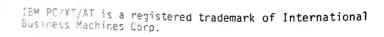
WD1003-WA2 USER'S GUIDE -019



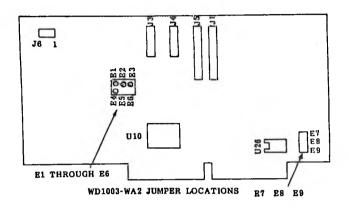
# WD1003-WA2 USER'S GUIDE -019

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### WD1003-WA2 JUMPER SETTINGS



#### WD1003-WA2 JUMPER SETTINGS

PIN	DESCRIPTION
CONNECTS	NOTE
	DO NOT MOVE PRIMARY ADDRESS JUMPERS UNLESS
	YOUR OPERATING SYSTEM IS CONFIGURED TO ACCEPT
1	TOW HARD DISK CONTROLLERS. CERTAIN OPERATING
	SYSTEMS SUPPORT TWO CONTROLLERS IN THE SAME SYSTEM. IBM DOS AND MANY IBM-COMPATIBLE OPER-
ì	ATING SYSTEMS DO NOT SUPPORT THIS FEATURE.
1	Mind Stateme Do Hot Berrowt This Lentons.
E2 to E3	Standard factory setting. Selects primary addresses.
E5 to E6	Standard factory setting. Selects primary addresses.
E1 to E2	Selects secondary addresses.
E4 to E5	Selects secondary addresses.
E7 to E8	Standard factory setting. Supports 360 RPM floppy disk drives.
E8 to E9	Jumper in this position selects 300 RPM floppy disk drives.
1	

## 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 thé 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 ATr.compatibles share the same drive tables as IBM.

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.

- Insert your Advanced Diagnostic diskette and execute low level Format. Follow instructions in your reference manual.
- Insert System Diagnostic Diskette (or equivalent) after the system finishes the low level Format.
- Load and execute the FDISK and FORMAT programs.
   Follow instructions in your reference manual.

#### FORMATTING THE WINCHESTER DISK

#### 1. Procedures

Before a Winchester disk drive could be used please follow the procedures to prepare your Winchester disk drive for operation.

- A. Set Up The System Parameters
- B. Preformat The Winchester Disk
- C. Partition The Winchester Disk
- D. Format The Winchester Disk

#### 2. Setting Up The System Parameters

#### 2.1 Setting Up Procedures

From the PC/AT supplier you have an IBM Advanced Diagnostics diskette. By this diskette you can set up the system parameter as follows:

A. Boot the IBM Advanced Diagnostics Program and your will get the display as follows:

***	****************	
*		
*	SELECT AN OPTION	
*		
*	0 - SYSTEM CHECKOUT	
*	1 - FORMAT DISKETTE	
*	2 - COPY DISKETTE	
*	3 - PREPARE SYSTEM FOR MOVING	
*	4 - SETUP	
*	9 - END DIAGNOSTICS	
*		
*	SELECT THE ACTION DESIRED	2
*	? 4 (CR)	ě.
* .	4	
*		4
***	;*************************************	t

After your selecting option "4" you will be prompted to enter the current date and time and you will come to the following display:

Your system may have other options installed. They are not required for Setup and are not displayed.

The following options have been set:

Diskette Drive A - High Capacity
Diskette Drive B - Not Installed
Fixed Disk Drive C - Type 1
Fixed Disk Drive D - Not Installed
Base memory size - 512KB
Expansion mamory size - OKB
Primary display is attached to:
- Monochrome Display Adapter

Are these options correct (Y/N)? N (CR)

If the default options are not the same as your existing configuration you should answer "N" and you can proceed as follows to set up your configurations:

```
System options information is
required to answer the following
questions.
Press "ENTER" to continue ...
?
     (CR)
Your diskette drive types
are set to the following:
Diskette Drive A - High Capacity
Diskette Drive B - Not Installed
Are diskette drive types correct (Y/N)
? N
       (CR)
Is there only 1 diskette drive
installed (Y/N)
? N
       (CR)
Is Diskette Drive A a High
Capacity drive (Y/N)
? Y
       (CR)
Is Diskette Drive B a High
Capacity drive (Y/N)
? N
      (CR)
Diskette Drive B is set for a
Double Sided Drive.
```

Now you have set up diskette drive A as a High Capacity type drive and diskette drive B as a Double sided drive.

