BITS PER INCH) _____	
AREAL DENSITY _____	
AVERAGE ACCESS (ms) _____	11.5
SINGLE TRACK SEEK (ms) _____	1.7
MAX FULL SEEK (ms) _____	22.5
MTBF (power-on hours) Class A Room _____	250,000
MTBF (power-on hours) Office _____	150,000
POWER DISSIPATION (watts/BTU) _____	
POWER REQUIREMENTS: Single-ended/Differential	
+12V START-UP (amps) _2.2/3.2	
+12V TYPICAL (amps) _1.8/1.8	
+5V START-UP (amps) _2.1/2.9	
+5V TYPICAL (amps) _2.0/2.3	
TYPICAL (watts) _____31.6/33.1	
MAXIMUM (watts) _____36.9/39.4	
LANDING ZONE (cyl) _____	AUTO PARK
USER MANUAL PART NUMBER _____	83327300
REFERENCE MANUAL PART NUMBER _____	86627310
IBM AT DRIVE TYPE _____	0 or NONE
OTHER _____	DUAL PORT

ZBR = Zone Bit Recording = Variable sectors per track

\*\* Already low-level formatted at the factory with six spare sectors per cylinder, one spare cylinders/unit, one system cylinder/unit, and one diagnostic cylinder/unit.

Physical:

Height (inches/mm):	3.25/82.6
Width (inches/mm):	5.75/146.1
Depth (inches/mm):	9.9/252.5
Weight (lbs/kg):	9/4.1

Seagate reserves the right to change, without notice, product offerings or specifications. (10/28/91)



Cache  
INTERFACE \_\_\_\_\_ SCSI-2  
BYTES PER TRACK \_\_\_\_\_ 36,120 to 50,400  
SECTORS PER DRIVE \_\_\_\_\_ 2,676,846  
TPI (TRACKS PER INCH) \_\_\_\_\_  
BPI (BITS PER INCH) \_\_\_\_\_  
AREAL DENSITY \_\_\_\_\_  
AVERAGE ACCESS (ms) \_\_\_\_\_ 11.5  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 1.7  
MAX FULL SEEK (ms) \_\_\_\_\_ 22.5  
MTBF (power-on hours) Class A Room \_\_\_\_\_ 250,000  
MTBF (power-on hours) Office \_\_\_\_\_ 150,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_  
POWER REQUIREMENTS: Single-ended/Differential  
+12V START-UP (amps) \_2.2/3.2  
+12V TYPICAL (amps) \_\_1.8/1.8  
+5V TYPICAL (amps) \_\_\_\_2.1/2.4  
TYPICAL (watts) \_\_\_\_\_32.1/33.6  
MAXIMUM (watts) \_\_\_\_\_39.1/41.6  
LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK  
USER MANUAL PART NUMBER \_\_\_\_\_ 83327460  
REFERENCE MANUAL PART NUMBER \_\_\_\_\_ 83327470  
IBM AT DRIVE TYPE \_\_\_\_\_ 0 or NONE  
OTHER \_\_\_\_\_

ZBR = Zone Bit Recording = Variable sectors per track

\*\*\* Already low-level formatted at the factory with six spare sectors per cylinder, one spare cylinders/unit, one system cylinder/unit, and one diagnostic cylinder/unit.

Physical:

Height (inches/mm):	3.25/82.6
Width (inches/mm):	5.75/146.1
Depth (inches/mm):	8.0/203
Weight (lbs/kg):	7.8/3.6

Seagate reserves the right to change, without notice, product offerings or specifications. (10/28/91)



Cache \_\_\_\_\_

INTERFACE \_\_\_\_\_ SCSI-2 Fast

BYTES PER TRACK \_\_\_\_\_ 36,120 to 50,400

SECTORS PER DRIVE \_\_\_\_\_ 2,676,846

TPI (TRACKS PER INCH) \_\_\_\_\_

BPI (BITS PER INCH) \_\_\_\_\_

AREAL DENSITY \_\_\_\_\_

AVERAGE ACCESS (ms) \_\_\_\_\_ 11.5

SINGLE TRACK SEEK (ms) \_\_\_\_\_ 1.7

MAX FULL SEEK (ms) \_\_\_\_\_ 22.5

MTBF (power-on hours) Class A Room \_\_\_\_\_ 250,000

MTBF (power-on hours) Office \_\_\_\_\_ 150,000

POWER DISSIPATION (watts/BTU) \_\_\_\_\_

POWER REQUIREMENTS: Single-ended/Differential

    +12V START-UP (amps) \_2.2/3.2

    +12V TYPICAL (amps) \_\_1.8/1.8

    +5V TYPICAL (amps) \_\_\_\_2.1/2.4

    TYPICAL (watts) \_\_\_\_\_32.1/33.6

    MAXIMUM (watts) \_\_\_\_\_39.1/41.6

LANDING ZONE (cyl) \_\_\_\_\_ AUTO PARK

USER MANUAL PART NUMBER \_\_\_\_\_ 83327460

REFERENCE MANUAL PART NUMBER \_\_\_\_\_ 83327470

IBM AT DRIVE TYPE \_\_\_\_\_ 0 or NONE

OTHER \_\_\_\_\_

ZBR = Zone Bit Recording = Variable sectors per track

\*\*\* Already low-level formatted at the factory with six spare sectors per cylinder, one spare cylinders/unit, one system cylinder/unit, and one diagnostic cylinder/unit.

Physical:

Height (inches/mm):	3.25/82.6
Width (inches/mm):	5.75/146.1
Depth (inches/mm):	8.0/203
Weight (lbs/kg):	7.8/3.6

Seagate reserves the right to change, without notice, product offerings or specifications. (08/08/94)





FORMATTED CAPACITY (xx SECTORS) (MB) \_\_\_\_1,415  
 AVERAGE SECTORS PER TRACK (with spares)\_\_\_\_87  
 ACTUATOR TYPE \_\_\_\_\_ROTARY VOICE COIL  
 TRACKS \_\_\_\_\_31,605  
 CYLINDERS \_\_\_\_\_2,107  
 HEADS \_\_\_\_\_15  
 DISCS \_\_\_\_\_8  
 MEDIA TYPE \_\_\_\_\_THIN FILM  
 RECORDING METHOD \_\_\_\_\_ZBR RLL (1,7)  
 INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_17 to 32  
 SPINDLE SPEED (RPM) \_\_\_\_\_3,600  
 AVERAGE LATENCY (mSEC) \_\_\_\_\_8.33  
 BUFFER \_\_\_\_\_256 Kbyte  
     Read Look-Ahead, Adaptive,  
     Multi-Segmented Cache  
 INTERFACE \_\_\_\_\_SCSI-2  
 BYTES PER TRACK \_\_\_\_\_54,900 avg.  
 TPI (TRACKS PER INCH) \_\_\_\_\_1,760  
 BPI (BITS PER INCH) \_\_\_\_\_  
 AVERAGE ACCESS (ms) \_\_\_\_\_15  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_2.5  
 MAX FULL SEEK (ms) \_\_\_\_\_34  
 MTBF (power-on hours) \_\_\_\_\_150,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_4.5  
     +12V TYPICAL (amps) \_\_1.5  
     +5V START-UP (amps) \_\_0.8  
     +5V TYPICAL (amps) \_\_0.6  
     TYPICAL (watts) \_\_\_\_\_21  
     MAXIMUM (watts) \_\_\_\_\_58  
 BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_  
 WRITE PRECOMP (cyl) \_\_\_\_\_N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_N/A  
 LANDING ZONE (cyl) \_\_\_\_\_AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_0 or NONE

Already low-level formatted at the factory with one spare sector  
 per track and two spare cylinders/unit.

Seagate reserves the right to change, without notice, product  
 offerings or specifications. (6/26/90)



FORMATTED CAPACITY (xx SECTORS) (MB) \_\_\_\_\_1,415\*  
 AVERAGE SECTORS PER TRACK (with spares)\_\_\_\_87  
 ACTUATOR TYPE \_\_\_\_\_ROTARY VOICE COIL  
 TRACKS \_\_\_\_\_31,605  
 CYLINDERS \_\_\_\_\_2,107 (user)  
 HEADS \_\_\_\_\_15  
 DISCS (5.25 in) \_\_\_\_\_8  
 MEDIA TYPE \_\_\_\_\_THIN FILM  
 RECORDING METHOD \_\_\_\_\_ZBR RLL (1,7)  
 INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_17 to 32  
 EXTERNAL TRANSFER RATE (Mbytes/sec) \_\_\_\_\_10.0 Sync.  
 SPINDLE SPEED (RPM) \_\_\_\_\_3,600  
 AVERAGE LATENCY (mSEC) \_\_\_\_\_8.33  
 BUFFER \_\_\_\_\_256 Kbyte  
     Read Look-Ahead, Adaptive, Multi-Segmented Cache  
 INTERFACE \_\_\_\_\_SCSI-2 Fast  
 BYTES PER TRACK \_\_\_\_\_54,900 avg.  
 SECTORS PER DRIVE \_\_\_\_\_2,749,635  
 TPI (TRACKS PER INCH) \_\_\_\_\_1,760  
 BPI (BITS PER INCH) \_\_\_\_\_  
 AVERAGE ACCESS (ms) \_\_\_\_\_15  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_2.5  
 MAX FULL SEEK (ms) \_\_\_\_\_34  
 MTBF (power-on hours) \_\_\_\_\_150,000  
 POWER REQUIREMENTS: +12V START-UP (amps) \_4.5  
     +12V TYPICAL (amps) \_\_1.5  
     +5V START-UP (amps) \_\_0.8  
     +5V TYPICAL (amps) \_\_0.6  
     TYPICAL (watts) \_\_\_\_\_21  
     MAXIMUM (watts) \_\_\_\_\_58  
 WRITE PRECOMP (cyl) \_\_\_\_\_N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_N/A  
 LANDING ZONE (cyl) \_\_\_\_\_AUTO PARK  
 IBM AT DRIVE TYPE \_\_\_\_\_0 or NONE

\* Already low-level formatted at the factory with one spare sector per track and two spare cylinders/unit.

Seagate reserves the right to change, without notice, product offerings or specifications. (10/31/91)



MTBF (power-on hours) \_\_\_\_\_100,000  
POWER REQUIREMENTS: +12V START-UP (amps) \_4.5  
                          +12V TYPICAL (amps) \_\_1.5  
                          +5V START-UP (amps) \_\_1.7  
                          +5V TYPICAL (amps) \_\_1.3  
                          TYPICAL (watts) \_\_\_\_\_24  
                          MAXIMUM (watts) \_\_\_\_\_63  
BUFFERED STEP PULSE RATE (micro sec) \_\_\_\_\_N/A  
WRITE PRECOMP (cyl) \_\_\_\_\_N/A  
REDUCED WRITE CURRENT (cyl) \_\_\_\_\_N/A  
LANDING ZONE (cyl) \_\_\_\_\_AUTO PARK  
IBM AT DRIVE TYPE \_\_\_\_\_0 or NONE

Already low-level formatted at the factory.

Seagate reserves the right to change, without notice, product offerings or specifications. (9/10/93)



BYTES PER TRACK _____	42,000-55,440
SECTORS PER DRIVE _____	3,500,218
BYTES PER CYLINDER _____	672,000-887,040
TPI (TRACKS PER INCH) _____	2,250
BPI (BITS PER INCH) _____	41,713
AVERAGE ACCESS (ms) _____	11
SINGLE TRACK SEEK (ms) _____	1.7
MAX FULL SEEK (ms) _____	22.5
MTBF (power-on hours) Class A Room _____	250,000
MTBF (power-on hours) Office _____	150,000
POWER REQUIREMENTS: Single ended/Differential	
+12V START-UP (amps) _____	4.6/4.6
+12V TYPICAL (amps) _____	2.0/2.0
+5V START-UP (amps) _____	2.3/2.6
+5V TYPICAL (amps) _____	2.3/2.6
TYPICAL (watts) _____	29.9/31.8
MAXIMUM (watts) _____	33.7/36.6
WRITE PRECOMP (cyl) _____	N/A
REDUCED WRITE CURRENT (cyl) _____	N/A
LANDING ZONE (cyl) _____	Auto
USER MANUAL PART NUMBER _____	
OTHER _____	
Synchronized Spindles, Sweep Cycle Capability	

ZBR = Zone Bit Recording = Variable sectors per track

\*\* Already low-level formatted at the factory with six spare sectors per cylinder, one spare cylinders/unit, one system cylinder/unit, and one diagnostic cylinder/unit.

Physical:

Height (inches/mm):	3.25/82.6
Width (inches/mm):	5.75/146.1
Depth (inches/mm):	8.0/203
Weight (lbs/kg):	7.8/3.6

Seagate reserves the right to change, without notice, product offerings or specifications. (12/14/92)





MTBF (power-on hours) \_\_\_\_\_150,000

POWER REQUIREMENTS: +12V START-UP (amps) \_4.5

+12V TYPICAL (amps) \_\_1.5

+5V START-UP (amps) \_\_0.8

+5V TYPICAL (amps) \_\_0.6

TYPICAL (watts) \_\_\_\_\_21

MAXIMUM (watts) \_\_\_\_\_58

LANDING ZONE (cyl) \_\_\_\_\_AUTO PARK

IBM AT DRIVE TYPE \_\_\_\_\_0 or NONE

\* 512 bytes per sector, one spare sector per track,  
two spare cylinders per unit.

Already low-level formatted at the factory.

Seagate reserves the right to change, without notice, product  
offerings or specifications. (10/31/91)



POWER REQUIREMENTS: +12V START-UP (amps) \_4.5

+12V TYPICAL (amps) \_\_1.5

+5V START-UP (amps) \_\_0.8

+5V TYPICAL (amps) \_\_0.6

TYPICAL (watts) \_\_\_\_\_23

MAXIMUM (watts) \_\_\_\_\_

LANDING ZONE (cyl) \_\_\_\_\_AUTO PARK

IBM AT DRIVE TYPE \_\_\_\_\_0 or NONE

Already low-level formatted at the factory with one spare sector  
per track and two spare cylinders/unit.

Seagate reserves the right to change, without notice, product  
offerings or specifications. (10/31/91)



BPI (BITS PER INCH) \_\_\_\_\_ 41,713  
 AVERAGE ACCESS (ms) \_\_\_\_\_ 11  
 SINGLE TRACK SEEK (ms) \_\_\_\_\_ 1.7  
 MAX FULL SEEK (ms) \_\_\_\_\_ 22.5  
 MTBF (power-on hours) Class A Room \_\_\_\_\_ 250,000  
 MTBF (power-on hours) Office \_\_\_\_\_ 150,000  
 POWER DISSIPATION (watts) \_\_\_\_\_ 33  
 POWER REQUIREMENTS:  
     +12V START-UP (amps) \_  
     +12V TYPICAL (amps) \_  
     +5V START-UP (amps) \_  
     +5V TYPICAL (amps) \_  
     TYPICAL (watts) \_\_\_\_\_ 33  
     IDLE (watts) \_\_\_\_\_ 30  
 WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
 REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
 LANDING ZONE (cyl) \_\_\_\_\_ Auto  
 USER MANUAL PART NUMBER \_\_\_\_\_  
 OTHER \_\_\_\_\_  
     Synchronized Spindles, Sweep Cycle Capability

ZBR = Zone Bit Recording = Variable sectors per track

\*\* Already low-level formatted at the factory with six spare sectors  
 per cylinder, one spare cylinders/unit, one system cylinder/unit, and  
 one diagnostic cylinder/unit.

Physical:

Height (inches/mm):	3.25/82.6
Width (inches/mm):	5.75/146.1
Depth (inches/mm):	8.0/203
Weight (lbs/kg):	7.8/3.6

Seagate reserves the right to change, without notice, product  
 offerings or specifications. (12/14/92)



INTERFACE _____	SCSI-2 FAST
BYTES PER TRACK _____	49,000-72,800
SECTORS PER DRIVE _____	5,696,655
BYTES PER CYLINDER _____	1,058,400 to 1,587,600
TPI (TRACKS PER INCH) _____	
BPI (BITS PER INCH) _____	
AVERAGE ACCESS (ms) read/write _____	10/11
SINGLE TRACK SEEK (ms) read/write _____	0.9/1.7
MAX FULL SEEK (ms) read/write _____	22.5/23.5
MTBF (power-on hours) Class A Room _____	300,000
MTBF (power-on hours) Office _____	200,000
POWER DISSIPATION (watts) _____	
POWER REQUIREMENTS: Single-ended/Differential	
+12V START-UP (amps) _____	3.98/4.60
+12V TYPICAL (amps) _____	1.90/1.88
+5V START-UP (amps) _____	2.37/3.48
+5V TYPICAL (amps) _____	1.96/2.77
TYPICAL ( watts seek/read) _____	32.60/36.41
IDLE (watts) _____	28.34/31.81
USER MANUAL PART NUMBER _____	83327630
OTHER _____	
Synchronized Spindles, Sweep Cycle Capability	

\*\* Already low-level formatted at the factory with six spare sectors per cylinder, one spare cylinders/unit, one system cylinder/unit, and one diagnostic cylinder/unit.

Physical:

Height (inches/mm):	3.25/82.6
Width (inches/mm):	5.75/146.1
Depth (inches/mm):	8.0/203
Weight (lbs/kg):	7.8/3.6

Seagate reserves the right to change, without notice, product offerings or specifications. (12/14/92)





Read Look-Ahead, Adaptive, Multi-Segmented  
Cache

INTERFACE _____	SCSI-2 FAST Wide
BYTES PER TRACK _____	49,000-72,800
SECTORS PER DRIVE _____	5,696,655
BYTES PER CYLINDER _____	1,058,400 to 1,587,600
TPI (TRACKS PER INCH) _____	
BPI (BITS PER INCH) _____	
AVERAGE ACCESS (ms) read/write _____	10/11
SINGLE TRACK SEEK (ms) read/write _____	0.9/1.7
MAX FULL SEEK (ms) read/write _____	22.5/23.5
MTBF (power-on hours) Class A Room _____	300,000
MTBF (power-on hours) Office _____	200,000
POWER DISSIPATION (watts) _____	
POWER REQUIREMENTS: Single-ended/Differential	
+12V START-UP (amps) _	3.98/4.60
+12V TYPICAL (amps) _	1.90/1.88
+5V START-UP (amps) _	2.37/3.48
+5V TYPICAL (amps) _	1.96/2.77
TYPICAL ( watts seek/read)_	32.60/36.41
IDLE (watts) _____	28.34/31.81
USER MANUAL PART NUMBER _____	83327630
OTHER _____	
Synchronized Spindles, Sweep Cycle Capability	

\*\* Already low-level formatted at the factory with six spare sectors per cylinder, one spare cylinders/unit, one system cylinder/unit, and one diagnostic cylinder/unit.

Physical:

Height (inches/mm):	3.25/82.6
Width (inches/mm):	5.75/146.1
Depth (inches/mm):	8.0/203
Weight (lbs/kg):	7.8/3.6

Seagate reserves the right to change, without notice, product offerings or specifications. (08/08/94)





\*\* Already low-level formatted at the factory with six spare sectors per cylinder, one spare cylinders/unit, one system cylinder/unit, and one diagnostic cylinder/unit.

Physical:

Height (inches/mm):	3.25/82.6
Width (inches/mm):	5.75/146.1
Depth (inches/mm):	8.0/203
Weight (lbs/kg):	7.8/3.6

Seagate reserves the right to change, without notice, product offerings or specifications. (08/08/94)



Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)



Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)





Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)



Seagate reserves the right to change, without notice, product offerings or specifications. (6/26/90)







Multi-Segmented

INTERFACE	SCSI-2 Fast
SECTORS PER DRIVE	1,065,036
TPI (TRACKS PER INCH)	3,309
BPI (BITS PER INCH)	68,000
AVERAGE ACCESS (ms)	12
SINGLE TRACK SEEK (ms)	3.5
MAX FULL SEEK (ms)	30
MTBF (power-on hours) Office	300,000
SHOCK (G's):	
operating (Read/Write)	2
nonoperating	75
ACOUSTICS (dBa)	34
POWER DISSIPATION (watts)	
POWER REQUIREMENTS: +12V START-UP (amps)	1.9
POWER MANAGEMENT (Watts):	
ACTIVE	5.5
IDLE	<2.5
STANDBY	0.7
WRITE PRECOMP (cyl)	N/A
REDUCED WRITE CURRENT (cyl)	N/A
LANDING ZONE (cyl)	AUTO
IBM AT DRIVE TYPE	0

Physical:

Height (inches/mm):	0.75/19
Width (inches/mm):	4.02/102.1
Depth (inches/mm):	5/127
Weight (lbs/kg):	1.5/0.68

ZBR = Zone Bit Recording = Variable sectors per track

Already low-level formatted at the factory.

Seagate reserves the right to change, without notice, product offerings or specifications. (04/05/95)





INTERFACE	SCSI
BYTES PER TRACK	
SECTORS PER DRIVE	409,760
TPI (TRACKS PER INCH)	2,750
BPI (BITS PER INCH)	45,500
FCI (FLUX DENSITY)	30,300
AVERAGE ACCESS (ms)	16
SINGLE TRACK SEEK (ms)	5
MAX FULL SEEK (ms)	27
MTBF (power-on hours) Office	150,000
SHOCK (G's) operating/nonoperating	10/150
NG model with 'SafeRite'	100/150
POWER REQUIREMENTS: +5V START-UP (amps)	1.3
POWER MANAGEMENT (Watts):	
ACTIVE	2.5
STANDBY	1.8
SHUTDOWN	1.08
WRITE PRECOMP (cyl)	N/A
REDUCED WRITE CURRENT (cyl)	N/A
LANDING ZONE (cyl)	AUTO
IBM AT DRIVE TYPE	0

Physical:

Height (inches/mm):	0.75/19.05
Width (inches/mm):	2.76/70.10
Depth (inches/mm):	4.01/101.85
Weight (ozs/kg):	7.25/0.21

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (08/17/93)

## ST-9295N

ST-9295N

UNFORMATTED CAPACITY \_\_\_\_\_  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_ 250.6  
AVERAGE SECTORS PER TRACK \_\_\_\_\_ rounded down  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ (user)  
HEADS \_\_\_\_\_  
DISCS (2.5 in) \_\_\_\_\_  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ ZBR RLL (2,7)  
INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ up to 16  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,450  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.69  
BUFFER \_\_\_\_\_ 64 Kbyte  
Multisegmented cache  
INTERFACE \_\_\_\_\_ SCSI  
BYTES PER TRACK \_\_\_\_\_  
SECTORS PER DRIVE \_\_\_\_\_ 489,600  
TPI (TRACKS PER INCH) \_\_\_\_\_ x,xxx  
BPI (BITS PER INCH) \_\_\_\_\_ xx,xxx  
AVERAGE ACCESS (ms) \_\_\_\_\_ 16  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 5  
MAX FULL SEEK (ms) \_\_\_\_\_ 27  
MTBF (power-on hours) Office \_\_\_\_\_ 150,000  
SHOCK (G's) operating/nonoperating \_\_\_\_\_ 10/150  
POWER REQUIREMENTS: +5V START-UP (amps) \_\_\_ 1.2  
POWER MANAGEMENT (Watts):  
    ACTIVE \_\_\_\_\_ 1.8  
    IDLE \_\_\_\_\_ 0.7  
    STANDBY \_\_\_\_\_ 0.17  
WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
LANDING ZONE (cyl) \_\_\_\_\_ AUTO  
IBM AT DRIVE TYPE \_\_\_\_\_ 0

### Physical:

Height (inches/mm):	0.75/19.05
Width (inches/mm):	2.76/70.10
Depth (inches/mm):	4.01/101.85
Weight (ozs/kg):	7.25/0.21

ZBR = Zone Bit Recording = Variable sectors per track

Seagate reserves the right to change, without notice, product offerings or specifications. (12/08/92)



## ST-41097J Elite-1.1

ST-41097J  
Elite-1.1

UNFORMATTED CAPACITY \_\_\_\_\_ 1,097  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 2,101  
HEADS \_\_\_\_\_ 17  
DISCS (5.25 in) \_\_\_\_\_ 10  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ 22  
EXTERNAL TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 2.75  
SPINDLE SPEED (RPM) \_\_\_\_\_ 5,400  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 5.56  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ SMD O/E  
BYTES PER TRACK \_\_\_\_\_ 30,800  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_ 523,600  
TPI (TRACKS PER INCH) \_\_\_\_\_  
BPI (BITS PER INCH) \_\_\_\_\_  
AREAL DENSITY (Mbits/sq in) \_\_\_\_\_  
AVERAGE ACCESS (ms) \_\_\_\_\_ 11.5  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 1.7  
MAX FULL SEEK (ms) \_\_\_\_\_ 22.5  
MTBF (power-on hours) Class A Room \_\_\_\_\_ 250,000  
MTBF (power-on hours) Office \_\_\_\_\_ 150,000  
POWER DISSIPATION (watts) \_\_\_\_\_  
POWER REQUIREMENTS:  
    +12V START-UP (amps) \_\_\_\_\_  
    +12V TYPICAL (amps) \_\_\_\_\_  
    +5V START-UP (amps) \_\_\_\_\_  
    +5V TYPICAL (amps) \_\_\_\_\_  
    TYPICAL (watts) \_\_\_\_\_ 44  
    IDLE (watts) \_\_\_\_\_ 40  
USER MANUAL PART NUMBER \_\_\_\_\_ 83327280  
REFERENCE MANUAL PART NUMBER \_\_\_\_\_ 83327290  
OTHER \_\_\_\_\_ dual port

### Physical:

Height (inches/mm):	3.25/82.6
Width (inches/mm):	5.75/146.1
Depth (inches/mm):	9.9/252.5
Weight (lbs/kg):	9/4.1

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-41201J (97500-12G) Elite-1.2

ST-41201J  
(97500-12G) Elite-1.2

UNFORMATTED CAPACITY \_\_\_\_\_ 1,200  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 2,101  
HEADS \_\_\_\_\_ 17  
DISCS (5.25 in) \_\_\_\_\_ 10  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ 24  
EXTERNAL TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 3  
SPINDLE SPEED (RPM) \_\_\_\_\_ 5,400  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 5.56  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ SMD O/E  
BYTES PER TRACK \_\_\_\_\_ 33,600  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_ 571,200  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1,801  
BPI (BITS PER INCH) \_\_\_\_\_ 17,591-33,344  
AREAL DENSITY (Mbits/sq in) \_\_\_\_\_ 60.0  
AVERAGE ACCESS (ms) \_\_\_\_\_ 11.5  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 1.7  
MAX FULL SEEK (ms) \_\_\_\_\_ 22.5  
MTBF (power-on hours) Class A Room \_\_\_\_\_ 250,000  
MTBF (power-on hours) Office \_\_\_\_\_ 150,000  
POWER DISSIPATION (watts) \_\_\_\_\_ 50  
POWER REQUIREMENTS:  
    TYPICAL (watts) \_\_\_\_\_ 43  
    IDLE (watts) \_\_\_\_\_ 38  
USER MANUAL PART NUMBER \_\_\_\_\_ 83327280  
REFERENCE MANUAL PART NUMBER \_\_\_\_\_ 83327290  
OTHER \_\_\_\_\_ Dual Access,  
Synchronized Spindles, Sweep Cycle Capability

### Physical:

Height (inches/mm):	3.25/82.6
Width (inches/mm):	5.57/146.1
Depth (inches/mm):	9.90/252.5
Weight (lbs/kg):	9/4.1

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-6165J (97150-160) FSD-160

ST-6165J  
97150-160 FSD-160

UNFORMATTED CAPACITY \_\_\_\_\_ 3,050  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_ 165  
ACTUATOR TYPE \_\_\_\_\_  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 823  
HEADS \_\_\_\_\_ 10  
DISCS (9 in) \_\_\_\_\_  
MEDIA TYPE \_\_\_\_\_ OXIDE  
HEAD TYPE \_\_\_\_\_ FERRITE CORE  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ 1.209  
(mhz/sec) \_\_\_\_\_ 9.67  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ SMD  
BYTES PER TRACK \_\_\_\_\_ 20,160  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_  
TPI (TRACKS PER INCH) \_\_\_\_\_ 551  
BPI (BITS PER INCH) \_\_\_\_\_ 6,117-9,492  
AREAL DENSITY (Mbits/sq in) \_\_\_\_\_  
AVERAGE ACCESS (ms) \_\_\_\_\_ 30  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 7  
MAX FULL SEEK (ms) \_\_\_\_\_ 55  
MTBF (power-on hours) Class A Room \_\_\_\_\_  
MTBF (power-on hours) Office \_\_\_\_\_ 10,000  
POWER DISSIPATION (watts) \_\_\_\_\_ 220  
POWER REQUIREMENTS:  
TYPICAL (watts) \_\_\_\_\_  
MAXIMUM (watts) \_\_\_\_\_  
USER MANUAL PART NUMBER \_\_\_\_\_ 83324500  
THEORY/MAINT. MANUAL PART NUMBER \_\_\_\_\_ 83324510  
DIAGRAMS MANUAL PART NUMBER \_\_\_\_\_ 83324640  
OTHER \_\_\_\_\_ Dual Access,  
Remote/Integral Power Supply Option

### Physical:

Height (inches/mm):	10.20/
Width (inches/mm):	8.50/
Depth (inches/mm):	30.0/
Weight (lbs/kg):	82/

