

REVISION NOTICE
MONARCH
MP/M-86 DV1.3D

Introduction

MP/M-86 DV1.3D consists of updated Diskettes #1 and #2. This revision enhances the performance of your Monarch computer.

Description of this Revision

Prior to this revision of MP/M-86, when using the CA option in DYNASYS with an 8-bit mask specification, the system would ignore it and use the default 7-bit mask. This has been fixed in this revision.

Prior to this revision, booting at 19.2 kilobaud would display garbage on the screen at a certain point. This has been fixed in this revision.

Prior to this revision, there were two problems with the TAPE utility. It would not allow .TIP files greater than 1 kilobyte and it would not restore to floppies correctly (floppy boundaries were handled incorrectly). This has been fixed in this revision. In addition, a new feature has been added to the TAPE utility. Prior to this revision, TAPE would allow any characters as filenames. When corrupted directory entries were encountered, the bogus filenames were copied to the tape, and could subsequently be restored. This revision contains a character filter that ignores a directory entry when it encounters disallowed characters. This will prevent corrupted directory entries from propagating themselves.

Two new features have been added to this revision of MP/M-86. The type-ahead buffer in prior releases was only 16 characters. This has been increased to 96 characters. The output buffer for serial ports was only 32 characters. It has also been increased to 128 characters. This revision also contains a mechanism for accessing the Z80B I/O ports indirectly. For a complete description of this feature, see the Monarch Technical Tip on "16-bit operating system Z80B indirect port I/O".

Hardware Requirements

This revision of MP/M-86 requires that Monarchs with a 19MB Winchester have an IPL PROM version 2.2F or higher installed. Monarchs with a 46MB Winchester must have an IPL PROM version 2.2G or higher installed. Appendix D of the Monarch MP/M-86 User's Guide tells you how to determine if your Monarch has a correct IPL PROM installed. Appendix D also tells you how to install a new IPL PROM.

Using this Revision

If you are a first-time user of MP/M-86, follow the steps in Section 1, GETTING STARTED of the Monarch MP/M-86 User's Guide (Rev. B). If you received a Bad Track List with your Monarch computer and your Winchester was not formatted at the factory, read the Monarch Technical Tip on Entering the Bad Track List before installing MP/M-86. You don't have to re-enter the bad track values if your Monarch's shipping carton contained a notice that the Winchester hard disk was formatted at the factory.

Previously installed versions of MP/M-86 need only copy the affected files from the floppy and re-DYNASYS. Follow the installation procedure below to update your system.

Installation Procedure

1. Boot from Diskette #1. Leave the diskette in the floppy drive.
2. Log onto Winchester drive B. Type:

```
0A>B:<CR>
```
3. Type:

```
0B>SUBMIT A:COPY1REV A B<CR>
```

where A is the floppy drive and B is the Winchester drive.
4. Wait. When all of the files have been copied over, you will receive the message Copy complete.
5. Take Diskette #1 out of the drive and insert Diskette #2.
6. To let the operating system know that there is a new floppy disk in the drive, type:

```
0B>DSKRESET<CR>
```
7. Type:

```
0B>SUBMIT A:COPY2REV A B<CR>
```

where A is the floppy drive and B is the Winchester drive.
8. Wait until your console displays the message Copy complete.
9. Take Diskette #2 out of the drive.
10. Run DYNASYS as described in your Monarch MP/M-86 User's Guide to reconfigure your system. You must run DYNASYS to incorporate the enhanced XIOS1.MPM file into the operating system.

Unsupported Features

The following features are unsupported in this revision of MP/M-86.

- BACKUP utility
- ECC/Parity
- S-100 bus
- Multibus
- RS-422 port
- Modem port

Known Deficiencies

If you have a 46MB Winchester hard disk installed in your system, and it is configured as a single logical drive, this revision will not boot from the hard disk. (You should not configure a 46MB drive as one logical drive in any case, because there are not enough directory entries to support using all 46MB.)

The ABORT command when executed from another console hangs that console at the system prompt. To avoid this problem, only abort programs from the console they are running from.

Level II COBOL users should take great care in partitioning their memory. The run-time for Level II COBOL does dynamic memory allocation incorrectly. This will cause the system to execute data. The result can be a system hang or an unexpected interrupt. To avoid this, use only partitions of 400 hexadecimal paragraphs. It may be necessary to use partitions of 800 hexadecimal paragraphs. You should experiment with values. This will cause Level II COBOL's run-time to load with enough memory so that it will not do dynamic memory allocation. (Note: In the Level II COBOL manual it states that it is supported under CP/M-86. It is not supported under MP/M-86, and should be used with great care.)

History of 1.3 Release

The following table summarizes the history of revisions to date of the DV1.3 release of MP/M-86. This format provides a cumulative record of all revisions between each new release of MP/M-86. Some revision levels are omitted from this summary because they were internal Dynabyte releases. You can see at a glance what enhancement each field revision offered and which files were affected.

