

# **TOSHIBA**



**TOSHIBA AMERICA INFORMATION SYSTEMS  
STORAGE DEVICE DIVISION  
IRVINE, CALIFORNIA**

## **MK6025GAS (HDD2189) 2.5-INCH HARD DISK DRIVE USER MANUAL**

Rev 02

11/2006



## CONTENTS

|                       |   |
|-----------------------|---|
| Introduction.....     | 1 |
| Setup .....           | 2 |
| Using the HDD .....   | 4 |
| Troubleshooting.....  | 5 |
| Specifications .....  | 6 |
| Drive Connectors..... | 8 |

## INTRODUCTION – MK6025GAS (HDD2189)

### General Features

- 2.5" sized drive
- 60 Gigabytes\*
- 9.5mm High
- 12ms Average Seek Time
- ATA-2,3,4,5,6 Interface
- Supports high transfer rates of 100 MB/sec
- 8MB Buffer
- Rotational speed of 4,200rpm
- MTTF 300,000 Hours

*\*Toshiba defines a megabyte (MB) as 1,000,000 bytes and a gigabyte (GB) as 1,000,000,000 bytes.*

## SETUP – MK6025GAS (HDD2189)

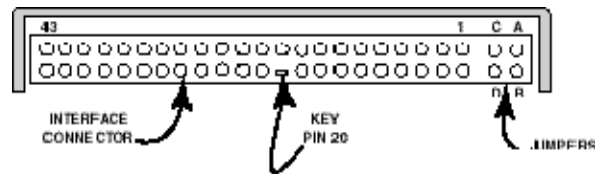


**Caution:** Your Hard Disk Drive is a precision device and even a small drop onto any surface can cause damage. Electrostatic discharge can also damage the drive. You should ground yourself prior to handling the drive.

### Master/Slave Settings

Your Toshiba Hard Disk Drive can be configured as either a "Master" or "Slave" unit. 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 drive as Master or Slave.

Master configuration is obtained by setting jumpers A, B, C & D open (no jumper present). 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.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  |
| A-C Jumper | -    | Prohibit     |

## Installation Notes

- The drive should be mounted carefully on the surface of 0.1mm or less flatness to avoid excessive distortion.
- In order to prevent short-circuit under any circumstances, a space of 0.5mm or more should be kept under the PCB.
- Space should be kept around the drive to avoid any contact with other parts, which may occur due to shock or vibration.
- The temperature of the top cover and the base must always be kept under 60C to maintain the required reliability.
- Be sure not to cover the breathing hole to keep the pressure inside the drive at a certain level
- Do not apply any force to the top cover, except the screw areas on top cover. Maximum force to the specified area is 2N.
- The drive contains several parts which may be easily damaged by ESD (Electric Static Discharge). Avoid touching the interface connector pins and the surface of PCB. Be sure to use ESD proof wrist strap when handling drive.
- The four mounting screws should be tightened equally with 0.3N-m (3kgf-cm) torque. The depth should be 3.0mm minimum and 3.5mm maximum.

## Placing Hard Drive inside your Computer

- Determine mounting configuration (the drive can be mounted in either a horizontal or vertical orientation)
- Configure drive for system application.
- Configure the adapter board for the specific system application (if required).
- Install adapter board into an unused PC/AT 16 bit slot (if required).
- Install the I/F cable to the system's 44 pin connector port or adapter board. Ensure pin 1 is oriented correctly, (pin 1 on the cable is usually identified by a red or blue strip.)
- Set correct drive type in system CMOS
- Refer to applicable manuals for software installation instructions.



**Important Note: Disconnect power from your computer system before beginning installation.**



**Figure 2.HDD Mounting Holes**

## USING THE HARD DISK DRIVE – MK6025GAS (HDD2189)

### Backing up Data Files

To avoid data loss, regularly back up the data files on the hard disk drive.

## TROUBLESHOOTING – MK6025GAS (HDD2189)

| Problem   | Solution   |
|---|--|
| My system is not able to recognize all available capacity on my Hard Disk Drive. What do I need to do to utilize the complete hard drive? | There are some systems that are unable to recognize the new larger Hard Drives on the market. 3rd party software is available that breaks the "capacity barrier". Some suggestions are EZ Drive by Micro House and Disk Manager DiskGo by Ontrack. Check with your local computer/software supplier for availability or contact the software manufacturer. |
| How do I install my 2.5" Toshiba Hard Drive into my desktop or tower system?  | You will need a HDD mounting kit in order to install a Toshiba 2.5" drive into your desktop or tower system. Contact your local computer supplier for kit availability.  |



## SPECIFICATIONS –MK6025GAS (HDD2189)

### General

|           |                     |
|-----------|---------------------|
| Model     | MK6025GAS (HDD2189) |
| Interface | ATA-2/3/4/5/6       |

### Functionality

|                         |                               |
|-------------------------|-------------------------------|
| Formatted Capacity      | 60.011GB*                     |
| Rotational Speed        | 4200rpm                       |
| Avg. Rotational Latency | 7.14/ms                       |
| Spin-up Time            | 4sec (typical)                |
| Buffer                  | 8MB                           |
| Seek Time (Average)     | 12                            |
| Internal Transfer Rate  | 201.6 ~ 307.5 Mbits/sec (max) |
| Host Transfer Rate      | 100Mbytes/sec                 |

\*Toshiba defines a megabyte (MB) as 1,000,000 bytes and a gigabyte (GB) as 1,000,000,000 bytes.