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-6315J (97150-300) FSD-300

ST-6315J  
97150-300 FSD-300

UNFORMATTED CAPACITY \_\_\_\_\_ 315  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 823  
HEADS \_\_\_\_\_ 19  
DISCS (9 in) \_\_\_\_\_  
MEDIA TYPE \_\_\_\_\_ OXIDE  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ MFM  
INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ 1.209  
(mhz/sec) \_\_\_\_\_ 9.67  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ SMD E  
BYTES PER TRACK \_\_\_\_\_ 20,160  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1,040  
BPI (BITS PER INCH) \_\_\_\_\_ 6,117-10,040  
AREAL DENSITY (Mbits/sq in) \_\_\_\_\_ 9.5  
AVERAGE ACCESS (ms) \_\_\_\_\_ 20  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 5  
MAX FULL SEEK (ms) \_\_\_\_\_ 45  
MTBF (power-on hours) Class A Room \_\_\_\_\_  
MTBF (power-on hours) Office \_\_\_\_\_ 30,000  
POWER DISSIPATION (watts) \_\_\_\_\_ 225  
POWER REQUIREMENTS:  
TYPICAL (watts) \_\_\_\_\_  
MAXIMUM (watts) \_\_\_\_\_  
USER MANUAL PART NUMBER \_\_\_\_\_ 83327120  
THEORY/MAINT. MANUAL PART NUMBER \_\_\_\_\_ 83327340  
DIAGRAMS MANUAL PART NUMBER \_\_\_\_\_ 83327020  
PARTS MANUAL PART NUMBER \_\_\_\_\_ 83327110  
OTHER \_\_\_\_\_ Dual Access,  
Sweep Cycle Capability, Plug Compatible with 9766,  
Remote/Integral Power Supply Option

### Physical:

Height (inches/mm):	10.20/
Width (inches/mm):	8.50/
Depth (inches/mm):	30.0/
Weight (lbs/kg):	82/

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)



## ST-6344J (97150-340) FSD-340

ST-6344J  
97150-340 FSD-340

UNFORMATTED CAPACITY \_\_\_\_\_ 344  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 711  
HEADS \_\_\_\_\_ 24  
DISCS (9 in) \_\_\_\_\_ 7  
MEDIA TYPE \_\_\_\_\_ OXIDE  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ MFM  
EXTERNAL TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 1.209  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ SMD  
BYTES PER TRACK \_\_\_\_\_ 20,160  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_ 201,600  
TPI (TRACKS PER INCH) \_\_\_\_\_ 960  
BPI (BITS PER INCH) \_\_\_\_\_ 6,111-10,027  
AREAL DENSITY (Mbits/sq in) \_\_\_\_\_ 9.5  
AVERAGE ACCESS (ms) \_\_\_\_\_ 18  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 5  
MAX FULL SEEK (ms) \_\_\_\_\_ 40  
MTBF (power-on hours) Class A Room \_\_\_\_\_  
MTBF (power-on hours) Office \_\_\_\_\_ 30,000  
POWER DISSIPATION (watts) \_\_\_\_\_ 225  
USER MANUAL PART NUMBER \_\_\_\_\_ 83327120  
THEORY/MAINT. MANUAL PART NUMBER \_\_\_\_\_ 83327340  
DIAGRAMS MANUAL PART NUMBER \_\_\_\_\_ 83327020  
PARTS MANUAL PART NUMBER \_\_\_\_\_ 83327110  
OTHER \_\_\_\_\_ Dual Access,  
Sweep Cycle Capability, Remote/Integral Power Supply

### Physical:

Height (inches/mm):	10.02/259
Width (inches/mm):	8.50/216
Depth (inches/mm):	29.9/757 w/ power
Depth (inches/mm):	24.5/641 w/o power
Weight (lbs/kg):	82/36.4 w/ power

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-6515J (97150-500) FSD-515

ST-6515J  
97150-500 FSD-515

UNFORMATTED CAPACITY \_\_\_\_\_ 516  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 711  
HEADS \_\_\_\_\_ 24  
DISCS (9 in) \_\_\_\_\_ 7  
MEDIA TYPE \_\_\_\_\_ OXIDE  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
EXTERNAL TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 1.80  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ SMD E  
BYTES PER TRACK \_\_\_\_\_ 30,240  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_ 302,400  
TPI (TRACKS PER INCH) \_\_\_\_\_ 960  
BPI (BITS PER INCH) \_\_\_\_\_ 9,167-15,040  
AREAL DENSITY (Mbits/sq in) \_\_\_\_\_ 14.6  
AVERAGE ACCESS (ms) \_\_\_\_\_ 18  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 5  
MAX FULL SEEK (ms) \_\_\_\_\_ 40  
MTBF (power-on hours) Class A Room \_\_\_\_\_  
MTBF (power-on hours) Office \_\_\_\_\_ 30,000  
POWER DISSIPATION (watts) \_\_\_\_\_ 225  
USER MANUAL PART NUMBER \_\_\_\_\_ 83327120  
THEORY/MAINT. MANUAL PART NUMBER \_\_\_\_\_ 83327340  
DIAGRAMS MANUAL PART NUMBER \_\_\_\_\_ 83327020  
PARTS MANUAL PART NUMBER \_\_\_\_\_ 83327110  
OTHER \_\_\_\_\_ Dual Access,  
Sweep Cycle Capability, Remote/Integral Power Supply

### Physical:

Height (inches/mm):	10.20/259
Width (inches/mm):	8.50/216
Depth (inches/mm):	30.0/757
Weight (lbs/kg):	82/36.4

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-683J (97100-80) RSD-80

ST-683J  
97100-80 RSD-80

UNFORMATTED CAPACITY \_\_\_\_\_ 83  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 823  
HEADS \_\_\_\_\_ 5  
DISCS (9 in) \_\_\_\_\_  
MEDIA TYPE \_\_\_\_\_ OXIDE  
HEAD TYPE \_\_\_\_\_ FERRITE CORE  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ 1.209  
(mhz/sec) \_\_\_\_\_ 9.67  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ SMD  
BYTES PER TRACK \_\_\_\_\_ 20,160  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_  
TPI (TRACKS PER INCH) \_\_\_\_\_ 550  
BPI (BITS PER INCH) \_\_\_\_\_ 6,283-9,994  
AREAL DENSITY (Mbits/sq in) \_\_\_\_\_  
AVERAGE ACCESS (ms) \_\_\_\_\_ 30  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 7  
MAX FULL SEEK (ms) \_\_\_\_\_ 55  
MTBF (power-on hours) Class A Room \_\_\_\_\_  
MTBF (power-on hours) Office \_\_\_\_\_ 8,000  
POWER DISSIPATION (watts) \_\_\_\_\_ 250  
POWER REQUIREMENTS:  
TYPICAL (watts) \_\_\_\_\_  
MAXIMUM (watts) \_\_\_\_\_  
USER AND PARTS MANUAL PART NUMBER \_\_\_\_\_ 83324480  
THEORY/MAINT. MANUAL PART NUMBER \_\_\_\_\_ 83324490  
DIAGRAMS MANUAL PART NUMBER \_\_\_\_\_ 83324630  
OTHER \_\_\_\_\_ Dual Access,  
Remote/Integral Power Supply, Removable Data Pack  
model # 1209

### Physical:

Height (inches/mm):	10.20/
Width (inches/mm):	8.50/
Depth (inches/mm):	30.0/
Weight (lbs/kg):	72/

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-81123J (97200-1130) Sabre 5

ST-81123J  
97200-1130 Sabre 5

UNFORMATTED CAPACITY \_\_\_\_\_ 1,123  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 1,635  
HEADS \_\_\_\_\_ 15  
DISCS (8 in) \_\_\_\_\_ 9  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
EXTERNAL TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 2.75  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ SMD O/E  
BYTES PER TRACK \_\_\_\_\_ 45,792  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_ 686,880  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1,289  
BPI (BITS PER INCH) \_\_\_\_\_ 15,507-22,955  
AREAL DENSITY (Mbits/sq in) \_\_\_\_\_ 29.5  
AVERAGE ACCESS (ms) \_\_\_\_\_ 15  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 4  
MAX FULL SEEK (ms) \_\_\_\_\_ 30  
MTBF (power-on hours) Class A Room \_\_\_\_\_ 250,000  
MTBF (power-on hours) Office \_\_\_\_\_ 150,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 95/324.2  
USER MANUAL PART NUMBER \_\_\_\_\_ 83325710  
MAINT. MANUAL PART NUMBER \_\_\_\_\_ 83325720  
PARTS MANUAL PART NUMBER \_\_\_\_\_ 83325700  
DIAGRAMS MANUAL PART NUMBER \_\_\_\_\_ 83325730  
THEORY MANUAL PART NUMBER \_\_\_\_\_ 83325690  
OTHER \_\_\_\_\_ Dual Access,  
Synchronized Spindles, Sweep Cycle Capability

### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.50/216
Depth (inches/mm):	14.7/373.38
Weight (lbs/kg):	32/15

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-81236J (97200-12G) Sabre 5

ST-81236J  
97200-12G Sabre 5

UNFORMATTED CAPACITY \_\_\_\_\_ 1,236  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 1,635  
HEADS \_\_\_\_\_ 15  
DISCS (8 in) \_\_\_\_\_ 9  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
EXTERNAL TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 3.0  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ SMD O/E  
BYTES PER TRACK \_\_\_\_\_ 50,400  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_ 756,000  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1,289  
BPI (BITS PER INCH) \_\_\_\_\_ 16,420-24,307  
AREAL DENSITY (Mbits/sq in) \_\_\_\_\_ 32.6  
AVERAGE ACCESS (ms) \_\_\_\_\_ 15  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 4  
MAX FULL SEEK (ms) \_\_\_\_\_ 30  
MTBF (power-on hours) Class A Room \_\_\_\_\_ 250,000  
MTBF (power-on hours) Office \_\_\_\_\_ 150,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 95/324.2  
POWER REQUIREMENTS:  
    TYPICAL (watts) \_\_\_\_\_  
    MAXIMUM (watts) \_\_\_\_\_  
USER MANUAL PART NUMBER \_\_\_\_\_ 83325710  
DIAGRAMS MANUAL PART NUMBER \_\_\_\_\_ 83325730  
MAINT. MANUAL PART NUMBER \_\_\_\_\_ 83325720  
PARTS MANUAL PART NUMBER \_\_\_\_\_ 83325700  
THEORY MANUAL PART NUMBER \_\_\_\_\_ 83325690  
OTHER \_\_\_\_\_ Dual Access,  
Synchronized Spindles, Sweep Cycle Capability

### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.50/216
Depth (inches/mm):	14.7/373.38
Weight (lbs/kg):	32/15

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-82030J Sabre 6

ST-82030J  
Sabre 6

UNFORMATTED CAPACITY \_\_\_\_\_ 2,030  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 2,120  
HEADS \_\_\_\_\_ 19  
DISCS (8 in) \_\_\_\_\_ 11  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
EXTERNAL TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 3.0  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ SMD O/E  
BYTES PER TRACK \_\_\_\_\_ 50,400  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_ 957,600  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1,880  
BPI (BITS PER INCH) \_\_\_\_\_ 20,789  
AVERAGE ACCESS (ms) \_\_\_\_\_ 11  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 2  
MAX FULL SEEK (ms) \_\_\_\_\_ 26  
MTBF (power-on hours) Class A Room \_\_\_\_\_ 250,000  
MTBF (power-on hours) Office \_\_\_\_\_ 150,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 95/324.2  
USER MANUAL PART NUMBER \_\_\_\_\_ 83327230  
OTHER \_\_\_\_\_ Dual Access,  
Synchronized Spindles, Sweep Cycle Capability

### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.50/216
Depth (inches/mm):	14.7/373.3
Weight (lbs/kg):	32/13

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-82038J Sabre 6

ST-82038J  
Sabre 6

UNFORMATTED CAPACITY \_\_\_\_\_ 2,038  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 2,611  
HEADS \_\_\_\_\_ 19  
DISCS (8 in) \_\_\_\_\_ 11  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
EXTERNAL TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 2.4  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ SMD E  
BYTES PER TRACK \_\_\_\_\_ 41,088  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_ 780,672  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1,880  
BPI (BITS PER INCH) \_\_\_\_\_ 20,789  
AVERAGE ACCESS (ms) \_\_\_\_\_ 12  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 2  
MAX FULL SEEK (ms) \_\_\_\_\_ 26  
MTBF (power-on hours) Class A Room \_\_\_\_\_ 250,000  
MTBF (power-on hours) Office \_\_\_\_\_ 150,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 95/324.2  
USER MANUAL PART NUMBER \_\_\_\_\_ 83327230  
OTHER \_\_\_\_\_ Dual Access,  
Synchronized Spindles, Sweep Cycle Capability

### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.50/216
Depth (inches/mm):	14.7/373.3
Weight (lbs/kg):	28/13

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-82272J (97200-23G) Sabre 6

ST-82272J  
97200-23G Sabre 6

UNFORMATTED CAPACITY \_\_\_\_\_ 2,272  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 2,611  
HEADS \_\_\_\_\_ 19  
DISCS (8 in) \_\_\_\_\_ 11  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
EXTERNAL TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 2.75  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ SMD E  
BYTES PER TRACK \_\_\_\_\_ 45,792  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_ 870,048  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1,880  
BPI (BITS PER INCH) \_\_\_\_\_ 23,099  
AVERAGE ACCESS (ms) \_\_\_\_\_ 12  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 2  
MAX FULL SEEK (ms) \_\_\_\_\_ 26  
MTBF (power-on hours) Class A Room \_\_\_\_\_ 250,000  
MTBF (power-on hours) Office \_\_\_\_\_ 150,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 95/324.2  
USER MANUAL PART NUMBER \_\_\_\_\_ 83327200  
MAINT. MANUAL PART NUMBER \_\_\_\_\_ 83327230  
PARTS MANUAL PART NUMBER \_\_\_\_\_ 83327240  
THEORY MANUAL PART NUMBER \_\_\_\_\_ 83327530  
OTHER \_\_\_\_\_ Dual Access,  
Synchronized Spindles, Sweep Cycle Capability

### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.50/216
Depth (inches/mm):	14.7/373.3
Weight (lbs/kg):	28/13

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)



## ST-82500J (97200-25G) Sabre 6

ST-82500J  
97200-25G Sabre 6

UNFORMATTED CAPACITY \_\_\_\_\_ 2,500  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 2,611  
HEADS \_\_\_\_\_ 19  
DISCS (8 in) \_\_\_\_\_ 11  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
EXTERNAL TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 3.04  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ SMD O/E  
BYTES PER TRACK \_\_\_\_\_ 50,400  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_ 957,600  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1,880  
BPI (BITS PER INCH) \_\_\_\_\_ 24,200  
AREAL DENSITY (Mbits/sq in) \_\_\_\_\_  
AVERAGE ACCESS (ms) \_\_\_\_\_ 12  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 2  
MAX FULL SEEK (ms) \_\_\_\_\_ 26  
MTBF (power-on hours) Class A Room \_\_\_\_\_ 250,000  
MTBF (power-on hours) Office \_\_\_\_\_ 150,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 95/324.2  
USER MANUAL PART NUMBER \_\_\_\_\_ 83327200  
MAINT. MANUAL PART NUMBER \_\_\_\_\_ 83327230  
PARTS MANUAL PART NUMBER \_\_\_\_\_ 83327240  
THEORY MANUAL PART NUMBER \_\_\_\_\_ 83327530  
OTHER \_\_\_\_\_ Dual Access,  
Synchronized Spindles, Sweep Cycle Capability

### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.50/216
Depth (inches/mm):	14.7/373.3
Weight (lbs/kg):	28/13

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-83073J Sabre 7

ST-83073J

Sabre 7

UNFORMATTED CAPACITY \_\_\_\_\_ 3,073  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 2,655  
HEADS \_\_\_\_\_ 19  
DISCS (8 in) \_\_\_\_\_  
MEDIA TYPE \_\_\_\_\_ THIN FILM  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (1,7)  
INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ 4.33  
(mhz/sec) \_\_\_\_\_ 34.66  
SPINDLE SPEED (RPM) \_\_\_\_\_ 4,235  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 7.08  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ SMD O/E  
BYTES PER TRACK \_\_\_\_\_ 60,928  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1,880  
BPI (BITS PER INCH) \_\_\_\_\_ 30,768  
AVERAGE ACCESS (ms) \_\_\_\_\_ 12  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 2.2  
MAX FULL SEEK (ms) \_\_\_\_\_ 24  
MTBF (power-on hours) Class A Room \_\_\_\_\_  
MTBF (power-on hours) Office \_\_\_\_\_ 150,000  
POWER DISSIPATION (watts) \_\_\_\_\_ 110  
POWER REQUIREMENTS:  
+12V START-UP (amps) \_  
+12V TYPICAL (amps) \_  
+5V START-UP (amps) \_  
+5V TYPICAL (amps) \_  
TYPICAL (watts) \_\_\_\_\_  
MAXIMUM (watts) \_\_\_\_\_  
WRITE PRECOMP (cyl) \_\_\_\_\_ N/A  
REDUCED WRITE CURRENT (cyl) \_\_\_\_\_ N/A  
LANDING ZONE (cyl) \_\_\_\_\_  
USER MANUAL PART NUMBER \_\_\_\_\_  
OTHER \_\_\_\_\_ Dual Access,  
Synchronized Spindles, Sweep Cycle Capability

### Physical:

Height (inches/mm):	4.75/
Width (inches/mm):	8.50/
Depth (inches/mm):	14.7/
Weight (lbs/kg):	32/

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-8368J (97200-368) Sabre 368

ST-8368J  
97200-368 Sabre 368

UNFORMATTED CAPACITY \_\_\_\_\_ 368  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 1,217  
HEADS \_\_\_\_\_ 10  
DISCS (8 in) \_\_\_\_\_  
MEDIA TYPE \_\_\_\_\_ OXIDE  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ 1.80  
(mhz/sec) \_\_\_\_\_ 14.52  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ SMD E  
BYTES PER TRACK \_\_\_\_\_ 30,240  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_  
TPI (TRACKS PER INCH) \_\_\_\_\_ 960  
BPI (BITS PER INCH) \_\_\_\_\_ 10,132-15,185  
AREAL DENSITY (Mbits/sq in) \_\_\_\_\_ 14.5  
AVERAGE ACCESS (ms) \_\_\_\_\_ 18  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 5  
MAX FULL SEEK (ms) \_\_\_\_\_ 35  
MTBF (power-on hours) Class A Room \_\_\_\_\_  
MTBF (power-on hours) Office \_\_\_\_\_ 35,000  
POWER DISSIPATION (watts) \_\_\_\_\_ 85  
POWER REQUIREMENTS:  
TYPICAL (watts) \_\_\_\_\_  
MAXIMUM (watts) \_\_\_\_\_  
USERPARTS MANUAL PART NUMBER \_\_\_\_\_ 83325410  
THEORY/MAINT. MANUAL PART NUMBER \_\_\_\_\_ 83325420  
DIAGRAMS MANUAL PART NUMBER \_\_\_\_\_ 83325430  
OTHER \_\_\_\_\_ Dual Access,  
Sweep Cycle Capability

### Physical:

Height (inches/mm):	4.75/
Width (inches/mm):	8.50/
Depth (inches/mm):	14.7/
Weight (lbs/kg):	28/

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-8500J (97200-500) Sabre 736

ST-8500J  
97200-500 Sabre 736

UNFORMATTED CAPACITY \_\_\_\_\_ 500  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 1,217  
HEADS \_\_\_\_\_ 10  
DISCS (8 in) \_\_\_\_\_  
MEDIA TYPE \_\_\_\_\_ OXIDE  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ 2.46  
(mhz/sec) \_\_\_\_\_ 19.72  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ SMD E  
BYTES PER TRACK \_\_\_\_\_ 41,088  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_  
TPI (TRACKS PER INCH) \_\_\_\_\_ 960  
BPI (BITS PER INCH) \_\_\_\_\_ 13,387-19,816  
AREAL DENSITY (Mbits/sq in) \_\_\_\_\_ 19.2  
AVERAGE ACCESS (ms) \_\_\_\_\_ 18  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 5  
MAX FULL SEEK (ms) \_\_\_\_\_ 35  
MTBF (power-on hours) Class A Room \_\_\_\_\_  
MTBF (power-on hours) Office \_\_\_\_\_ 30,000  
POWER DISSIPATION (watts) \_\_\_\_\_ 85  
POWER REQUIREMENTS:  
TYPICAL (watts) \_\_\_\_\_  
MAXIMUM (watts) \_\_\_\_\_  
USER/PARTS MANUAL PART NUMBER \_\_\_\_\_ 83325410  
THEORY/MAINT. MANUAL PART NUMBER \_\_\_\_\_ 83325420  
DIAGRAMS MANUAL PART NUMBER \_\_\_\_\_ 83325430  
OTHER \_\_\_\_\_ Dual Access,  
Sweep Cycle Capability

### Physical:

Height (inches/mm):	4.75/
Width (inches/mm):	8.50/
Depth (inches/mm):	14.7/
Weight (lbs/kg):	28/

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-8741J (97200-736) Sabre 736

ST-8741J  
97200-736 Sabre 736

UNFORMATTED CAPACITY \_\_\_\_\_ 741  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 1,635  
HEADS \_\_\_\_\_ 15  
DISCS (8 in) \_\_\_\_\_  
MEDIA TYPE \_\_\_\_\_ OXIDE  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
INTERNAL TRANSFER RATE (mbits/sec) \_\_\_\_\_ 1.80  
(mhz/sec) \_\_\_\_\_ 14.52  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ SMD E  
BYTES PER TRACK \_\_\_\_\_ 30,240  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1,289  
BPI (BITS PER INCH) \_\_\_\_\_ 10,032-14,981  
AREAL DENSITY (Mbits/sq in) \_\_\_\_\_ 19.5  
AVERAGE ACCESS (ms) \_\_\_\_\_ 15  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 4  
MAX FULL SEEK (ms) \_\_\_\_\_ 30  
MTBF (power-on hours) Class A Room \_\_\_\_\_  
MTBF (power-on hours) Office \_\_\_\_\_ 50,000  
POWER DISSIPATION (watts) \_\_\_\_\_ 95  
POWER REQUIREMENTS:  
TYPICAL (watts) \_\_\_\_\_  
MAXIMUM (watts) \_\_\_\_\_  
USER MANUAL PART NUMBER \_\_\_\_\_ 83325710  
PARTS MANUAL PART NUMBER \_\_\_\_\_ 83325700  
MAINT. MANUAL PART NUMBER \_\_\_\_\_ 83325720  
THEORY MANUAL PART NUMBER \_\_\_\_\_ 83325690  
DIAGRAMS MANUAL PART NUMBER \_\_\_\_\_ 83325730  
OTHER \_\_\_\_\_ Dual Access,  
Sweep Cycle Capability

### Physical:

Height (inches/mm): 4.75/  
Width (inches/mm): 8.50/  
Depth (inches/mm): 14.7/  
Weight (lbs/kg): 32/

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)

## ST-8851J (97200-850) Sabre 4

ST-8851J  
97200-850 Sabre 4

UNFORMATTED CAPACITY \_\_\_\_\_ 851  
FORMATTED CAPACITY (xx SECTORS) \_\_\_\_\_  
AVERAGE SECTORS PER TRACK (with spares) \_\_\_\_\_  
ACTUATOR TYPE \_\_\_\_\_ STRAIGHT ARM  
TRACKS \_\_\_\_\_  
CYLINDERS \_\_\_\_\_ 1,381  
HEADS \_\_\_\_\_ 15  
DISCS (8 in) \_\_\_\_\_ 9  
MEDIA TYPE \_\_\_\_\_ OXIDE  
HEAD TYPE \_\_\_\_\_ THIN FILM  
RECORDING METHOD \_\_\_\_\_ RLL (2,7)  
EXTERNAL TRANSFER RATE (mbytes/sec) \_\_\_\_\_ 2.46  
SPINDLE SPEED (RPM) \_\_\_\_\_ 3,600  
AVERAGE LATENCY (mSEC) \_\_\_\_\_ 8.33  
BUFFER \_\_\_\_\_  
INTERFACE \_\_\_\_\_ SMD O/E  
BYTES PER TRACK \_\_\_\_\_ 41,088  
SECTORS PER DRIVE \_\_\_\_\_  
BYTES PER CYLINDER \_\_\_\_\_ 616,320  
TPI (TRACKS PER INCH) \_\_\_\_\_ 1,089  
BPI (BITS PER INCH) \_\_\_\_\_ 13,387-19,816  
AREAL DENSITY (Mbits/sq in) \_\_\_\_\_ 21.6  
AVERAGE ACCESS (ms) \_\_\_\_\_ 15  
SINGLE TRACK SEEK (ms) \_\_\_\_\_ 4  
MAX FULL SEEK (ms) \_\_\_\_\_ 30  
MTBF (power-on hours) Class A Room \_\_\_\_\_ 100,000  
MTBF (power-on hours) Office \_\_\_\_\_ 100,000  
POWER DISSIPATION (watts/BTU) \_\_\_\_\_ 95/324.2  
POWER REQUIREMENTS:  
    TYPICAL (watts) \_\_\_\_\_  
    MAXIMUM (watts) \_\_\_\_\_  
USER MANUAL PART NUMBER \_\_\_\_\_ 83325710  
PARTS MANUAL PART NUMBER \_\_\_\_\_ 83325700  
MAINT. MANUAL PART NUMBER \_\_\_\_\_ 83325720  
THEORY MANUAL PART NUMBER \_\_\_\_\_ 83325690  
DIAGRAMS MANUAL PART NUMBER \_\_\_\_\_ 83325730  
OTHER \_\_\_\_\_ Dual Access,  
Sweep Cycle Capability

### Physical:

Height (inches/mm):	4.75/120.65
Width (inches/mm):	8.50/216
Depth (inches/mm):	14.7/373.38
Weight (lbs/kg):	32/15

Seagate reserves the right to change, without notice, product offerings or specifications. (10/23/91)



## **Telephone numbers for Tech Support and BBS's**

'A' thru 'H' 'I' thru 'P' 'Q' thru 'Z'

Seagate's Telephone Numbers



## Telephones 'A' thru 'H'

3COM	408-980-8204	BBS
3COM	800-NET-3COM	General
Acculogic	714-454-8124	BBS
Acculogic	800-234-7811	General
Acer America	800-833-8241	BBS
Acer Technologies Corp.	408-922-0333	Tech Support
Acumen Computer Systems	800-876-0486	General
Adaptec	408-945-7727	BBS
Adaptec	408-945-8600	General
Adaptec	408-945-2550	Tech Support
Addstor	415-688-0470	General
ADIC (Advanced Digital Equip. Corp.)	800-336-1233	General
Advanced Storage Concepts	512-335-1077	General
Ahead Systems	510-623-0900	General
Alpha Research	512-345-6465	General
Alps America	408-432-6000	General
Altos Computer Systems	408-258-6787	General
Always Technology	818-597-0275	BBS
Always Technology	818-597-9595	Tech Support
Always Technology	818-597-1400	General/Sales
AMI (Bios)	404-246-8780	BBS
AMI (Bios)	404-263-8181	Tech Support
ANSI (American Nat'l Standards Inst.)	212-642-4900	General
APCUG (Association of PC User Groups)	408-439-9367	BBS
Apple Computer	800-538-9696	Tech Support
Archive Corp.	714-641-0279	General
Areal Technology	408-436-6800	General
ARCO Electronics	305-925-2688	General
Artisoft Inc.	602-293-6363	General: LANtastic
Ashton-Tate	408-431-2275	BBS
AST Research	714-727-4723	BBS
Atari	408-745-2000	General
AT&T	800-247-1212	Tech Support
AT&T Support	201-769-6397	BBS
ATI Technologies	416-756-4591	BBS
ATI Technologies	416-756-0711	Tech Support
Aura Assoc.	408-252-2872	General
Award (Bios)	415-968-0249	BBS
Award (Bios)	415-968-4433	Tech Support
Bi-Tech Enterprises	516-567-8155	General
Borland	408-439-9096	BBS
Brand Technologies	818-407-4040	General
Brown Bag Software	408-371-7654	BBS
BusTek	408-492-1984	BBS
BusTek	408-492-9090	General
Byte (magazine)	617-861-9764	BBS
Canon USA	516-488-6528	BBS
Cardinal Technologies	717-293-3074	BBS
Catapult Systems	510-659-0365	General



Central Point Software	503-690-6650	BBS
Central Point Software	503-690-8090	Tech Support: PC Tools
Chicony	714-771-9067	Tech Support
Chips & Technologies	408-434-0600	General
Chipsoft	619-453-5232	BBS
Ciprico	612-559-4258	BBS
Ciprico	612-559-2034	General
Colorado Memory Systems	303-679-0650	BBS
Colorado Memory Systems	800-432-5858	Tech Support
Columbia Data Products	407-862-4742	BBS
Columbia Data Products	407-869-6700	General
Commodore Business Mach.	215-431-9100	Tech Support
Compaq (US)	800-345-1518	Tech Support
Compaq (Canada)	800-263-5868	Tech Support
Compuadd	800-456-3116	Tech Support
CompuServ Info. Serv.	800-848-8199	General
Computer Peripherals Inc	805-499-9646	BBS
Computer Peripherals Inc	805-499-5751	Tech Support
Conner Peripherals	408-456-4415	BBS
Conner Peripherals	408-456-3388	Tech Support
Control Concepts Inc	703-876-6444	General
Control Data Corp. (CDC)	612-851-4131	General
Core International	407-241-2929	BBS
Core International	407-997-6044	Tech Support
Cornerstone Technology	408-435-8943	BBS
Cornerstone Technology	408-435-8900	Tech Support
Corporate Systems Center	408-737-7312	General
Creative Labs	408-428-6660	BBS
Crosstalk Communications	404-641-1803	BBS
Data Technology Corp	408-942-4010	BBS
Data Technology Corp	408-262-7700	Tech Support
Data Technology Corp	408-942-4005	Auto-Fax System
Dell Computer	800-624-9896	Tech Support
Delphi Online Service	800-365-4636	BBS
Diamond Flower Inc	800-929-2727	Tech Support
Digiboard Inc.	612-922-5604	BBS
Digiboard Inc.	612-922-8055	Tech Support
Digital Equip. Corp.(DEC)	508-493-5111	General
Digital Research	408-646-6464	Tech Support
Digitrend Systems Corp.	818-772-0190	General
Dilog	408-241-3192	General
Disctec	800-553-0337	General
Distr. Process Technology	407-830-5522	Tech Support
DPT (Dist Process Tech)	407-831-6432	BBS
DPT (Dist Process Tech)	800-322-4378	General
DPT (Dist Process Tech)	407-830-5522	Tech Support
DTK Computer	818-810-4724	BBS
DTK Computer	818-810-0098	General
DTK (Bios)	818-333-7533	Tech Support
Dysan Corp.	408-988-3472	Tech Support
Emulex Corp.	800-368-5393	General
Epson	213-539-9955	Tech Support
Everex Systems	510-226-9694	BBS
Everex Systems	510-498-4411	Tech Support
Fifth Generation Systems	504-295-3344	BBS
Fifth Generation Systems	800-873-4384	Tech Support: Mace, Fastback

