WD1002
WD1003

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WD1003

USER'S GUIDE

IMPORTANT
USER INFORMATION
DO NOT DISCARD

Making the leading edge work for you.

WESTERN DIGITAL

800-1910 (REV. 4-87)

DOCUMENT SCOPE

This document describes the hardware and software installation of the following boards:

WD1002-WAH Winchester Disk Controller
WDl002-WA2 Winchester/Floppy Disk Controller
WDl003-WAH Winchester Disk Controller
WDl003-WA2 Winchester/Floppy Disk Controller

NOTE

These controllers are designed for use in IBM Personal computer ATs or other AT-compatible computers with a 16-bit data bus.

The use of the term controller refers to all boards described within this document. When a specific reference is made to a particular board. the appropriate WD part number is used.

HARDWARE INSTALLATION

This section briefly describes installation of your hardware. If the disk drive(s) is(are) being installed internally, it is best to locate the controller in the nearest available expansion slot to the drive.

CAUTION

Handle the controller board by the ends of the board. Some of the chips are static sensitive and damage may occur If the board is incorrectly handled.

NOTE

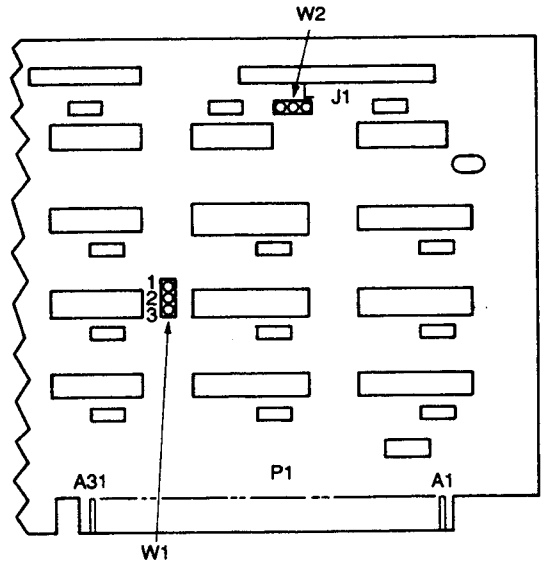
Only verify the jumper settings in Step 1. Modification of the standard factory jumper settings on any equipment described in this document is rarely necessary. Modify jumpers only under the direction of a qualified individual; i.e., your dealer.

1. Verify controller jumper settings. Refer to pages 3 through 6 for jumper setting information.
2. Verify termination on last drive. Verify proper setting of drive select switches on drive; i.e., set the drive select switches for drive select 1 or 2. Refer to your system owner's manual for information about proper drive termination and select switches.
3. Remove the blank expansion slot bracket. Put the bracket away and save it for possible future use. The screw will be used to hold the new controller board in place.

4. Attach 34-pin control connector pin 1 to J1 (J5 for WDl002-WA2 or WDl003-WA2) pin 1. Pin 1 is in the lower left hand corner of J1. Pin 1 is in the upper left hand corner of J5.
5. Connect control cable to drive.
6. Attach 20-pin data connector to J2 (drive C or 1) for the WD1002-WAH or WD1003-WAH (J4 for WD1002-WA2 or WD1003-WA2).
7. Attach 20-pin data connector to J3 (Drive D or 2).
8. Connect data cables to drives.
9. Attach 34-pin floppy cable connector to J1. Connect cable to floppy drive. This step applies to WD1002-WA2 and WDl003-WA2 users only.
10. Attach Winchester activity LED connector to J6 for all controllers except the WDl002-WAH. The reference designator for the Winchester activity LED connector on the WD1002-WAH is J4.
11. Install the controller board into the expansion slot. Make sure that the board is seated properly by pressing down on both ends of the board. Secure the board with the bracket screw.
12. Remove or disable any other floppy controller in your system **IF YOU ARE INSTALLING A WD1002-WA2 OR WD1003-WA2.**

