

# TOSHIBA STORAGE DEVICE DIVISION

## 2.5" HDD SERIES INSTALLATION NOTES - 9.5mm Series

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### GENERAL DESCRIPTION

Toshiba's 9.5mm series of 2.5" Hard Disk Drives is comprised of fast, high-capacity drives which comply with ATA-5 standards. Toshiba recommends that these drives be installed by a qualified technician. Additional installation hardware may be required depending on how and or where the drive is being installed.

Specifications	MK3019 GAX	MK4019 GAX	MK6022 GAX	MK4020 GLS
	HDD2172	HDD2171	HDD2184	HDD2178
Formatted Capacity	30.00GB	40.00GB	60.011GB	40.00GB
Height	9.5mm	9.5mm	9.5mm	9.5mm
# of Disks (platters)	2	2	2	2
# of Data Heads	3	4	4	4
	MK4026 GAX	MK6026 GAX	MK8026 GAX	MK5024 GAY
	HDD2193	HDD2194	HDD2191	HDD2186
Formatted Capacity	40.007	60.011	80.012	50.020GB
Height	9.5mm	9.5mm	9.5mm	9.5mm
# of Disks (platters)	1	2	2	2
# of Data Heads	2	4	4	4

### FUNCTIONAL SPECIFICATION

Logical Drive Parameters	MK3019 GAX	MK4019 GAX	MK6022 GAX	MK4020 GLS
	HDD2171	HDD2171	HDD2184	HDD2178
# of Cylinders (user)	33,440	33,440	47,080	33,280
Bytes per Sector	512	512	512	512
LBA Sectors	58,605,120	78,140,160	11,210,240	78,140,160
Buffer Size (KBYTES)	16,384	16,384	16,384	2048
Rotation Speed (±.1%)	5400	5400	5400	4200
Transfer Rate	200.8 –	200.8 –	202.9 –	156.9 –
Internal (MBITS/sec.)	333.2	333.2	373.3	290.4
# of Cylinders (logical)	16,383	16,383	16,383	16,383
# of Heads	16	16	16	16
# of sec./Track	63	63	63	63
PIO/Ultra DMA (MBITS/sec.)	16.6/100	16.6	16.6/100	16.6/100
Seek Time (MSEC.)				
Average	12	12	12	12
Track-to-track	2	2	2	2
Maximum	22	22	22	22

Logical Drive Parameters	MK4026 GAX	MK6026 GAX	MK8026 GAX	MK5024 GAY
	HDD2193	HDD2194	HDD2191	HDD2186
# of Cylinders (user)	54,000	42,480	54,000	44,160
Bytes per Sector	512	512	512	512
LBA Sectors	78,140,160	117,210,240	156,310,488	97,696,368
Buffer Size (KBYTES)	16,384	16,384	16,384	16,384
Rotation Speed ( $\pm$ .1%)	5400	5400	5400	7,200
Transfer Rate Internal (MBITS/sec.)	233 – 446	258 – 394	233 – 446	249 – 440.5
# of Cylinders (logical)	16,383	16,383	16,383	16,383
# of Heads	16	16	16	16
# of sec./Track	63	63	63	63
PIO/Ultra DMA (MBITS/sec.)	16.6/100	16.6/100	16.6/100	16.6/100
Seek Time (MSEC.)				
Average	12	12	12	12
Track-to-track	2	2	2	2
Maximum	22	22	22	22

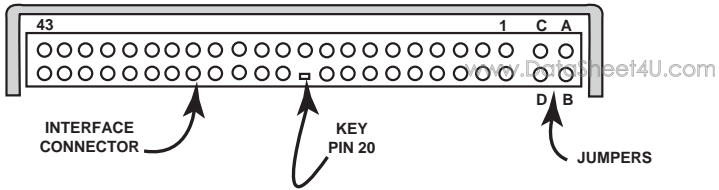
### **UNPACKING PROCEDURE**

Visually inspect the shipping container prior to unpacking for any signs of damage to the container or its contents (the carrier is responsible for any damage incurred during shipment). The drive is a precision device and even a small drop onto any surface can cause damage. Prior to opening the anti-static bag, it is recommended that the user ground themselves with a ground strap or by touching the PC chassis or other metal object. Remove the drive from the anti-static bag and check it for damage. Place the drive on the anti-static bag while configuring jumpers to avoid any electrostatic discharge. Save the shipping container and packing material for possible use later.

### **DRIVE CONFIGURATION**

Toshiba's 2.5" hard disk drives can be configured as either master or slave units. Master configuration is used for all single drive applications, and master or slave configuration (only one of each per port) is used for two drive applications. Use the information in the following table before setting M/S drive.

Master configuration is obtained by setting jumpers B, C & D open (no jumper). Slave configuration is obtained by setting jumpers C-D. When B-D jumper is installed, the drive is configured as cable select. If pin 28 = Low, the drive is master. If pin 28 = High, the drive is slave.



**FIGURE 1 – 2.5" HDD JUMPER LOCATIONS**

JUMPER	P28	DRIVE
No Jumper	-	Master Drive
C-D Jumper	-	Slave Drive
B-D Jumper	LOW	Master Drive
B-D Jumper	HIGH	Slave Drive
A-B Jumper	-	Slave Drive/ Prohibit
A-C Jumper	-	Prohibit



**FIGURE 2 – MOUNTING HOLE LOCATIONS**

**INSTALLATION INSTRUCTIONS**

*Note: Toshiba's 2.5" HDDs are primarily used in notebook devices. Installation into a notebook varies depending on the system manufacturer. Toshiba's 2.5" drives that are installed into a desktop PC require a 3.5" installation kit.*

1. Determine mounting configuration (can be mounted in either a horizontal or vertical orientation).
2. Configure drive for system application.
3. Install the I/F cable to the system's 44 pin connector port or adapter board (if required). Ensure Pin 1 is oriented correctly. (Pin 1 on the cable is usually identified by a red or blue stripe.)
4. Refer to applicable manuals for software installation instructions.

**CABLING INFORMATION**

<b>DRIVE INTERFACE SIGNALS</b>			
<b>PIN</b>	<b>SIGNAL</b>	<b>PIN</b>	<b>SIGNAL</b>
1	-RESET	2	GROUND
3	DD 7	4	DD 8
5	DD 6	6	DD 9
7	DD 5	8	DD 10
9	DD 4	10	DD 11
11	DD 3	12	DD 12
13	DD 2	14	DD 13
15	DD 1	16	DD 14
17	DD 0	18	DD 15
19	GROUND	20	KEY
21	DMARQ	22	GROUND
23	-DIOW	24	GROUND
	STOP		
25	-DIOR	26	GROUND
	-DMARDY		
	HSTROBE		
27	IORDY	28	CSEL
	-DMARDY		
	-DSTROBE		
29	-DMACK	30	GROUND
31	INTRQ	32	- IOCS16
33	DA1	34	- PDIAG
35	DA0	36	DA 2
37	- CS0	38	- CS1
39	- DASP	40	GROUND
41	+5V (LOGIC)	42	+5V (MOTOR)
43	GROUND	44	RESERVED

*Note: Symbol (-) in front of signal indicates negative logic.*

**TECHNICAL SUPPORT**

Should you require technical support, contact your computer distributor. If your distributor is unable to answer your questions, have them call Toshiba Storage Device Division Technical Support, on your behalf.

TOSHIBA - STORAGE DEVICE DIVISON TECHNICAL SUPPORT  
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