Fujitsu America, Inc.	408-944-9899	BBS
Fujitsu America, Inc.	800-826-6112	Tech Support
Future Domain	714-253-0432	BBS
Future Domain	714-253-0400	Tech Support
Gazelle Systems	800-233-0383	Tech Support: Optune
GEne Information Service	800-638-8369	BBS
Genoa	408-943-1231	BBS
Genoa	408-432-9090	Tech Support
Gibson Research	714-830-3300	BBS
Gibson Research	714-830-2200	Sales/Tech Support: Spinwrite
Goldstar	408-432-1331	Tech Support
GSI Inc	714-261-7949	General
GVC Technologies	201-579-2380	BBS
Hayes Public BBS	404-446-6336	BBS
Headland Technology	510-656-0503	BBS
Headland Technology	800-238-0101	General
Hercules Computer Tech.	510-623-7034	BBS
Hewlett-Packard Co.	208-323-2551	Tech Support
Hitachi	617-890-0804	Tech Support
Hitachi	800-851-2460	"HitFax" Fax demand
Hyundai Electronics	800-234-3553	Tech Support



## Telephones 'I' thru 'P'

IBM PC Users Group	404-835-6600	BBS
IBM	800-426-2468	General
Intel	800-538-3373	Tech Support
Intel Support	503-645-6275	BBS
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Kodiak Technology	800-777-7704	Tech Support
Kodiak Technology	408-452-0677	BBS
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Logitech	415-795-8100	Tech Support
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Micro House	303-443-9957	BBS
Micro House	800-926-8299	General: DrivePro software
Microbotics	214-437-5330	Tech Support
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Micropolis Corp.	818-709-3310	BBS
Micropolis Corp.	818-709-3325	Tech Support
Microsoft	206-637-9009	BBS
Microsoft	206-646-5104	Tech Support: DOS 5, person
Microsoft	206-646-5103	Tech Support: DOS 5, recordings
Microsoft	206-637-7099	Tech Support: Windows Applica'n ?'
Microsoft	206-637-7098	Tech Support: Windows Interface ?'
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Mitsubishi Inc.	213-515-3993	Tech Support
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Mountain Computer, Inc	408-438-7897	Tech Support
Mouse Systems	415-683-0617	BBS
Mouse Systems	415-656-1117	Tech Support
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Multi-Tech Systems	612-785-9875	BBS
Multisoft	800-283-6858	General: PCKwik
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National Semiconductor	408-245-0671	BBS
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NCR	316-688-8529	Tech Support
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NEC Technologies	800-388-8888	General
New Media Graphics	508-663-7612	
Norton	213-319-2020	Tech Support

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Novell	800-638-9273	Tech Support
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Okidata	609-235-2600	Tech Support
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Ontrack Computer Systems	800-872-2599	Data Recovery
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Ontrack Computer Systems	612-937-2121	Tech Support
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Packard Bell	800-733-4411	Tech Support
Panasonic Comm. Sys.	201-863-7845	BBS
Paradise	415-968-1834	BBS
Paradise	800-832-4778	Tech Support
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Perceptive Solutions	800-486-3278	General
Perstore	602-894-4601	Tech Support
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Plus Development	900-740-4433	Tech Support out of Calif.
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Priam Systems	408-954-8680	Tech Support
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Prime Solutions	800-847-5000	Tech Support: Disk Technician
Procom	800-800-8600	General: host adapters
ProComm Support	314-474-8477	BBS: PCPlus communications
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Promise Technology	408-452-0948	General
Promise Technology	408-452-1180	Tech Support
Promise Technology	408-452-1534	BBS



## Telephones 'Q' thru 'Z'

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QMS	205-633-4500	Tech Support
Quantum	408-894-3214	BBS
Quantum	408-894-4000	General
Quarterdeck Office Syst.	310-314-3227	BBS
Quarterdeck Office Syst.	310-392-9701	Tech Support: Manifest, DeskView
Quarterdeck Office Syst.	310-314-3217	TS FAX
Rancho Technology	909-987-3966	Tech Support
Ricoh Corp.	201-882-2000	General
Rodime Inc.	407-997-0774	General
Samsung Info. Syst.	408-434-5684	BBS
Samsung Info. Syst.	800-446-0262	Tech Support
Santa Cruz Operation (SCO)	800-347-4381	Tech Support
Seagate Technology	408-438-8771	BBS United States
Seagate Technology	44-628-478011	BBS England
Seagate Technology	33-1 40 67 10 34	BBS France
Seagate Technology	49-89-140-9331	BBS Germany
Seagate Technology	65-292-6973	BBS Singapore
Seagate Technology	61-2-756-2359	BBS Australia
Seagate Technology	662-531-8111	BBS Thailand
Seagate Technology	82-2-556-7294	BBS Korea
Seagate Technology	ftp.seagate.com	Internet
Seagate Technology	www.seagate.com	Internet
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Seagate Technology	408-438-8222	Tech Support-SeaFONE
Seagate Technology	408-438-8137	Tech Support FAX
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Silicon Graphics	415-960-1980	General
Silicon Graphics	800-800-4744	Tech Support
Silicon Valley Computers	415-967-8081	BBS
Silicon Valley Computers	415-967-1100	General
Softlogic Solutions	800-272-9900	Tech Support: Disk Optimize
Sony Corp.	408-432-0190	General: Drives
Stac Electronics	619-431-5956	BBS: Stacker
Storage Dimensions	408-944-1207	Tech Support: Speedstor
Sumo Systems	408-453-5744	General
SunDisk	408-562-0500	General
Sun Microsystems	800-USA-4SUN	Tech Support
Syquest	510-226-4000	For ST02 v3.1
Syquest	510-226-4280	Tech Support
Tandon Corp.	805-523-0340	General
Tandy Corp.	817-390-3011	General
Tandy Corp.	817-878-6875	Tech Support
Tatung Co. of America	213-979-7055	Tech Support
Teac America, Inc.	213-726-0303	Tech Support
Tech Data	813-538-7090	BBS

Tech Data	800-553-7977	Tech Support
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Telebit Corp.	800-835-3248	Tech Support
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Texas Instruments	512-250-7407	Tech Support
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Toshiba America	800-999-4273	Tech Support
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Tulin	408-432-9025	General
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Ultrastor	714-453-8173	Tech Support
USNO Time of Day	202-653-0351	BBS
U.S.Robotics	708-982-5092	BBS
Ven Tel	408-922-0988	BBS
Video Seven	(now Headland Tech.)	
Western Digital	714-753-1234	BBS
Western Digital	800-832-4778	Tech Support
WordPerfect Corp.	801-225-4414	BBS
WordPerfect Corp.	800-541-5096	Tech Support
Wyse Technology	408-922-4400	BBS
Wyse Technology	408-435-2770	Tech Support
Xerox Computer Serv.	213-306-4000	General
XTree	805-546-9150	BBS
Y-E Data	714-898-3677	General (C.Itoh drv suppt)
Zenith Data Systems	800-888-3058	BBS
Zeos	800-228-5390	Tech Support
Zsoft	404-427-1045	BBS
ZyXEL	714-693-0762	BBS



## Seagate Telephones

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### Corporate Headquarters:

920 Disc Drive  
Scotts Valley, CA 95066, U.S.A.

408-438-6550	General, Corporate	<u>Sales Offices, USA</u>
408-429-6356	General, Corporate FAX	
408-438-8111	Sales, Telemarketing	

33-1-40-67-1300 Paris, France (Europe, Middle East, Africa  
Headquarters)

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61-2-725-3366	Wetherill Park, Australia

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55-21-253-6649	Rio de Janeiro, Brazil (Manufacturer's Rep.)

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Seagate Technology Korea, Ltd.  
822-556-8240 Seoul, Korea

### Nippon Seagate Inc.

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81-3-5476-0651	(tech support)

### Seagate Technology AB

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46-8-752 05 65	Sweden, FAX

### Seagate Service Centers for Warranty and Repair:

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405-491-6260	Canada, Mexico, South America
405-491-6261	FAX - United States, Canada, Mexico, South America
65-290-3721	Asia/Pacific (Singapore)
65-297-2082	FAX - Asia/Pacific (Singapore)
44-3552-35951	Europe, Middle East, Africa
44-3552-38559	FAX - Europe, Middle East, Africa
31-20-6-533539	The Netherlands
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**SeaFAX:** Use a touchtone telephone to access Seagate's Automated FAX system and request technical support information by return FAX. The system is available 24 hours/day, 7 days/week.  
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### SALES Offices, USA:

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214-448-8050	Dallas, TX
713-874-2575	Houston, TX





## Controllers and Host Adapter Installation Guides

### Seagate Controller Installation Guides

<u>ST01</u>	<u>8-bit SCSI Host Adapter (8K ROM)</u>	---> <u>Cover</u>
<u>ST01</u>	<u>8-bit SCSI Host Adapter (16K ROM)</u>	
<u>ST02</u>	<u>8-bit SCSI Host Adapter (16K ROM) w/floppy</u>	
<u>ST01/02</u>	<u>SCSI Host Adapter with v3.3 BIOS</u>	

<u>ST05X</u>	<u>8-bit XT Bus Host Adaptor</u>	---> <u>Cover</u>
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<u>ST07A</u>	<u>16-bit AT Bus Host Adapter</u>	---> <u>Cover</u>
<u>ST08A</u>	<u>16-bit AT Bus Host Adapter w/floppy</u>	

<u>ST11M (MFM)/ ST11R (RLL)</u>	<u>8-bit Controller</u>	---> <u>Cover</u>
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<u>ST21M (MFM)/ ST21R (RLL)</u>	<u>16-bit Controller</u>	---> <u>Cover</u>
<u>ST22M (MFM)/ ST22R (RLL)</u>	<u>16-bit Controller w/floppy</u>	

st01cover

ST01, ST02  
SCSI Host Adapter  
Installation Guide

Seagate

st01copyright

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#### Introduction:

This handbook may be used for ST01/02 Host Adapter installation or with Seagate's SCSI Paired Program. Paired Program means that the drive and Host Adapter/Controller are matched to optimize system throughput. And, installation software is already loaded on the drive.

Seagate SCSI drives are recognized by an "N" after the drive model number, e.g., ST1096N.

The ST01 and ST02 Host Adapters provide an 8-bit SCSI interface for the IBM PC XT AT (and all 100% compatible systems) and up to seven SCSI devices. Installation of more than two hard disc drives requires device driver software, which is not provided by Seagate.

The ST02 additionally supports up to two 3.5-inch or 5.25-inch floppy diskette drives.

Seagate SCSI Host Adapters require only a single bus connector and may be installed in a standard IBM PC short or long slot.

### Before You Begin...

This guide may be used for ST01/02 SCSI Host Adapter installation; both Paired and non-Paired applications. In either application, ST01/ST02 setup is identical.

All Paired Program drives are shipped already formatted with a small DOS partition. A program to install the drive, called INSTALLR is contained in that partition. You must supply the DOS system. Seagate Paired Program drives are easily recognized by a "PR" label on the top cover.

Paired Program drives with formatted capacities greater than 32 megabytes are shipped with partitioning software, referred to as Disk Manager.

**Before Beginning The Installation:** Inspect the drive, Host Adapter, cables, mounting hardware and accessories, documentation and packaging. If any item is incorrect, missing or appears damaged, contact your Distributor/Dealer.

**Shipping:** Improper handling during transit/shipping accounts for many "installation" problems. When transporting or shipping a drive, controller or system, please ensure that they are correctly packed in the original container and shipped via an approved carrier.

Repair centers may refuse receipt of components improperly packaged or obviously damaged in transit. Consult your Distributor/Dealer for approved packing materials and carriers.

**Care and Handling:** Do not handle a drive/Host Adapter without observing static-discharge precautions. A grounded wrist-strap is preferred; if unavailable, ground yourself frequently by touching the metal chassis of the system before handling any components. Do not unpack the drive/Host Adapter until you are ready to complete the installation.

Seagate disc drives do not require any preventive maintenance. The head/disc assembly is sealed and does not contain any user serviceable components. Do not tamper with the sealed top cover; doing so will void your warranty.

## I. SCSI Drive and Host Adapter Compatibility

The ST01/ST02 Host Adapters support Seagate SCSI interface hard drives. Early versions of the ST01 have an 8K ROM and no auxiliary drive power connector. The 16K version of the ST01 has an auxiliary drive power connector and is designated as ROM Version 2.0 or higher.

The ST02 supports up to two 3.5-inch or 5.25-inch floppy diskette drives.

Table 1: ST02 Diskette Support

Diskette	Capacity	Transfer Rate
5.25-inch	360 KBytes	250 Kbits/sec
5.25-inch	1.2 MBytes	300/500 Kbits/sec
3.5-inch	720 KBytes	250 Kbits/sec
3.5-inch	1.44 MBytes	300/500 Kbits/sec

Diskette support in IBM PC-compatible systems depends upon the operating system used and the BIOS installed on the system board. The user may have to upgrade either the BIOS or operating system in order to obtain the desired diskette support.

Table 2 outlines the operating system requirements for the various diskette drive types.



Table 2: PC/MS-DOS Support for Diskette Drives

DOS Version	360 KByte	1.2 MByte	720 KByte	1.44 MByte
PC/MS-DOS 2.1	X			
PC/MS-DOS 3.0	X	X		
PC/MS-DOS 3.1	X	X		
PC/MS-DOS 3.2	X	X	X	
PC/MS-DOS 3.3	X	X	X	X

IBM offers drive support starting at PC-DOS 3.2 for the 720 KByte diskette and at version 3.3 for the 1.44 MByte drive. The DRIVER.BIN module is installed via the CONFIG.SYS module at boot time.

Microsoft offers driver support starting at MS-DOS 3.2 for the 720 KByte drive through use of the DRIVPARM and DRIVER.SYS programs.

MS-DOS 3.3 supports both the 720 KByte and 1.44 MByte drives using the DRIVER.SYS program.

The MS-DOS DRIVER.SYS and DRIVPARM modules are installed via the CONFIG.SYS file at boot time.

In addition to the requirement that the operating system support a particular diskette drive, the ROM BIOS installed on the system board must also provide compatibility.

Table 3 indicates the diskette drives supported by the ROM BIOS installed in the most common IBM systems.

PC compatibles that do not use an original IBM BIOS should consult the Operations Manual supplied with their system to determine the diskette drive support offered.

Table 3: IBM ROM BIOS Support for Diskette Drives

IBM System	360 KByte	1.2 MByte	720 KByte	1.44 MByte
PC, PC XT	X			
PC XT 286	X	X	X	
PC AT (6 MHz)	X	X		
PC AT (8 MHz)	X	X	X	
PS/2 Model 30	X	X	X	
PS/2 Model 50/60/80	X	X	X	X

Note: The ST02 Host Adapter does not contain any ROM BIOS extensions for diskette drive support.

## II. ST01/ST02 and SCSI Drive Configuration

Before attempting any installation read through these instructions. Verify that the system is powered-down.

1. Remove the top cover from the system. Retain the screws.
2. SCSI Address/Parity Jumpers and Resistor Packs:

Set the SCSI ID jumper on the hard disc drive. The Host Adapter recognizes devices by their SCSI ID number. If the drive has parity jumpers, they must remain shorted.

\* If you are installing one drive, the ID number is 0 (no jumper).

\* A second physical drive must be set as ID number 1.

\* Drive Resistor Termination Packs:

If you are installing two drives, remove the resistor termination packs from the first drive (the drive nearest the Host Adapter on the cable).

3. Remove the Host Adapter from the protective covering. Observe static-discharge precautions and do not touch the board components or connectors.

4. Host Adapter Configuration Jumpers:

\* Starting BIOS Address, ST01 and ST02:

C800H is the 16K BIOS address (default). For the 8K BIOS, the default address is CA00H. If there is a board already installed at the default address in the system, use the jumpers to change to another address. Refer to Figures 1-3 and Tables 4-5.

\* Zero-Wait-State (0WS), ST01 and ST02:

A 2-pin jumper is provided to enable the 0WS logic for PC ATs and compatibles that implement the 0WS control line on the PC bus. The default configuration disables the use of this line.

Optimum performance will be achieved, on PC AT compatibles that correctly implement this signal, by enabling this line. Refer to Figures 1-3 and Table 6. Please consult your system manual or contact your dealer for more information.

\* Interrupt Selection, ST01 and ST02:

A 3-pin jumper is provided in order to select interrupts. Interrupts should be disabled (by removing the jumper) for PC/MS-DOS operating in PC XT AT environments. This is the default configuration. Refer to Figures 1-3 and Table 7.

\* Diskette Drive Selection, ST02 Only:

The ST02 supports all four of the standard PC diskette drive types. A jumper is provided (JP5) to restrict diskette support PC XT functionality; that is, only 360 KByte and 720 KByte. The default setting (jumper on) will support all types. Refer to Figure 3 and Table 8.

\* Register Emulation, ST02 Only:

Many personal computers that are compatible with the IBM PC AT check at boot time to verify that an AT-compatible diskette/hard drive controller is present. If not, then an XT-compatible diskette controller is assumed and only 360 KByte diskette drives are supported.

A jumper is provided to enable emulation of this register (01F4H). Refer to Figure 3 and Table 9.

The default is to enable emulation. In PC and PC XT environments, it is not used and may be safely left installed. It should be used in PC AT compatible systems; removing the jumper may prevent use of 1.2 MByte and other (non-360 KByte) format diskette drives.

Emulation should be disabled if the system already has a hard disc controller installed.

5. Connect the hard drive (and diskette drive to the ST02) cables to the Host Adapter. You may find it easier to attach the cables before you install the Host Adapter in the system. Pin-1 on the Host Adapter always corresponds to pin-1 at the drive connector. Note that some cables have a colored stripe to indicate pin-1.

6. Install the drive in the left drive-bay, if possible, as the power supply may obstruct the cable.
7. For ease of installation attach the cable to the drive before you slide it completely back into position.
8. Connect the drive DC power line.
9. Verify that all connections are correct and replace the system cover. Go on to Parts IV and V/VI for the required formatting.

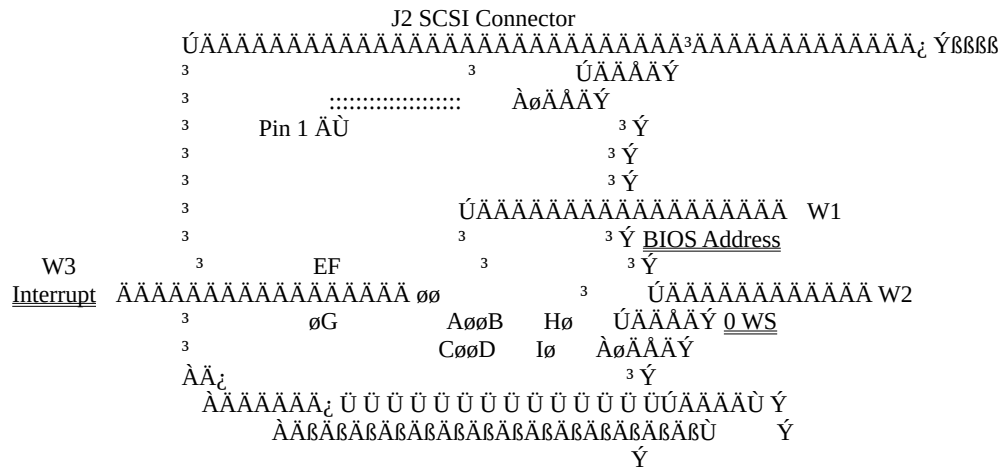
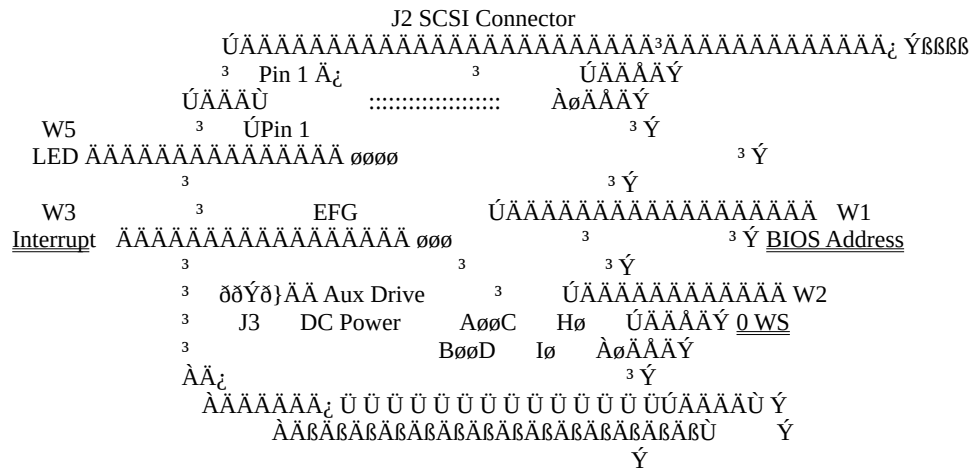


Figure 2: ST01 Host Adapter, 16K ROM Version



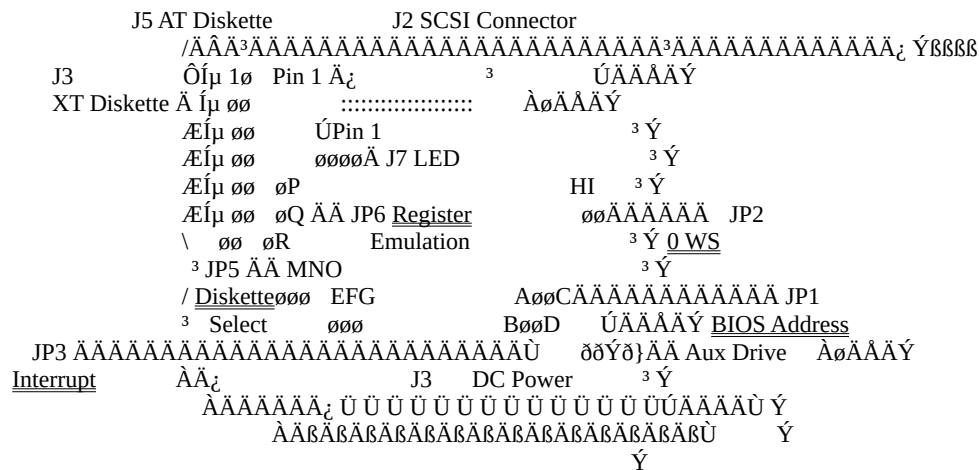
\* Auxiliary Drive Power Connector:

A 5-pin DC power connector is provided for systems that lack DC power cables. It may also be used for Drive-on-a-Card installations. Contact your dealer for more information.

\* LED Connector:

A 4-pin header is provided for the drive front bezel LED connector used in IBM PC AT and compatible systems. Pins 1 and 4 are logic ground. Pins 2 and 3 provide +5 VDC when the SCSI channel is active.

Figure 3: ST02 Host Adapter



\* Auxiliary Drive Power Connector:

A 5-pin DC power connector is provided for systems that lack DC power cables. It may also be used for Drive-on-a-Card installations. Contact your dealer for more information.

\* LED Connector:

A 4-pin header is provided for the drive front bezel LED connector used in IBM PC AT and compatible systems. Pins 1 and 4 are logic ground. Pins 2 and 3 provide +5 VDC when the SCSI channel is active.



Table 4: ST01 8K BIOS Memory Address (W1)

Configuration	Address
No jumpers installed	CA00H (Default)
Pins A-B Shorted	C800H
Pins C-D Shorted	CE00H
Pins A-B and C-D Shorted	DE00H

Note: The 8K BIOS version of the ST01 is easily recognized. It doesn't have a notch in the upper left corner of the card.

Table 5: ST01/ST02, 16K BIOS Memory Address (JP1)

-----	
Configuration	Address
-----	
No jumpers installed	C800H (Default)
-----	
Pins A-B Shorted	Invalid
-----	
Pins C-D Shorted	CC00H
-----	
Pins A-B and C-D Shorted	DC00H
-----	

Table 6: Zero-Wait-State Enable, ST01 and ST02 (W2 or JP2)

-----	
Configuration	0WS State
-----	
No jumpers installed	0WSDisable(Default)
-----	
Pins H-I Shorted	0WS Enable
-----	

Table 7: Interrupt Enable, ST01 (W3) and ST02 (JP3)

-----	
Configuration	IRQ State
-----	
No jumpers installed	Interrupts Disabled
	(Default)
-----	
Pins E-F Shorted	IRQ3 Enable
-----	
Pins F-G Shorted	IRQ5 Enable
-----	

Table 8: Diskette Drive Type Selection, ST02 Only (JP5)

-----	
Configuration	Diskette Type Selected
-----	
Pins M-N Shorted	360/720 KByte Only
-----	
Pins N-O Shorted	360/720 KByte & 1.2/1.44 MByte
	(Default)
-----	

Table 9: Register 01F4h Emulation, ST02 Only (JP6)

-----	
Configuration	Diskette Type Selected
-----	
Pins Q-R Shorted	Enabled for PC XT 286 and PC AT (Default)
-----	
Pins P-Q Shorted	Disabled for PC XT
-----	

Refer to page 7 for additional information on Register 01F4h emulation.

### III. ST02 Diskette Drive Configuration

The ST02 has two 34-pin connectors for diskette drive support. J3 is provided as an edge-connector for use with PC and PC XT compatible diskette drive cables. J5 is a 34-pin header for use with PC AT compatible diskette drive cables. Contact your dealer for cables.

1. PC Setup Jumpers: There are several jumpers located on the diskette drive that must be correctly set to perform in the PC environment. Each manufacturer may label these jumpers differently. Refer to the diskette drive manual supplied with your system to determine correct jumper position.
2. Diskette Drive Select Jumpers: This header has four positions. They are labeled DS0-3 or DS1-4 depending on the drive vintage. For PC applications only, DS1 (older drives) or DS2 (newer drives) are used because the drive interconnecting cable has lines switched to accommodate a common jumper setting.
3. Diskette Terminator Jumper: This jumper is used to activate terminating resistors for 7 of the 11 drive interface input lines. The lines are defined by drive type and manufacturer. In PC applications Drive A has the terminating resistor jumper active. Drive B has no terminating jumper.

#### IV. Notes Before Formatting the Drive

The installation process will "low-level" format new physical blocks, create DOS-compatible partitions, root directories and file allocation tables for the entire drive. The procedure is identical for IBM XT and AT systems, except where indicated.

All Seagate Paired Program drives are shipped with a small DOS partition containing INSTALLR.EXE, PARK.COM, and README.1ST (a printable supplement to this installation guide). README.1ST contains the latest information for the drive being installed. It can be accessed by the DOS commands: TYPE, COPY, and PRINT.

- \* If your drive has less than 32 formatted MBytes, you will need one DOS-bootable diskette that has the boot files from the version of DOS that you plan to use on your Seagate drive. This diskette should also contain the FORMAT program provided with DOS, and sufficient space (approximately 5 KBytes) to save the installation programs from the hard drive. The diskette must not be write-protected.

- \* If your drive has more than 32 formatted MBytes, you will need two diskettes; one DOS-bootable with the version of DOS you plan to use. The second diskette must have at least 320 KBytes available to save the installation and Disk Manager programs. The diskettes must not be write-protected.

- \* Important Note for PC AT Installations:

If you are installing your drive in a PC AT or 100% compatible, and a hard drive is not presently attached or operational, the hard drive count in CMOS will already be set to zero, or no hard drives installed.

If a standard hard drive is already attached and operating, it will be the first drive and the Seagate Paired Program Drive will be Drive 2. It is not necessary to change the CMOS hard drive count when installing Seagate Paired Program drives.



Note to Installers and/or second drive installations: DOS assigns a logical identifier (C, D, E...) to each partition that it recognizes during the boot load. It assigns these letters to the first partition on each physical drive in sequential order. Therefore, if you have a single drive with three partitions, they will be assigned C, D, and E.

#### V. Installation: Drives Less Than 32 MBytes

IMPORTANT. This Section is for Paired Program installations only. Read Section IV before formatting. The entire software installation routine is menu-driven and takes from ten to thirty minutes, depending on drive size. For specific DOS questions, refer to the DOS manual supplied with your system.

After the format is completed, the read/write heads will be parked. At the next power-up, the system will boot from the hard disc.

Read/Write Head Park Program: A PARK program is pre-loaded on all Paired Program drives. The ST225N requires use of this program to park the heads before your drive/system is transported. All other Seagate SCSI drives automatically park the heads at power-down.

For optimum performance, format the drive installed in your system in the same orientation in which it will be used.

##### 1. Software Installation: START HERE

Place a DOS-bootable diskette (to boot simply means to start the system) in Drive A and switch the power on.

##### 2. After the boot process is complete, begin the installation by typing:

C:INSTALLR C

Press: Enter (Return)

If the drive and Host Adapter are correctly installed you will see the following display:

Seagate Disc Formatting Utility, VX.X

If you are installing a second drive, type:

D:INSTALLR D ENTER

3. Your screen should look like this:

A>C:INSTALLR C

or, A>D:INSTALLR D

After pressing ENTER (Return), you will see a screen and follow the screen prompts.

## VI. Installation: Drives Greater Than 32 MBytes

IMPORTANT. This Section is for Paired Program installations only. Read Section IV before formatting. The entire software installation routine is menu-driven and takes from ten to thirty minutes, depending on drive size. Help is available by pressing the F1 key. For specific DOS questions, refer to the DOS manual supplied with your system.

At the beginning of the installation, you will be instructed (after the boot) to remove the DOS diskette and insert a blank formatted diskette to make a backup copy of the Disk Manager software.

After the format is completed, the read/write heads will be parked. At the next power-up, the system will boot from the hard disc.

For optimum performance, format the drive installed in your system in the same orientation in which it will be used.

### 1. Software Installation: START HERE

Place a DOS-bootable diskette (to boot simply means to start the system) in Drive A and switch the power on.