Press "ENTER" to continue ... ? (CR)

You have set your fixed disk drive types to the following:

Fixed Disk Drive C - Type 1
Fixed Disk Drive D - Not Installed

Is this correct (Y/N)

? N (CR)

After Pressing (CR) you will come to the above prompt. Again you can answer "N" to configure your own set -up and you can continue as follows:

How many fixed disks are installed?

Enter 0, 1, or 2 for the number of fixed disk drives installed.
? 1 (CR)

Enter fixed disk type (1-15) for Fixed Disk Drive C.

\*\* WARNING \*\*

Entering the wrong drive type causes improper operation of the fixed disk.

? 2 (CR)

You have set your fixed disk drive types to the following:

Fixed Disk Drive C - Type 2
Fixed Disk Drive D - Not Installed

Is this correct (Y/N)? Y (CR)

You will be prompted to continue to answer the other options. In the final you will come to display such as follows:

\*

\* The following options have been set:

\* Diskette Drive A - High Capacity

\* Diskette Drive B - Double Sided

\* Fixed Disk Drive C - Type 2

\* Fixed Disk Drive C - Not Installed

\* Base mamory size - 512KB

\* Expansion memory - OKB

\* Primary display is attached to:

\* Monochrome Display Adapter

\* Are these options correct (Y/N)

\* ? Y

--
\* Press "ENTER" and stand by

\* while system resets ...

Press (CR) and the system will reset and the setup parameters have been saved into the nonvolatile memory. The parameters will be kept intact until a new setup happens.

## 2.2 Winchester Disk Drive Types

There are 14 drive types supported by the At BIOS as listed below.

Type	Cylinder	Heads	Write Pre-comp	Landing Zone
1	306	4	128	305
2	615	4	300	615
3	615	6	300	615
4	940	8	512	940
5	940	6	512	940
6	615	4	no	615
7	462	8	256	511
8	733	5	no	733
9	90 <b>0</b>	15	no	901
10	820	3	no	820
11	85 <b>5</b>	5	no	855
12	855	7	no	<b>855</b>
13	306	8	128	319
14	733	7	no	733
15	Reservedset to zeros			

## BIOS Winchester Disk Parameters

You have to identify the drive type you're using and configure it into the system setup.

### 3. Preformatting the Winchester Disk

You can select the option "SYSTEM CHECKOUT" to preformat the Winchester disk. This procedure must be done after the system setup.

After selecting "0" for system checkout you can proceed as follows:

****	*******************	**
*	SELECT AN OPTION	*
*		*
*	0 - SYSTEM CHECKOUT	*
*	1 - FORMAT DISKETTE	*
*	2 - COPY DISKETTE	*
*	3 - PREPARE SYSTEM FOR MOVING	*
*	4 - SETUP	*
*	9 - END DIAGNOSTICS	*
*		*
*	SELECT THE ACTION DESIRED	*
*	? 0 (CR)	*
*		*
*		*
*	THE INSTALLED DEVICES ARE	*
*		*
*	1 - SYSTEM BOARD	*
*	2 - 512KB MEMORY	*
*	3 - KEYBOARD	*
*	4 - MONOCHROME & PRINTER ADAPTER	*
*	6 - 2 DISKETTE DRIVE(S)	*
*	AND ADAPTER	*
*	14 - MATRIX Prinyrt	*
*	17 - 1 FIXED DISK DRIVE(S)	*
*		*
*	IS THE LIST CORRECT (Y/N)	*
*	? Y (CR)	*
*		*
***	*********************	**

The installed devices should be the same as those you have set up. If they are the same you should answer "Y" and you will come to the following prompt.

Select "0" to run tests one time and you will come to the following prompt.