WD 1002-WAH JUMPER SETTINGS

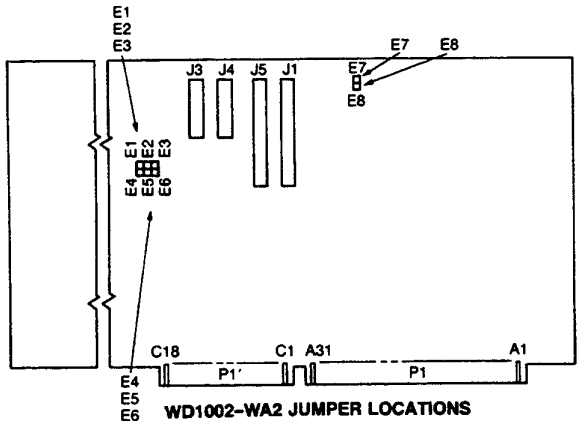
JUMPER	PIN CONNECTS	DESCRIPTION NOTE
		DO NOT MOVE JUMPER W1 UNLESS YOUR OPERATING SYSTEM IS CONFIGURED TO ACCEPT TWO HARD DISK CONTROLLERS. CERTAIN OPERATING SYSTEMS SUPPORT TWO CONTROLLERS IN THE SAME SYSTEM. IBM DOS AND MANY IBM-COMPATIBLE OPERATING SYSTEMS DO NOT SUPPORT THIS FEATURE.
W1		Primary/secondary I/O address jumper.
	1 to 2	Standard factory setting. Jumper in this position selects base primary addresses IF0 hex thru IF7 and 3F6 hex thru 3F7 hex.
	2 to 3	Jumper in this position selects base secondary addresses 170 hex thru 177 hex and 376 hex thru 377 hex.
W2		Latched Status Register Jumper
	L	Standard factory setting. Current drive in use is continuously selected. The Winchester Activity LED remains continuously lit even though the drive is not constantly accessed by the host. Used for IBM Personal Computer ATs.
W2	NL	Current drive in use is selected only when the WD1002-WAH is communicating with the drive. The Winchester Activity LED only lights when the controller accesses the drive. Used for Compaq 286 computers.



WD1002–WAH JUMPER LOCATIONS

WD1002-WA2 JUMPER SETTINGS

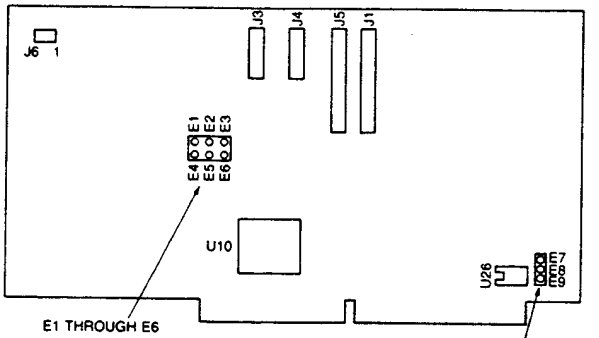
PIN CONNECTS	DESCRIPTION
	NOTE DO NOT MOVE **PRIMARY** ADDRESS JUMPERS UNLESS YOUR OPERATING SYSTEM IS CONFIGURED TO ACCEPT TWO HARD DISK CONTROLLERS. CERTAIN OPERATING SYSTEMS SUPPORT TWO CONTROLLERS IN THE SAME SYSTEM. IBM DOS AND MANY IBM-COMPATIBLE OPERATING SYSTEMS DO NOT SUPPORT THIS FEATURE.
E2 to E3	Standard factory setting. Selects primary address 3F2, 3F4/3F7 hex for the floppy disk drives.
E5 to E6	Standard factory setting. Selects primary addresses 1FO hex through lF7 hex, and 3F6 hex and 3F7 hex for the Winchester diskdrives.
El to E2	Selects secondary addresses 372, 374/377 hex for the floppy disk drives.
E4 to E5	Selects secondary addresses 170 hex through I 77 hex and 376 hex and 377 hex for the Winchester disk drives.
E7 to E8	Jumper must he installed at all times**. DO NOT REMOVE.**