### 2. After the boot process is complete, begin the installation by typing:

A>C:INSTALLR C ENTER

If the drive and Host Adapter are correctly installed you will see the following display:

Seagate Disc Formatting Utility, VX.X

If you are installing a second drive, type:

A>D:INSTALLR D ENTER

3. Follow the screen prompts.

If you are installing a drive with Disk Manager software, and you already have a hard disc in your system, you must copy the DMDRVR.SYS and CONFIG.SYS files from the Disk Manager diskette to the existing (first, or boot) drive.

If you already have a CONFIG.SYS file on the boot drive, update the file to include the following line:

```
DEVICE=DMDRVR.BIN
```

Refer to your DOS manual for instructions on editing the CONFIG.SYS file.

## VII. Troubleshooting Your Installation

If you have a problem getting the initial screen, or later getting the system to boot:

- \* Check the cabling between the Host Adapter and drive. Pin-1 on the Adapter always corresponds to Pin-1 at the drive connector. Most cables have a contrasting color on the cable to indicate Pin-1.
- \* Check the power cable to the drive. Can you hear it spinning up?
- \* Verify correct hard drive SCSI ID selection.
- \* Verify correct BIOS address for the Host Adapter. See Tables 4-5. If you have more than one board that uses BIOS ROM space, each must be configured to a different memory address. Addressing multiple boards at the same memory location can cause problems of a seemingly indeterminate nature.
- \* If you experience problems accessing your DOS partition after installation, refer to the .REF files provided with the Disk Manager software (drives over 32 formatted MBytes).

For system or DOS help, contact your computer system manufacturer.

For additional installation help, contact your authorized Seagate Distributor/Dealer.



st02v33JP1

Jumper Definitions:

JP1 - Bios Address Selection			
Pins		BIOS	
1-2	3-4	Address	
Open	Open	C8000h	
Short	Open	CA000h (invalid)	
Open	Short	CC000h	
Short	Short	CD000h	

st02v33JP2

JP2 - Zero Wait State

Open	=	Disable	
Short	=	Enable	



st02v33JP3

JP3 - Interrupt

-----		
No Jumper	=	Int. Disable
1-2 Shorted	=	IRQ 3
2-3 Shorted	=	IRQ 5
-----		

st02v33JP6

JP6 - H. D. Emulation Register

2-3 Shorted	=	Disable	
1-2 Shorted	=	Enable	

(1F2, 1F4 AT System only)

st02v33JP7

JP7 - Floppy Enable/Disable

Open	=	Enable	
Shorted	=	Disable	

(ST-02 only)

st02v33JP8

JP8 - Terminator Power

-----  
| Open = Disable |  
Shorted = Enable

(If enabled, the ST01/02 will supply terminator power  
to remote device)

st02v33info

Addendum from the Seagate Tech Support BBS: The ST01/02 has a newer board layout that can be identified by the ROM BIOS chip with a version number 3.3 sticker.

Unlike previous versions of the ST01/02, this release will support drives with more than 1024 cylinders and the ability to disable the floppy controller portion on the ST02. This provides compatibility with the Swift and Wren families of Seagate disc drives. Please note that there is no possibility of ROM upgrades to older versions of the ST01/02 SCSI host adapter.

st05cover

ST05X XT Interface

-----

Host Adapter

-----

Installation Guide

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920 Disc Drive, Scotts Valley, California 95066-4544, USA  
Telephone: 408/438-6550  
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#### Introduction:

The ST05X Host Adapter is used in conjunction with the Seagate XT interface drives and an IBM PC/XT (or compatible) computer.

The ST05X is a half-slot board. It provides a 40-pin XT interface connector for systems lacking an XT interface drive connector on the motherboard. The ST05X supports two drives only.

The ST05X provides address decoding for hard drive I/O and buffering of signals between the host and the hard drive. The BIOS address is jumper-selectable. Additionally, the ST05X offers the following features for IBM PS/2 Model 25/30 or Drive-on-a-card applications:

- \* Drive Activity LED connector
- \* Auxiliary DC Power Connector
- \* Standard Mounting Points



## 1.0 ST05X Configuration

The ST05X requires no special installation software. The XT interface drive can be low-level formatted using the ST05X BIOS (DOS Debug command G=C800:5) or the system BIOS. For additional information, refer to the drive's Product Manual.

### 1.1 XT Interface Drive Connectors: J1/J2

J1 and J2 are 40-pin XT interface drive connectors. Refer to Figure 1.

J1 Connects to Drive 1	320H-323H
J2 Connects to Drive 2	324H-327H

The ST05X supports two XT interface drives. For additional information on the XT interface, refer to the Seagate XT interface manual/



[illegible]

### 1.3 Auxiliary Drive DC Power Connector: J4

J4 is a 6-pin, right-angle header. J4 may be used to supply DC power to a hard drive. This is provided for systems which lack an available power harness or Drive-on-a-card applications. Refer to Figure 1.

Pin	Signal	Description
1	+12VDC	+12 VDC Power
2	+12VDC	+12 VDC Power
3	+5VDC	+5 VDC Power
4	Key	Pin Removed
5	GND	Ground
6	GND	Ground



st07cover

ST07A, ST08A

-----  
AT INTERFACE HOST ADAPTER  
-----

INSTALLATION GUIDE  
=====

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920 Disc Drive  
Scotts Valley, CA 95066-4544, USA  
408/438-6550

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#### Introduction:

The ST07A and ST08A Host Adapters are used in conjunction with a Seagate AT interface drive and an IBM PC AT (or compatible) computer. They are both half-slot boards, which provide a 40-pin AT interface connector for systems lacking an AT interface drive connector on the system motherboard.

The ST07A/ST08A support two AT interface drives. They provide address decoding for hard drive I/O and buffering of signals between the host and the hard drive.

The ST08A supports up to two floppy diskette drives:

- \* 5.25-inch, 260 KByte/1.2 MByte
- \* 3.5-inch, 720 KByte/1.44 MByte

An auxiliary DC power connector and mounting points are provided on both boards for "Drive-on-a-Card" applications.





## 1.0 ST07A/ST08A Interface Connector/User Options

### 1.1 AT Interface Drive Connector: J1

J1 is a 40-pin header. J1 provides the AT interface connection to the hard drive. Maximum cable length: 18 inches (.45 meter).

### 1.2 Floppy Diskette Connector: J2 (ST08A Only)

J2 is a 34-pin header. J2 provides connection to floppy diskette drives. Refer to Section 1.6 for supported formats.

st07pg3\_5

### 1.3 LED Connector: J3

J3 is a 4-pin header. J3 provides connection to a drive activity indicator.

-----
Pin 1 or 4   + to LED
-----
Pin 2 or 3   - to LED
-----

#### 1.4 Auxiliary Drive DC Power Connector: J4

J4 is a 6-pin, right-angle header. J4 may be used to supply DC power to a hard drive. This is provided for systems which lack an available power harness or for "Drive-on-a-card" applications.

Pin	Signal	Description
1	+ 12 VDC	+ 12 VDC Power
2	+ 12 VDC	+ 12 VDC Power
3	+ 5 VDC	+ 5 VDC Power
4	Key	Pin Removed
5	GND	Ground
6	GND	Ground

#### 1.5 Hard Drive I/O Address Selection: JP2

JP2 provides address decoding for hard drive I/Os.

Pin	Address Selection	Drive Address
1-2	Primary Address	1F0-1F7, 3F6-3F7
Open	Standard Configuration	
1-2	Secondary Address	170-177, 376-377
Shorted		

#### 1.5.1 Floppy Diskette Drive I/O Address Selection: JP2

JP2 provides address decoding for the floppy diskette drive I/Os (ST08A only)

Pin	Address Selection	Diskette Drive Address
1-2	Primary	3F0-3F5, 3F7
Open	Standard Configuration	
1-2	Secondary	370-375, 377
Shorted		

st07pg5\_1

#### 1.6 ST08A Controller Enable: JP4

The ST08A supports up to two floppy diskette drives of the following formats:

- \* 5.25-inch, 360 KByte/1.2 MByte
- \* 3.5-inch, 720 KByte/1.44 MByte

=====	
Pin	Diskette Controller Status
=====	
Pins 1-2 Shorted	Controller Enabled
	Standard Configuration
-----	
Pins 1-2 Open	Controller Disabled
-----	

## 1.7 Disable Interrupt While Busy: JP5

Pin	Interrupt Status
Pins 2-3 Shorted	The hard drive interrupt is directly connected to the IRQ 14 line of the AT bus. Standard For All Seagate AT Interface Drives
Pins 1-2 Shorted	IRQ14 to the host is cleared when the the hard drive goes BUSY. This jumper configuration is specially provided for those systems which do not read status following an interrupt.

## 1.8 I/O Channel Ready: JP6

-----	
Pin	I/O Channel Status
-----	
Pins 1-2 Open	I/O channel READY from hard drive is not connected to the host.
	Standard Configuration
-----	
Pins 1-2 Shorted	I/O channel READY from the hard drive is connected to the host.
-----	



st11cover

ST11M, ST11R

ST412 Interface Controller

Installation Guide

Seagate

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Telephone: 408/438-6550  
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## Introduction:

This installation guide supports the Seagate ST11M MFM and ST11R RLL Controllers, ROM Version 2.0 or higher.

The ST11M and ST11R are 8-bit ST412 interface controllers designed for use in PC XT AT systems with DOS-based applications. Use with other than DOS-based systems is beyond the scope of this guide. Contact your Distributor/Dealer.

- \* The ST11M is designed for use with drives employing MFM data encoding.
- \* The ST11R is designed for drives using RLL (2,7) data encoding. Seagate RLL drives are easily recognized by an "R" after the model number, e.g., ST157R. Seagate Technology, Inc. assumes no liability for installation of an RLL controller with an MFM-certified drive.
- \* The ST11M/ST11R have a unique recording format and therefore require all attached drives to be installed by one of the processes described in this guide before operation.

This publication may be used with Seagate Paired Program drives or as a controller-only installation guide.

Paired Program drives are shipped with a Seagate controller. They are recognized by a "PR" label on the drive top cover. Paired drives are shipped formatted with a small DOS partition containing the installation program, INSTALLR, which will low-level format and partition your drive. You must supply the DOS program. The ST11M/ST11R can recognize whether a drive has the Paired Program software loaded, or has been previously installed.

Paired Program drives with formatted capacities greater than 32 MBytes have Disk Manager partitioning software loaded. This utility has been customized by Ontrack for Seagate. Refer to Section 2.1 for special instructions on formatting Paired Program drives.

### Before You Begin...

Inspect the controller, drive, cables, mounting hardware/accessories, documentation and packaging. If any item is incorrect, missing or appears damaged, contact your Distributor or Dealer immediately.

Handling: Improper handling during transit/shipping accounts for many "installation" problems. Prior to installation, handle your drive/controller carefully.

Observe Static-Discharge Precautions: Keep the drive/controller in their static-shielded bags until you are ready to complete the installation. Use a grounded wrist-strap at your workstation; if unavailable, ground yourself frequently by touching the metal chassis of the system before handling any components. Avoid static-inducing carpeted areas.

Shipping: When transporting or shipping a drive or controller, a Seagate-approved container must be used. Keep your original box. They are easily identified by a red label identifying them as a "Seagate Approved Package."

Shipping a drive in a non-approved container will void the drive warranty.

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

Maintenance: Seagate disc drives do not require any preventative maintenance. The head/disk assembly is sealed and does not contain any user-serviceable components. Tampering with the factory-seal will void the warranty.

## 1.0 ST11M/ST11R Controller Installation

Caution: Do not handle a drive or controller without observing static-discharge precautions. A grounded wrist-strap is preferred; if unavailable, ground yourself frequently by touching the metal chassis of the system before handling any components. Do not unpack the drive/controller until you are ready to complete the installation.

BEFORE ATTEMPTING ANY INSTALLATION, READ THROUGH ALL STEPS AND VERIFY THAT THE SYSTEM IS POWERED-DOWN.

During the formatting process, you will be asked to enter some simple drive specifications. Please refer to Figures 1-2 for formatted capacity and basic specifications. For non-Seagate drives, refer to the manufacturer's instructions.

Figure 1: Seagate MFM Drive Setup - ST11M

Model	Formatted MBytes	R/W Heads	Data Cylinders	Sectors per Track	Auto- Park
ST124	21.4	4	615	17	No
ST125	21.4	4	615	17	Yes
ST138	32.1	6	615	17	Yes
ST151	42.5	5	977	17	Yes
ST225	21.4	4	615	17	No
ST251	42.8	6	820	17	Yes
ST252	42.8	6	820	17	Yes
ST4053	44.5	5	1024	17	Yes
ST4096	80.2	9	1024	17	Yes

Figure 2: Seagate RLL Drive Setup - ST11R

Model	Formatted MBytes	R/W Heads	Data Cylinders	Sectors per Track	Auto- Park
ST137R	32.7	4	615	26	No
ST138R	32.7	4	615	26	Yes
ST157R	49.1	6	615	26	Yes
ST225R	21.2	2	667	31	No
ST238R	32.7	4	615	26	No
ST250R	42.9	4	667	31	No
ST277R	65.5	6	820	26	Yes
ST278R	65.5	6	820	26	Yes
ST4144R	122.7	9	1024	26	Yes

Data Cylinders: User cylinders are calculated from logical zero, i.e., 0 to 614 equals 615 cylinders.

Write Precompensation (ST225 Only): For optimum performance, precompensation is recommended starting on cylinder 300. Enter the information, when prompted.

Interleave: Use optimum interleave as indicated in installation routine.

Read/Write Head Parking: A PARK program is preloaded on all Paired Program drives, PARK.EXE or PARK.COM, which the INSTALLR software will copy to a diskette during installation. The following drives require parking before the drive/system is transported: ST124, ST137R, ST225, ST225R, ST238R, ST250R. All other Seagate drives feature automatic R/W head parking at power-down.

### 1.1 Set the Controller BIOS Address

Controllers and add-in boards are installed in the bus slots on the computer's motherboard. These slots are recognized by the computer BIOS address number. Each board installed must be jumpered for a specific address.

C8000H is the default BIOS address for the ST11M/ST11R. If this address is already occupied by another board, use the jumpers provided to change the Seagate controller to another address. Refer to Figure 3.

When installing an ST11M/ST11R controller with a Seagate ST01/ST02 SCSI Host Adapter, the controller must be at the lowest address (C8000H).

When installing the ST11M/ST11R in a system already containing a hard disc controller, the Seagate controller must be jumpered at a higher BIOS address than the resident controller. If you are not sure of the other controller's address, try one of the higher addresses for the Seagate controller.

Controller physical installation will only involve setting the BIOS address (Figure 3), attaching the cables and inserting the controller in a system bus slot. It is often easier to attach the cables before you install the controller.





st11pg6\_1

=====		
Jumper Setting at W1	BIOS Address	Port Address
=====		
No Jumpers Installed	C8000H (Default)	320H - 323H
-----		
Pins A-B Shorted	D0000H	324H - 327H
-----		
Pins C-D Shorted	D8000H	328H - 32BH
-----		
Pins A-B and C-D Shorted	E0000H (Do not use on an AT-class system)	32CH - 32FH
-----		

## 1.2 Controller Physical Installation

CAUTION: VERIFY THAT THE POWER IS OFF.

### 1. Remove the System Cover (Refer to your system manual).

Access to the screws is usually at the back of the system. Save the screws. Systems vary, but most require you to slide the cover forward for removal.

### 2. Install the Controller into a System Bus Slot.

Verify that all connections are correct and replace the system cover.

### 3. Optional Drive Power Connector on the ST11M/ST11R.

Normally, drive power is supplied via a power harness from the system power supply directly to the drive's J3 DC power connector. The J5 connector on the ST11M/ST11R can be used to provide disc drive power in system lacking an extra power harness or for "Drive-on-a-Card" applications. See connector J5, Figure 3.

A cable splitter, often called a Y-cable may be used to tap off the diskette drive power cable. They are available from most Distributors/Dealers.

## 2.0 Preparing to Format Your Drive

Please read this section before proceeding to the formatting instructions. Be sure to back up any drive containing data. Formatting at any level may result in partial or complete loss of data. Seagate Technology, Inc. assumes no liability for lost data.

- \* Always use the same version of DOS throughout the entire process. On two-drive systems: Always use the same version of DOS on both drives. When adding a second drive, it is sometimes necessary to reformat the first drive.
- \* DOS assigns a logical identifier (C, D, E...) to each partition that it recognizes during the boot load. It assigns these letters to the first partition on each physical drive in sequential order (e.g., C to Drive 1, D to Drive 2). Subsequent letters are assigned to the remaining partitions on Drive 1, followed by Drive 2. See table below for typical examples:

=====		
Partition	Drive 1	Drive 2
=====		
1	C	D
2	E	H
3	F	I
4	G	J

- \* For optimum performance, format the drive installed in your system in the same orientation in which it will be used.

## 2.1 Paired Program Drive Formatting

Paired Program drives are shipped with a small DOS partition containing Installation software and a README file which has the latest information for the drive being installed. See Section 3.0.

## 2.2 Non-Paired Drive Formatting

Seagate non-paired drive do not have installation software or recognizable format. These drives may be installed by following the procedures in Section 4.0.

## 2.3 Paired Drives with Less than 32 Formatted MBytes

You will need one DOS-bootable diskette that has the boot files from the version of DOS that you plan to use on your Seagate drive. This diskette should also contain the FORMAT program provided with DOS, and sufficient space (approximately 50 KBytes) to save the installation programs from the hard drive. The diskette must not be write-protected.

## 2.4 Paired Drive with Greater than 32 Formatted MBytes

You will need two diskettes; one DOS-bootable with the version of DOS you plan to use. The second diskette must have at least 360 KBytes available to save the installation and Disk Manager programs. The diskettes must not be write-protected.

## 2.5 CMOS Configuration

If you are installing your drive in a PC AT and a hard drive is not presently attached or operational, the hard drive count in CMOS will already be set to zero.

If a standard hard drive is already attached and operating, it will be the first drive and the Seagate Paired Program drive will be Drive 2. It is not necessary to change the CMOS hard drive count when installing with ST11M/ST11R controllers.

## 2.6 Read/Write Head Parking

A PARK program is preloaded on all Paired Program drives. The following drives require this program before the drive/system is transported: ST124, ST137R, ST225, ST225R, ST238R, ST250R. All other Seagate drives feature automatic head parking at power-down.

### 3.0 Paired Program Installations

Read Sections 1-2 before beginning any formatting. The entire software installation routine is menu-driven and takes from ten to thirty minutes, depending on drive size. For specific DOS questions, refer to the DOS manual supplied with your system. After the format is completed, the read/write heads will be parked. At the next power-up, the system will boot from the hard disc.

#### 3.1 Paired Program Formatting

Place a DOS-bootable diskette (to boot simply means to start the system) in Drive A and switch the power on and follow the instructions displayed on the screen. If you are installing a second drive, type:

D:INSTALLR D

If you are installing a drive with Disk Manager software and you already have a hard disc in your system, you must copy the DMDRVR.BIN and CONFIG.SYS files from the Disk Manager diskette to the existing (first, or boot) drive.

If you already have a CONFIG.SYS file on the boot drive, update the file to include the following line: DEVICE=DMDRVR.BIN

Refer to your DOS manual for instructions on editing the CONFIG.SYS file. Disk Manager also provides help files which you may print using the standard DOS print commands.

#### 4.0 Non-Paired Drive Formatting

Use this procedure for non-paired drives or when reformatting a paired drive whose installation software files were lost or not copied before formatting.

Be sure to back up any drive containing data. Formatting at any level may result in partial or complete loss of data. Seagate Technology, Inc. assumes no liability for lost data.

If you use the DOS DEBUG utility to low-level/primary format the drive, you must answer "YES" to the question, "Do you want to enter the defect map which is supplied on your hard disc drive cover?". Proceed with entering all defects from the defect map.

**Important Note:** If you use the ST11M/ST11R controller, BIOS Version 2.0, with a Seagate Paired Program drive, but do not use the Seagate installation software (INSTALLR), you must manually enter the Manufacturer's Defect Map (attached to the drive top cover) during the low-level/primary formatting operation.

Always use the same version of DOS throughout the entire process. On two-drive systems: Always use the same version of DOS on both drives. When adding a second drive, it is sometimes necessary to reformat the first drive.

##### 4.1 Low-level Physical Format Using BIOS Facility

When using DEBUG to format in an AT system, the CMOS or system setup should be set to 0 (i.e., no hard drive installed).

1. Boot the system from the DOS system diskette.
2. At the A> prompt, insert the DEBUG diskette and type:

DEBUG <enter>

3. To access the controller's format routine, at the "-" prompt type:

G=XXXX:5 <enter> (Where XXXX is the correct address; refer to Figure 3.)

Note: Seagate controllers will step you through the process. Refer to the drive charts Figures 1-2 for correct drive parameters.

On drives over 32 formatted MBytes, Disk Manager will automatically partition and high-level format the drive.

Use FDISK and FORMAT on your DOS diskette for drives less than 32 formatted MBytes.

## 5.0 Troubleshooting Your Installation

If you have a problem getting the initial screen, or later getting the system to boot:

- \* Check the cabling between the controller and drive. Pin-1 on the controller always corresponds to Pin-1 at the drive connector. Most cables have a contrasting color on the cable to indicate Pin-1.
- \* Check the power cable to the drive. Can you hear the drive spinning up?
- \* Verify correct Drive Select jumper.
- \* Verify correct BIOS address for the controller. If you have more than one board that uses BIOS ROM space, each must be configured to a different memory address. Addressing multiple boards at the same memory location can cause problems of a seemingly indeterminate nature.
- \* Low-level formatting takes too long or never completes

Format again. Make sure correct drive parameters were entered and cable connections are correct.

- \* FDISK or Partitioning Error Messages: "Error reading fixed disc," or "No fixed disc present"

Check correct drive parameters entered. Turn the system off and power-up again. Rerun FDISK.

- \* High-level Format Error Message: "Invalid drive specification"

Run FDISK again to make sure the DOS partition is active. Check drive parameters and low-level format again.

In AT systems, check that no drive type is entered in the system CMOS setup for the drive attached to the ST11M/ST11R.

- \* Drive fails recal or test drive ready

Check installation, cables, and drive select jumper.

- \* I/O Errors when using Disk Manager:

"Uncorrectable ECC - I/O Error"

"Unrecoverable I/O Error"

If you are formatting a drive in an XT or using the ST11M/ST11R controller in an AT, low-level format the drive through DEBUG using the controller's BIOS routine.

- \* After formatting with Disk Manager, your system does not recognize the D, E, F... partitions:

First, make sure that you boot from the hard drive. If you still cannot access these partitions, check that the Disk Manager device driver, DMDRVR.BIN is in the root director of the C: (boot) drive. Verify that the CONFIG.SYS file contains the following line:

```
DEVICE=DMDRVR.BIN
```

If you experience problems accessing your DOS partition after installation, refer to the help files provided with Disk Manager.

For system or DOS help, contact your computer system manufacturer. For additional installation help, contact your authorized Seagate Distributor/Dealer.



st22cover

ST21M, ST21R

-----

ST22M, ST22R

-----

ST412 Interface Controller

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Installation Guide

=====

\_\_\_\_\_ Seagate

st22copyright

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920 Disc Drive, Scotts Valley, California 95066-4544, USA  
Telephone: 408/438-6550  
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## Introduction

The ST21 and ST22 are 16-bit ST412 interface controllers designed for use in AT-type systems.

\* The ST21M and ST22M are designed for use with drives employing MFM data encoding and a 5.0 Mbit/sec. I/O data transfer rate. Seagate Technology, Inc. assumes no liability for installation of an MFM controller with an RLL-certified drive.

\* The ST21R and ST22R are designed for drives using RLL (2,7) data encoding and a 7.5 Mbit/sec. I/O data transfer rate. Seagate RLL drives are easily recognized by an R after the model number, e.g., ST157R. Seagate Technology, Inc. assumes no liability for installation of an RLL controller with an MFM-certified drive.

\* The ST22M and ST22R have an onboard floppy diskette controller which supports two diskette drives in the following formats:

- 3.5-inch, 720K Byte/1.44M Byte
- 5.25-inch, 360K Byte/1.2 M Byte

\* The ST21 and ST22 have a unique recording format and therefore require all attached drives to be installed by one of the processes described in this guide before operation.

This publication may be used with SEAGATE Paired Program drives or as a controller-only installation guide.

Paired program drives are shipped with a Seagate controller. They are recognized by a PR label on the drive top cover. Paired drives are shipped formatted with a small DOS partition containing the installation program, INSTALLR, which will low-level format and partition your drive. You must supply the DOS program. The ST21/ST22 can recognize whether a drive has a Paired Program software loaded, or has been previously installed.

Paired Program drives with formatted capacities greater than 32 MBytes have DISK MANAGER (customized by ONTRACK for Seagate) partitioning software loaded. Instructions on installing Paired Program drives begin in Section 3.0.

-----

#### Before You Begin...

Inspect the controller, drive, cables, mounting hardware/accessories, documentation and packaging. If any item is incorrect, missing or appears damaged, contact your Distributor or Dealer immediately.

Handling: Improper handling during transit/shipping accounts for many "installation" problems. Prior to installation, handle your drive/controller carefully.

Observe Static-Discharge Precautions: Keep the drive/controller in their static-shielded bags until you are ready to complete the installation. Use a grounded wrist-strap at your workstation; if unavailable, ground yourself frequently by touching the metal chassis of the system before handling any components. Avoid static-inducing carpeted areas.

Shipping: When transporting or shipping a drive or controller, a Seagate-approved container must be used. Keep your original box. They are easily identified by a red label identifying them as a Seagate Approved Package.

Shipping the drive in a non-approved container will void the drive warranty.

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

Maintenance: Seagate disc drives do not require any preventative maintenance. The head/disc assembly is sealed and does not contain any user-servicable components. Tampering with the factory-seal will void the warranty.

## 1.0 ST21, ST22 Setup and Installation

Caution: Do not handle a drive/controller without observing static-discharge precautions. A grounded wrist-strap is preferred; if unavailable, ground yourself frequently by touching the metal chassis of the system before handling any components. Do not unpack the drive/controller until you are ready to complete the installation.

During the formatting process, you will be asked to enter some simple drive specifications. Refer to Figures 1-2 for basic specifications. For non-Seagate drives, refer to the manufacturer's instructions.

Important Note: A Drive Type must be set in the AT system CMOS if the controller BIOS is disabled. See Section 2.6.

Figure 1: Seagate MFM Drive Setup - ST21M/ST22M

Model	Formatted   MBytes	R/W   Heads	Data   Cyls. /	Sectors   Track	R/W Head   Auto-Park	Write   Precomp
=====						
ST124	21.4	4	615	17	No	None
ST125	21.4	4	615	17	Yes	None
ST138	32.1	6	615	17	Yes	None
ST151	42.5	5	977	17	Yes	None
ST225	21.4	4	615	17	No	Cylinder
						300
ST252	42.8	6	820	17	Yes	None
ST251	42.8	6	820	17	Yes	None
ST4053	44.5	5	1024	17	Yes	None
ST4096	80.2	9	1024	17	Yes	None
ST1100	83.9	9	*1072	17	Yes	None

Figure 2: Seagate RLL Drive Setup - ST21R/ST22R

Model	Formatted   MBytes	R/W   Heads	Data   Cyls.	Sectors   / Track	R/W Head   Auto-Park	Write   Precomp
ST138R	32.7	4	615	26	Yes	None
ST157R	49.1	6	615	26	Yes	None
ST225R	21.17	2	667	31	No	None
ST238R	32.7	4	615	26	No	None
ST250R	42.9	4	667	31	No	None
ST278R	65.5	6	820	26	Yes	None
ST277R	65.5	6	820	26	Yes	None
ST4144R	122.7	9	1024	26	Yes	None
ST1150R	128.4	9	*1072	26	Yes	None

Data Cylinders: User cylinders are calculated from logical zero, i.e., 0 to 614 equal 615 cylinders.

\* Note: The ST21/ST22 can address a maximum of 16 R/W heads and 1,024 cylinders.

Interleave: Use 1:1 interleave as indicated in installation routine.

Read/Write Head Parking: A PARK program is preloaded on all Paired Program drives, PARK.EXE or PARK.COM, which the INSTALLR software will copy to a diskette during installation. The following drives require parking before the drive/system is transported: ST124, ST225, ST225R, ST238R, ST250R. Refer to Section 2.7.

If your drive is not Paired, see your Distributor/Dealer for a read/write head parking program.

## 1.1 Controller Setup

### 1.1.1 Set Controller BIOS and Drive Address: JP1-JP2

Controllers and add-in boards are installed in the bus slots on the computer's motherboard. These slots are recognized by the computer BIOS address number. Each board installed must be jumpered for a specific address.

C8000h-CBFFFh is the default BIOS address for the ST21/ST22. If this address is already occupied by another board, use the jumpers provided to change the Seagate controller to another address. Refer to Figures 4-5.

When installing the ST21/ST22 in a system already containing a hard disc controller, The Seagate controller must be jumpered at a higher BIOS address than the resident controller. See Figures 4-5.



Figure 3: Controller BIOS and Port Addresses

### 1.1.2 Floppy Diskette Enable/Disable: JP4 (ST22 Only)

The ST22 features an onboard floppy diskette controller. It is shipped with the controller enabled, to disable remove the jumper at JP4.

Note: Most systems will not support the secondary floppy diskette I/O addresses.