1 - SYSTEM BOARD

2 - 512KB MEMORY

3 - KEYBOARD

4 - MONOCHROME & PRINTER ADAPTER

6 - 1 DISKETTE DRIVE(S)
AND ADAPTER

14 - MATRIX PRINTER

17 - 1 FIXED DISK DRIVE(S)

AND ADAPTER

SELECT OPTION NUMBER(S) TO TEST OR PRESS "ENTER" TO SELECT ALL OPTIONS ? 17 (CR)

Selecting option "17" for 1 fixed disk and adapter and you come to the following menu.

FIXED DISK DIAGNOSTIC MENU 1 - WRITE, READ, COMPARE (ON TEST CYLINDER) 2 - SEEK TEST 3 - HEAD SELECT 4 - ERROR DETECTION AND CORRECTION 5 - RUN ALL TESTS 6 - READ VERIFY 7 - FORMAT MENU 9 - RETURN TO CONTROL PROGRAM FOR OPTION 9 TYPE "9" AND PRESS "ENTER" FOR OTHER OPTIONS TYPE THE OPTION NUMBER. DRIVE ID (1,C), AND PRESS "ENTER" ? 7.C (CR)

Select option "7,C" and you come to the format menu as follows:

#### FORMAT SELECTION MENU

- 1 CONDITIONAL FORMAT
- 2 UNCONDITIONAL FORMAT
- 3 SURFACE ANALYSIS
  - 4 CHANGE INTERLEAVE
  - 9 RETURN TO FIXED DISK MENU

FOR OPTION ?

TYPE "9" and press "ENTER"

FOR OTHER OPTIONS

TYPE THE OPTION NUMBER,

DRIVE ID (1,C), AND PRESS "ENTER"

? 2,C (CR)

You have to select "2,C" to preformat the Winchester disk Then you will come to the sebsequent prompls.

\*\*\*\*\* WARNING \*\*\*\*\*
ALL DATA ON THE FIXED DISK
WILL BE DESTROYED

DO YOU WANT TO CONTINUE? ENTER (Y/N) ? Y (CR)

ALL DATA ON DRIVE C
WILL BE DESTROYED!
THIS IS YOUR LAST CHANCE
TO CANCEL!

DO YOU WANT TO CONTINUE? ENTER (Y/N) ? Y (CR)

#### MANUFACTURING DEFECT ENTRY

CYLINDER	HEAD
1-	П
3-	
5-	H
6-	
8-	

ANY DEFECTS TO ENTER (Y/N)
? Y (CR)

You are supposed to enter all the defects of a Winchester disk. You will easily find the defects on the hard error map which is usually put on a label on the Winchester disk drive.

After completing the filling of those defective cylindere and head numbers you will come to the following prompt.

FORMAT WITH ENTERED DEFECTS (Y/N)
? Y (CR)

PLEASE WAIT
FORMATTING
IS BEING PERFORMED ON DRIVE C

CURRENT CYLINDER IS 272

Selecting "Y" and the Winchester disk is now being under preformatting.

#### 4. Partitioning the Winchester Dsik

Before partitioning the Winchester disk you have to reboot the system by using the PC-DOS or MS-DOS V3.0 (or later version).

You can divide your Winchester disk storage into up to 4 partitions and run up to 4 different operating system on your IBM PC/AT.

Type: FDISK (CR)

and you will came to the following menu:

' FDISK Option

Current Fixed Disk Drive: 1 \*

Choose one of the following:

- 1. Create DOS Partition
- 2. Change Active Partition
- 3. Delete DOS Partition
- 4. Display Partition Data
- 5. Select Next Fixed Disk Drive

Enter choice: (1)

Press ESC to return to DOS

Type: 1 (CR)

The screen will display :

Create DOS Partition

Current Fixed Disk Drive: 1

Do you wish to use the entire fixed disk

for DOS (Y/N) ? Y (CR)

If you want to use the entire Winchester disk storage for DOS only, then just type "Y" and press (CR). If you also want to configure for other operating system please select "N" and proceed according to the IBM DOS manual V3.0 Chapter 3 "Preparing Your Fixed Disk".

After "Y" is selected the screen will become :

Press any key and "FDISK" will be finished.