WD1002-WA2 JUMPER LOCATIONS

WD1003-WA2 JUMPER SETTINGS

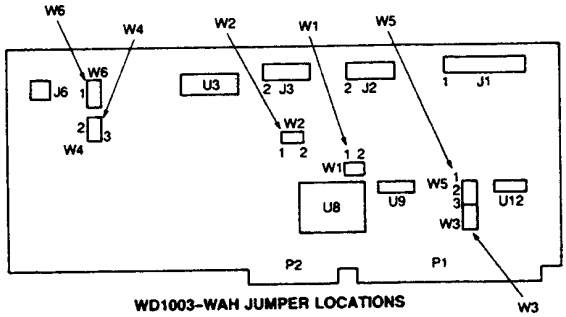
JUMPER	POSITION	FUNCTION
W1	No jumper	Status Read is non-latched. Dynamic drive select; i.e.. SELECT = DRIVE BUSY. Used for Compaq 286s.
	Jumper	Standard factory setting. Status read is latched. Static drive select (SELECT asserted except during RESET). Used for IBM Personal Computer ATs.
		NOTE Do NOT MOVE PRIMARY ADDRESS JUMPERS UNLESS YOUR OPERATING SYSTEM IS CONFIGURED TO ACCEPT TWO HARD DISK CONTROLLERS. CERTAIN OPERATING SYSTEMS SUPPORT TWO CONTROLLERS IN THE SAME SYSTEM. IBM DOS AND MANY IBM COMPATIBLE OPERATING SYSTEMS DO NOT SUPPORT THIS FEATURE
W2	No Jumper	Standard factory setting. Primary addresses selected.
	Jumper	Secondary addresses selected.
W3	No jumper	This configuration used with WD1lC00A-22 or when W5, pins 2 and 3 are jumpered.
	Jumper	Required only on early units with WD11C00-22 and W5. pins 1-2 jumpered. DO NOT JUMPER WITH WD11C00A-22 INSTALLED.
W4	Jumper 2-3	Standard factory setting. Ties firmware sense bit input high
	Jumper 1-2	Supports 2 head. 612 cylinder second drive with standard system setup for 4 head. 306 cylinder drive.
W5	Jumper 2-3	Standard factory setting.
	Jumper 1-2	Internal signal of Power-up circuit controls WG enable.
W6	Jumper 2-3	Standard factory setting. Ties input high.
	Jumper 1-2	Ties input low. The 35 µsec step rate cannot be selected with W6 in this position. Instead, the 16 µsec step rate is selected.



WD1003-WA2 JUMPER LOCATIONS

WD1003-WA2 JUMPER SETTINGS

PIN CONNECTS	DESCRIPTION
	NOTE DO NOT MOVE PRIMARY ADDRESS JUMPERS UNLESS YOUR OPERATING SYSTEM IS CONFIGURED TO ACCEPT TWO HARD DISK CONTROLLERS. CERTAIN OPERATING SYSTEMS SUPPORT TWO CONTROLLERS IN THE SAME SYSTEM. IBM DOS AND MANY IBM-COMPATIBLE OPERATING SYSTEMS DO NOT SUPPORT THIS FEATURE.
E2 to E3	Standard factory setting. Selects primary addresses.
E5 to E6	Standard factory setting. Selects primary addresses.
El to E2	Selects secondary addresses.
E4 to E5	Selects secondary addresses.
E7 to E8	Standard factory setting. Supports 360 RPM floppy disk drives.
ES to E9	Jumper in this position selects 300 RPM floppy disk drives.



WD1003-WAH JUMPER LOCATIONS

SOFTWARE INSTALLATION

This section contains instructions for preparing (low level format, etc.) your operating system to recognize the Western Digital controller.

1. Insert your system Diagnostic Diskette (or equivalent).

2. Turn on the power

3. Boot diagnostic and select setup option.

4. Set clock etc.

CAUTION

Avoid system damage by consulting your Technical Reference manual to ensure that your drive type is supported by your host BIOS drive tables. Not all AT-compatibles share the same drive tables as IBM.

5. Select proper drive type. Consult your Technical Reference Manual for further information on these parameters.

NOTE

Step 6 requires execution of low level formatting. Use of the IBM Advanced Diagnostic (or similar program for IBM-compatibles) is necessary since these controllers contain no on-board Basic Input/Output System (BIOS) ROM.

6. Insert your Advanced Diagnostic diskette and execute low level Format. Follow instructions in your reference manual.

7. Insert System Diagnostic Diskette (or equivalent) after the system finishes the low level format.

8. Load and execute the FDISK and FORMAT programs. Follow instructions in your reference manual.