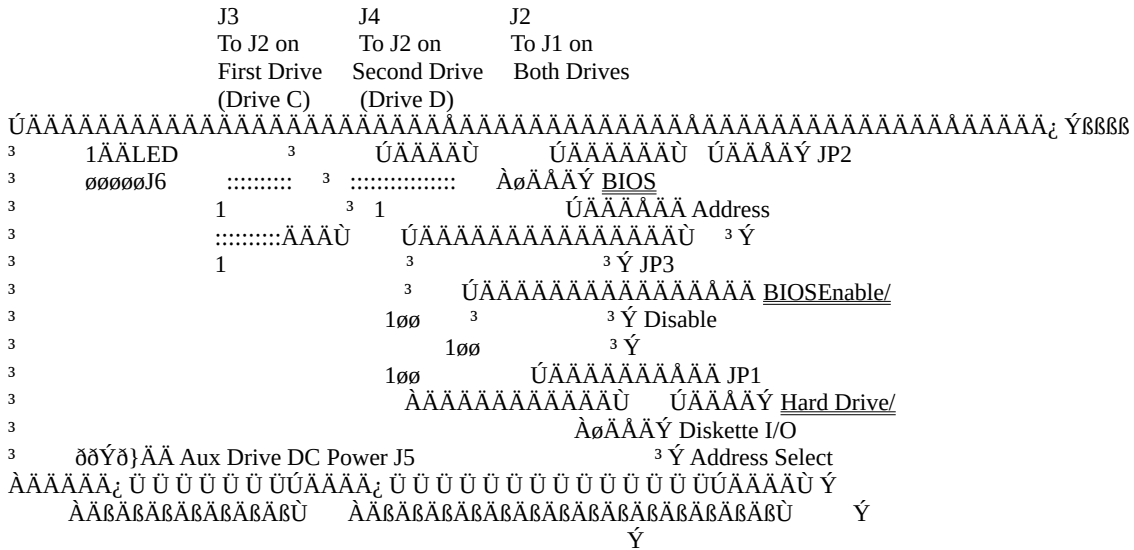
### 1.1.3 BIOS Enable/Disable Jumper: JP3

The ST21 and ST22 are shipped with the BIOS enabled, JP3 open. To disable the BIOS, attach jumper at JP3. Refer to Figures 4-5.

### 1.1.4 Remote LED Connector: J6

The ST21 and ST22 provide for connection to the drive activity LED found on most AT-type systems. Connect the remote LED cable to J6.

Figure 4: ST21M/ST21R - No Floppy Diskette Controller



[illegible]

### 1.3 Controller Installation

CAUTION: VERIFY THAT THE POWER IS OFF.

1. Remove the System Cover (Refer to your computer system manual).

Access to the screws is usually at the back of the system. Save the screws. Systems vary, but most require you to slide the cover forward for removal.

2. Verify Correct Controller Jumper Options Selections

Refer to Section 1.1

Note: Normally, drive power is supplied via a power harness from the system power supply directly to the drive's J3 DC power connector. The J5 connector on the ST21/ST22 can be used to provide disc drive power in systems lacking an extra power harness or for Drive-on-a-Card applications. Refer to figures 4-6.

A cable splitter, often called a Y-cable, may be used to tap off the diskette drive power cable. They are available from most Distributors/Dealers.

3. Install the Controller as Illustrated in Figure 6 of the Seagate Installation Guide (publication # 36127-xxx)

4. Verify correct cable attachment and replace the system cover.

## 2.0 Preparing to Format Your Drive

Please read this section before proceeding to the formatting instructions. **BE SURE TO BACK UP ANY DRIVE CONTAINING DATA. FORMATTING AT ANY LEVEL MAY RESULT IN PARTIAL OR COMPLETE LOSS OF DATA. SEAGATE TECHNOLOGY, INC. ASSUMES NO LIABILITY FOR LOST DATA.**

- \* Always use the same version of DOS throughout the entire process. On two-drive system, always use the same version of DOS on BOTH drives.

- \* For optimum performance, format the drive installed in your system in the same orientation in which it will be used.

- \* The ST21 and ST22 have the ability to flash controller error conditions via the drive front-panel LED. Refer to Section 5.0

### 2.1 Paired Program Drive Formatting

Paired Program drives are shipped with a small DOS partition containing Installation software and a README file which has the latest information for the drive being installed. See Section 3.0

### 2.2 Non-Paired Drive Formatting

Seagate non-paired drives do not have installation software or recognizable format. These drives may be installed by following the procedures in Section 4.0.

### 2.3 Paired Drives: Less than 32 Formatted MBytes

You will need ONE DOS-bootable diskette that has the boot files from the version of DOS that you plan to use on your Seagate drive. This diskette should also contain the FORMAT program provided with DOS, and sufficient space (approximately 50K Bytes) to save the installation programs from the hard drive. The diskette must NOT be write-protected.

## 2.4 Paired Drives: Greater than 32 Formatted MBytes

You will need TWO Diskettes: One DOS-bootable with the version of DOS you plan to use; the second diskette with at least 360K Bytes available to save the installation and DISK MANAGER programs. The diskette must not be write-protected.

## 2.5 CMOS Configuration

If you are installing your drive in a PC AT and a hard drive is not presently attached or operational, the hard drive count in CMOS will already set to zero.

If a standard hard drive is already attached and operating, it will be the first drive and the Seagate Paired Program drive will be Drive 2. It is not necessary to change the CMOS hard drive count when installing with ST21/22 controllers.

## 2.6 BIOS Enable/Disable

The ST21 and ST22 are shipped with the BIOS enabled, JP3 open. To disable the BIOS, attach jumper at JP3. Refer to Figures 4-5.

### 2.6.1 BIOS Enabled

Drive	Controller BIOS Address	CMOS Setting
C	C8000 or CC000 (Primary I/O)	Set to 0 or a type which matches the R/W head and cylinder specifications.
D	C8000 or CC000 (Primary I/O)	Do not set drive in CMOS
C or D	D8000 or DC000 (Secondary I/O)	Do not set drive in CMOS

## 2.6.2 BIOS Disabled

Set all hard drives attached to the ST21/ST22 in the system CMOS to a type that matches the Read/Write head and cylinder specifications.

Remove jumpers JP1 and JP2, and attach jumper to JP3.

**Important Note:** The ST21/ST22 must be the primary controller (i.e., DRIVE C:) when running with the BIOS disabled.

## 2.7 Read/Write Head Parking

A read/write head parking program, PARK.EXE or PARK.COM, is preloaded on all Paired Program drives.

The following drives require running this PARK.EXE or PARK.COM program before the drive/system is transported: ST124, ST225, ST225R, ST238R, ST250R

If your drive is not Paired, see your Distributor/Dealer for a read/write head parking program.

## 2.8 AT Systems with 40-Pin Hard Drive Interface (IDE)

Some newer AT systems have a 40-pin hard drive AT interface connector on the motherboard. On most systems, the AT interface connector must be disabled before the ST21/ST22 can be installed. Refer to the hardware installation manual supplied with your system to determine the interface enable/disable requirements.

The ST21/ST22 can operate concurrently with an installed 40-pin drive, however the ST21/ST22 BIOS must be enabled and the JP1-JP2 jumpered to operate at the secondary address. Refer to Section 2.6.



### 3.0 Paired Program Installations

Read Sections 1-2 before beginning any formatting. The entire software installation routine is menu-driven and takes from 10 to thirty minutes, depending on drive size. For specific DOS questions, refer to the DOS manual supplied with your system. After the format is completed, the read/write heads will be parked. At the next power-up, the system will boot from the hard disc.

#### 3.1 Paired Program Formatting

Place a DOS-bootable diskette (to boot simply means to start the system) in Drive A and switch the power on and follow the instructions displayed on the screen. Type:

C:INSTALLR C

If you are installing a second drive, type:

D:INSTALLR D

If you are installing a drive with DISK MANAGER software, and you already have a hard disc in your system, you must copy the DMDRVR.BIN and CONFIG.SYS files from the DISK MANAGER diskette to the root directory of the existing (first, or boot) drive.

If you already have a CONFIG.SYS file on the boot drive, update the file to include the following line: DEVICE=DMDRVR.BIN

Refer to your DOS manual for instructions on editing the CONFIG.SYS file. DISK MANAGER also provides help files which you may print using the standard DOS print commands.

#### 4.0 Non-Paired Drive Formatting

Use this procedure for non-Paired drives or when using a Paired drive whose installation software files were lost or not copied before formatting.

BE SURE TO BACK-UP ANY DRIVE CONTAINING DATA. FORMATTING AT ANY LEVEL MAY RESULT IN PARTIAL OR COMPLETE LOSS OF DATA. SEAGATE TECHNOLOGY, INC. ASSUMES NO LIABILITY FOR LOST DATA.

Always use the same version of DOS throughout the entire process.  
On two-drive systems: Always use the same version of DOS on both drives. When adding a second drive, it is sometimes necessary to reformat the first drive.

#### 4.1 Low-Level Physical Format Using BIOS Facility

When using the system DEBUG to format in an AT system, the CMOS or system setup should be set to 0 (i.e., no hard drive installed).

1. Boot the system from the DOS system diskette
2. At the A: prompt, insert the system DEBUG diskette and type:

DEBUG

<ENTER>

3. To access the controller's format routine; at the "-" prompt, type:

G=XXXX:5 (Where XXXX is the BIOS base address). The most common BIOS address is C8000 (e.g., G=C800:5)

Note: Seagate controllers will step you through the process. Refer to the drive charts, Figures 1-2, for correct drive parameters.

DISK MANAGER is supplied with Seagate MFM and RLL drives having greater than 32 formatted megabytes. It can be used as an alternative to FDISK and FORMAT to partition and high-level format drives.

Use FDISK and FORMAT on your DOS diskette with drives having less than 32 formatted megabytes, or if you do not want to use DISK MANAGER.

Note: Some versions of DOS have other names for FDISK and FORMAT (e.g., HDFORMAT). Refer to HARD DISC INSTALLATION in your DOS manual.

#### 4.2 Low-Level Format With Controller BIOS Disabled

If you are running the ST21/ST22 with its BIOS disabled, use the low-level format utility supplied with your system. A drive interleave of 1:1 should be selected.

## 5.0 Troubleshooting Your Installation

### 5.1 Controller Error Codes

The ST21 and ST22 will flash controller error conditions via the drive activity LED. The code will repeat at about 1 second intervals.

Error information is flashed only at power-up or soft boot. The LED will repeat the error flashes until the condition is corrected or the system is powered down.

Error code numbers 2 through 6 are fatal error. If you receive any of these messages, contact your Distributor/Dealer.

Controller Error | Controller Error Condition  
Codes (LED Flashes)

1	Normal completion of controller diagnostics
2	Failure of hard disc drive interface
3	Sector Buffer error
4	Controller task file interface failure
5	Microcode ROM checksum error
6	Controller ECC circuits failure

### 5.2 Common System/Controller Problems

If you have a problem getting the initial screen, or later getting the system to boot:

\* Check the cabling between the controller and drive. Pin-1 on the controller always corresponds to Pin-1 at the drive connector. Most cables have a contrasting color on the cable to indicate Pin-1.

\* Check the power cable to the drive. Can you hear the drive spin-up?

\* Verify CMOS settings

\* Verify correct controller BIOS Address. If you have more than one board that uses BIOS ROM space, each must be set to a different memory address. Addressing multiple boards at the same address can cause problems of an indeterminate nature.

\* Low-level formatting takes too long or never completes: Format again. Make sure correct drive parameters were entered and cable connections are correct.

\* FDISK or Partitioning Error Messages: "Error reading fixed disc," "No fixed disc present": Check correct drive parameters entered. Refer to pages 3-4 (Section 1.0) Turn the system off and power-up again.

\* High-Level Format Error Message: "Invalid drive specification": Check drive parameters and controller jumpers. Run FDISK and high-level format again.

\* Drive fails to recalibrate or test Ready: Verify correct installation, cables and drive select jumper.

\* After formatting with DISK MANAGER, your system does not recognize the D, E, F ... partitions: First, make sure that you boot from the hard drive. If you still cannot access these partitions, check that the DISK MANAGER device driver, DMDRVR.BIN is in the root directory of the C: (boot) drive. Verify that the CONFIG.SYS file contains the following line: DEVICE=DMDRVR.BIN

If you experience problems accessing your DOS partitions after installation, refer to the help files provided with DISK MANAGER.

For system or operating system help, contact your computer manufacturer. For additional installation support, contact your authorized Seagate Distributor/Dealer.





## **Disc Drive Cables and their Pin Assignments by Interface**

Select an Interface:

ATA (IDE)

ESDI

MFM

RLL

SCSI - Standard

SCSI - Differential

XT



## ST412 Interface (MFM and RLL)

=====

ST412 Interface (MFM and RLL) ST-506 was predecessor without buffered seek

2 Cables: 1 each 34-pin Command Cable and 1 each 20-pin Data Cable

-----

### J1 (34-pin Command) Host/Drive Pin Assignments

GROUND RTN PIN	SIGNAL PIN	SIGNAL PIN
1	2	3 -HEAD SELECT 2
3	4	2 -HEAD SELECT 2
5	6	-WRITE GATE
7	8*	-SEEK COMPLETE
9	10*	-TRACK 0
11	12*	-WRITE FAULT
13	14	0 -HEAD SELECT 2
15	16	-RESERVED
17	18	1 -HEAD SELECT 2
19	20*	-INDEX
21	22*	-READY
23	24	-STEP
25 (29)**	26 (28)	-DRIVE SELECT 1 (2)
27 (27)	28 (26)	-DRIVE SELECT 2 (1)
29 (25)	30	-DRIVE SELECT 3
31	32	-DRIVE SELECT 4
33	34	-DIRECTION IN

\* STATUS ENABLED WITH DRIVE SELECT

\*\* TWISTED CABLE IN PARENTHESES

### J2 (20-pin Data) HOST/DRIVE PIN ASSIGNMENTS



GROUND RTN PIN	SIGNAL PIN	SIGNAL NAME
2	1	-DRIVE SELECTED
4	3	RESERVED
6	5	RESERVED
8	7	RESERVED
10	9	RESERVED
12	11	GROUND
	13	+MFM (RLL) WRITE DATA
	14	-MFM (RLL) WRITE DATA
16	15	GROUND
	17	+MFM (RLL) READ DATA
	18	-MFM (RLL) READ DATA
20	19	GROUND



## ESDI (Enhanced Small Device Interface)

=====

ESDI (Enhanced Small Device Interface)

2 Cables: 1 each 34-pin Command Cable and 1 each 20-pin Data Cable

-----

### ESDI INTERFACE SPECIFICATIONS

#### CONTROL CABLE (J1/P1 PIN ASSIGNMENTS) (Disk Implementation - Serial Mode)

SIGNAL NAME	SIGNAL PIN	GROUND PIN
-HEAD SELECT 2(3)	2	1
-HEAD SELECT 2(2)	4	3
-WRITE GATE	6	5
-CONFIGURATION/STATUS DATA	8	7
-TRANSFER ACK	10	9
-ATTENTION	12	11
-HEAD SELECT 2(0)	14	13
-SECTOR/BYTE CLOCK/ ADDRESS MARK FOUND	16	15
-HEAD SELECT 2(1)	18	17
-INDEX	20	19
-READY	22	21
-TRANSFER REQ	24	23
-DRIVE SELECT 2(0)	26	25
-DRIVE SELECT 2(1)	28	27
-DRIVE SELECT 2(2)	30	29
-READ GATE	32	31
-COMMAND DATA	34	33

DATA CABLE (J2/P2) PIN ASSIGNMENTS  
(Disk Implementation - Serial Mode)

SIGNAL NAME	SIGNAL PIN	GROUND PIN
-DRIVE SELECTED	1	
-SECTOR/BYTE CLOCK/ ADDRESS MARK FOUND	2	
-COMMAND COMPLETE	3	
-ADDRESS MARK ENABLE	4	
GROUND		5
+/-WRITE CLOCK	7/8	6
+/-READ REF CLOCK	10/11	9/12
+/-NRZ WRITE DATA	13/14	15/16
+/-NRZ READ DATA	17/18	19
-INDEX	20	



UAA											
AAAA											
3	PIN NUMBER	3	SIGNAL	3	DESCRIPTION	3	PIN NUMBER	3	SIGNAL	3	DESCRIPTION
AA											
AAAA											
3	1	3	GND	3	GROUND	3	26	3	TERMPWR	3	TERMINATION PWR
AA											
AAAA											
3	2	3	DB0	3	DATA BIT 0	3	27	3	GND	3	GROUND
AA											
AAAA											
3	3	3	GND	3	GROUND	3	28	3	GND	3	GROUND
AA											
AAAA											
3	4	3	DB1	3	DATA BIT 1	3	29	3	GND	3	GROUND
AA											
AAAA											
3	5	3	GND	3	GROUND	3	30	3	GND	3	GROUND
AA											
AAAA											
3	6	3	DB2	3	DATA BIT 2	3	31	3	GND	3	GROUND
AA											
AAAA											
3	7	3	GND	3	GROUND	3	32	3	ATN	3	ATTENTION
AA											
AAAA											
3	8	3	DB3	3	DATA BIT 3	3	33	3	GND	3	GROUND
AA											
AAAA											



ATN (Attention): A signal driven by an Initiator to indicate the attention condition.

BSY (Busy): An "or-tied" signal which indicates that the bus is in use.

C/D (Control/Data): A signal driven by a Target. It indicates whether control or data information is on the data bus. True indicates Control.

DB(7-0) (Data Bus): Contains the data that is sent from one device to the other. Driven by either device, as determined by the state of the I/O signal.

DB(P) (Data Bus Parity): Contains the parity bit for the data that is sent on DB(7-0) from one device to the other during an information transfer.

I/O (Input/Output): A signal driven by a Target which controls the direction of data flow in the data bus, with respect to an Initiator. True indicates input to the Initiator.

MSG (Message): A signal driven by a Target during the message phase.

REQ (Request): A signal driven by a Target to indicate a request for a REQ/ACK data transfer handshake.

RST (Reset): An "or-tied" signal which indicates the reset condition.

SEL (Select): A signal used by an Initiator to select a Target or by a Target to reselect an Initiator.



SCSI (Small Computer System Interface) is an intelligent device interface that allows up to 8 devices (usually 7 plus the host system) to be connected together. Unlike other older interfaces, requests on a SCSI bus are just that, requests. For example, rather than the low-level device commands like the familiar STEP+ and STEP- of ST412, SCSI accesses data using the higher level SEEK to a location ( LBA or logical block address on drives ).

These devices ARE NOT BUS COMPATIBLE with SCSI standard devices. they are however command compatible. Attempting to share the SCSI bus with a non-differential device will quite possibly damage the single-ended SCSI device. The electrical specification follows the EIA RS-485-1983 standard. Pin designations are as follows :

[illegible]

[illegible]





## ATA (IDE) Interface

ATA (IDE) Interface  
40-pin Cable

### ATA INTERFACE SIGNAL PIN ASSIGNMENTS

PIN	NAME	I/O	DESCRIPTION
01	/Host Reset	O	(From Host, Active Low) Reset signal from the host.
02	Ground		----
03-18	---	I/O	Host data 0-15 to/from host. 16-bit tristate, bidirectional data bus between host and drive. The lower 8-bits of host data (0-7) are used for register and ECC access. All 16-bits are used for data transfers.
03	Host Data 7	I/O	
04	Host Data 8	"	
05	Host Data 6	"	
06	Host Data 9	"	
07	Host Data 5	"	
08	Host Data 10	"	
09	Host Data 4	"	
10	Host Data 11	"	
11	Host Data 3	"	
12	Host Data 12	"	
13	Host Data 2	"	
14	Host Data 13	"	
15	Host Data 1	"	
16	Host Data 14	"	
17	Host Data 0	"	
18	Host Data 15	"	
19	Ground		----
20	Key		An unused pin, which is clipped off at the drive to prevent incorrect cable attachment.
21	DMARQ		DMA Request (optional)
22	Ground		----
23	/HIOW	O	(From Host, Active Low) Host I/O write strobe. Edge clocks data from the host data bus to I/O register.

24	Ground		-----
25	/HIOR	O	(From Host, Active Low) Host I/O read strobe. Trailing edge clocks data from host data bus to I/O register.
26	Ground		-----
27	IORDY		I/O Channel Ready (optional); a tristate signal
28	SPSYNC:CSEL		Spindle Synch or Cable Select (optional); Spindle synch is an interdrive clock signal sent from the master drive to the slave drive to allow the slave to synchronize its spindle motor to the master drive's spindle motor. Cable Select is used to differentiate master from slave in a two-drive system.
28	Host ALE		(From Host, Active High) Host address latch enable. Used to qualify host address lines. Host addresses are latched on the trailing edge of Host ALE. The drive does not use this signal.
29	DMACK		DMA Acknowledge
30	Ground		-----
31	IRQ14	I	(To Host, Tristate, Active High) Interrupt request from drive to host. The host may enable/disable the interrupt by clearing/setting the /IEN bit of the Digital Output register of the task file. The signal is in a high impedance state when the drive is not selected or when the /IEN bit of the Digital Output register is set. The signal is cleared when host performs a status read from drive.
32	/HOST I/O16(AT)	I	(To Host, Tristate, Active Low) When active it indicates to host that the 16-bit Data register is addressed and the drive is ready to send/receive a 16-bit word.
33	Host ADDR1	I	(From Host, Active High) Host I/O address line 1.
34	/PDIAG(16)		(Active Low) Passed diagnostics. Used by Slave to signal to Master drive that Slave has passed its internal diagnostics. See note 3.
35	Host ADDR0	O	(From Host, Active Low) Host I/O address line 0.

36	Host ADDR2	O	(From Host, Active High) Host I/O address line 2.
37	/HOST CS0	O	(From Host, Active Low) Host I/O chip select decoded from host address lines. When active, one of the registers in the range 01F0HEX through 01F7HEX is selected.
38	/HOST CS1	O	(From Host, Active Low) Host I/O chip select decoded from host address lines. When active, one of the registers in the range 03F0HEX through 0347HEX is selected.
39	/DASP SLV/ACT		(To Host, Active Low) Dual purpose pin. When drive is Slave (SLV), this pin is used during a Diagnostic command to signal to the Master that a Slave is present. Drive Activity to host: It is active when the drive is executing a command. May be used by host drive an activity LED.
40	Ground		----

Small 2.25" form factor drives do not use the typical four wire power supply connector. These drives get power via the ribbon cable which has four additional lines.

41	Power	+5v (logic)
42	Power	+5v (motor)
43	Ground	Ground for power pins
44	Reserved	----

#### Notes:

1. Signal beginning with (/) is active low.
2. I indicates to the host, O indicates from the host.  
Reserved and Ground pins do not have directions.
3. /PDIAG and /DASP are used for communication between Master and Slave.



## XT Interface

=====

XT Interface  
(40-pin cable)

-----

### 1.0 XT HOST/DRIVE INTERFACE PIN ASSIGNMENTS

PIN	SIGNAL	DESCRIPTION
1	RES	(From Host, Active High) Bus Reset signal
3,5,7,9 11,13 15,17	DATA BUS	Host data to/from host. 8-bit tristate, bi-directional data bus between host and drive. Used for transferring Status, Data and Control information.
19	GND	Ground
20	Key	An unused pin, which is clipped off at the drive to prevent incorrect cable attachment.
21	AEN	(From Host, Active High) Host address enable, which is asserted during a DMA cycle to disable the decoding of I/O port addresses.
23	/IOW	(From Host, Active Low) Host I/O write signal for writing data to an I/O port address.
25	/IOR	(From Host, Active Low) Host I/O read signal for reading data from an I/O port address.
27	/DACK	(From Host, Active Low) DMA acknowledge signal asserted in response to the DMA Request signal. This signal enables DMA data transfer when either /IOR or /IOW signals are active.
29	DRQ	(To Host, Active High) DMA Request asserted by the drive to initiate a DMA transfer.
31	IRQ	(To Host, Active High) Interrupt Request asserted by the drive to cause an interrupt to the host.
33,35	SA1,SA0	(From Host, Active High) Host I/O address

lines 0 and 1 for selecting the drive's I/O ports.

- |    |         |  |
|----|---------|--|
| 37 | /CS     | (From Host, Active Low) Card Select signal asserted by the host to address the drive's I/O ports.  |
| 39 | /ACTIVE | (To Host, Active Low) Drive Activity signal asserted by the drive when it is processing a command. Can be used to drive an external LED indicator. |

NOTE: All other even-numbered pins are ground.





## Old Wren Specifications and Jumper Settings:



Older CDC/Imprimis Wren products NOT converted to new Seagate model numbers.

Select an Wren Family:

<u>9415-5 or BJ7Dx-A Wren 1</u>
<u>94151 Wren 2 SCSI (SASI subset)</u>
<u>94155 Wren 2 ST412 MFM</u>
<u>94155 Wren 2 ST412 RLL</u>
<u>94156 Wren 2 ESDI</u>
<u>94161 Wren 3 SCSI</u>
<u>94166 Wren 3 ESDI</u>
<u>94171 Wren 4 SCSI</u>
<u>94186 Wren 5 ESDI</u>
<u>94204 Wren 2 ATA</u>
<u>94205 Wren 2 ST412 MFM</u>
<u>94211 Wren 3 SCSI</u>
<u>94221 Wren 5 SCSI</u>
<u>94244 Wren 6 ATA</u>
<u>94246 Wren 6 ESDI</u>

## 9415-5 xx (Wren 1) ST506 MFM

Model	Inter-			Total		Formatted		WPC
	Family	face	Cyl	Hd	SPT	Sectors	Capacity	
9415-5 21	Wren1	ST412	697	3	17	35,547	18,200,064	0
9415-5 25	Wren1	ST412	697	4	17	47,396	24,266,752	0
9415-5 28	Wren1	ST412	697	4	17	47,396	24,266,752	0
9415-5 36	Wren1	ST412	697	5	17	59,245	30,333,440	0
9415-5 38	Wren1	ST412	733	5	17	62,305	31,900,160	0

[illegible]



## 94151-xx (Wren 2) SCSI (SASI subset)

Model	Inter-		Cyl	Hd	Total		Formatted	
	Family	face			SPT	Sectors	Capacity	WPC
94151-25	Wren2	SASI	921	3	36		n/a(256 byte/sct)	
94151-27	Wren2	SASI	921	3	19		n/a(512 byte/sct)	
94151-42	Wren2	SASI	921	5	36		n/a(256 byte/sct)	
94151-44	Wren2	SASI	921	5	19		n/a(512 byte/sct)	
94151-59	Wren2	SASI	921	7	36		n/a(256 byte/sct)	
94151-62	Wren2	SASI	921	7	19		n/a(512 byte/sct)	
94151-76	Wren2	SASI	921	9	36		n/a(256 byte/sct)	
94151-80	Wren2	SASI	921	9	19		n/a(512 byte/sct)	

ÚÄÄ Drive Select ID

[illegible]

## 94155-xxx (Wren 2) ST412 MFM

Model	Inter-			Total		Formatted		WPC
	Family	face	Cyl	Hd	SPT	Sectors	Capacity	
94155-36	Wren2	ST412	697	5	17	59,245	30,333,440	128
94155-48	Wren2	ST412	925	5	17	78,625	40,256,000	?
94155-57	Wren2	ST412	925	6	17	94,350	48,307,200	?
94155-67	Wren2	ST412	925	7	17	110,075	56,358,400	?
94155-77	Wren2	ST412	925	8	17	125,800	64,409,600	?

