# DISTO
## SUPER PRODUCTS

# *MULTI-BOARD*

# *ADAPTER*

**C.R.C COMPUTER inc**
**C.R.C ORDINATEUR inc**

DISTO 4-IN-1 Adapter

Congratulations on the purchase of your new DISTO
4-IN-1 Adapter. The quality materials and workmanship
used in this product insures years of trouble free
use. The DISTO 4-IN-1 Adapter will only work with the
DISTO Super Controller II or MEB II.

FEATURES.

* RTC (Real Time Clock) Gives you the real time,
  date, and year in an instant.

* Parallel Printer Port lets you use any printer
  that has a Centronics compatible connector.

* True RS232 Communications Port. A serial port
  that lets your computer talk to a Modem or
  other Computer via a DB-25 connector (included).

* Hard Disk port that supports SCSI and SASI
  controllers, from 5 meg up.

* All components rated at 2 mega hertz. No need
  to slow down the CPU to do any I/O.

* OS9 drivers for RTC, PPP, RS232 and HD included.

INSTALLATION INSTRUCTIONS.

1 - Turn your computer, and any another devices
connected to it, off. Remove the controller from the
computer or Multi-Pak and remove the drive cable.
Remove the cover of the controller by removing the 2
screws on each side and locate the 17 pin connector J1
and the 1 pin J2, on the board. Remove the jumper on
the 3 pin connector J3. See your user's manual.

2 - To access the parallel printer port and the
serial port, punch out the rectangle cutout in the

controller's upper cover. A small flathead screwdriver and long-nose pliers are needed. Insert the flathead in the middle of the cutout from the inside and pry it open. Using the pliers, bend the cutout back and forth until it breaks off.

3 - To connect a printer to the 4-IN-1 adapter, insert (Radio Shack catalog #26-1409 printer cable, not included, or equivalent) the smaller (26 pin) connector of the cable through the slot you just punched out and into the 26 pin connector (J2) of the adapter. Note that if the connector has a notch, you may need to trim it in order to fit it in properly. Pin #1 of the connector is marked on the board. Insert the other end of the printer cable into your printer.

4 - Insert the 34-pin hard disk cable through the disk drive cable slot of the controller. Plug in the 34-pin hard disk cable into the 34-pin dual in-line header on the board. Pin #1 of the connector is marked on the board. The cable should lay flat on the solder side of the board.

5 - Locate tne three female connectors on the adapter. Hold the adapter so that the components face towards the controller. Insert the adapter into the controller so that all 3 connectors lign up and press firmly. You may have to slightly bend some components to fit. Make sure that all connectors are properly positioned so that there are no pins sticking out on either side. Also make sure that the printer and hard disk cables are still in place.

6 - To connect an RS232 device to the adapter, insert the 10 pin to DB-25 cable into connector J3. Pin #1 of the connector is next to D4 and closest to the board. To operate the 4-IN-1 board, a separate power adapter is required. A 9 volt DC adapter at 300 ma is required. Radio Shack Cat #273-1651 or equivalent. Connect it to J4, the positive side must be on the tip of the connector.

7 - Tape or glue the 4-IN-1's protective plastic sheet to the inside of the controller's cover. Make sure that it is properly positioned to protect the whole board. Carefully replace the cover and replace the 4 screws to the cover.

## TECHNICAL INFORMATION

### Real Time Clock;

The RTC used in the 4-IN-1 is the OKI M6242B. It is used, here, in the latched address mode. The data register is mapped at $FF50. To access the time data you want, you must first latch its address in the address register. The address register latch is mapped at $FF51. The following is a list of address locations and the data contained within;

| Address | Description |
| --- | --- |
| 0 | 1s of seconds |
| 1 | 10s of seconds |
| 2 | 1s of minutes |
| 3 | 10s of minutes |
| 4 | 1s of hours |
| 5 | AM/PM 10s of hours |
| 6 | 1s of days |
| 7 | 10s of days |
| 8 | 1s of months |
| 9 | 10s of months |
| A | 1s of years |
| B | 10s of years |
| C | Day of week |
| D | Control Reg D |
| E | "       "   E |
| F | "       "   F |

For more details on the RTC chip, see the OKI Peripherals Data Book. After the address of the data you want is latched in the address register, then a read or write to the data register affects that particular register only.