Remark: \* Only when you have the configuration of 2 Winchester disk drives these 2 lines will be displayed.

5. Formatting the Winchester Disk

When "FDISK" has been completed, perform the following:

Type : FORMAT C:/S/V

Press (CR) and the Winchester disk will start to be formatted.

## LOCKING BEFORE MOVING

The Winchester disk drive is a very complicate and delicate mechanism and it may probably be damaged by violent shock or vibration during transportation. So be sure to lock the read/write heads of your Winchester disk drive to prevent any hurts on either the heads or the disk plates before shipment.

There is always a proper landing zone that is recommended by the hard disk manufacturer for locating the R/W heads before moving. This location is sometimes different but usually at the innermost cylinder. (Refer to OEM's manual of Winchester disk drive).

You can lock your Winchester disk by running the Advanced Diagnostics as follows:

## 

Turn off you system and the locking is completed.

#### MS-DOS Introduction

This page will give you an instruction to use MS-DOS and will show you how to use the keyboard and how to select a keyboard for a foreign language. You will learn how DOS handles the commands that you give it and what you need to know to understand these commands.

#### 1. How to use MS-DOS

DOS controls your computer. You control DOS by entering commands, one after the other. A command is an order or DOS to perform a particular task.

After you boot DOS, you will see the prompt "C>" ("A>" if you boot from a diskette). You will then enter a command. DOS will execute the command and display the prompt again. You will enter another command and so on.

Sometimes the command will require only a few seconds to execute, for example, listing the directory of a disk. On the other hand, you may command DOS to execute an application program, such as a word processor; if you work with the program for a long time, it may be hours before you return DOS, there is no special way to stop-just turn off the computer.

## 2. How the keys work with DOS

DOS does not use the fellowing keys: < CURSOR-UP >, < CURSOR-DOWN>, < HOME >. < END >. < PgUp >. < PgDn >, < TAB >, < CTRL HOME >. < SCROLL LOCK >.

The < CURSOR-LEFT > key is used to correct mistakes, the same as the < BACKSPACE > key.

The < CTRL BREAK > key causes DOS to stop whatever it is doing. If DOS is performing a command and for some reason you want to stop it right away, Press < CTRL BREAK >, (Remember, the < BREAK > key is the < SC-ROLL LOCK > key.)

The < ESCAPE > key causes DOS to ignore the line you are typing. If you are typing something and you want to start over, press < ESCAPE >.

The < CTRL NUMLOCK > key temporarily stops the screen display. If DOS is displaying information so quickly that you can't read it, press < CTRL NUMLOCK >. DOS will pause. To start the display again, press any key.

DOS uses the following keys to allow you to edit the line that you < CURSOR-RIGHT >. Their uses is rather complicated and these keys will be discussed later.

Here is a list of all the keys and how they are used with DOS:

Name <enter> <cursor-down> <cursor-up> <cursor-right> <cursor-left> <home></home></cursor-left></cursor-right></cursor-up></cursor-down></enter>	Function Perform the command you have typed Not used with DOS Not used with DOS editing key erase previous character Not used with DOS
< CURSOR-RIGHT>	editing key
< HOME>	Not used with DOS
< END> < PgUp>	Not used with DOS Not used with DOS

< PgDn> Not used with DOS < TAB>Not used with DOS < SHIFT> Specify capital letter or upper symbol <CTRL> Specify control character < CTRL HOME> Not used with DOS < SHIFT PrtSc> Print copy of screen display < CTRL PrtSc> Start-stop: print new display lines specify alternate character < ALT> < CAPS LOCK > start-stop: automatic capital letters < SCROLL LOCK> Not used with DOS < BACK SPACE> erase prerious character < DEL> editing key < INS> editing kev < ESC> ignore current line < CTRL BREAK> stop whatever DOS is doing < CTRL-ALT:DEL> restart the computer < CTRL MUMLOCK> pause display (to continue: Press kev)  $\langle F1 \rangle$  to  $\langle F5 \rangle$ editing keys

## 3. Internal and External Commands

The part of DOS that interprets commands is called the command processor. The command processor is loaded into primary memory from the file COMMAND.COM when DOS is booted.