Drive Sel ÚÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ;

0 0 0 0 0    <sup>3</sup>    Term    1<sup>3</sup>

o o o o o    3 14 pin dip    3

ÀÄÅÄÄÄÄÄÄÄÄÄÄÄÜ

 $\dot{U}\ddot{A}\ddot{A}\ddot{A}\ddot{A}\ddot{A}\ddot{A}\ddot{A}\ddot{A}_{\zeta}$ 

3 0 0 0 0 3 Power

1 2 3 4 Radial

\AA\AA\AA\AA\AA\AA\AA\AA/

Command ÚÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ;1 12 G G 5

iiiiiiiiiøiiiiiii iøiiiiiii

Data ÚÄÄÄÄÄÄÄÄÄÄÄÄÄ;1 ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÜ

IIIIIIIIIØIIIIIIIII IØIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII

ÀÄÅÄÅÄÅÄÅÄÅÄÅÄÅÄÅÜ

**94155-xxx (Wren 2) ST412 RLL**

Model	Family	Inter-face	Cyl	Hd	Total SPT	Formatted Sectors	Capacity	WPC
94155-120	Wren2	ST412	960	8	26	199,680	102,236,160	

[illegible]

## 94156-xx (Wren 2) ESDI (MFM Recording Mode)

Model	Inter-			Total		Formatted		WPC
	Family	face	Cyl	Hd	SPT	Sectors	Capacity	
94156-48	Wren2	ESDI	925	5	17	78,625	40,256,000	
94156-67	Wren2	ESDI	925	7	17	110,075	56,358,400	
94156-86	Wren2	ESDI	925	9	17	141,525	72,460,800	

### Drive Selects $\ddot{A}_i$

```
(binary)   ÁÁÁÁÁ   ÚÁÁÁÁÁÁÁÁÁÁÁÁÁÁÁÁ¿      12 G G 5
          4 2 1   3   Term       1³           ÚÁÁÁÁÁÁÁÁÁÁ¿
          o o o   3 14 pin dip   3 ÚCommand Cable    3 0 0 0 3 Power
          o o o   ÁÁÁÁÁÁÁÁÁÁÁÁÁÁÁÁÁÚÚÁÁÁÁÁÁÁÁÁÁÁÁÁÁÁÁ¿1 \ÁÁÁÁÁÁÁÁÁÁ\
iiiiiiiiiiiiiiiiiiiiiiøiiiiiiiiiii iøiiiiiiiiiii
                ÚÁÁÁÁÁÁÁÁÁÁÁ¿1 ÁÁÁÁÁÁÁÁÁÁÁÁÁÁÁÁÁÚ
iiiiiiiiiiiiiiiiiiøiiiiiii iøiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii
                ÁÁÁÁÁÁÁÁÁÁÁÁÚ
                ÁData Cable
                ÚÁÁÁÁÁÁÁÁÁÁÁÁÁÁ Factory Test (off is normal)
                3 ÚÁÁÁÁÁÁÁÁÁÁÁÁ Motor Start option enable
                3 3         ÚÁ Serial Mode (always on)
                3 3 SW1     3
        Sectors 3 1 2 3 4 5 6 7
        iiiiiiiiiøTImiiiiiiiisii
(512) 17   3       1 1
        16   3       0 1             (located at front of drive
        34   3       1 0             behind the front plate)
        32   3       0 0
Address Mark 3       1 1       1=on; 0=off
Byte Clock 3       0 1
Sector Pulse 3       0 0
Sector Pulse 3       1 0
```

## 94161-xxx (Wren 3) SCSI

Model	Inter-			Total		Formatted		WPC
	Family	face	Cyl	Hd	SPT	Sectors	Capacity	
94161-86	Wren3	SCSI	969	5	35	169,575	86,822,400	
94161-101	Wren3	SCSI	969	5	34	164,730	84,341,760	
94161-103	Wren3	SCSI	969	6	35	203,490	104,186,880	
94161-121	Wren3	SCSI	969	7	35	237,405	121,551,360	
94161-138	Wren3	SCSI	969	8	35	271,320	138,915,840	
94161-141	Wren3	SCSI	969	7	34	230,622	118,078,464	
94161-155	Wren3	SCSI	969	9	34	296,514	151,815,168	

(3 by 5 configuration jumper block)

ÚÄÄÄÄÄ Motor Start Option enable (horizontal)

3 ÚÄ N/A

### 3.3 ÚÄ Terminator Power from Bus

oÁo xÁx oÄ³ (upper 2 pins) Ú12ÄGÄGÄ5Ä; ÚÄÄÄÄÄÄÄÄ;

```
0000 ÚoÂÙ  Öööööööööööööööö, 3000033Terminator
```

```
0 0 0 0 303 3::SCSI:Cable:::::::::13 \ÄÄÄÄÄÄÄÄ/ ÄÄÄÄÄÄÄÄÜ
```

[illegible]

iiiiioioioioiiiooooooooooooooooooooooooooooooooooooo

ÀÄÅÄÛ 3 3

3 3 À Terminator Power (+5v) from drive (lower 2 pins)

<sup>3</sup> ÄÄÄÄ Parity Check Option Enable (vertical)

ÀÄÅÄÅÄÅÄ Drive Select ID's (vertical)

(2 by 7 configuration jumper block)

Terminator Power from Bus (horizontal)

3 Ú12ÄGÄGÄ5Ä; ÚÄÄÄÄÄÄÄÄÄ;

000000Á0 Õiiiiiiiiiiiiiiiiiii, 300003<sup>3</sup>Terminator

```
00000x0 3::SCSI:Cable:::::::::13 \ÄÄÄÄÄÄÄÄ/ ÄÄÄÄÄÄÄÄÜ
```

[illegible][illegible]

3 ÀÄÅÄÜ 3 3

3 3 3    **ÄÄ Terminator Power (+5v) from drive (lower 2 pins)**

3 3 ÄÄÄÄÄÄ Parity Check Option Enable (vertical)

<sup>3</sup> ÀÄÅÄÅÄÅÄÅÄ Drive Select ID's (vertical)

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Motor Start Option enable

## 94166-xxx (Wren 3) ESDI

Model	Inter-			Total			Formatted	
	Family	face	Cyl	Hd	SPT	Sectors	Capacity	WPC
94166-101	Wren3	ESDI	969	5	36	174,420	89,303,040	
94166-121	Wren3	ESDI	969	6	36	209,304	107,163,648	
94166-141	Wren3	ESDI	969	7	36	244,188	125,024,256	
94166-161	Wren3	ESDI	969	8	36	279,072	142,884,864	

[illegible]

## 94171-xxx (Wren 4) SCSI

Model	Inter-Family	face	Cyl	Hd	Total SPT	Formatted Sectors	Capacity	WPC
94171-300	Wren4	SCSI	1412	9	ZBR	586,763	300,422,656	
94171-307	Wren4	SCSI	1412	9	ZBR	586,763	300,422,656	
94171-327	Wren4	SCSI	1412	9	ZBR	586,763	300,422,656	
94171-344	Wren4	SCSI	1549	9	ZBR	631,016	323,080,192	

Connects CHASIS ground to ground lug

Connects SIGNAL ground to ground lug

Drive Select ID's

Motor Start Option enable

Parity Check Option enable

P M 4 2 1

o o o o o

o o o o o

Servo

Data

1

Terminator DIP

o

o

Terminator power (+5v) from drive (vertical)

Terminator power from the Bus (lower horizontal)

## 94186-xxx (Wren 5) FH ESDI

Model	Inter-face		Cyl	Hd	SPT	Total Sectors	Formatted Capacity	WPC
94186-265	Wren5	ESDI	1412	9	36	457,488	234,233,856	
94186-324	Wren5	ESDI	1412	11	36	559,152	286,285,824	

[illegible]



## 94204-xx (Wren 2) HH AT

Model	Inter- Family face		Cyl	Hd	Total SPT	Formatted Sectors	Capacity	WPC
94204-65	Wren2	AT	949	5				

ÜÄÄ Master on /Slave off

3

<sup>3</sup> Factory Ú12ÄGÄGÄ5Äç Power

AT Cable Connector    3    1    J2    3 0 0 0 0 3

```
1:::ù::: :: :: \Ä1Ä2Ä3Ä4Ä/
```

IIIIIIIIIIIÑII

pin-20 key 3

<sup>3</sup> <sup>3</sup> For "non-C" model, jumper, if present,

3 3 must remain on. Drive will not operate

ÄÄ' properly if jumper is removed (or added  
<sup>3</sup> if not originally there).

3

<sup>3</sup> For "C" model, jumper on indicates No

<sup>3</sup> Slave Present; jumper off means Slave

<sup>3</sup> Drive Is Present.

ÄÄÄ

**94205-xx (Wren 2) HH ST412 MFM**

Model	Inter-			Total		Formatted	
	Family	face	Cyl	Hd	SPT	Sectors	Capacity
94205-30	Wren2	ST412	989	3	17	50,439	25,824,768
94205-41	Wren2	ST412	989	4	17	67,252	34,433,024
94205-53	Wren2	ST412	1024	5	17	87,040	44,564,480

[illegible]

## 94211-xxx (Wren 3) SCSI

Model	Family	Inter-face	Cyl	Hd	Total SPT	Formatted Sectors	Capacity	WPC
94211-91	Wren3	SCSI	992	5				

```

                                4 2 1 P   Ú12ÄGÄGÄ5Ä¿
ÚÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ¿ ABCDEFGH 0000 ³0000³Power
³:SCSI:Cable::::pin 1³ 00000000 0000 \Ä1Ä2Ä3Ä4Ä/
|||||N|||||
```

A-B Not used	<sup>3</sup> $\bar{A}\bar{A}$ Parity check
B-C Terminator power from Bus	$\bar{A}\bar{A}\bar{A}\bar{A}$ Drive Select ID
C-D Terminator power from Drive	
D-E Not used	
E-F Not used	
F-G Continuous test seeks	
G-H Motor Start option enable	

**94221-xxx( Wren 5) HH SCSI**

Model	Inter-Family face		Cyl	Hd	Total SPT	Formatted Sectors	Capacity	WPC
94221-169	Wren5	SCSI	1310	5	ZBR	310,539	158,995,968	
94221-184	Wren5	SCSI						

```

      Power
SCSI Cable      4 2 1 P  Ú12AGAGÄ5Ä¿
Öiiiiiiiiiiiiiii, ABCDEFGH öööö ³0000³
³.....:¹³ ööööööööö öööö \ÄÄÄÄÄÄÄÄÄ/
iiiiiiiiiiiiiiiiiiiPwIAiiiiiiiiiiiNiiiiiiiiiii

```

A-B Not used	<sup>3</sup> ÄÄ Parity check
B-C Terminator power from Bus	<sup>3</sup>
C-D Terminator power from Drive	ÄÄÄÄÄÄ Drive Select ID
D-E Not used	(ID 0 for single
E-F Not used	drive system)
F-G Continuous test seeks	
G-H Motor Start option enable	

**94244-xxx (Wren 6) HH AT (IDE)**

Model	Family	Inter-face	Cyl	Hd	Total SPT	Formatted Sectors	Capacity	WPC
94244-164	Wren6	AT	1747	3	54	283,014	144,903,168	
94244-219	Wren6	AT	1747	4	54	377,352	193,204,224	
94244-502	Wren6	AT						

[illegible]

A	B
---	---

0 0 Factory use only

0 1 Drive is Slave, motor start delay 20 sec from master start-up

1 0 Drive is Slave, no motor start delay

1 1 Drive is Master, motor starts at application of DC power

	C	D
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11	1	1
12	1	1
13	1	1
14	1	1
15	1	1
16	1	1
17	1	1
18	1	1
19	1	1
20	1	1
21	1	1
22	1	1
23	1	1
24	1	1
25	1	1
26	1	1
27	1	1
28	1	1
29	1	1
30	1	1
31	1	1
32	1	1
33	1	1
34	1	1
35	1	1
36	1	1
37	1	1
38	1	1
39	1	1
40	1	1
41	1	1
42	1	1
43	1	1
44	1	1
45	1	1
46	1	1
47	1	1
48	1	1
49	1	1
50	1	1
51	1	1
52	1	1
53	1	1
54	1	1
55	1	1
56	1	1
57	1	1
58	1	1
59	1	1
60	1	1
61	1	1
62	1	1
63	1	1
64	1	1
65	1	1
66	1	1
67	1	1
68	1	1
69	1	1
70	1	1
71	1	1
72	1	1
73	1	1
74	1	1
75	1	1
76	1	1
77	1	1
78	1	1
79	1	1
80	1	1
81	1	1
82	1	1
83	1	1
84	1	1
85	1	1
86	1	1
87	1	1
88	1	1
89	1	1
90	1	1
91	1	1
92	1	1
93	1	1
94	1	1
95	1	1
96	1	1
97	1	1
98	1	1
99	1	1
100	1	1

0 0 Physical mode

0 1 Translate (logical) mode, sparing scheme is one sector

1 0 Translate (logical) mode, no sparing space allocated

1 1 Factory use only

E

0 Slave present, only meaningful on master

1 No Slave present

F G

x x Factory test, position G may or may not be present by PWA

## 94246-xxx (Wren 6) HH ESDI

[illegible]





## **Model Number Conversion and Interpretation**

Old Imprimis MODEL #'s to new Seagate #'s

New Seagate model # to old CDC/Imprimis model

Seagate Model # interpretation

Old CDC/Imprimis Model # Interpretation






## Old CDC/Imprimis model # to new Seagate model #

### Conversion Chart:

CDC/Imprimis		Seagate
=====		
94155-135	---	ST4135R
94155-85	---	ST4085
94155-86	---	ST4086
94155-96	---	ST4097
94161-182	---	ST4182N
94166-182	---	ST4182E
94171-350	---	ST4350N
94171-376	---	ST4376N
94181-385H	---	ST4385N
94181-702	---	ST4702N
94186-383	---	ST4383E
94186-383H	---	ST4384E
94186-442	---	ST4442E
94191-766	---	ST4766N
94196-766	---	ST4766E
94204-65	---	ST274A
94204-71	---	ST280A
94204-74	---	ST274A
94204-81	---	ST280A
94205-51	---	ST253
94205-77	---	ST279R
94211-106	---	ST2106N
94216-106	---	ST2106E
94221-125	---	ST2125N
94241-383	---	ST2383N
94241-502	---	ST2502N
94244-274	---	ST2274A
94244-383	---	ST2383A
94246-182	---	ST2182E
94246-383	---	ST2383E
94351-090	---	ST1090N
94351-111	---	ST1111N
94351-126	---	ST1126N
94351-133S	---	ST1133NS
94351-155	---	ST1156N
94351-155S	---	ST1156NS
94351-160	---	ST1162N
94351-186S	---	ST1186NS

94351-200	---	ST1201N
94351-200S	---	ST1201NS
94351-230S	---	ST1239NS
94354-090	---	ST1090A
94354-111	---	ST1111A
94354-126	---	ST1126A
94354-133	---	ST1133A
94354-155	---	ST1156A
94354-160	---	ST1162A
94354-186	---	ST1186A
94354-200	---	ST1201A
94354-239	---	ST1239A
94355-100	---	ST1100
94355-150	---	ST1150R
94356-111	---	ST1111E
94356-155	---	ST1156E
94356-200	---	ST1201E
94601M	---	ST41200N
94601-767H	---	ST4767N
97100-80	---	ST683J
97150-160	---	ST6165J
97150-300	---	ST6315J
97150-340	---	ST6344J
97150-500	---	ST6516J
97200-1130	---	ST81123J
97200-12G	---	ST81236J
97200-23G	---	ST82272K
97200-25G	---	ST82500J
97200-368	---	ST8368J
97200-500	---	ST8500J
97200-736	---	ST8741J
97200-850	---	ST8851J
97201-12G	---	ST81236N
97201-25G	---	ST82500N
97201-368	---	ST8368N
97201-500	---	ST8500N
97201-736	---	ST8741N
97201-850	---	ST8851N
97209-12G	---	ST81236K
97209-25G	---	ST82500K
97229-1150	---	ST81154K
97289-21G	---	ST82105K
97299-23G	---	ST82368K
97500-12G	---	ST41201J
97501-12G	---	ST41520N
97509-12G	---	ST41201K

Note: Some Imprimis models have no Seagate model equivalent,

if so, see  Old Wren Models prior to Seagate

New Seagate model # to old CDC/Imprimis model #



## New Seagate model # to old CDC/Imprimis model #

Conversion Chart:

Seagate		CDC/Imprimis
=====		
ST1090A	---	94354-090
ST1090N	---	94351-090
ST1100	---	94355-100
ST1111A	---	94354-111
ST1111E	---	94356-111
ST1111N	---	94351-111
ST1126A	---	94354-126
ST1126N	---	94351-126
ST1133A	---	94354-133
ST1133NS	---	94351-133S
ST1150R	---	94355-150
ST1156A	---	94354-155
ST1156E	---	94356-155
ST1156N	---	94351-155
ST1156NS	---	94351-155S
ST1162A	---	94354-160
ST1162N	---	94351-160
ST1186A	---	94354-186
ST1186NS	---	94351-186S
ST1201A	---	94354-200
ST1201E	---	94356-200
ST1201N	---	94351-200
ST1201NS	---	94351-200S
ST1239A	---	94354-239
ST1239NS	---	94351-230S
ST2106E	---	94216-106
ST2106N	---	94211-106
ST2125N	---	94221-125
ST2182E	---	94246-182
ST2274A	---	94244-274
ST2383A	---	94244-383
ST2383E	---	94246-383
ST3283N	---	94241-383
ST2502N	---	94241-502
ST253	---	94205-51
ST274A	---	94204-74
ST274A	---	94204-65
ST279R	---	94205-77
ST280A	---	94204-81

ST280A	---	94204-71
ST4085	---	94155-85
ST4086	---	94155-86
ST4097	---	94155-96
ST41200N	---	94601-12G/M
ST41201J	---	97500-12G
ST41201K	---	97509-12G
ST4135R	---	94155-135
ST41520N	---	97501-12G
ST4182E	---	94166-182
ST4182N	---	94161-182
ST4350N	---	94171-350
ST4376N	---	94171-376
ST4383E	---	94186-383
ST4384E	---	94186-383H
ST4385N	---	94181-385H
ST4442E	---	94186-442
ST4702N	---	94181-702
ST4766E	---	94196-766
ST4766N	---	94191-766
ST4767N	---	94601-767H
ST6165J	---	97150-160
ST6315J	---	97150-300
ST6344J	---	97150-340
ST6516J	---	97150-500
ST683J	---	97100-80
ST81123J	---	97200-1130
ST81154K	---	97229-1150
ST81236J	---	97200-12G
ST81236K	---	97209-12G
ST81236N	---	97201-12G
ST82105K	---	97289-21G
ST82272K	---	97200-23G
ST82368K	---	97299-23G
ST82500J	---	97200-25G
ST82500K	---	97209-25G
ST82500N	---	97201-25G
ST8368J	---	97200-368
ST8368N	---	97201-368
ST8500J	---	97200-500
ST8500N	---	97201-500
ST8741J	---	97200-736
ST8741N	---	97201-736
ST8851J	---	97200-850
ST8851N	---	97201-850

Old CDC/Imprimis model # to new Seagate model #

## Seagate Model Number Interpretation

[illegible]

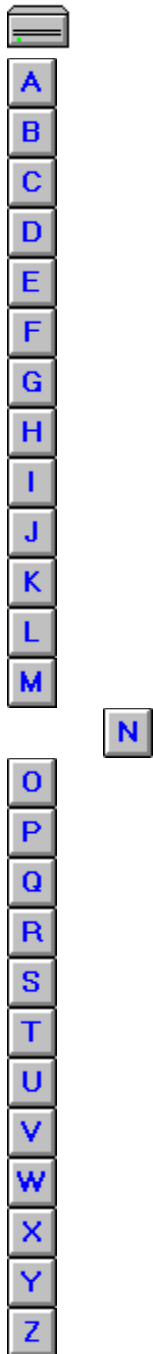
## CDC/Imprimis Model Number Interpretation

Old CDC/Imprimis  
WREN and SWIFT MODEL NUMBERING SYSTEM  
(using 94155-85P as example)

Model # digit	Description
-----	-----
	>>----> Facility Location
94 155-85P	94 = OK City 97 = Twin Cities
	>>----> Series and Form Factor
94 15 5-85P	10 = RSD 15 = FSD 15 = Wren I FH 15 = Wren II FH 16 = Wren III FH 17 = Wren IV FH 18 = Wren V FH 19 = Wren VI FH 20 = Sabre 20 = Wren II HH 21 = Wren III HH 22 = Sabre-2HP 22 = Wren V HH 24 = Wren VI HH 35 = Swift HH 50 = Elite FH 60 = Wren VII FH
	>>----> Interface
9415 5 -85P	0 = SMD 1 = SCSI/SASI 2 = LDI 3 = FDI 3 = IPI-3 4 = AT 4 = ISI (Inside) 5 = ST506/412 6 = ESDI 7 = ISI (Outside) 8 = 80286 8 = SID 9 = IPI-2
	>>----> Capacity
94155- 85 P	Unformatted capacity in Megabytes (a few models had formatted capacity, here)
	>>----> Special Designation
94155-85 P	P = Precompensation M = MacWren H = High Performamce D = Differential S = Synchronous Spindle Capability - Wren S = Synchronous SCSI - Swift G = Gigabyte







## A

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### ACCESS

Refers to the process of obtaining data from, or placing data into a disc storage device, register, or RAM. (i.e. accessing a memory location).

### ACCESS TIME

Time required to perform an ACCESS. Usages, e.g.: 1) seek to location on a disc, 2) amount of time to read or write to a memory location, 3) the time to position to the correct location in a disc drive and carry out a read or write operation. ACCESS

TIME is often defined as the time from the leading edge of the first step pulse received to SEEK COMPLETE (including settling).

### **ACTUATOR**

See HEAD POSITIONER. The two basic types of actuators are steppers and voice coils. Open-loop steppers generally cannot achieve tracks per inch (TPI) as high as the closed-loop system because of the lack of feedback on track positioning accuracy. In open-loop stepper drives mechanical tolerances are one of the most significant factors in limiting TPI enhancement.

### **ADAPTIVE CACHING**

This allows the drive to tune the cache (number of segments and segment size) to best suit the system's needs.

### **ADDRESS**

(physical) A specific location in memory where a unit record, or sector, of data is stored. To return to the same area on the disc, each area is given a unique address consisting of three components: cylinder, sector, and head. CYLINDER ADDRESSING is accomplished by assigning numbers to the disc's surface concentric circles (cylinders). The cylinder number specifies the radial address component of the data area. SECTOR ADDRESSING is accomplished by numbering the data records (sectors) from an index that defines the reference angular position of the discs. Index records are then counted by reading their ADDRESS MARKS. Finally, HEAD ADDRESSING is accomplished by vertically numbering the disc surfaces, usually starting with the bottom-most disc data surface. For example, the controller might send the binary equivalent of the decimal number 610150 to instruct the drive to access data at cylinder 610, sector 15, and head 0.

### **ADDRESS MARK**

Two byte address at the beginning of both the ID field and the data field of the track format. The first byte is the "A1" data pattern, the second byte is used to specify either an ID field or a data field.

### **ADJUSTABLE INTERLEAVE**

Interleaving permits access to more than one memory module, e.g., if one memory module contains odd-numbered address and another even-numbered address, they can both be accessed simultaneously for storage. If the interleave is adjustable, the user may select which ranges or areas are to be accessed each time.

### **ANSI**

American National Standards Institute

### **APPLICATION PROGRAM**

A sequence of programmed instructions that tell the computer how to perform an end use task (i.e. accounting, word processing or other work for the computer system user). To use a program, it must first be loaded into MAIN MEMORY from some AUXILIARY MEMORY such as a floppy diskette or hard disk.

**AREAL DENSITY**

Bit density (bits per inch, or BPI) multiplied by track density (tracks per inch, or TPI), or bits per square inch of the disc surface. Bit density is measured around a track (circumferential on the disc), and track density is radially measured.

**ARRAY**

A group of disk drives which have been combined into a common Hardware Array or Dual-Level Array and appear as a single LSU (Logical Storage Unit).

**ASCII**

American Standard for Coded Information Interchange.

**ASME**

American Society of Mechanical Engineers

**ASPI**

Advanced SCSI Programming Interface - A protocol developed by Adaptec and supported by host adapter OEM's is used by some SCSI application programs to communicate with SCSI adapters.

**ASYNCHRONOUS DATA**

Data sent usually in parallel mode without a clock pulse. Time intervals between transmitted bits may be of unequal lengths.

**ATA**

AT Attachment. This term defines the signal and logical protocol described in X3.221 for IDE (Integrated Drive Electronics) peripherals.

**AT INTERFACE**      DISK DRIVE INTERFACE ON THE IBM PC-AT  
COMPUTER AND COMPATIBLES. SOMETIMES CALLED  
THE IDE (INTEGRATED DRIVE ELECTRONICS)  
INTERFACE

**AUTOMATIC BACK UP OF FILES**

This gives a user the security to make changes to a file without worrying about accidentally destroying it; there is always another copy. One weakness of this method is that files take up twice the room on a disc.

**AUXILIARY MEMORY**

Memory other than main memory; generally a mass storage subsystem, it can include disc drives, backup tape drives, controllers and buffer memory. Typically, AUXILIARY MEMORY is non-volatile.

**AUXILIARY STORAGE DEVICE**

Devices, generally magnetic tape and magnetic disk, on which data can be stored for use by computer programs. Also known as secondary storage.

**AVERAGE ACCESS TIME**

The average track access time, calculated from the end of the CONTROLLER commands to access a drive, to drive "seek complete" time averaged over all possible track locations at the start of ACCESS, and over all possible data track ADDRESSES. Typically, the minimum average access time including carriage settling for open loop actuators is less than 85 ms and for voice coil disc drives is less than 40 ms. As technology improves these times will continue to decrease.

**AZIMUTH**

The angular distance in the horizontal plane, usually measured as an angle from true track location.

**B**

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**BACKUP DEVICE**

Disc or tape drive used with a fixed Winchester disc drive to make copies of files or other data for off line storage, distribution or protection against accidental data deletion from the Winchester drive, or against drive failure.

**BACKUP FILE**

File copies made on another removable media device (disc, tape or sometimes a remote hard disc system) and kept to ensure recovery of data lost due to equipment failure, human errors, updates, disasters and the like.

**BAUD RATE**

A variable unit of data transmission speed equal to one bit per second.

**BCAI**                      BYTE COUNT AFTER INDEX. USED IN DEFECT MAPPING TO INDICATE THE POSITION OF DEFECTS WITH RELATION TO INDEX.

**BDOS**

The Basic Disk Operating System (BDOS) controls the organization of data on a disk. BDOS is usually pronounced "B-DOS".

**BIDIRECTIONAL BUS**

A bus that may carry information in either direction but not in both simultaneously.

**BINARY**

A number system like the decimal numbers, but using 2 as its base and having only the two digits 0 (zero) and 1 (one). It is used in computers because digital logic can only determine one of two states - "OFF" and "ON." Digital data is equivalent to a binary number.

**BIOS**

(BASIC INPUT OUTPUT SYSTEM) A collection of information (firmware) that controls communication between the Central

Processor and its peripherals.

**BIT**

The smallest unit of data. Consists of a single binary digit that can take the value of 0 or 1.

**BIT CELL LENGTH**

Physical dimension of the bit cell in direction of recording along the disc circumference of a track.

**BIT CELL TIME**

The time required to pass one bit of information between the controller and the drive. Cell time is the inverse of the drive's data rate; nominally 200 nsec for 5 Mhz drives.

**BIT DENSITY**

Expressed as "BPI" (for bits per inch), bit density defines how many bits can be written onto one inch of a track on a disc surface. It is usually specified for "worst case", which is the inner track. Data is the densest in the inner tracks where track circumferences are the smallest.

**BIT JITTER**

The time difference between the leading edge of read and the center of the data window.

**BIT SHIFT**

A data recording effect, which results when adjacent 1's written on magnetic discs repel each other. The "worst case" is at the inner cylinder where bits are closest together. BIT SHIFT is also called pulse crowding.

**BLOCK**

A group of BYTES handled, stored and accessed as a logical data unit, such as an individual file record. Typically, one block of data is stored as one physical sector of data on a disc drive.

**BOOT**

(Short for bootstrap). Transfer of a disc operating system program from storage on diskette or hard disc drive to computer's working memory.

**BUFFER**

A temporary data storage area that compensates for a difference in data transfer rates and/or data processing rates between sender and receiver.

**BUFFERED SEEK**

A feature of the ST412 INTERFACE. In buffered mode head motion is postponed until a string of step pulses can be sent to the drive. These pulses represent the number of tracks that the head is to be stepped over and are sent much faster than the heads can move. The pulses are saved or buffered then the optimum head movement to the correct track is performed.

## **BUS**

A length of parallel conductors that forms a major interconnection route between the computer system CPU and its peripheral subsystems. Depending on its design, a bus may carry data to and from peripheral's addresses, power, and other related signals.

## **BUS MASTERING**

A method of data transfer which allows data to be moved between a peripheral controller and system memory without interaction with the host CPU or a third party DMA controller. This technique allows the peripheral controller to take control of the system bus, and in the case of EISA, to move data at up to 33MB/s.

## **BYTE**

A sequence of adjacent BINARY digits or BITS considered as a unit, 8 bits in length. One byte is sufficient to define all the alphanumeric characters. There are 8 BITS in 1 BYTE. The storage capacity of a disc drive is commonly measured in MEGABYTES, which is the total number of bits storable, divided by eight million.

# **C**

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## **CACHE HIT**

This occurs when the data requested is already in the cache. A cache hit saves the time of getting the data from the rotating disc; the seek, latency and read times.

## **CACHE MEMORY**

Cache Memory allows the system to load bytes of data from the hard disc to memory. The system may then refer to memory for information instead of going back to the hard disc, thereby increasing the processing speed.

## **CAM**

Common Access Method. Defines a set of software and hardware interfaces which attempt to standardize an operating system's access to peripheral devices.

## **CAPACITY**

Amount of memory (measured in megabytes) which can be stored in a disc drive. Usually given as formatted (see FORMAT OPERATION).

## **CARRIAGE ASSEMBLY**

Assembly which holds read/write heads and roller bearings. It is used to position the heads radially by the actuator, in order to access a track of data.

## **CD-ROM**

Compact Disc Read Only Memory. A read only storage device which retrieves up to 660 Mbytes of information from a removable laser disk similar to an audio compact disc.

## **CENTRAL PROCESSOR UNIT**

(CPU). The heart of the computer system that executes programmed instructions. It includes the arithmetic logic unit (ALU) for performing all math and logic operations, a control section for interpreting and executing instructions, fast main memory for temporary (VOLATILE) storage of an application program and its data.

## **CHANNEL**

With regards to disk drives, a channel is an electrical path for the transfer of data and control information between a disk and a disk controller. The Primary and Secondary Hard Drive Port Addresses are an example to two channels.

## **CHARACTER**

An information symbol used to denote a number, letter, symbol or punctuation mark stored by a computer. In a computer a character can be represented in one (1) byte or eight (8) bits of data. There are 256 different one-byte binary numbers, sufficient for 26 lower case alphas, 26 upper case alphas, 10 decimal digits, control codes and error checks.

## **CHIP**

An integrated circuit fabricated on a chip of silicon or other semiconductor material, e.g., a CHIP is an integrated circuit, a microprocessor, memory device, or a digital logic device.

## **CLOCK RATE**

The rate at which bits or words are transferred between internal elements of a computer or to another computer.

## **CLOSED LOOP**

A control system consisting of one or more feedback control loops in which functions of the controlled signals are combined with functions of the command to maintain prescribed relationships between the commands and the controlled signals.

This control technique allows the head actuator system to detect and correct off-track errors. The actual head position is monitored and compared to the ideal track position, by reference information either recorded on a dedicated servo surface, or embedded in the inter-sector gaps. A position error is used to produce a correction signal (FEEDBACK) to the actuator to correct the error. See TRACK FOLLOWING SERVO.

## **CLUSTER SIZE**

Purely an operating system function or term describing the number of sectors that the operating system allocates each time disc space is needed.

## **CODE**

A set of unambiguous rules specifying the way which digital data is represented physically, as magnetized bits, on a disc drive. One of the objectives of coding is to add timing data for use in data reading. See DATA SEPARATOR, MFM and RLL.



**COERCIVITY**

A measurement in units of orsteads of the amount of magnetic energy to switch or "coerce" the flux change (di-pole) in the magnetic recording media.

**COMMAND**

1) An instruction sent by the central processor unit (CPU) to a controller for execution. 2) English-like commands entered by users to select computer programs or functions. 3) A CPU command, which is a single instruction such as "add two binary numbers" or "output a byte to the display screen."

**CONSOLE**

(also called CRT or Terminal) A device from which a computer can be operated; often includes a monitor and keyboard.

**CONTROLLER**

A controller is a printed circuit board required to interpret data access commands from host computer (via a BUS), and send track seeking, read/write, and other control signals to a disc drive. The computer is free to perform other tasks until the controller signals DATA READY for transfer via the CPU BUS.

**CORE**

Originally a computer's main memory was made of ferrite rings (CORES) that could be magnetized to contain one bit of data each. CORE MEMORY is synonymous with MAIN MEMORY. Main memory today is fabricated from CHIPS.

**CPU**

See CENTRAL PROCESSOR UNIT

**CRASH**

A malfunction in the computer hardware or software, usually causing loss of data.

