



SUN ELECTRIC CORPORATION

Model: MDS-HDCD  
for the MCA-3000

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# Field Installation Instructions

INSTALLATION MUST BE PERFORMED BY QUALIFIED SUN SERVICE PERSONNEL ONLY

## INSTALLATION OVERVIEW

The **MDS-HDCD** option for the **MCA-3000**, provides the MCA with Mass Data Storage, including a Hard Drive and CD-ROM Drive.

NOTE : FOR THIS KIT TO BE INSTALLED, THE MCA MUST BE A SERIAL "B" OR SERIAL "A" THAT HAS BEEN UPDATED WITH A #120-0553-01 CPU UP GRADE KIT. IF BOTH KITS ARE BEING INSTALLED, INSTALL THE 120-0553-01 KIT FIRST.

NOTE : THE KEYBOARD ARBITRATOR KIT #1095-0131-01 MUST BE INSTALLED PRIOR TO INSTALLING THIS KIT. THIS WILL PREVENT HARD DISK SOFT BOOT FAILURES.

## PARTS LIST-----

PART NUMBER	DESCRIPTION	QTY
0403-1351-04	Screw, 6-32 x 1/4	8
0406-0124	Screw, Machine 6-32 x 5	2
0610-1311-06	Screw, <b>T.F.</b> 6-20 x 3/8 Hex	1
0616-0006	Keps Nut, 6-32	2
5878-0015	Cable Tie	8
5878-0902	Cable Mount	4
6004-0571	Cable, Hard Drive Control	1
6004-0572	Cable, Hard Drive Data	1
6004-0581-01	Cable, CD ROM Drive	1
7076-0633-01	Wiring Harness, W67 Hard Drive Power	1
0552-0056-02	Hard Drive, Formatted	1
0552-0057-02	CD ROM Drive with accessories *	<b>1</b>
0552-0050	IBM PC DOS 3.3 Software	1
0692-1737-01	Installation Instructions	1

\*Including CD-ROM CONTROLLER BOARD (SCSI BOARD)

## REQUIRED TOOLS-----

COMPLETE SUN ISSUED TOOL KIT

## INSTALLATION INSTRUCTIONS

NOTE : USE STANDARD ANTI-STATIC PROCEDURES WHILE PERFORMING THIS PROCEDURE.

1. Remove the 4 Hex screws securing the Computer Drawer Assembly.
2. Carefully slide the Computer Drawer Assembly out from the MCA. Do not slide it so far out that the Drawer assembly **is** no longer supported by its side rails.

3. Remove the Hex screws that secure the **MCA's** top rear cover. Then remove the rear cover.
- 4\* Remove the two screws retaining the rear of the Disk Drive Bracket.
5. Open the Disk Drive Door in the front of the **MCA-3000**. If there are two screws in the upper corners of the drive bracket, remove them.
6. Carefully slide the Disk Drive Bracket Assembly from the **MCA-3000** by sliding it back and lifting it out. Lay it in the back of the MCA such that the connected cables are not damaged.
7. Remove the front cover on the lower slot of the Drive Bracket.
8. Place the two screws and Keps Nuts in the existing holes. This is for cosmetic reasons.
9. **Using** a screwdriver, pry the ribbon **cable** anchor from the rear Of the bracket.
10. Insert the Termination Board supplied with the CD-ROM Drive into the 50 Pin connector on the rear of the drive.
11. **Install** the CD-ROM Drive through the front of the bracket, into the lower position of the Disk Drive Bracket. Secure it using 4 of the 0403-1351-04 Screws (**6-32x1/4**), inserted from the sides. Note: The front of the drive should be flush with the front of the drive bracket before tightening, and the screws located in the lower holes of the CD ROM Drive.
12. Reinsert the Disk Drive Bracket into the MCA, but do not reinstall the screws that retain it.
13. Insert One end of the 50 pin Ribbon Cable supplied into the connector on the CD-ROM Drive Controller Board (SCSI Board) such that the RED stripe of the 50 pin cable is oriented to the connector's pin #1.
14. Route the 50-pin Cable through the front opening of the card rack retainer for slot J10. Insert the CD-ROM DRIVE Controller Board into Slot J10 or any open slot of the CPU Backplane Board and secure in place using screw #0610-1311-06.
15. Route the other end of the 50 pin cable up through the head frame and across **to** the Optical Disk Drive. Insert it into the 50 pin connector of the Termination Board mounted on the rear of the CD-ROM Drive such that the RED stripe of the 50 pin cable is oriented to the Termination Board connector's pin #1.
16. Locate P704, a 4-pin connector by the Disk Drives and insert it into the power connector of the CD-ROM Drive.
17. Connect Hard Drive Data Cable, 6004-0572 (20 conductor cable) end marked **P4** to the Floppy/Hard Drive **Controller** Board (**SEE TABLE 1 PAGE 3 FOR THE CHART OF CONNECTIONS**).