The instructions to interpret all of the DOS commands would take up a large portion of primary memory. As a compromise, the command processor contains instructions to interpret only certain commands, called INTERNAL COMMANDS (Primary memory is sometimes called internal

memory).

For each external command, there is one file, called a COM-MAND FILE, that contains the programe to interpret that command. Command file have the extension "COM", for example, the FORMAT command is interpreted by a programe that is stored in a file called Format.com.

When you enter an internal command, the command processor interprets it directly. When you enter an external command, the command processor executes the programe in the corresponding command file.

Besides internal and external DOS commands, you can instruct DOS to execute two kinds of programe.

A Load moudle is a programe written in a computer language that is ready to be executed. By convention, a file that contains a load module, is given the extension "EXE".

When you want to execute programe, all you have to do is enter the filename of the load module for that program. For example, to execute the program stored in the file FARKLE FXE, enter "FARKLE".

Follows will show you how to construct a special type of file, called a BATCH FILE. A batch file is a program made up of DOS commands. When it is executed, the commands are processed by the command processor, one after another, as if they were entered from the keyboard. This is handy when you have a long series of commands to enter repeatedly. By convention, batch files are given the extension "BAT".

To execute the commands in a batch file, enter the filename of the batch file. For example, to execute a batch file called ELKRAF.BAT, enter "ELKRAF".

Most application programs are in the form of either a load module or a batch file that executes a series of load modules.

## 4. What happens when you enter a command?

When you enter a command, the command processor examines it. If it is an internal command, DOS execute it directly. If not, DOS checks on the disk to see if it is an external command, load module, or batch file. If DOS can't find our appropriate file, you will see the error message:

### Bad command or file name

## 5. It takes many times when DOS has to look for a file.

How does DOS know which disk to look for?

At all times, one of your disk drives is designated as the DEFAULT DRIVE. Unless you specify, otherwise, DOS will always check the default drive. It is automatically set to the drive from which DOS was started.

Now, if you put the DOS diskette into drive A: and boot DOS, A: will be the default drive. If drive A: is empty. DOS will boot from the fixed disk C:, and C: will be the default disk.

Now you understand the DOS promi. It is the name of the

default disk (without the color) followed by ">". When you boot DOS from the hard disk, the prompt is "C>". When you boot DOS from the diskette drive, the prompt is "A>".

You can change the default disk by entering the name of another disk. Whenever you specify a file or an external command, you must make sure that DOS knows where to find it. If the file is not on the default disk, you must preface the name of the file by the device name of the proper disk.



#### SIMPLE DOS COMMANDS

In this chapter, we will introduce to you some of the frequently used DOS commands. These commands are DIR, TYPE, RENAME, and ERASE.

The DIR command allows the user to print the directory of the files on a diskette or to search for specific files whose filenames match that given in the command line.

The TYPE command allows the user to look into the contents of a file. The RENAME command enables you to alter the filename. The ERASE command is used to delete the file whose name is specified in the command line.

#### 1. THE DIR COMMAND

The Directory command allows the user to examine the files stored on a diskette. The DIR command, when entered, will print a list of the filenames, filename extentions, the size of the files, the time and the date when the files were last accessed. The syntax of the DIR command is:

## A>DIR [A: 'B:] [filename]

Note that what's in the square brackets is optional and the "|" is the equivalent to a logical OR, which means that either A: or B: may be entered as a drive specifier.

Note that if no disk drive specifier is included in the command line, then the DOS assumes that the file(s) in the default drive is (are) to be displayed. If no filename is entered in the command line, then DOS will list all the files stored on the diskette accessed.

## Listing All the Files in the Default Drive

Now, assuming that you are using the IMC PC DYNAMIC which has two disk drives, and you have followed the instructions described in Chapter 2 to boot the DOS. You are suggested to try this command.

When you have booted the DOS, the system prompt character "A>" should be printed on the screen, prompting you to enter a DOS command. Now enter the command DIR and type the carriage return key.