**CYCLIC-REDUNDANCY-CHECK**

(CRC). Used to verify data block integrity. In a typical scheme, 2 CRC bytes are added to each user data block. The 2 bytes are computed from the user data, by digital logical chips. The mathematical model is polynomials with binary coefficients. When reading back data, the CRC bytes are read and compared to new CRC bytes computed from the read back block to detect a read error. The read back error check process is mathematically equivalent to dividing the read block, including its CRC, by a binomial polynomial. If the division remainder is zero, the data is error free.

**CYLINDER**

The cylindrical surface formed by identical track numbers on vertically stacked discs. At any location of the head positioning arm, all tracks under all heads are the cylinder. Cylinder number is one of the three address components required to find a specific ADDRESS, the other two being head number and sector number.

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## **D**

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### **DAISY CHAIN**

A way of connecting multiple drives to one controller. The controller drive select signal is routed serially through the drives, and is intercepted by the drive whose number matches. The disc drives have switches or jumpers on them which allow the user to select the drive number desired.

### **DATA**

Information processed by a computer, stored in memory, or fed into a computer.

### **DATA ACCESS**

When the controller has specified all three components of the sector address to the drive, the ID field of the sector brought under the head by the drive is read and compared with the address of the target sector. A match enables access to the data field of the sector.

### **DATA ADDRESS**

To return to the same area on the disc, each area is given a unique address consisting of the three components: cylinder, head and sector. **HORIZONTAL**: accomplished by assigning numbers to the concentric circles (cylinders) mapped out by the heads as the positioning arm is stepped radially across the surface, starting with 0 for the outermost circle. By specifying the cylinder number the controller specifies a horizontal or radial address component of the data area. **ROTATIONAL**: once a head and cylinder have been addressed, the desired sector around the selected track of the selected surface is found by counting address marks from the index pulse of the track. Remember that each track starts with an index pulse and each sector starts with an address mark. **VERTICAL**: assume a disc pack with six surfaces, each with its own read/write head, vertical addressing is accomplished by assigning the numbers 00 through XX to the heads, in consecutive order. By specifying the head number, the controller specifies the vertical address component of the data area.

### **DATA BASE**

An organized collection of data stored in **DISC FILES**, often shared by multiple users., e.g., the Official Airline Guide, which contains up-to-date schedules for all airlines.

### **DATA BASE MANAGEMENT SYSTEM**

(**DBMS**) Application program used to manage, access and update files in a data base.

### **DATA ENCODING**

To use a code such as **GCR**, **MFM**, **RLL**, **NZR**, etc. to represent characters for memory storage.

### **DATA FIELD**

The portion of a sector used to store the user's **DIGITAL** data. Other fields in each sector include **ID**, **SYNC** and **CRC** which are used to locate the correct data field.

**DATA SEPARATOR**

Controller circuitry takes the CODED playback pulses and uses the timing information added by the CODE during the write process to reconstruct the original user data record. See NRZ, MFM, and RLL.

**DATA TRACK**

Any of the circular tracks magnetized by the recording head during data storage.

**DATA TRANSFER RATE**

(DTR). Speed at which bits are sent: In a disc storage system, the communication is between CPU and controller, plus controller and the disc drive. Typical units are bits per second (BPS), or bytes per second, e.g., ST506/412 INTERFACE allows 5 Mbits/sec. transfer rate. I/O transfer rate is the data rate between the drive and the CPU. Internal transfer rate is the rate data is written to/from the disc.

**DECREASE THE FLYING HEIGHT**

Since the head core is closer to the media surface, the lines of flux magnetize a smaller area. Thus, more bits can be recorded in a given distance, and higher BPI (bits per inch) is achievable.

**DEDICATED SERVO SYSTEM**

A complete disc surface is dedicated for servo data.

**DEFAULT**

A particular value of a variable which is used by a computer unless specifically changed, usually via an entry made through a software program.

**DEFECT-FREE DRIVE**

With a nonintelligent drive and controller (ST412, ESDI) the drive installer has to enter the locations of any sectors with hard errors so the operating system can remember not to read these locations, but rather seek to other sectors which are substitutes for the defective ones. This relocation or error mapping must be logged by the operating system and accordingly, adds overhead to the operation of the system. With an intelligent drive (AT, SCSI) the relocation of sectors with hard errors is done at the factory during the low-level formatting and is monitored by the drive. In this way, the operating system does not need to keep track of defective sectors (blocks). The drive appears defect-free to the operating system. As a result, the installation is much easier.

**DENSITY**

Generally, bit recording density. SEE AREAL, BIT and STORAGE DENSITY.

**DIGITAL**

Any system that processes digital binary signals having only the values of a 1 or 0. An example of a non-digital signal is an analog signal which continuously varies, e.g., TV or audio.

**DIRECT ACCESS**

Generally refers to an AUXILIARY MEMORY device, having all data on-line. E.G., a tape drive without a tape mounted is not direct access, but a WINCHESTER DRIVE is direct access.

**DIRECTORY**

A special disc storage area (usually cylinder zero) that is read by a computer operating system to determine the ADDRESSES of the data records that form a DISC FILE.

**DISC FILE**

A file of user data, e.g. the company employee list, with all names and information. The data in the file is stored in a set of disc SECTORS (records).

**DISC OPERATING SYSTEM**

(DOS). A computer program which continuously runs and mediates between the computer user and the APPLICATION PROGRAM, and allows access to disc data by DISC FILE names.

**DISC PACK**

A number of metal discs packaged in a canister for removal from the disc drive. WINCHESTER DRIVES do not have disc packs.

**DISC/PLATTER**

For rigid discs, a flat, circular aluminum disc substrate, coated on both sides with a magnetic substance (iron oxide or thin film metal media) for non-VOLATILE data storage. The substrate may consist of metal, plastic, or even glass. Surfaces of discs are usually lubricated to minimize wear during drive start-up or power down.

**DISC STORAGE**

Auxiliary memory system containing disc drives.

**DISKETTE**

A floppy disc. A plastic (mylar) substrate, coated with magnetic iron oxide, enclosed in a protective jacket.

**DMA**

Direct Memory Access. A means of data transfer between peripheral and host memory without processor intervention.

**DOS** DISC OPERATING SYSTEM. A COMPUTER PROGRAM WHICH RUNS CONTINUOUSLY AND MEDIATES BETWEEN THE COMPUTER USER AND THE APPLICATION PROGRAM AND ALLOWS ACCESS TO THE DISC DATA BY DISC FILE NAMES.

**DRIVE**

A computer memory device with moving storage MEDIA (disc or tape).

**DRIVE SELECT**

An ADDRESS component that selects among a string of drives attached to a disc controller. In the ST 506/412 interface standard, a drive's select code is physically set in the drive to a value between 0 and 3. When the controller activates one of the four drive select code lines in the J1 cable, the selected drive is enabled to respond to access commands from the controller.

**DRIVE TYPE** A NUMBER REPRESENTING A STANDARD CONFIGURATION OF PHYSICAL PARAMETERS (CYLINDERS, HEADS, AND SECTORS) OF A PARTICULAR TYPE OF DISC DRIVE. EACH AT SYSTEM BIOS CONTAINS A LIST OF DRIVE TYPES THAT THE SYSTEM CONSIDERS "STANDARD TYPES". THESE TYPES ARE NOT NECESSARILY THE SAME FROM ONE BIOS TO THE NEXT. THAT IS, DRIVE TYPE 25 ON ONE BIOS MAY REPRESENT A DRIVE THAT HAS 615 CYLINDERS, 4 DATA HEADS, AND 17 SECTORS PER TRACK, WHILE TYPE 25 ON ANOTHER BIOS COULD BE TOTALLY DIFFERENT.

#### **DRIVER**

A software routine which receives I/O requests from higher levels within the operating system and converts those requests to the protocol required by a specific hardware device.

#### **DROP-IN/DROP-OUT**

Types of disc media defects usually caused by a pin-hole in the disc coating. If the coating is interrupted, the magnetic flux between medium and head is zero. A large interruption will induce two extraneous pulses, one at the beginning and one at the end of the pin-hole (2 DROP-INS). A small coating interruption will result in no playback from a recorded bit (a DROP-OUT).

#### **DRUM**

An early form of rotating magnetic storage, utilizing a rotating cylindrical drum and a multiplicity of heads (one per track). Discs stack more compactly than drums.

## **E**

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#### **ECC**

ERROR CORRECTION CODE: The ECC hardware in the controller used to interface the drive to the system can typically correct a single burst error of 11 bits or less. This maximum error burst correction length is function of the controller. With some controllers the user is allowed to select this length. The most common selection is 11.

#### **EFFECTIVE SEEK TIME**

Sometimes drives have the needed data in their buffer so the drive will not have to perform a seek to get the data. If the average seek time of the drive is, say, 20 msec but for half of the data requests the buffer already contains the data, the effective seek time will be about half of 20 msec or 10 msec. It takes almost no time at all (compared to the time it takes

to do a seek) for a buffer to deliver its contents, so the average time required drops significantly, in this example by one half.

### **EISA**

Extended Industry Standard Architecture - An enhanced version of the PC/AT architecture which provides backwards compatibility with existing 8 and 16-bit hardware cards. In addition, EISA supports 32-bit data paths, 33 Mbytes/sec data transfers from Bus Mastering peripheral cards, automatic configuration, and a more sophisticated I/O addressing scheme.

### **ELECTRO-STATIC DISCHARGE**

(ESD) An integrated circuit (CHIP) failure mechanism. Since the circuitry of CHIPS are microscopic in size, they can be damaged or destroyed by small static discharges. People handling electronic equipment should always ground themselves before touching the equipment. Electronic equipment should always be handled by the chassis or frame. Components, printed circuit board edge connectors should never be touched.

### **ELEVATOR SORTING**

A method of sorting records or cache pages by physical location on disk so that the information may be written to disk with less seek and rotational latency.

### **EMBEDDED SERVO SYSTEM**

Servo data is embedded or superimposed along with data on every cylinder.

### **ENHANCED IDE**

Enhanced IDE (EIDE) is the market identity given to a collection of four features that are designed to help meet the future needs of the market. Enhanced IDE features include: High-capacity addressing of ATA hard drives over 528 Mbytes, fast data transfer rates for ATA hard drives (support for PIO mode 3 up to 13.3 Mbytes per sec), Dual ATA host adapters supporting up to 4 hard disc drives per computer system, nonhard disc ATA peripherals (such as CD-ROM).

### **ERASE**

To remove previously recorded data from magnetic storage media.

### **ERROR**

See HARD ERROR and SOFT ERROR.

### **ESDI**

ENHANCED SMALL DEVICE INTERFACE. A set of specifications for the drives. See also SCSI.

### **EXECUTE**

To perform a data processing operation described by an instruction or a program in a computer.

## **F**

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### **FAST ATA**

Fast ATA is the market identity given to disc drives that support the high-speed data transfers resulting from implementing the industry standard protocols: Programmed input/output (PIO) mode 3, Multiword direct memory access, read/write multiple sectors per interrupt.

### **Fast SCSI**

The original SCSI specification defined synchronous data transmission speeds of up to 5MHz. By assuming transceivers which provide tighter timing margins, the SCSI-2 standard allows synchronous transfers of up to 10MHz. Devices which utilize these faster timings are called Fast SCSI devices.

### **FCI**

(FLUX CHANGES PER INCH): Synonymous with FRPI (flux reversals per inch). In MFM recording 1 FCI equals 1 BPI (bit per inch). In RLL encoding schemes, 1 FCI generally equals 1.5 BPI.

### **FEEDBACK**

A closed-loop control system, using the head-to-track positioning signal (from the servo head) to modify the HEAD POSITIONER signal (to correctly position the head on the track).

### **FETCH**

A CPU read operation from MAIN MEMORY and its related data transfer operations.

### **FIELDS**

1. SOFTWARE: Storage units grouped together to make a record are considered to be a field; e.g., a record might be a company's address; a field in the record might be the company's ZIP code.

### **FILE**

See DISC FILE. 1. SOFTWARE: A file consists of a group of logically related records that, in turn, are made up of groups of logically related fields.

### **FILE ALLOCATION TABLE**

FAT: What the operating systems uses to keep track of which clusters are allocated to which files and which are available for use. FAT is usually stored on Track-0.

### **FILE NAME**

Each file has a name, just like the name on the tab of a file folder. When you want DOS to find a file, you give DOS the file name.

### **FIRMWARE**

A computer program written into a storage medium which cannot be accidentally erased, e.g., ROM. It can also refer to devices containing such programs.

### **FIXED DISC**

A disc drive with discs that cannot be removed from the drive by the user, e.g., WINCHESTER DISC DRIVE.

### **FLOPPY DISC**

A flexible plastic disc coated with magnetic media and packaged in a stiff envelope. Comes in 8-inch, 5-1/4-inch, and various sub-4 inch sizes. FLOPPY DISCS generally exhibit slow ACCESS TIME and smaller CAPACITY compared to WINCHESTER DRIVES, but feature removable diskettes.

### **FLUX CHANGE**

Location on the data track, where the direction of magnetization reverses in order to define a 1 or 0 bit.

### **FLUX CHANGES PER INCH**

(FCI). Linear recording density defined as the number of flux changes per inch of data track.

### **FM**

Frequency modulation CODE scheme, superceded by MFM, which is being superceded by RLL.

### **FORMAT**

The purpose of a format is to record "header" data that organize the tracks into sequential sectors on the disc surfaces. This information is never altered during normal read/write operations. Header information identifies the sector number and also contains the head and cylinder ADDRESS in order to detect an ADDRESS ACCESS error.

### **FORMATTED CAPACITY**

Actual capacity available to store user data. The formatted capacity is the gross capacity, less the capacity taken up by the overhead data used in formatting the discs. While the unformatted size may be 24 M bytes, only 20 M bytes of storage may actually be available to the user after formatting.

### **FPI**

(flux changes per inch), also FRPI, the number of Flux Reversals per inch.

### **FRICTION**

Resistance to relative motion between two bodies in contact; e.g., there is sliding friction between head and disc during drive power up/down.

### **FULL HEIGHT DRIVE**

Winchester 5-1/4" drive which fits in the same space as full height mini-floppy drive (called the full-height form factor), which is 3.25 inches high.

## **G**

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### **G**

A G is a unit of force applied to a body at rest equal to the



force exerted on it by gravity. Hard disc drive shock specifications are usually called out in Gs. A shock specification of 40 Gs non-operating means that a drive will not suffer any permanent damage if subjected to a 40 G shock. This is roughly equivalent to a drop of the drive to a hard surface from a distance of 1 inch.

## **GAP**

1. **FORMAT:** Part of the disc format. Allows mechanical compensations (e.g. spindle motor rotational speed variations) without the last sector on a track overwriting the first sector.
2. **HEAD:** An interruption in the permeable head material, usually a glass bonding material with high permeability, allowing the flux fields to exit the head structure to write / read data bits in the form of flux changes on the recording media.

## **GAP LENGTH**

Narrowing the head gap length achieves higher bit density because the lines of force magnetize a smaller area where writing data in the form of flux changes on the recording media.

## **GAP WIDTH**

The narrower the gap width, the closer the tracks can be placed. Closer track placement results in higher TPI.

## **GCR**

GROUP CODE ENCODING. Data encoding method.

## **GIGABYTE**

1,000,000,000 bytes. (not 1,073,741,824 bytes). Gbytes

## **GUARD BAND**

1. Non-recorded band between adjacent data tracks,
2. For closed loop servo drives, extra servo tracks outside the data band preventing the Carriage Assembly from running into the crash stop.

# **H**

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## **HALF HIGH DRIVE**

A Winchester drive which fits in one half of the space of a full height mini-floppy drive, which is 1.63 inches high.

## **HARD DISC DRIVE**

Commonly called rigid disc drives, or Winchester disc drives. An electromechanical device that can read rigid discs. Though similar to floppy disc drives, the hard discs have higher bit density and multiple read/write surfaces.

## **HARD ERROR**

An error that occurs repeatedly at the same location on a disc surface. Hard errors are caused by imperfections in the disc surface, called media defects. When formatting hard disc drives, hard error locations, if known, should be spared out so that data is not written to these locations. Most drives come with a hard

error map listing the locations of any hard errors by head, cylinder and BFI (bytes from index - or how many bytes from the beginning of the cylinder).

### **HARD ERROR MAP**

Also called defect map, bad spot map, media map. Media defects are avoided by deleting the defective sectors from system use, or assigning an alternative track (accomplished during format operation). The defects are found during formatting, and their locations are stored on a special DOS file on the disc, usually on cylinder 0.

### **HARD SECTOR MODE**

A HARDWARE CONTROLLED CONVENTION DEFINING A FIXED NUMBER OF SECTORS PER TRACK IN ANY SPECIFIED ZONE

### **HARDWARE**

Computer equipment (as opposed to the computer programs and software).

### **HDA**

HEAD/DISK ASSEMBLY: A sealed Winchester assembly including discs, heads, filter and actuator assembly.

### **HEAD**

An electromagnetic device that can write (record), read (playback), or erase data on magnetic media. There are three types: Head Type BPI TPI Areal density Monolithic 8000 450 3.6 X 10 to 6th Composition 12000 1000 12 X 10 to 6th Thin-film 25000 1500 37.5 X 10 to 6th

### **HEAD CRASH**

A head landing occurs when the disc drive is turned on or off. This function normally does not damage the disc as the disc has a very thin lubricant on it. A head crash occurs when the head and disc damage each other during landing, handling or because a contaminant particle gets between them. Head crash is a catastrophic failure condition and causes permanent damage and loss of data.

### **HEAD LANDING AND TAKEOFF**

In Winchester drives, the head is in contact with the platter when the drive is not powered. During the power up cycle, the disc begins rotation and an "air bearing" is established as the disc spins up to full RPM (rotations per minute). This air bearing prevents any mechanical contact between head and disc.

### **HEAD LANDING ZONE**

An area of the disc set aside for takeoff and landing of the Winchester heads when the drive is turned on and off.

### **HEAD POSITIONER**

Also known as the ACTUATOR, a mechanism that moves the CARRIAGE ASSEMBLY to the cylinder being accessed.

### **HEAD SLAP**

Similar to a head crash but occurs while the drive is turned off. It usually occurs during mishandling or shipping. Head slap can cause permanent damage to a hard disc drive. See HEAD CRASH.

### **HEXIDECIMAL**

(HEX) A number system based on sixteen, using digits 0 through 9 and letters A through F to represent each digit of the number. (A = 10, B = 11, C = 12, D = 13, E = 14, F = 15).

### **HOT SPARE**

A spare disk drive which, upon failure of a member of a redundant disk array, will automatically be used to replace the failed disk drive.

### **Hot Swap**

The operation of removing a failed disk drive, which is a member of a redundant array, and replacing it with a good drive.

## **I**

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### **IDE**

Integrated Drive Electronics. IDE describes a device with built in ATA protocol electronics.

### **ID FIELD**

The address portion of a sector. The ID field is written during the Format operation. It includes the cylinder, head, and sector number of the current sector. This address information is compared by the disc controller with the desired head, cylinder, and sector number before a read or write operation is allowed.

### **IMAGE-BACKUP MODE**

Used with streaming tape, image-backup mode records an exact copy of the disc, including unused sectors and bad tracks.

### **INDEX**

(PULSE): The Index Pulse is the starting point for each disc track. The index pulse provides initial synchronization for sector addressing on each individual track.

### **INDEX TIME**

The time interval between similar edges of the index pulse, which measures the time for the disc to make one revolution. This information is used by a disc drive to verify correct rotational speed of the media.

### **INPUT**

1. Data entered into the computer to be processed. 2. User commands or queries.

### **INPUT/OUTPUT**

The process of entering data into or removing data from a computer system.

### **INTELLIGENT PERIPHERAL**

A peripheral device that contains a processor or microprocessor to enable it to interpret and execute commands, thus relieving the computer for other tasks.

## **INTERFACE**

The protocol data transmitters, data receivers, logic and wiring that link one piece of computer equipment to another, such as a disc drive to a controller or a controller to a system bus. Protocol means a set of rules for operating the physical interface, e.g., don't read or write before SEEK COMPLETE is true.

## **INTERFACE STANDARD**

The interface specifications agreed to by various manufacturers to promote industry-wide interchangeability of products such as disc drives and controllers. An interface standard generally reduces product costs, allows buyers to purchase from more than one source, and allows faster market acceptance of new products. (See ST-506/412, SCSI, ESDI)

## **INTERLEAVE FACTOR**

The ratio of physical disc sectors skipped for every sector actually written.

## **INTERLEAVING**

The interleave value tells the controller where the next logical sector is located in relation to the current sector. For example, an interleave value of one (1) specifies that the next logical sector is physically the next sector on the track. Interleave of two (2) specifies every other physical sector, three (3) every third sector and so on. Interleaving is used to improve the system throughput based on overhead time of the host software, the disc drive and the controller; e.g., if an APPLICATION PROGRAM is processing sequential logical records of a DISC FILE in a CPU time of more than one second but less than two, then an interleave factor of 3 will prevent wasting an entire disc revolution between ACCESSES.

## **INTERRUPT**

A signal, usually from a peripheral device to a CPU, to signify that a commanded operation has been completed or cannot be completed.

## **I/O PROCESSOR**

Intelligent processor or controller that handles the input/output operations of a computer.

## **ISA**

Industry Standard Architecture - The name given to the original IBM PC/AT 16-bit bus architecture.

# **J**

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## K

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### **KILOBYTE**

(KBYTE). 1) 1024 bytes (two to the tenth power); 2) 1000 bytes; 1024 bytes is the normal definition.

## L

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### **LAN**

Local Area Network

### **LANDING ZONE**

The landing zone is where the read/write head sits when it is not active. If the system features a dedicated landing zone, the head will rest on the same track each time.

### **LATENCY**

(ROTATIONAL) The time for the disc to rotate the accessed sector under the head for read or write. On the average, latency is the time for half of a disc revolution.

### **LOGIC**

Electronic circuitry that switches on and off ("1" and "0") to perform digital operations.

### **LOOKUP**

The action of obtaining and displaying data in a file.

### **LOW LEVEL FORMAT**

The first step in preparing a drive to store information after physical installation is complete. The process sets up the "handshake" between the drive and the controller. In an XT system, the low level format is usually done using DOS's debug utility. In an AT system, AT advanced diagnostics is typically used. Other third party software may also be used to do low level format on both XTs and ATs.

### **LUN**

Logical Unit Number

## M

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### **MAGNETIC MEDIA**

A disc or tape with a surface layer containing particles of metal, or metallic oxides that can be magnetized in different directions to represent bits of data, sounds or other information.

### **MAGNETIC RECORDING**

The use of a head, recording head, recording media (tape or disc), and associated electronic circuitry for storing data or sound or video.

### **MAINFRAME COMPUTER**

A large computer generally found in data processing centers.

See MINICOMPUTER AND MICROCOMPUTER.

### **MAIN MEMORY**

Random-access memory used by the CPU for storing program instructions and data currently being processed by those instructions. See RANDOM-ACCESS MEMORY.

### **MEAN TIME BEFORE FAILURE**

(MTBF). The average time before a failure will occur. This is not a warranty measurement. MTBF is a calculation taking into consideration the MTBF of each component in a system and is the statistical average operation time between the start of a unit's lifetime and its time of a failure. After a product has been in the field for a few years, the MTBF can become a field proven statistic.

### **MEAN TIME TO REPAIR**

(MTTR) The average time to repair a given unit. Limited to a qualified technician with proper equipment.

### **MEAN TIME until DATA LOSS**

(MTDL) The average time from startup until a component failure causes a permanent loss of user data in a disk array. The concept is similar to MTBF, but takes into account the possibility that RAID redundancy can protect against loss due to single component failures.

### **MEDIA**

The magnetic layers of a disc or tape. See DISC/PLATTER.

### **MEDIA DEFECT**

A media defect can cause a considerable reduction of the read signal (missing pulse or DROP-OUT), or create an extra pulse (DROP-IN). See HARD ERROR MAP.

### **MEGABYTE**

One million bytes (exactly 1,000,000 bytes). Abbreviation: MB or Mbyte. (not 1,048,576 bytes)

### **MEMORY**

Any device or storage system capable of storing and retrieving information. See also STORAGE DEFINITIONS.

### **MICROCOMPUTER**

A computer whose central processor unit (CPU) is manufactured as a chip or a small number of chips. Personal computers are examples of microcomputers.

### **MICROINCH**

One-millionth of an inch.

### **MICROSECOND**

One-millionth of a second.

### **MILLISECOND**

(Msec) One-thousandth of a second.

### **MINICOMPUTER**

A computer midway in size and processing power between a MICROCOMPUTER and a MAINFRAME COMPUTER.

### **MINI-SLIDER HEADS**

Manganese/Zinc Ferrite Winchester heads. Smaller, lighter heads with stiffer load arms than standard Winchester heads. They allow smaller flying heights, and therefore higher bit and track density, if they are made with smaller and narrower gaps.

### **MINI WINCHESTER**

A Winchester disc drive with 5-1/4 or 3-1/2 inch diameter discs.

### **MIRRORING**

A popular term for RAID-1. A method of creating disk-fault tolerance by redundantly storing information on pairs of drives.

### **MNEUMONIC**

A shortened code for a longer term.

### **MODIFIED FREQUENCY MODULATION**

(MFM). A method of recording digital data, using a particular CODE to get the flux reversal times from the data pattern. MFM recording is self-clocking because the CODE guarantees timing information for the playback process. The controller is thus able to synchronize directly from the data. This method has a maximum of one bit of data with each flux reversal. (See NRZ, RLL).

### **MULTIPLE SEGMENT CACHING**

This allows the user to divide the cache into segments so that different blocks of data can be cached simultaneously and subsequent commands will have a better probability of a cache hit.

### **MULTIPROCESSOR**

A computer containing two or more processors.

### **MULTITASKING**

The ability of a computer system to execute more than one program or program task at a time.

### **MULTI-THREADED**

Having multiple concurrent or pseudo-concurrent execution sequences. Used to describe processes in computer systems. Multi-threaded processes are one means by which throughput intensive applications can make maximum use of a disk array to increase I/O performance.

### **MULTIUSER**

The ability of a computer system to execute programs for more than one user at a time.

## **N**

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### **NOISE**

Extraneous electronic signals that interfere with information

signals (similar to radio static or TV interference). Sources of noise in computers can be power supplies, ground loops, radio interference, cable routing, etc.

## **NRZ**

NON-RETURN TO ZERO 1) User digital data bits; 2) A method of magnetic recording of digital data in which a flux reversal denotes a one bit, and no flux reversal a zero bit, NRZ recording requires an accompanying synchronization clock to define each cell time unlike MFM or RLL recording). No Seagate drives use NRZ recording methods.

## **O**

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### **OEM**

Original Equipment Manufacturer, such as Hewlett Packard, IBM or Apple.

### **OFF LINE**

Processing or peripheral operations performed while not connected to the system CPU via the system BUS.

### **OPEN COLLECTOR**

A type of output structure found in certain bipolar logic families. The device has a transistor that enables it to output to a low voltage level only. When the device is inactive, an external resistor holds the device output at a high voltage level.

### **OPERATING SYSTEM**

An operating system is a program which acts as an interface between the user of a computer and the computer hardware. The purpose of the operating system is to provide an environment in which a user may run programs. The goal of the operating system is to enable the user to conveniently use the computer's resources such as the CPU, memory, storage devices and printers.

### **OUTPUT**

Processing data being transferred out of the computer system to peripherals (i.e. disc, printer, etc.). This includes responses to user commands or queries.

## **P**

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### **PARITY**

A computer data checking method using an extra bit in which the total number of binary 1's (or 0's) in a byte is always odd or always even; thus, in an odd parity scheme, every byte has eight bits of data and one parity bit. If using odd parity and the number of 1 bits comprising the byte of data is not odd, the 9th or parity bit is set to 1 to create the odd parity. In this way, a byte of data can be checked for accurate transmission by simply counting the bits for an odd parity indication. If the count is ever even, an error is indicated.



**PARKING**

Parking the disc drive heads means the recording heads are moved so that they are not over the platter's data area. Many drives have an auto-park feature where the heads are automatically parked when power to the drive is shut off. Other drives require the user to run some kind of parking software to park the heads.

**PARTITIONING**

Method for dividing an area on disc drive for use by more than one disc operating system or for dividing large disc drives into areas which the File Allocation Table (FAT) can deal with when in use. The current IBM DOS maximum partition size is 32 MB for the XT and AT. This limit can be overridden using partitioning software written expressly for this purpose.

**PATH**

The DOS term "path" has three definitions and each definition involves directories. A PATH may be defined as: 1) the names of the chain of directories leading to a file; 2) the complete file or directory name; 3) a DOS command.

**PCMCIA**

This is the acronym for the Personal Computer Memory Card Industry Association, a trade association responsible for the promotion of removable device interfaces for a variety of products including memory, modems, disks, etc.

**PERIPHERAL EQUIPMENT**

Auxiliary memory, displays, printers, disc drives, and other equipment usually attached to computer systems' CPU by controllers and cables (they are often packaged together in a desktop computer).

**PLATED THIN FILM DISCS**

Magnetic disc memory media having its surface plated with a thin coating of a metallic alloy instead of being coated with oxide.

**PLATTER**

The round magnetic disc surfaces used for read/write operations in a hard disc system.

**POLLING**

A technique that discerns which of several devices on a connection is trying to get the processor's attention.

**PRECOMPENSATION**

Applied to write data by the controller in order to partially alleviate bit shift which causes adjacent 1's written on magnetic media physically to move apart. When adjacent 1's are sensed by the controller, precompensation is used to write them closer together on the disc, thus fighting the repelling effect caused by the recording. Precompensation is only required on some oxide media drives.

**PREVENTIVE MAINTENANCE**

A method of doing a scheduled routine observation or exchanging a part, prior to a breakdown of a piece of equipment.

**PRINTED CIRCUIT BOARD**

(PCB) The circuit board with the chips attached to a drive.

**PROCESSING**

(DATA PROCESSING) The process of computer handling, manipulating, and modifying data such as arithmetic calculation, file lookup and updating, or word processing.

**PROGRAM**

A sequence of instructions stored in memory and executed by a processor or microprocessor. See also APPLICATIONS PROGRAMS.

**PROTOCOL**

A set of conventions governing the format of messages to be exchanged within a communications system.