### Internal Drive Characteristics

|                            |             |
|----------------------------|-------------|
| Number of Disks            | 2           |
| Number of Read/Write Heads | 4           |
| Track Density (TPI)        | 88.1k       |
| User Data Cylinders        | 42,480      |
| Logical Cylinders          | 16,383      |
| Logical Heads              | 16          |
| Logical Sectors/track      | 63          |
| Bytes per Sector           | 512         |
| Logical Blocks (LBA)       | 117,210,240 |

### Reliability

|                            |  |
|----------------------------|--|
| Preventative maintenance   | None                                   |
| Nonrecoverable read errors | 1 error per 10 <sup>13</sup> bits read |

### Electrical

|         |       |
|---------|-------|
| Voltage | 5V 5% |
|---------|-------|

### Power Consumption

|                               |               |
|-------------------------------|---------------|
| Start                         | 4.7W typ      |
| Seek                          | 2.6W typ      |
| Read/Write                    | 2.3W typ      |
| Sleep                         | 0.1W typ      |
| Energy Consumption Efficiency | 0.012W/GB avg |

### Shock

|               |                                     |
|---------------|-------------------------------------|
| Operating     | 1,960m/s <sup>2</sup> (200G)(2msec) |
| Non-Operating | 7,840m/s <sup>2</sup> (800G)(1msec) |

## Physical

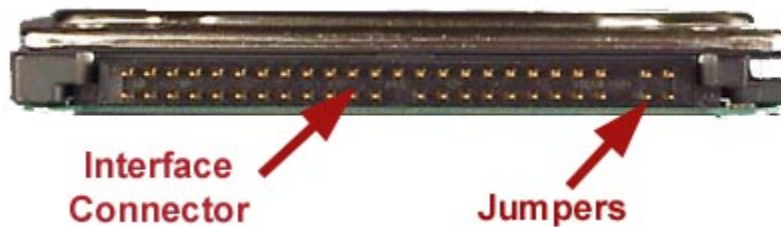
|        |                  |
|--------|------------------|
| Height | 0.37" (9.5mm)    |
| Width  | 2.75" (69.85mm)  |
| Depth  | 3.94" (100mm)    |
| Weight | 3.46oz (98g) typ |

## Regulatory

The drive satisfies the following standards:

|                                     |  |
|-------------------------------------|--|
| Underwriters Laboratories (UL)      | 1950   |
| Canadian Standard Association (CSA) | C22.2 No.220 No. 950   |
| TUV Rheinland                       | EN 60 950  |
| EMC - EN50081-1                     | EN55022: 1988 Class B<br>EN60555-2: 1987+ A1<br>EN60555-3: 77A (Co) 38 |
| EMC - EN50082-1                     | IEC 801-2: 1991<br>IEC 801-3: 1994<br>IEC 801-4: 1988                  |

## DRIVE CONNECTORS –MK6025GAS (HDD2189)



**Figure 1. MK6025GAS HDD Rear View - Connectors**

### Interface Connector

|                                 |   |
|---------------------------------|---|
| Drive Side Connector            | Yamaichi GAP050K11617 or equivalent                   |
| Recommended Host Side Connector |   |
| Board                           | Straight type: Berg 86455-044 86456-044 or equivalent |
| Cable                           | Berg 89361-044 or equivalent                          |

### Recommended Cable Characteristics

|                           |                |
|---------------------------|----------------|
| Standard diameter         | 0.32mm (28AWG) |
| Characteristics impedance | 100 - 132ohm   |
| Max Length                | 0.46mm (max)   |
| Capacitance               | 35pF (max)     |

*\* cable is not included with drive*

## Interface Pin Assignment

| DRIVE INTERFACE SIGNALS   |                                |     |             |
|---|--------------------------------|-----|-------------|
| PIN   | SIGNAL                         | PIN | SIGNAL      |
| 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/STOP                      | 24  | GROUND      |
| 25  | DIOR/<br>-DMARDY<br>HSTROBE    | 26  | GROUND      |
| 27  | IORDY/<br>-DMARDY/<br>-DSTROBE | 28  | CSEL        |
| 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    |
| <i>Note: Symbol () in front of signal indicates negative logic.</i> |                                |     |             |

## Free Manuals Download Website

<http://myh66.com>

<http://usermanuals.us>

<http://www.somanuals.com>

<http://www.4manuals.cc>

<http://www.manual-lib.com>

<http://www.404manual.com>

<http://www.luxmanual.com>

<http://aubethermostatmanual.com>

Golf course search by state

<http://golfingnear.com>

Email search by domain

<http://emailbydomain.com>

Auto manuals search

<http://auto.somanuals.com>

TV manuals search

<http://tv.somanuals.com>