



# DATA TECHNOLOGY

C O R P O R A T I O N

## 5150XL DISK CONTROLLER INSTALLATION GUIDE

### TABLE OF CONTENTS

	<u>PAGE</u>
1.0 Introduction.....	1
2.0 Jumper Option Setup Instructions.....	1
2.1 BIOS Address and BIOS Enable Jumpers.....	1
2.2 Primary/Secondary I/O Address Jumper.....	2
2.3 Software Readable Jumper.....	2
2.4 DC Power Connector.....	2
3.0 Cable Requirements.....	3
4.0 Formatting The Disk.....	3
4.1 Drive Type Table for CXD BIOS.....	6

Data Technology Corporation Part Number 09-00441A-1  
Revision A June 28, 1988

This installation guide and the associated software and  
firmware are copyright protected.  
(C) 1988, Data Technology Corporation

IBM, PC/XT, and PS/2 are registered trademarks of  
International Business Machines Corporation.

\* \* \* WARNING \* \* \*

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- \* Reorient the receiving antenna.
- \* Relocate the computer with respect to the receiver.
- \* Move the computer away from the receiver.
- \* Plug the computer into a different outlet so that computer and receiver are on different branch circuits.
- \* If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions.

The user may find the following booklet prepared by the Federal Communications Commission helpful:

**"How to Identify and Resolve Radio-TV Interference Problems"**

This booklet is available from:

U. S. Government Printing Office  
Washington, DC 20402.

Stock No. 004-000-00345-4

NOTE: When interfacing with an external device, a shielded cable must be used to comply with FCC regulations.

## 1.0 Introduction

This easy to install hard disk controller is able to control a maximum of two ST-506 type industry standard 3-1/2" or 5-1/4" Winchester disk drives under IBM PC DOS version 2.0 or later on an IBM PC/XT or compatible. The DTC-5150XL also supports IBM PS/2 products, functioning either in the Model 25 or the Model 30.

PLEASE READ THIS INSTALLATION GUIDE CAREFULLY BEFORE STARTING INSTALLATION

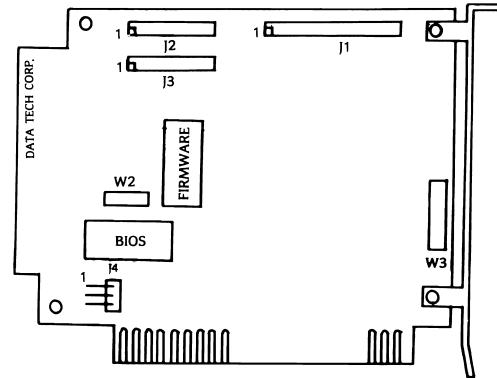


FIGURE 1. JUMPER AND CONNECTOR LOCATIONS ON DTC-5150XL

## 2.0 Jumper Option Setup Instructions

The following information pertains to the DTC-5150XL when used with Data Technology Corporation's CXD BIOS.

### 2.1 BIOS Address and BIOS Enable Jumpers (W2)

This BIOS address jumpers (W2 pins 3-4 and 5-6) allow the BIOS address to be relocated. The default setting places it at address C800:0000. As shown below, alternative addresses can be selected by changing the jumpers.

The BIOS enable jumper (W2 pins 1-2) enables the BIOS when it is installed (closed). THIS JUMPER MUST BE INSTALLED WHEN USING THE ON-BOARD BIOS FOR PROPER OPERATION OF THE CONTROLLER.

## 2.1 Con't

W2:	1-2	3-4	5-6	BIOS ADDRESS
	OFF			BIOS disabled
*	ON	ON	ON	C800:0000
	ON	ON	OFF	CA00:0000
	ON	OFF	ON	D800:0000
	ON	OFF	OFF	F400:0000

NOTE: The following combinations are valid only when using the on-board BIOS (W2 1-2 closed).

If I/O addresses 320H to 323H are to be selected, then the BIOS address must be C800:0000 or F400:0000. If I/O addresses 324H to 327H are to be selected, then the BIOS address must be CA00:0000 or D800:0000.

## 2.2 Primary/Secondary I/O Address Jumper (W2)

\* W2 pins 7-8 closed = Primary port address (320H to 323H)

W2 pins 7-8 open = Secondary port address (324H to 327H)

## 2.3 Software Readable Jumper (W3)

This 8 position jumper is used to manually set the Winchester drive type. The factory setting is for all 8 jumpers to be removed for default auto drive configuration. In the factory mode, no changes are required to the jumpers. However, an option for manual setting of jumpers for specific drive types is provided (See Section 4.1).

## 2.4 DC Power Connector (J4)

DC power can be provided to the drive from this connector when the controller is used as a hard card. Refer to the following chart for pin assignments:

Pin Number	Pin Description
1	+12V
2	+12V
3	VCC
4	Keyed
5	GND
6	GND

\* Denotes factory setting

## 3.0 Cable Requirements

- The following ribbon cables are required for these configurations.
  - One internal drive:  
One 20-conductor cable  
One 34-conductor cable
  - Two internal drives:  
Two 20-conductor cables  
One 34-conductor twisted or flat daisy-chain cable
- The 34 pin cable connects to J1 on the 5150XL. (Note: When using a twisted cable both drives must be set to drive select 2.)
- The 20 pin cable connects to J2 and/or J3. The drive logical unit number is determined by a setting on the disk drive, not by the choice of cable connector J2 or J3.

(See Figure 1 for location of cable connectors)

## 4.0 Formatting The Disk

Warning! The Data Technology Corporation hard disk formatting utility will erase all data on the hard disk! It should only be run once, the first time you install your hard disk.