## Q

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## R

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**RADIAL**

A way of connecting multiple drives to one controller. In radial operation, all output signals are active even if the drive is not selected. Also see DAISY CHAIN.

**RAID**

Redundant Array of Inexpensive Disks - A method of combining hard disks into one logical storage unit which offers disk-fault tolerance and can operate at higher throughput levels than a single hard disk.

**RAM DISC**

A DOS operation, where part of the computer's random access memory is used to simulate a disk drive. The RAM disc and its contents will disappear if power is lost or DOS MAIN MEMORY is restarted. RAM is far faster (microseconds ACCESS TIME) than discs (milliseconds), so APPLICATIONS PROGRAMS which access the disk run faster.

**RANDOM ACCESS MEMORY**

(RAM) Memory where any location can be read from or written to in a random order. Random access memory usually refers to volatile memory where the contents are lost when power is removed. The user addressable memory of a computer is random access memory.

**READ**

To access a storage location and obtain previously recorded data.

**RECALIBRATE**

Return to Track Zero. A common disc drive function in which the heads are returned to track 0 (outermost track).

**RECORD**

1. Software. A record is a single unit made up of logically related fields.

**REDUCED WRITE CURRENT**

A signal input (to some older drives) which decreases the amplitude of the write current at the actual drive head. Normally this signal is specified to be used during inner track write operations to lessen the effect of adjacent bit "crowding." Most drives today provide this internally and do not require controller intervention.

**REDUCED WRITE CURRENT**

TO MINIMIZE THE EFFECTS OF PEAK SHIFT, ON SOME DRIVES, THE MAGNITUDE OF THE WRITE CURRENT IS REDUCED ON SOME OF THE INNERMOST TRACKS. WHEN INSTALLING A DRIVE IN A SYSTEM, THE NUMBER REQUESTED IS THE FIRST TRACK NUMBER TO BEGIN THE AREA OF REDUCED WRITE CURRENT. THAT TRACK AND ALL SUBSEQUENT TRACKS WILL BE WRITTEN WITH REDUCED WRITE CURRENT.

**RESOLUTION**

With regards to magnetic recording, the band width (or frequency response) of the recording heads.

**RLL**

(RUN LENGTH LIMITED CODE). 1) A method of recording digital data, whereby the combinations of flux reversals are coded/decoded to allow greater than one (1) bit of information per flux reversal. This compaction of information increases data capacity by approximately 50 percent; 2) a scheme of encoding designed to operate with the ST412 interface at a data transfer rate of 7.5 megabit/sec. The technical name of the specific RLL CODE used is "two, seven".

**ROM**

(READ ONLY MEMORY) A chip that can be programmed once with bits of information. This chip retains this information even if the power is turned off. When this information is programmed into the ROM, it is called burning the ROM.

**ROTATIONAL SPEED**

The speed at which the media spins. On a 5-1/4 or 3-1/2" Winchester drive it is usually 3600 rpm.

**S****SCATTER/GATHER**

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A feature which allows data to be transferred to or from multiple discontinuous areas of host computer memory with a single I/O command.

### **SCSI**

Small Computer Systems Interface. The current "high end" CPU-to-drive interface.

### **SECTOR**

A sector is a section of a track whose size is determined by formatting. When used as an address component, sector and location refer to the sequence number of the sector around the track. Typically, one sector stores one user record of data. Drives typically are formatted from 17 to 26 sectors per track. Determining how many sectors per track to use depends on the system type, the controller capabilities and the drive encoding method and interface.

### **SECTOR-SLIP**

Sector-slip allows any sector with a defect to be mapped and bypassed. The next contiguous sector is given that sector address.

### **SEEK**

The radial movement of the heads to a specified track address.

### **SEEK COMPLETE**

An ST506 interface signal from drive to controller which indicates that read/write heads have settled on the desired track and completed the seek.

### **SEQUENTIAL ACCESS**

Writing or reading data in a sequential order, such as reading data blocks stored one after the other on magnetic tape (the opposite of random access).

### **SERVO TRACK**

A prerecorded reference track on the dedicated servo surface of a closed-loop disc drive. All data track positions are compared to their corresponding servo track to determine "off-track/on-track" position.

INFORMATION WRITTEN ON THE SERVO SURFACE THAT THE ELECTRONICS OF THE DRIVE USES TO POSITION THE HEADS OVER THE CORRECT DATA TRACK. THIS INFORMATION IS WRITTEN ON THE DRIVE BY THE SERVO TRACK WRITER.

### **SETUP**

PROGRAM USED BY AT TYPE COMPUTERS TO STORE CONFIGURATION IN CMOS. THIS PROGRAM IS SOMETIMES FOUND IN THE SYSTEM BIOS AND CAN BE ACCESSED FROM THE KEYBOARD. ON OTHER SYSTEMS, THE PROGRAM IS ON A DISKETTE.

### **SILICON**

Semiconductor substrate material generally used to manufacture micro- processors and other integrated circuit chips.

### **SINGLE CONNECTOR ATTACHMENT**

The single-connector attachment incorporates all of the disc functionality and configurations into a single point of connection. This is a cost-effective solution for multi-disc and removable applications requiring semi-automated connections and installations. Used primarily with backplanes.

### **SINGLE-ENDED**

An electrical signal protocol which transmits information through changes in voltage. Single-ended SCSI uses standard TTL signal-and-ground pairs to transmit information over the SCSI bus.

### **SKEWING**

Some low-level formatting routines may ask for a Head and/or Cylinder Skew value. The value will represent the number of sectors being skewed to compensate for head switching time of the drive and/or track-to-track seek time allowing continuous read/write operation without losing disk revolutions.

### **SMD**

SURFACE MOUNTED DEVICE. A CHIP in a smaller integrated surface package, without connection leads.

### **SOFT ERROR**

A bit error during playback which can be corrected by repeated attempts to read.

### **SOFT SECTOR MODE**

A CONVENTION, DEFINED BY SOFTWARE, OF SETTING A VARIABLE NUMBERS OF SECTORS PER TRACK IN DIRECT RELATIONSHIP TO THE DRIVE'S FCI RATING IN REGARDS TO THE AREA OF MEDIA THAT PASSES BENEATH THE HEAD. THIS SCHEMA TAKES ADVANTAGE OF THE FACT THAT, IN ACTUAL SURFACE AREA, THE OUTERMOST TRACKS ARE LONGER THAN THE INNERMOST.

### **SOFTWARE**

APPLICATION PROGRAMS, disc operating systems and other programs (as opposed to HARDWARE). The instructions or programs, usually stored on floppy or hard discs, which are used to direct the operations of a computer, or other hardware.

### **SOFTWARE PATCH**

Software modification which allows or adds functions not otherwise available using the standard software program.

### **SPINDLE**

The rotating hub structure to which the discs are attached.

### **SPINDLE MOTOR**

The spindle motor is the electro-mechanical part of the disc drive that rotates the platters.

**ST-506/ST-412 INTERFACE**

One of several industry standard interfaces between a hard disc and hard disc controller. In the ST-506/ST-412 interface, the "intelligence" is on the controller rather than the drive. SEE INTERFACE STANDARD, ESDI AND SCSI.

**STEP**

An increment or decrement of the head positioning arm to move the heads in or out, respectively, one track from their current position. In buffered mode (open loop drives), the head motion is postponed until the last of a string of step pulses has been received.

**STEPPER MOTOR**

The stepper motor is the electro-mechanical part of the disc drive that positions the heads by step pulse on the tracks of the disc to read and write data.

**STEP PULSE**

The pulse sent from the controller to the stepper motor on the step interface signal line to initiate a step operation.

**STEP TIME**

The time required by the drive to step the heads from the current cylinder position to a target cylinder.

**STORAGE CAPACITY**

Amount of data that can be stored in a memory, usually specified in kilobytes (KB) for main memory and floppy disc drives and megabytes (MB) for hard disc and tape drives.

**STORAGE DENSITY**

Usually refers to recording density (BPI, TPI, or their product, AREAL DENSITY).

**STORAGE LOCATION**

A memory location, identified by an ADDRESS, where information is to be read or written.

**STORAGE MODULE DRIVE**

(SMD). Storage module drive interface. An interface, used in larger disc drives, e.g., 14" drives.

**STRIPE**

A contiguous region of disk space. Stripes may be as small as one sector or may be composed of many contiguous sectors.

**STRIPING**

Also called RAID-0, A method of distributing data evenly across all drives in an array by concatenating interleaved stripes from each drive.

**SYNCHRONOUS DATA**

Data sent, usually in serial mode, with a clock pulse.

## **T**

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### **TAGGED COMMAND QUEUING**

The drive can accept commands while processing a current command and reorder the commands to save seek time. Tagged command queuing sets the priorities for the reordering. To utilize these advanced features, the host adapter must be SCSI-2 compatible. If the host adapter is not SCSI-2 compatible, the disc drive will still work, but not all of the features will be implemented.

### **TAPE DRIVE**

A sequential access memory device whose magnetic media is tape in a cassette, reel or continuous loop.

### **TERMINATION**

A method of matching the transmission impedance of a electrical bus so as to eliminate signal reflections from the physical ends of the bus.

### **THIN FILM HEADS**

A read/write head whose read/write element is deposited using integrated circuit techniques rather than being manually fabricated by grinding ferrite and hand winding coils.

### **TPI**

Tracks per inch.

### **TRACK**

The radial position of the heads over the disc surface. A track is the circular ring traced over the disc surface by a head as the disc rotates under the heads.

### **TRACK ACCESS TIME**

See AVERAGE ACCESS TIME.

### **TRACK DENSITY**

See TPI.

### **TRACK FOLLOWING SERVO**

A closed-loop positioner control system that continuously corrects the position of the disc drive's heads by utilizing a reference track and a feedback loop in the head positioning system. See also CLOSED LOOP.

### **TRACK PITCH**

Distance from centerline to centerline of adjacent tracks (TPI divided into 1.0).

### **TRACKS PER INCH**

Track density, number of tracks per inch.

### **TRACK WIDTH**

Width of data track. Also called core width of Read/Write Head.

## **TRACK ZERO**

Track zero is the outermost data track on a disc drive. In the ST 506 INTERFACE, the interface signal denotes that the heads are positioned at the outermost cylinder.

## **TRACK ZERO DETECTOR**

An obsolete technology that RECALIBRATES by sensing when infrared beams between a LED and infrared sensitive photo-transistor are blocked by the track zero interrupter (TZI).

## **TUNNEL ERASE**

An erase scheme where both sides of the recorded data is erased when writing data to eliminate track to track interference. This is primarily used on floppy disk drives.

# **U**

---

## **UNFORMATTED**

(Capacity) Drive byte capacity before formatting. Maximum capacity of a disc drive before formatting = (bits per track) x number of heads x # of cylinders. See MEGABYTE.

## **UPGRADE PATH**

Generally, with disc products, a family having multiple products with varying capacities such that the system storage capacity can increase with changing application requirements simply using a different disc drive within the product family.

# **V**

---

## **VERIFICATION**

This feature lets the computer go back and read what it just wrote to disc to ensure the data was written correctly.

## **VOICE COIL MOTOR**

An electro-magnetic positioning motor in the rigid disk drive similar to that used in audio speakers. A wire coil is placed in a stationary magnetic field. When current is passed through the coil, the resultant flux causes the coil to move. In a disc drive, the CARRIAGE ASSEMBLY is attached to the voice coil motor. Either a straight line (linear) or circular (rotary) design may be employed to position the heads on the disc's surface.

## **VOLATILE**

Memory that will be erased if power is lost. Typically, MAIN MEMORY is volatile, and AUXILIARY MEMORY is non-volatile and can be used for permanent (but changeable at will) storage of programs and data.

# **W**

---

## **WAN**

Wide Area Network



### **WEDGE SERVO SYSTEM**

A certain part of each CYLINDER contains servo positioning data. Gap spacing between each sector contains servo data to maintain position on that cylinder.

### **WIDE SCSI**

The Wide SCSI interface provides a 16-bit wide SCSI bus, as compared to the narrow 8-bit SCSI bus. The wider 16-bit bus provides a transfer rate of 20 Mbytes per second compared to 10 Mbytes per second with Fast SCSI 8-bit interface.

### **WINCHESTER DRIVE**

A disc drive with a Winchester head and non-removable (fixed) discs sealed in a contaminant-free housing.

### **WORD**

Number of bits processed in parallel (in a single operation) by a CPU. Standard word lengths are 8, 16, 32, and 64 (1, 2, 4 or 8 bytes).

### **WRITE**

To access a storage location and store data on the magnetic surface.

### **WRITE CURRENT**

The optimum HEAD write current necessary to saturate the magnetic media in a cell location.

### **WRITE FAULT**

Disc drive interface signal to the controller used to inhibit further writing when a condition exists in the drive which, if not detected, would cause improper writing on the disc.

### **WRITE IMMEDIATE**

With host-controlled write immediate, status is returned when data is transferred to the drive buffer instead of waiting until the data is written to the media. The seek, latency, and write times are cut out of the total command completion as seen by the host.

## **X**

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### **XSMC**

Extended storage module drive interface.

## **Y**

---

## **Z**

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### **ZBR (Zone Bit Recording)**

Trademark of Seagate Technology. A media optimization technique where the number of sectors per track is dependent upon

the cylinder circumference. E.G. tracks on the outside cylinders have more sectors per track than the inside cylinders. The ZBR format is only done at the factory. These drives should not be low-level formatted by the end-user.

### **ZERO LATENCY READ**

This reduces the delay in transferring data from the drive to the initiator due to rotational latency delays. Data is read out of order from the disc and transferred to the host where the requested order is restored.





## **Basic Troubleshooting**

[Read Me First](#)

[Index](#)

(note 3/1995: The material covered in this section is outdated and will be upgraded in the next revisions.)

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6\_1

## 6\_1 Power On Failures

1. System doesn't recognize the presence of the drive.
2. Dealer formatted the drive in his shop. You installed drive but now it doesn't come up at all.
3. The screen goes blank whenever I power up the system.
4. In an AT class system, the drive LED is always on.
5. 1701 ERROR
6. 1780 or 1781 ERROR
7. 1790 or 1791 ERROR
8. AT interface drive spins up after power, then it spins back down.
9. AT interface does not spin up after power.

## 6\_2

### 6\_2 Low-level Format Errors

1. Low-level format takes too long or hangs. Excessive errors. Code 20 or 80. (controller codes) or Unsuccessful format.
2. Entering the DEBUG address fails to obtain the low-level format menu.
3. "Drive not Ready" error message.
4. "Sector not found" error message.
5. Low-level Format hangs on a specific Head/Cylinder/Sector.

6\_3

### 6\_3 Partitioning (FDISK) Errors

1. "No Fixed Disk Present"
2. Hangs in FDISK or fails to create or save partition record.
3. "Hard Disk Controller Failure" or very many defect in last logical partition.



6\_4

#### 6\_4 System Format

1. High level format takes too long .
2. Drive doesn't format to full capacity (DOS partitions only).
3. Do not get full capacity from large capacity drive, using partitioning software.
4. Formatted with Disk Manager, cannot recognize D, E, F (drives above C:).
5. "Disk Boot Failure", "non system disk", or "No ROM Basic - SYSTEM HALTED" error messages.

6\_5

## 6\_5 General Errors

1. Random data, seek, or format errors.
2. Error while installing a second drive of a different interface, or system doesn't boot after installation of second controller.
3. "Bad or Missing Command Interpreter" error message.
4. Should I park my drive?
5. CheckDisk reports bytes in "Bad Sectors".
6. "Error reading Drive C:" type error message.
7. "Track 0 not found" error message.

6\_6

6\_6 Transfer rate and Seek time Access time Problems

1. Average access time test longer than specified.
2. Slower data transfer rate than specified.

6\_7

## 6\_7 SCSI Specific Problems

1. No ROM ID message to screen on boot up.
2. 1780, 1781, 1790, 1791 errors.
3. No SCSI device found.
4. SCSI drive type for my AT system.
5. Series of 1 to 7 drive LED flashes at power-on and drive doesn't work.

6\_8

## 6\_8 Software

1. Newly installed software causes problems or doesn't operate properly.
2. Need device driver for the drive.
3. DOS works OK but other Operating System doesn't.

## 6\_0

### 6\_0 Drive Installation Trouble Shooting

The information presented in this guide is for general reference. It is not intended to be a complete reference of computer or hard disc drive troubleshooting information, however, the solutions given below account for the vast majority of questions received by Seagate Technical Support.

Please read this entire section before contacting your dealer or distributor for additional technical support.

Comments about this guide may be left with the system operator on the Seagate Technical Support Bulletin Board service. International phone numbers are listed on page 2.

Before checking for specific problems with the installation, please verify the following:

- \* Check the Setup and Configuration sections in the drive and controller Installation Guides for possible oversights in user configuration.
- \* Interface and controller cables are fragile and should be handled with care. Make sure all cables in system are functioning properly and connected as specified.
- \* Make sure all cards are firmly seated in their slots.
- \* Make sure system power supply has adequate power for all installed devices.
- \* Always have current backup of your data.

6\_1\_1

## 6\_1 Power On Failures

---

### 1. System doesn't recognize the presence of the drive.

- i) Check all cables for pin-1 to pin-1 orientation.
- ii) Verify that the drive spins up. Keep in mind that many drives are very quiet and hard to hear.
- iii) Check power supply for adequate output.
- iv) Make sure controller is the correct type needed for the interface of the drive and that the controller is correctly configured for your drive.
- v) In AT systems, confirm that the correct CMOS drive type is used.
- vi) Check drive select or drive ID jumpers.
- vii) Check the drive select jumper is correct for the number of drives in your system and/or for the type of controller cable being used.
- viii) Check for either BIOS memory address, port or interrupt conflicts with controller from other devices. Go to a bare bones system and add one device at a time until the conflict resurfaces.
- ix) Verify that you are using a hard drive 34-pin control cable. If using twisted control cable and 7 wires are twisted, then you are using floppy drive cable.
- x) Check to see if a warm boots works.
- xi) Try slowing down the system speed or bus speed.

6\_1\_2

2. Dealer formatted the drive in his shop. You installed drive but now it doesn't come up at all.

Refer to 6\_1\_1, then:

- i) Make sure that the DOS version used to partition and high-level format the drive is consistent with your system.
- ii) If partitioning software was used, make sure that the same drive type in CMOS is used by using the software in the manual mode.
- iii) If using an AT Bus drive in translation mode , make sure the same translation parameters are used.
- iv) Check that the same controller was used by the dealer as the one in your system.
- v) Verify that the same kind of cables were used at the dealer.



6\_1\_3

3. The screen goes blank whenever I power up the system.

Immediately on power up:

- i) Check that the power supply can handle drive power requirements.
- ii) Try removing the new controller or host adapter to see if problem resolves; indicating a defective adapter or hardware conflict.
- iii) Check that monitor is plugged in and turned on.
- iv) Check that the video card is operational.

After P.O.S.T. (Power On Self Test):

- v) Boot from a floppy disk and verify that the primary DOS partition is active and that the high-level FORMAT has been performed.

6\_1\_4

4. In an AT class system, the drive LED is always on.

i) Not a problem if drive is working. Check controller documentation for latch/non-latch jumper if available.

ii) Drive not working: check that pin1 on controller matches pin1 on drive.

6\_1\_5

#### 5. 1701 ERROR

i) Refer to 6\_1\_1

ii) If in an XT system, perform the low-level format if drive is new to this controller.

6\_1\_6

6. 1780 or 1781 ERROR

Refer to 6\_1\_1

6\_1\_7

7. 1790 or 1791 ERROR

- i) Need to low-level format the drive (then partition with FDISK and DOS high-level format).
- ii) Try substituting another 20-pin data cable.

6\_1\_8

8. AT interface drive spins up after power, then it spins back down.

i) Substitute the ribbon cable.

ii) Try a different system with a different BIOS.

6\_1\_9

9. AT interface does not spin up after power.

- i) Check to see that the ribbon cable is not reversed.  
Sometimes the colored stripe on the cable is pin-40.

6\_2\_1

## 6\_2 Low-level Format Errors

---

1. Low-level format takes too long or hangs. Excessive errors.  
Code 20 or 80. (controller codes) or Unsuccessful format.

- i) In AT systems make sure CMOS drive type is correct.
- ii) In XT systems make sure dynamic configuration is correct.
- iii) Check the drive parameters used in the low-level format.
- iv) Check/substitute 20-pin data cable.
- v) Check that you have data cable plugged into correct connector on controller.
- vi) Verify that the performance capability of the controller matches the performance of drive and matches the speed of the system.



## 6\_2\_2

2. Entering the DEBUG address fails to obtain the low-level format menu.

- i) Check if controller even has an onboard BIOS and confirm that it is enabled.
- ii) Check DEBUG address used against the memory address jumpers on the controller (refer to controller documentation).
- iii) Some systems require removing the drive type from CMOS.
- iv) Look for conflicts with other controllers or adapters which have onboard BIOS; video, etc..
- v) Check with controller manufacturer about the use of special formatting software on diskette that needs to be used with the controller card (Seagate controllers and host adapters do not use special diskette software).
- vi) Try using the following addresses for DEBUG:

G=C800:5 or  
G=CC00:5 or  
G=C800:CCC or  
G=C800:6 or  
G=D800:5 or  
G=DC00:5

## 6\_2\_3

### 3. "Drive not Ready" error message.

- i) Check all cables for pin-1 to pin-1 orientation.
- ii) Check power supply for adequate output.
- iii) Verify that the drive spins up. Keep in mind that many drives are very quiet and hard to hear.
- iv) Check the drive select jumper is correct for the number of drives in your system and/or for the type of controller cable being used.
- v) Warm Boot; could be controller, power supply, system BIOS timing, or, relative spin-up time in two drive systems.
- vi) Consider the use of diagnostic hard drive maintenance software.
- vii) May need to low-level format the drive.

6\_2\_4

4. "Sector not found" error message.

i) Substitute the 20-pin data cable.

ii) Usually a media error or the drive not with original controller, may need to re low-level format.

6\_2\_5

5. Low-level Format hangs on a specific Head/Cylinder/Sector.

- i) Check that the hard error list was entered. (bad track list).
- ii) Check that the parameters and/or correct drive type in CMOS setup is being used and matches those of the drive.
- iii) Mark the location of the problem area out in the defect map and restart the low-level format.

6\_3\_1

## 6\_3 Partitioning (FDISK) Errors

---

### 1. "No Fixed Disk Present"

- i) Refer to 6\_1\_1
- ii) Check for too loose cable.
- iii) In two drive system, check that the terminating resistor has been removed from the drive in the middle of the daisy chain.
- iv) May need to re low-level format.

## 6\_3\_2

2. Hangs in FDISK or fails to create or save partition record.

- i) Swap or check the 20-pin data cable.
- ii) Verify that the low-level format actually took place.
- iii) Check that the drive parameters have been entered correctly (re low-level if not).
- iv) If AT bus interface drive, try an alternate translation geometry.
- v) Substitute the cables.
- vi) Try a different DOS and/or DOS utilities diskette.
- vii) Try changing the partition size.
- viii) Run a surface scan utility to check for defects at the beginning of the drive.
- ix) If using ST07 or ST08 AT interface host adapter, check JP5.

6\_3\_3

3. "Hard Disk Controller Failure" or very many defect in last logical partition.

- i) Confirm that the drive type definition used in the CMOS setup does not exceed the capacity of the drive. Seagate disc drives use 1 megabyte to equal 1,000,000 (10 to the 6th power) bytes. In CMOS a megabyte may be calculated as 1,048,576 (2 to the 20th power) bytes.

6\_4\_1

## 6\_4 System Format

---

1. High level format takes too long.

i) Normal operation with DOS 4.x to keep retrying hard errors, giving "Attempting to recover allocation units" message.



## 6\_4\_2

### 2. Drive doesn't format to full capacity (DOS partitions only).

- i) Check the drive parameters used in the low-level format.
- ii) DOS has a 1024 cylinder limitation, alternate translations or third party partitioning software may be needed.
- iii) Verify that the controller is the proper type for drive interface and performance.
- iv) Confirm that the parameters reported by FDISK match those of the drive.
- v) Older DOS has a built in limitation of 32 megabytes. You may need to upgrade your DOS.
- vi) All DOS has a limitation of reported drive parameters. You may need a controller with BIOS, partitioning software, or a system BIOS upgrade.
- vii) Some controllers use disc space for defect management, refer to controller manual for explanation of default sparing overhead.

6\_4\_3

3. Do not get full capacity from large capacity drive, using partitioning software.

i) Likely due to a geometry mismatch in CMOS. Try creating a very small (\_8 meg) DOS boot partition and then partitioning the rest of drive with write/read partitions.

6\_4\_4

4. Formatted with Disk Manager, cannot recognize D, E, F (drives above C:).

- i) Be sure you booted from the hard drive.
- ii) Verify that the Disk Manager DMDRVR.BIN device driver file is in the root directory of the C partition or boot drive.
- iii) Verify that the CONFIG.SYS file on the boot disc has the statement DEVICE=DMDRVR.BIN and that it is loaded before any other memory management device drivers.
- iv) Confirm that all partitions have been "prepared".

6\_4\_5

5. "Disk Boot Failure", "non system disk", or "No ROM Basic - SYSTEM HALTED" error messages.

- i) Try using the DOS utility SYS.COM (i.e. At the A:\ prompt, with the same version of DOS as on the hard drive, type "SYS C:").
- ii) When Using FDISK, make sure that the primary partition is active.
- iii) On AT systems, check for the correct CMOS drive type, check the system battery.
- iv) Check all cables.
- v) Open floppy door.
- vi) Scan for virus infections.
- vii) On XT systems, back up files then reformat from the low level.

6\_5\_1

## 6\_5 General Errors

---

### 1. Random data, seek, or format errors.

- i) Check power and grounding.
- ii) Try re-routing the cables.
- iii) Controllers are susceptible to noise, do not install next to power supply or some monitor cards.
- iv) Try slowing down the system speed or bus speed.
- v) If drive works outside of the system, it is probably ground or RFI problem.
- vi) Do a thorough media scan and reformat, sparing out all previous and new hard errors.

## 6\_5\_2

2. Error while installing a second drive of a different interface, or system doesn't boot after installation of second controller.

- i) The controller must match the interface of the second drive and will need to have onboard BIOS that must not require a CMOS drive type.
- ii) The BIOS memory address of the new controller must be set to a different address than that of any other devices.
- iii) If new drive is an AT interface drive, the existing drive will need a controller with BIOS that does not require a CMOS drive type setting.
- iv) Verify that you have only a single enabled floppy controller in the system.
- v) Verify that your second controller is at a different BIOS memory and port address than any other installed devices.

6\_5\_3

3. "Bad or Missing Command Interpreter" error message.

- i) Do not mix DOS versions.
- ii) Make sure COMMAND.COM was transferred.
- iii) Scan for virus infection.
- iv) Reformat the C: partition using the /S option for transferring the system files.

6\_5\_4

4. Should I park my drive?

i) Only if drive is not autoparking.



6\_5\_5

5. CheckDisk reports bytes in "Bad Sectors".

- i) This is not a problem. Some controller formatting schemes spare an entire track for each hard error found by the low-level format. A hard disc drive is within spec if the drive has up to one error per megabyte of formatted capacity.

6\_5\_6

6. "Error reading Drive C:" type error message.

- i) Scan the disc drive for defects.
- ii) If excessive or intermittent, may be caused by faulty cables.
- iii) Scan for Virus infection.
- iv) Consider the use of diagnostic hard drive maintenance software.
- v) May need to be re low-level formatted (especially if the drive orientation has been changed).

6\_5\_7

7. "Track 0 not found" error message.

- i) Substitute the 20-pin data cable.
- ii) Change the CONFIG.SYS file to include buffers=99, or upgrade DOS software to version 3.3 or higher.
- iii) May need to low-level format drive.

6\_6\_1

## 6\_6 Transfer rate and Seek time Access time Problems

---

1. Average access time test longer than specified.

- i) Verify drive model specifications.
- ii) Optimum step pulse rate is 10 to 35 microseconds, set in dynamic configuration of low-level format on XT type system.
- iii) Different software will measure access time differently.  
Make sure that the software subtracts system overhead from the calculation.

## 6\_6\_2

### 2. Slower data transfer rate than specified.

- i) Test the data transfer rate with different diagnostic utilities.
- ii) Experiment with different interleave settings during the low-level format to achieve best data transfer rate. Start with default setting.
- iii) Controllers vary widely in their interleave capability. A 1:1 interleave controller should always be set for 1, regardless of the drive model. An interleave of 1 to 1 is the fastest. Consult your controller specifications. Setting interleave too fast will degrade performance.
- iv) AT Bus interface drives: Verify that a low-level format was not used previously, as this may remove the head and cylinder skewing optimization.

6\_7\_1

## 6\_7 SCSI Specific Problems

---

1. No ROM ID message to screen on boot up.

i) Check for memory address conflict with other adapter BIOS.  
ST01/ST02 must be at highest address.

ii) Bad Host Adapter

6\_7\_2

2. 1780, 1781, 1790, 1791 errors.

i) Check cables.

ii) Remove the drive type from CMOS in AT systems.

6\_7\_3

3. No SCSI device found.

- i) Check for host adapter BIOS memory address conflict.
- ii) Make sure no drive number is set in CMOS setup.
- iii) Check installation
- iv) Check cable and power output.
- v) Check SCSI ID number.
- vi) Verify if Parity jumper on the drive is needed.



6\_7\_4

4. SCSI drive type for my AT system.

i) None or "Not Installed"; SCSI does not work if a drive type is entered in CMOS.

6\_7\_5

5. Series of 1 to 7 drive LED flashes at power-on and drive doesn't work.

- i) Remove the SCSI interface cable from the drive and apply power. If drive LED still flashes, record the number of flashes and call for technical support.

6\_8\_1

6\_8 Software

-----

1.. Newly installed software causes problems or doesn't operate properly.

i) Call the software manufacturer.

6\_8\_2

2. Need device driver for the drive.

- i) Device drivers are written by the controller manufacturer.  
Seagate does not offer any device drivers.

6\_8\_3

3. DOS works OK but other Operating System doesn't.

i) Call the operating system manufacturer.