## Parallel Printer Port;

The parallel printer port consists of only one memory mapped byte. It is $FF52. Any write to that byte will latch the data to an eight bit port and automatically strobe the printer. The printer strobe pulse width is 2 microseconds long and is independent of the CPU speed. Reading bit D7 of $FF52 indicates the printer's BUSY condition. All other bits are not valid. When this bit is 0 (LO) the printer is NOT busy and ready to receive data. When it is 1 (HI) the printer is BUSY and cannot receive data. Due to the nature of the auto strobe, it is recommended that you check BUSY before writing to the printer port data latch.

## RS232 Communications Port;

The 4-IN-1 uses the R6551P2 as its main ACIA. It will run at 2 mhz and is functionally the same as the Tandy Deluxe RS232 Pak. The only difference being address location and the status of CTS, RTS and DSR, see pinout below. The Deluxe Pak is mapped starting at $FF68 while the 4-IN-1 is mapped starting at $FF54. For more details on how the ACIA works, see the Rockwell Controller Products Data Book. The following is a memory map of the ACIA;

| Location | Function |
| --- | --- |
| | Read / Write |
| $FF54 | Data |
| $FF55 | Status / Reset |
| $FF56 | Command Register |
| $FF57 | Control Register |

The following is a pinout of the 10 pin RS232 connector (J3);

*DB9 = Straight through - chat o/p wire 10 @ DB-9* (handwritten)

*DB25* (handwritten)

| Pin | Function | Direction |
| --- | --- | --- |
| 1 | DCD *-8* | Input |
| 2 | RXD *-3* | Input |
| 3 | TXD *-2* | Output |
| 4 | DTR *-20* | Output |
| 5 | GND *-1,7* | - |
| 6 | DSR** *-6* | Input |
| 7 | RTS* *-4* | Output |
| 8 | CTS** *-5* | Input |
| 9 | N/C | - |
| 10 | N/C | - |

* The RTS (Request To Send) output signal is always enabled. This means any RS232 device connected to this port will be always be activated, if RTS is used.

** The CTS (Clear To Send) and DSR (Data Set Ready) input signals to the ACIA are always enabled. This means the ACIA device will always transmit, reguardless of what is connected to it.

## SOFTWARE FOR OS9 LEVEL 2

These instructions assume you are familiar with the OS9 command set and concepts. If you are using 'config', remember that, you chose the descriptors and it will automatically include the driver for it. Note: config requires that you use original names for descriptors and drivers; example - /P1_parAS.dd has to be renamed to /P1.dd. In order for OS9 to use the RTC, a software module is required. OS9 has its own clock module which must be removed and replaced with the Disto RTC clock module. In order to do this, a new bootdisk must be made. Note the name of and delete the clock module in a copy of your Boot/Config disk. Choose the proper clock module, from the Disto disk, according to the slot number that the 4-IN-1 will reside in, if you are using a Multi-Pak. Ignore any slot number if you are not using a Multi-Pak. Copy it to the Modules directory of your Boot/Config disk. Rename the new clock module to what the old clock

module was. Now, make a new bootdisk. Delete the setime command in any startup file you might have. The system clock will automatically be set when you start up OS9. Use setime only if you have to change the RTC time.

The parallel printer port also requires a driver module to work with OS9. To permanently install this module, you must make a new bootdisk. Copy the parallel_AS.dr module of the Disto disk to the modules directory of your Boot/Config disk. There are two descriptors for the parallel printer port; /P and /P1 named P_parAS.dd and P1_parAS.dd on the disk. The only difference between the two descriptors is the name. If you want to include the OS9 serial printer port, then use /P and /P1_parAS.dd descriptor. If you want to replace the serial port, then delete it and use the new /P_parAS.dd or /P1_parAS.dd descriptor. If you are using a Multi-Pak, the parallel printer port descriptors default to run in slot #4. To change the descriptor to operate in another slot, use the baud selector of the 'xmode' command. Baud rates have no function in parallel devices, but they are included in the OS9 device descriptor. All you need to do is subtract 1 from the slot number and assign that number to the new baud rate. Example; if the 4-IN-1 is in slot #2, then, 2 minus 1 equals 1. Then type; xmode /P1 baud=1. If you are not using a Multi-Pak, then ignore any reference to slot numbers or baud rates. Note that if you 'iniz' or print to /P_parAS.dd or /P1_parAS.dd and the printer is off or 'off line', you will get an immediate 'error 246' (device not ready). On the other hand, once the operation has started, and the printer becomes busy or gets turned off, the system will wait indefinitely.