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 CHART OF CONNECTIONS
 

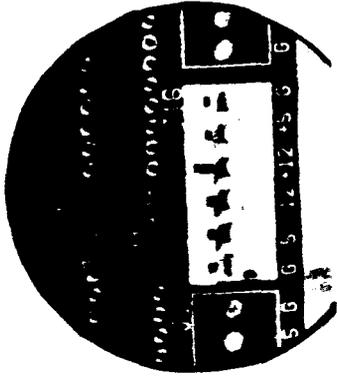
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	34 PIN HARD DISK	20 PIN HARD DISK	34 PIN FLOPPY DISK
RIBBON CABLE P#	P5	P4	<b>P1</b>
VENDOR NAME & MODEL NUMBER			
WESTERN DIGITAL WD1003 WA2	J5	J4	<b>J1</b>
EVEREX EV-346	<b>J1</b>	J2	J4

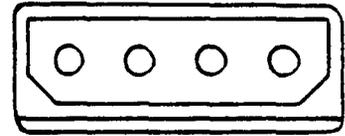
TABLE 1

18. Connect Hard Drive Control Cable, 6004-0571 (34 conductor) end marked P5 to J5 of the Floppy/Hard Drive Controller Board.
19. Route the two newly installed cables from Floppy/Hard Drive Controller Board under any other Boards toward the right side of the Computer Drawer Assembly (as viewed from the rear of the **MCA**).
20. Locate **J901/P901**, a 4-pin connector above the Computer Drawer. Disconnect it, and insert P915 of the Power Supply Cable supplied into **P901**, and P916 into **J901**.
21. Connect J917 of the Power Supply Harness to J3 of the Hard Disk Drive.
22. Connect **P1** of the 34 pin Ribbon Cable to **J1** of the Hard Disk Drive.
23. Connect P2 of the 10 pin Ribbon Cable to J2 of the Hard Disk Drive.
24. Mount the Hard Disk Drive to the Bracket located in the right side of the Computer Drawer as viewed from the rear, using 4 of the 0403-1351-04 Screws (**6-32x1/4**) supplied. The front of the Hard Drive should face the rear and the bottom should face the right.
25. Reinstall the 4 screws (2 in the back and 2 in the front) retaining the Disk Drive Bracket.
26. Reinstall all connectors to the two 3 1/2" drives, verifying **proper** orientation.
27. **Apply** Cable mounts and cable ties as necessary.
28. Plug the MCA into an AC outlet and turn the power "ON".

- 29. **Using** your DVM (Digital Voltmeter), check the following Power Supply voltages: **+5V +/- 0.25** volts, **+12V +/- 1.2** volts and **-12V +/- 1.2** volts at the MCA Computer's Passive Backplane Board (see Figure 1 for locations where to measure Power Supply voltages). If out of tolerance, adjust R48 on Computer Power Supply until reading is within tolerance.



Computer Power Supply



1 + 1  
**+12V G +5V**  
**DC SUPPLY**

CD ROM Drive

Figure 1. Power Supply measurement locations.

- 30. Insert a CD ROM disk in CD ROM Drive. Using your DVM (Digital Voltmeter), check the following Power Supply voltages: **+5V +/- 0.25** volts and **+12V +/- 1.2** volts at the CD ROM Drive's Power Connector, P704 (see Figure 1 for locations where to measure Power Supply voltages). If out of tolerance, check for possible bad connection from CD ROM Drive back to Computer Power Supply connection.
- 31. Reinstall the Rear Panel.
- 32. Gently push the Computer Drawer back in and install screws.

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 \* Hardware Installation Complete \*  
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**MODIFYING AT SET-UP FOR HARD DRIVE**

NOTE 1: IT IS VERY IMPORTANT THAT THIS PROCEDURE IS FOLLOWED TO THE LETTER, OTHERWISE POSSIBLE DAMAGE CAN OCCUR.