#### A>DIR

What will you see on your screen? The screen of your video monitor will show a list of the filenames, extentions, the sizes of the files, and time and date of when the files were last accessed. After all the file information has been listed, the DOS will print the size of unused memory space on the diskette.

The file information is printed on the screen one line after another from the bottom of the screen and upwards. In this case, we say the screen message is scrolling up. If you feel the scrolling of the screen message is too fast for you to read what's on the screen, you may press the Num Lock key while holding down the Ctrl key to freeze the scrolling of screen. After you have finished reading the screen message, you may type any key to continue the screen scrolling.

After all the files have been listed, the system prompt "A>" will appear again on the screen.

If you want to have the screen message printed on a hard

copy, you may press Ctrl PrtSc

## Listing all Files with Dual Drives

If you want to list the files on the diskette in Drive B. Then you may enter the following command line when being prompted by the system prompt character.

A>dir b:

## Searching for a File with One Drive

Sometimes you may find that it is inconvenient, using the procedures described above, in order to make sure whether a specific file is available on a diskette on which a number of files already exist, because you have to go through a screenful of messages. In this case, the following steps are recommended. Try this example and see what happens (Assuming that IMC PC DYNAMIC is used and a DOS system diskette is inserted in Drive A). Remember to type the carriage key at the end of a command line.

A>dir basica [.com]

After the return key is pressed, the filename, extention, size of the file, last accessed time and date, and the free memory space left on the diskette are displayed. However, if the file so specified in a DIR command line is not found on the diskette, the following message will be displayed:

File not found

## Searching for a File with Dual Drives

If you want to search for a file in Drive B (assuming that a dual drives system is being used), then you may enter the following command line:

#### A>dir b:xxxxxxxxx

### 2. The TYPE Command

The TYPE command allows the user to print the contents of a file in the currently logged diskette on the console. The currently logged diskette is also referred to as the diskette currently accessed or the default diskette.

The command syntax is:

### A>type filename.ext

Where "filename" is the name of the file whose contents are to be printed, and "ext" is the filename extention: This command is entered when DOS is prompting you to enter a DOS command with the system prompt "A>". Usually this command is used when the user intends to look into the contents of an ASCII file, whose contents are made up of ASCII codes (characters).

Sometimes you will have difficulty reading what's displayed on your video monitor screen after a file is TYPED. That is because some files contain information which can only be recognized by the computer.

If you want to print the contents of a file in the currently logged diskette, you have to activate the printer with the Ctrl-PrtSc (It means to press the PrtSc key while holding down the Ctrl key) before entering the TYPE command. The Ctrl-PrtSc key is a toggle (off/on) switch. Pressing Ctrl-Prtsc once will activate the printer (in case power has been supplied to the printer). Pressing Ctrl-PrtSc again will disable the printer.

### 3. The RENAME (REN) Command

The RENAME command lets you change the filename of an existing file.

The command syntax is:

A>rename oldname.ext newname.ext

or

A>ren oldname.ext newname.ext

Note that the old filename (the file to be renamed) comes first in the command line and that the old filename and the new filename should be separated by a space.

Also note that the new filename should be unique in a diskette on which there already exist a number of files.

## RENAME with Dual Drives

Assuming the IMC PC DYNAMIC is being used, the following

steps are taken to rename a file.

 Assume that the DOS diskette is in Drive A and the file to be renamed is to be placed in Drive B. First change the default drive to Drive B by entering the following drive specifier:

A>B: (Press the carriage return key)

Then the video monitor will show:

B>

2) Enter the following command line:

B>rename oldname.ext newname.ext

- 3) After a while, the promt "B>" will appear, signaling that the file have been renamed.
- 4. The ERASE (DEL) Command

To delete a file on the diskette, you may use the ERASE command. The following example shows how the ERASE command is used when using the ST personal computer.

## **ERASE** with Dual Drives

Assume the DOS is in Drive A and the system prompt "A>" is displayed.

- 1) Insert the diskette on which a file is to be deleted into Drive B.
  - 2) Enter this:

AKerase b: filename, ext

OI

A>b:

B>erase filename.ext

The ERASE command is the equivalent to the DEL command. The DEL is also used to erase (delete) a file.