In the modules directory of the Boot/Config disk is the driver for the Tandy Deluxe RS232 Pak. This is what you must use to drive the RS232 portion of the 4-IN-1. In order for it to work properly, since it is not mapped at the same location as that of the Tandy's Pak, you must use a different /T2 descriptor. It is named T2_FF54.dd on the Disto disk. Copy it from the modules directory to your Boot/Config disk. Make a new bootdisk using the /T2_FF54.dd descriptor and aciapak.dr and use it as you would the Tandy Deluxe RS232 Pak. Due to the memory mapping techniques (the SCS pin) and the IRQ handling of the COCO, the aciapak.dr will not work in a Multi-Pak. If you are using the 4-IN-1 other than in the controller, use aciapak_slots.dr and the right descriptor for the slot you are using. If you are using a COCO 3, the aciapak.dr driver can inadvertently turn off the interrupts via the GIME chip. A fix using modpatch will prevent this. With Aciapak.dr and modpatch in memory type;

modpatch <aciapak.mod

Then you can cobbler another bootdisk to make the mod permanent.

## HARD DISK PORT

### INTRODUCTION:

The hard disk section of this adapter is the vital link between your computer and a hard drive system. A hard drive system consists of a hard drive controller, a hard drive (usually between 10 and 60 meg), a case and power supply and a connecting cable. The connecting cable connects between this adapter and the controller. The controller, hard drive and power supply are all inside the case. A hard drive controller is an intelligent device that has full control of the hard drive itself. It communicates to your computer via this adapter. Two protocols are supported by this adapter; SASI and SCSI. A software driver is also needed to save and retrieve files to the hard drive system. For more details on controllers or hard drives, refer to the controller or hard drive manuals. In the SASI protocol, the hard drive controllers fully supported by this adapter are, the Zebec 1410A, the Western Digital WD 1002-SHD and the DTC 500 series. Other compatible controllers may work, but are not guaranteed. In the SCSI protocol, the

Adaptec 400A. In the drive and controller combination, the Rodime 650 series and some Seagate 'N' series will all work with the 4-IN-1. Before turning on your hard disk system, please take the time to READ THIS SECTION TO THE END!

## TECHNICAL INFORMATION:

### HARD DISK PORT,

The DISTO HARD DISK port is memory mapped to the I/O area known as the SCS. The following is a memory map of the Hard Disk port;

| Location | Read | Write |
| --- | --- | --- |
| 65361 ($FF59) | H Status * | H Reset |
| 65362 ($FF5A) | N/C | H Select |
| 65363 ($FF5B) | HD Data | HD Data |

* D7 = REQ
  D6 = C/D
  D5 = I/O
  D4 = N/C
  D3 = N/C
  D2 = MSG
  D1 = ACK
  D0 = BSY

To select the device, Store the device number in the HD Data then Store any value to the H Select to activate it. The Select is latched until the responding device replies by asserting busy. If no device responds, the select can be reset by storing any value to H Reset or hitting the reset button. Any Store to the H Reset location will also reset the hard drive controller. See your controller manual for hard drive commands and protocols. The 4-IN-1 hardware will work with both SASI and SCSI controllers without any hardware change.

The following is a pinout of the 34-pin connector (J6) for the hard disk adapter.

| Pin | Description |
| --- | --- |
| 2 | D0 |
| 4 | D1 |
| 6 | D2 |
| 8 | D3 |
| 10 | D4 |
| 12 | D5 |
| 14 | D6 |
| 16 | D7 |
| 18 | N/C |
| 20 | BSY |
| 22 | ACK |
| 24 | RST |
| 26 | MSG |
| 28 | SEL |
| 30 | C/D |
| 32 | REQ |
| 34 | I/O |

Note: All odd pins numbers are ground.

### OS9 SOFTWARE;

The following instructions require that you have of good knowledge of OS9 commands and module structures. Like any other device in OS9, if you want the Hard Disk to be present on boot-up you must make a new boot disk. Delete, if present, the modules HO.dd and CCHDISK.dr on a copy of your Boot/Config disk. Copy the HO descriptor and driver that suits your hardware needs. Note: When using the 4-IN-1 with the SC-II, it forces the SC-II into the Regular Mapping mode, and not the Alt. Mapping mode. You must use the Regular drivers for the SC-II's No-Halt mode. Now make a new boot disk using the 'config' or 'os9gen' command and include HO along with whatever other modules you require.