The SET-UP Procedure is used to store system configuration specification into battery back-up CMOS RAM Memory and set the CPU Board's Real Time Clock, these specifications must be entered properly.

- 33. Reset the MCA using the "RESET" switch located near the two floppy drives.

34. Wait until the MCA has completed Level 0 Diagnostics and the screen prompt "SET-UP Flu. Press "F1" and the screen should appear as shown in Figure 2 below.

Setup, Version 2.3

Device	Current settings	New settings
Date .....	7-19-1988	
Time .....	.1242S5	
Flexible disk A .....	720KB, 3.5"	
Flexible disk B .....	720KB, 3.5"	
Fixed disk C: .....	Type 39	
Fixed disk D: .....	Not installed	
Conventional memo .....	640 KB	
Extended memory .....	0 KB	
Primary display .....	EGA/VGA graphics display	
Screen width .....	80 Columns	
Math coprocessor .....	Not installed	

	<b>Format for entry of date:</b> Month ____ Day ____ Year (Date will be set immediately)
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4 Move up a selection ↓ Move down a selection → Enter the new setting	ESC Exit without changes  END Save the changes and exit
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Figure 2. New CPU SET-UP Screen

35. Using the Up and Down Cursor Keys, position the highlighted area over the desired selection or device. Enter the correct information (see Figure 2) from the keyboard and press the "ENTER" to change to the selection just entered. Listed below are the proper setting for each device for the MCA.

Date

Enter the correct date if necessary using the MCA's keyboard then press "ENTER".

Time

Using the MCA'S keyboard enter the correct time (hrs:min:sec) using Military time (example of Military time: 5:00 pm is 17:00.), if necessary. After the correct time is entered press "ENTER" to make the change.

Flexible disk A:

Using the MCA's keyboard press "3" to enter the 720KB, 3.5" disk drive selection used by the MCA.

Flexible disk B:

Using the MCA's keyboard press "3" to enter the 720KB, 3.5" disk drive selection used by the MCA.

MODIFYING AT **SET-UP** FOR HARD DRIVE (continued)

Fixed disk C:

SEE TABLE 2 FOR CORRECT DRIVE TYPE NUMBER then enter that number.

HARD DRIVE SELECTION TABLE		
VENDOR NAME	MODEL	DRIVE TYPE
MINISCRIBE	3650 OR 3675	39
NEC	D3 142	41
FUJITSU	M2227D2	45
<b>SEGATE</b>	ST-151 HD	17

TABLE 2

Fixed disk D:

Enter "0" (the number zero) to select Hard disk D: Not installed.

Conventional memory

Enter "640" to select 640 **KB** of RAM memory available to the CPU.

Extended memory

Enter "0" (the number zero) for the amount of Extended memory available to the **MCA's** CPU.

Primary display

The Primary display should come **up** EGA/VGA graphics display due to switch settings scan done by the SBC, if not, press "2" until it does.

Screen width

Enter "80" to select 80 columns wide.

Math coprocessor

This device setting first looks for the presence of the Math **coprocessor**. Since no Math coprocessor is installed the setting is correct and does not need to be changed.

36. After all device settings are correct, press the "END" key (which is the "Review Back" key on **the** numeric keypad to the far right on the keyboard) to save the SET-UP setting in battery backed-up CMOS RAM. If all the settings are correct, press the "ESC" key to exit SET-UP without changes.
37. Insert the "Start-up/Operating" disk from the IBM DOS 3.3 kit into Drive A and turn on the **MCA-3000**.
38. After the Time Message **is displayed, press enter twice to get to the DOS Prompt "a:"**
39. Insert the Service Disk (**0552-0953C01**) into Drive A, type "MENU" and press "ENTER"

**MODIFYING** AT SET-UP FOR HARD DRIVE (continued)

40. Press the appropriate menu selection to install the correct software on the Hard Drive.

CHECKOUT PROCEDURE

41. Remove the Service Disk from drive A and press the Reset button.
42. When the Pre-Boot Menu appears, insert the Customers CD Disk and press the appropriate selection. The relative files will now be loaded off the CD, onto the Hard drive and the program will be executed.

\*\*\*\*\*  
\* CHECKOUT COMPLETE \*  
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