- Place a copy of IBM DOS 2.0 or later into floppy drive A: and apply power to the system in the normal sequence.
- After booting DOS successfully from the floppy drive, execute the following command upon receiving the "A >" prompt:

debug

(If your DOS came on two diskettes, the DEBUG program may be on the second diskette). Debug will respond with a "-" prompt.

- Respond to the "-" prompt with the command:  
g=c800:5
- This will initiate the hard disk format utility and the following message will appear:

#### 4.0 Con't

\* Format Utility \*

Drive no. (1-2): (Enter the drive number that you want to format).  
Interleave (2-9): (Enter the interleave factor desired. For optimal system performance an interleave of 3 is recommended).

- e. If the W3 jumpers have been manually set for a specific drive type, the system will display the drive configuration that has been selected. Answer the following questions that will appear below the drive configuration.

Enter drive defect table? (Y/N)  
Is above information correct? (Y/N)  
Ready to ERASE entire disk? (Y/N)

- e. If all W3 jumpers are removed, a drive table (See Section 4.1) will appear on the screen.

After you have selected the correct drive type by the table number, the system will display the drive configuration that has been selected. Answer the following questions that will appear below the drive configuration.

Correct drive type (Y/N)?  
Split into 2 logical units? (Y/N)  
Enter drive defect table? (Y/N)  
Is above information correct? (Y/N)  
Ready to ERASE entire disk? (Y/N)

- f. If the drive type that you have is not listed in the drive table, select table number 15 for FREE FORMAT. The following questions will appear:

Cylinders (1-2048):

Heads (1-16):

Step rate (micro sec): (default = 40)  
(5, 10, 20, 30, 40, 50, 60, 70)

Set Reduced Write Current at Cylinder:  
(0 to Max Cylinders) (default = NONE)

Set Write Precompensation at Cylinder:  
(0 to Max Cylinders) (default = NONE)

#### 4.0 Con't

Split into 2 logical units? (Y/N)  
Enter drive defect table? (Y/N)  
Is above information correct? (Y/N)  
Ready to ERASE entire disk? (Y/N)

- g. When the format is done, the following message will appear:

Format Complete.

Insert DOS diskette in drive A:  
Proceed to FDISK and FORMAT.  
Hit any key to reboot the system.

- h. If you have more than one hard disk, repeat the same procedure for the next physical hard disk.
- i. Proceed with the normal DOS procedure for bringing up a hard disk using FDISK and FORMAT commands. See your DOS manual for further instructions.

#### 4. Drive Type Table for CXD BIOS

The following drive table will appear on the screen when the hard disk is formatted using default auto drive configuration.

Also included below are the W3 8 position jumper settings for specific drive types. When two drives are used, combine the jumper settings according to drive number

Key: OFF = remove jumper (open) ON = set jumper on (closed)  
XX = set jumper according to drive type

Drive Type	Hds	Cyl	Drive Number	Jumper Settings							
				1	2	3	4	5	6	7	8
0: ST-225 (Precomp at 256)	4	615	1	XX	XX	ON	ON	XX	XX	ON	ON
			2	ON	ON	XX	XX	ON	ON	XX	XX
1 ST-4038 (Precomp at 300)	5	733	1	XX	XX	OFF	ON	XX	XX	ON	ON
			2	OFF	ON	XX	XX	ON	ON	XX	XX
2. Miniscribe-3425 (Precomp at 128)	4	615	1	XX	XX	ON	OFF	XX	XX	ON	ON
			2	ON	OFF	XX	XX	ON	ON	XX	XX
3 ST-212	4	306	1	XX	XX	OFF	OFF	XX	XX	ON	ON
			2	OFF	OFF	XX	XX	ON	ON	XX	XX
4. Priam-V150	5	987	1	XX	XX	ON	ON	XX	XX	OFF	ON
			2	ON	ON	XX	XX	OFF	ON	XX	XX
5. Priam-V170	7	987	1	XX	XX	OFF	ON	XX	XX	OFF	ON
			2	OFF	ON	XX	XX	OFF	ON	XX	XX
6: Miniscribe-8425 Kyocera-20A/20B	4	615	1	XX	XX	ON	OFF	XX	XX	OFF	ON
			2	ON	OFF	XX	XX	OFF	ON	XX	XX
7 ST-138	6	615	1	XX	XX	OFF	OFF	XX	XX	OFF	ON
			2	OFF	OFF	XX	XX	OFF	ON	XX	XX
8: ST-4051	5	977	1	XX	XX	ON	ON	XX	XX	ON	OFF
			2	ON	ON	XX	XX	ON	OFF	XX	XX
9: ST-251/251 1	6	820	1	XX	XX	OFF	ON	XX	XX	ON	OFF
			2	OFF	ON	XX	XX	ON	OFF	XX	XX
10: Microscience-725	4	612	1	XX	XX	ON	OFF	XX	XX	ON	OFF
			2	ON	OFF	XX	XX	NO	OFF	XX	XX
11 ST-4053 Miniscribe-3053/6053	5	1024	1	XX	XX	OFF	OFF	XX	XX	ON	OFF
			2	OFF	OFF	XX	XX	ON	OFF	XX	XX
12 Maxtor-1085 Newbury Data-1085 Miniscribe-6085	8	1024	1	XX	XX	ON	ON	XX	XX	OFF	OFF
			2	ON	ON	XX	XX	OFF	OFF	XX	XX
13 ST-4096	9	1024	1	XX	XX	OFF	ON	XX	XX	OFF	OFF
			2	OFF	ON	XX	XX	OFF	OFF	XX	XX
14. Maxtor-1140 Newbury Data-1140	15	918	1	XX	XX	ON	OFF	XX	XX	OFF	OFF
			2	ON	OFF	XX	XX	OFF	OFF	XX	XX
15 Free Format				OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

#### Revision Record

ECO #	Rev	Date	Description
	A	06-28-88	Initial release