When a new hard disk is installed, before it can be used, it must be formatted. Formatting a hard disk is a little like formatting a floppy disk. You must use the 'format' command. The format command in OS-9 uses the information in the descriptor such as number of cylinders and number of heads. The default descriptor HO_HDIISASI.dd and H1_HDIISASI.dd are set for a ST-225 (20-Meg hard drive) and a WD 1002-SHD controller. Before you format your drive, if it is different than the above mentioned drive, the parameters in the descriptor must be properly set to match your drive. This is done by using 'hmode' to modify the values in the descriptor. There are usually only two parameters to change. The Cyls (number of cylinders) and the Hds (number of heads). This tells OS9 the size of drive is connected to it.

You must also tell the hard disk controller what kind of drive is connected to it. The following procedure is for SASI type controllers only. This is done by modifying the initcmd and the inittbl in the descriptor. The initcmd is the code used to tell your controller what kind of disk is connected to it. In the case of the Zebec 1410 and the WD 1002-SHD, the code is $0C in hex. This is the default value in the supplied descriptor. If you are trying out another controller, it may be different. Consult the controller's manual for the right value. Look under "Initialize Drive Characteristics" or "Set Parameters".

The initcmd gets its parameters from the inittbl. For the above mentioned SASI controllers only the first 8 bytes of the table are used. Twenty bytes has been reserved for this table, in case your controller needs more than 8 bytes. The 8 bytes used are listed below;

C = Maximum number of cylinders (2 bytes)
H = Maximum number of heads (1 byte)
W = Reduced write current cylinder (2 bytes)
P = Write Precompension cylinder (2 bytes)
E = Max ECC data burst length (1 byte)

To set these values to other than a 20-Meg drive, refer to the hard drive's manual for this information. Using the 'hmode' command, enter the new values according to your drive specifications. Each byte requires a 2 character HEX value and are entered in the order given above without spaces. If a parameter is not given or not known, try the default value or 00, but do not forget to change the Cyls and Hds values also.

In the case of the SCSI drives, the low level formatting is done via a Disk Basic program. These programs are on your OS9 drivers disk. Just do a DIR while in Radio Shack BASIC. If you are using the Adaptec 400O and your drive is different than a ST-225, Load the FMTADPC/BAS, list the program and change the parameters in the DATA area to suite your drive. If your drive is a Seagate 'N' type, with a built in controller, choose the FMTSGATN/BAS format program. This program is good for any 'N' drive that allows 256 byte sectors. Then in OS9, use the /HO_HDIISCSI.dd and use the 'format' command, but since your drive is already physically formatted, when it asks for 'both physical and logical', answer no. In the SCSI descriptor, the initcmd is set to 00, since an SCSI controller gets its drive information from a reserved track on the drive itself. Any time the initcmd byte is 00 no initialization is done. In any case, OS9 must still be told how many cylinders and heads your hard drive has. Use 'hmode' to change these values.

Finally, the hard disk driver is written in such a way that, it can access the 4-IN-1 hardware in any Multi-Pak Interface slot. The slot number is determined by the $15' th byte of the /HO descriptor. This byte should be $80 + (SLot # - 1). For example, if the 4-IN-1 is in slot #3, then the value for that byte is $82. The default slot for the descriptors supplied is slot #4.

When all this is said and done, you may want to use 'cobbler' to make the changes to the descriptor permanent. But remember there are many ways of

installing and changing modules, the above is only a guideline.

## Disk Extended Basic Software

DISTO does not support the hard disk port under DEB, but there are third party software available for the 4-IN-1. If you are using a SCSI controller, you can use the hard disk software by RGB Computer Systems. 294 Stillwell Ave Kenmore, NY 1417. (716) 876-7538. Or if you are using a SASI controller you can use Hyper I/O software by Burke & Burke, P.O. Box 1283 Palatine, Il 60078-1283 (312) 397 2898. Look through the pages of the latest Rainbow for more up to date info on compatible software on the 4-IN-1.

## Credits:

The DISTO 4-IN-1, and all its documentation are conceived and designed by Tony DiStefano. All OS9 drivers for the 4-IN-1 are written and copyrighted by Kevin Darling. The DISTO 4-IN-1 is manufactured and distributed by;

**CRC COMPUTERS inc.**

11, Des Laurentides
Laval, Québec
Canada H7G 2S3
(514) 967-0195

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OS-9 Level II.
WD-1002-SHD or Xebec 1410 Controller.
SEGATE ST-225 : 20 Meg. 615 Cyls. 4 Hds.
Two disk drive sys.
Disto Hard Disk OS-9 Drivers in drive /d1

First Boot with OS-9 lvl.II in drive /d0
Load /d1/modules/CCHDISK_SASI_LII.DR
Load /d1/modules/H0_HDIISASI.DD

At this stage if you need to change the number of CYLINDERS or number of HEADS (I.E. for a 5 Meg. hard disk with 160 cyls and 4 hds) Load /d1/cmds/HMODE if not step to FORMAT.

hmode /h0
(Notice that the CYLS=615, HDS=4 and the INITTB1=026704)
hmode /h0 cyls=160 hds=4 inittbl=00A004 (Note: 160=00A0, 4=04)
hmode /h0
(Now cyls should be 160, hds=4 and inittbl=00A004)

FORMAT :
--------

format /h0
Answer "Y" for FORMATTING A HARD DISK..
Answer "Y" at "Are you sure ?"
Answer "Y" for BOTH PHYSICAL AND LOGICAL FORMAT
Answer "Y" or "NO" for LOGICAL VERIFY DESIRED
(If you answer "Y" be patient...)

Now that your Hard disk is formatted, if you want the hard disk to be present on boot-up you must make a new boot disk. Delete the modules H0.dd and CCHDISK.dr on a copy of your Boot/Config disk in D0. Copy the H0 descriptor and driver that suits your hardware needs.

NOTE : If you have modified the H0_HDIISASI.dd, you may use the SAVE command (OS-9 LVL.I) to copy H0.dd on your Boot/Config disk. EXAMPLE using SAVE: First LOAD and HMODE /H0 to your needs, then save /d0/modules/H0.DD H0
copy /d1/modules/CCHDISK_SASI_LII.DR /d0/modules/CCHDISK.DR

Example : (If you did not use HMODE)
copy /d1/modules/CCHDISK_SASI_LII.DR /d0/modules/CCHDISK.DR
copy /d1/modules/H0_HDIISASI_.DD /d0/modules/H0.DD

Now make a new boot disk using the 'config' or 'os9gen' command and include H0 along with whatever other modules you require.

OS-9 Level II.
SEGATE ST-225, 20 Meg. Hard drive.
ADAPTEC 4000-A SCSI Controller.
Two disk drive sys.
Disto Hard Disk OS-9 Drivers in drive /d1

In the case of the SCSI Controller, the low level formatting is
done via DISK BASIC. For this examlpe, we are using a ST-225,
20 Meg, 615 Cyls. 4 Hds. hard drive.

RUN "FMTADPC" and answer all questions.
Then Boot with OS-9 lvl.II in drive /d0
Load /d1/modules/CCHDISK_SCSI_LII.DR
Load /d1/modules/H0_HDIISCSI.DD

At this stage if you need to change the number of CYLINDERS or
number of HEADS (I.E.: For a 5 Meg. hard disk with 160 cyls and 4
hds) LOAD /d1/cmds/HMODE and modify the value in the descriptor.
If not step to FORMAT.

hmode /h0
(Notice that the CYLS-615, HDS-4 and the INITTBL-026704)
hmode /h0 cyls-160 hds-4 inittbl-00A004 (160-00A0 HEX, 4-04 HEX)
hmode /h0
(Now CYLS should be 160, HDS-4 and INITTBL-00A004)

format /h0
Answer "Y" for FORMATTING A HARD DISK..
Answer "Y" at "Are you sure ?"
Answer "N" for BOTH PHYSICAL AND LOGICAL FORMAT
Answer "Y" or "NO" for LOGICAL VERIFY DESIRED
(If you answer "Y" be patient...)

Now that your Hard disk is formatted, if you want the hard disk
to be present on boot-up you must make a new boot disk. Delete
the modules H0.dd and CCHDISK.dr on a copy of your Boot/Config
disk in d0. Copy the H0 descriptor and driver that suits your
hardware needs.

NOTE : If you have modified the H0_HDIISCSI.dd, you may use the
SAVE command (OS-9 LVL.I) to copy H0.dd on your Boot/Config disk.
EXAMPLE using SAVE:  First LOAD and HMODE /h0 to your needs, then
save /d0/modules/H0.DD H0
copy /d1/modules/CCHDISK_SCSI_LII.DR /d0/modules/CCHDISK.DR

Example : (If you did not use HMODE)
copy /d1/modules/CCHDISK_SCSI_LII.DR /d0/modules/CCHDISK.DR
copy /d1/modules/H0_HDIISCSI.DD /d0/modules/H0.DD

Now make a new boot disk using the 'config' or 'os9gen' command
and include H0 along with whatever other modules you require.


OS-9 Level II.
SEGATE ST-225-N 20 Meg. SCSI Hard Drive.
Two disk drive sys.
Disto Hard Disk OS-9 Drivers in drive /d1

In the case of the SCSI drives, the low level formatting is done
via DISK BASIC.  For this examlpe, we are using a ST-225-N 20 Meg
SCSI hard drive.

RUN "FMTSGATN" and answer all questions.
Then Boot with OS-9 lvl.II in drive /d0
Load /d1/modules/CCHDISK_SCSI_LII.DR
Load /d1/modules/H0_HDIISCSI.DD

At this stage if you need to change the number of CYLINDERS or
number of HEADS (I.E.: For a 5 Meg. hard disk with 160 culs and 4
hds)  LOAD /d1/cmds/HMODE and modify the value in the descriptor.
If not step to FORMAT.

hmode /h0
(Notice that the CYLS-615, HDS-4 and the INITTBL-026704)
hmode /h0 cyls-160 hds-4 inittbl-00A004 (160-00A0 Hex, 4-04 HEX)
hmode /h0
(Now CYLS should be 160, HDS-4 and INITTBL-00A004)

format /h0
Answer "Y" for FORMATTING A HARD DISK..
Answer "Y" at "Are you sure ?"
Answer "N" for BOTH PHYSICAL AND LOGICAL FORMAT
Answer "Y" or "NO" for LOGICAL VERIFY DESIRED
(If you answer "Y" be patient...)

Now that your Hard disk is formatted, if you want the hard disk
to be present on boot-up you must make a new boot disk. Delete
the modules H0.dd and CCHDISK.dr on a copy of your Boot/Config
disk in d0.  Copy the H0 descriptor and driver that suits your
hardware needs.

NOTE : If you have modified the H0_HDIISCSI.dd, you may use the
SAVE command (OS-9 LVL.I) to copy H0.dd on your Boot/Config disk.
EXAMPLE using SAVE:  First LOAD and HMODE /h0 to your needs, then
save /d0/modules/H0.DD H0
copy /d1/modules/CCHDISK_SCSI_LII.DR /d0/modules/CCHDISK.DR

Example : (If you did not use HMODE)
copy /d1/modules/CCHDISK_SCSI_LII.DR /d0/modules/CCHDISK.DR
copy /d1/modules/H0_HDIISCSI.DD /d0/modules/H0.DD

Now make a new boot disk using the 'config' or 'os9gen' command
and include H0 along with whatever other modules you require.

```
OS-9 Level II.
RODIME 650 Series 20 Meg. Hard Drive.
Two disk drive sys.
Disto Hard Disk OS-9 Drivers in drive /d1
```

In the  case of the SCSI drives, the low level formatting is done
via DISK BASIC. For this examlpe, we are using a  RODIME  652-A
20 Meg hard drive.

RUN"FMTRDME" and answer all questions.

Then Boot with OS-9 lvl.II in drive /d0

Load /d1/modules/CCHDISK_SCSI_LII.DR

Load /d1/modules/H0_RODIME652.DD

At this  stage if  you need  to change the number of CYLINDERS or
number of HEADS, LOAD /d1/cmds/HMODE and modify the  value in the
descriptor. If not step to FORMAT.

```
format /h0
Answer "Y" for FORMATTING A HARD DISK..
Answer "Y" at "Are you sure ?"
Answer "N" for BOTH PHYSICAL AND LOGICAL FORMAT
Answer "Y" or "NO" for LOGICAL VERIFY DESIRED
(If you answer "Y" be patient...)
```

Now that  your Hard  disk is formatted, if you want the hard disk
to be present on boot-up you  must make  a new  boot disk. Delete
the modules  H0.dd and  CCHDISK.dr on  a copy of your Boot/Config
disk in d0. Copy  the H0  descriptor and  driver that  suits your
hardware needs.

NOTE :  If you have modified the H0_RODIME652.dd, you may use the
SAVE command (OS-9 LVL.I) to copy H0.dd on your Boot/Config disk.
EXAMPLE using SAVE: First LOAD and HMODE /h0 to your  needs, then
save /d0/modules/H0.DD H0
copy /d1/modules/CCHDISK_SCSI_LII.DR /d0/modules/CCHDISK.DR

Example : (If you did not use HMODE)
copy /d1/modules/CCHDISK_SCSI_LII.DR /d0/modules/CCHDISK.DR
copy /d1/modules/H0_RODIME652.DD /d0/modules/H0.DD

Now make  a new  boot disk  using the 'config or 'os9gen' command
and include H0 along with whatever other modules you require.