MP/M-86 DV1.3
Revision History

Rev. Level	Date	Description	Files Affected	Located on Disk #
1.3A	1/4/84	TAPE utility	TAPE.COMD	2
		Housekeeping	DYNASTAT.COMD DYNASYS.COMD	1 2
1.3B	1/20/84	TAPE bug fixes	TAPE.COMD	2
		FILESAVE bug fix	FILESAVE.COMD	1
		Memory map bug fix	EXEC00.SYS MMU86.COMD	1 1
		Memory disk bug fix	XIOS1.MPM	2
		Housekeeping	DYNASTAT.COMD DYNASYS.COMD	1 2
1.3C	2/23/84	46MB logical drive fix	FORMAT.COMD	1
		System hang fix	EXEC00.SYS EXEC01.SYS EXEC02.SYS	1 1 1
		Housekeeping	XIOS1.MPM DYNASYS.COMD	2 2
		Housekeeping	DYNASTAT.COMD MPM86F.LDR MPM86W.LDR EXEC01.SYS EXEC02.SYS	1 2 2 1 1
1.3D	5/1/84	TAPE bug fixes	TAPE.COMD	1
		8-bit mask bug fix	DYNASYS.COMD	2
		19.2 KB boot bug fix	EXEC00.SYS	1
		128 character buffer	EXEC00.SYS	1
		Z80B indirect port I/O	EXEC00.SYS XIOS1.MPM	1 2
		Housekeeping	DYNASTAT.COMD MPM86F.LDR MPM86W.LDR EXEC01.SYS EXEC02.SYS	1 2 2 1 1

REVISION NOTICE
MONARCH
MP/M-86 DV1.3A

Introduction

MP/M-86 DV1.3A is being shipped to you on two 8" single-sided, single-density floppy disks. Distribution Disk #1 is a bootable diskette. MP/M-86 DV1.3A replaces the prior release of Monarch MP/M-86.

The following material is covered in this release notice:

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Previous MP/M-86 Users

If You Have MP/M-86 DV1.2E or Earlier Installed

An enhancement to the disk parameter block in MP/M-86 DV1.3 makes DV1.3 and DV1.3A totally incompatible with previous versions of MP/M-86. MP/M-86 DV1.3 and DV1.3A are also incompatible with:

- MP/M II DV1.3 or earlier.
- CP/M-80 DV1.0

If you have a version of MP/M-86 prior to DV1.3 installed on your Winchester hard disk, you must back up your data to floppy disk or tape and reformat the Winchester before you install MP/M-86 DV1.3A. Once your data is backed up, follow the instructions in the GETTING STARTED section of this Release Notice to install MP/M-86 onto the Winchester hard disk.

DO NOT BOOT FROM MP/M-86 DV1.3A until you first back up any data files that exist on the Winchester (using PIP, FILESAVE or the DRI TAPE Monitor). Do

not back up previous system files because they are incompatible with this new MP/M-86.

It is very important that you do not use this new release of MP/M-86 to access any data files on the Winchester hard disk that were created under MP/M-86 prior to DV1.3. You will corrupt your existing data files on the Winchester if you try to access them before backing up, reformatting, and then installing this version of MP/M-86 on the Winchester hard disk. For example, suppose you boot MP/M-86 DV1.3A from Distribution Disk #1 before backing up data files from the Winchester. Even trying to use the DIRectory command to list the files on the Winchester will cause a problem.

Once you have backed up your data files, reformatted and installed MP/M-86 DV1.3A on the Winchester hard disk, you may then restore the data files to the Winchester and access them under this release of MP/M-86.

If You Have MP/M-86 DV1.3 Installed

Updating the MP/M-86 DV1.3 system you've already installed on the Winchester hard is very easy. Just PIP all files from both diskettes onto the Winchester and then run DYNASYS to incorporate the enhanced XIOS1.SPR and XDOS.SPR files into the operating system. Your Monarch MP/M-86 Users Guide describes how to run DYNASYS.

Before you begin

1. Hardware Requirements

Before trying to install this version of MP/M-86, you should make sure that your console is connected to your Monarch computer with the modular adapter that Dynabyte supplies. This adapter is called the Dynabyte "C" adapter, and has a large "C" printed on both sides of it. Without this adapter, MP/M-86 will not sign on to your console.

If you have connected your console with an adapter from another source, then you must modify it so that the pin assignments match those of the Dynabyte "C" adapter. In particular, it is important that the CTS (Clear to Send) signal and the RTS (Request to Send) handshaking signals be connected to each other. This is done by connecting the CTS and RTS wires together inside the adapter. Be sure to connect these wires in the adapter at the console end of the cable.

2. Port Connections

Make sure that a console is attached to asynchronous port 00.

3. Computer Warm-up

- Always wait at least 30 minutes after the computer has been turned on before formatting a floppy or the Winchester hard disk. If you format a disk while it is cold, you may find errors when you attempt to read the disk later.
- Be sure that you have read your Monarch User's Guide and properly installed your Monarch computer.

WARNING

It is very important that you do not alter the Distribution Disks. The steps in this section show you how to make a copy of the Distribution Disks. Use the copy for your work and store the originals in a safe place.

4. Supplies

If you received MP/M-86 on floppy distribution disks, you should have at least two new floppy disks on hand. This is because you will make a copy of each MP/M-86 distribution disk.

You will also need your Monarch's Bad Track List, if one was shipped with your Monarch.

Getting Started on 19MB or 46MB Systems

This section describes how to get MP/M-86 DV1.3A up and running from distribution disks onto a Monarch that has a 19MB or 46MB Winchester hard disk. Follow the steps in this section if your Monarch is a model 6600-19, 6600-46, 6900-19 or 6900-46. To install MP/M-86 from tape onto a 19MB system, follow the instructions in Section 1.2 of the Monarch MP/M-86 User's Guide (Rev. B).

When MP/M-86 is first booted from Distribution Disk #1, drive A is automatically assigned to the floppy drive, drives B and C are assigned to the Winchester hard disk and drive D is assigned to the memory disk. Drive E is assigned to the second floppy drive in case you have added one to your Monarch.

DISK DRIVE
ASSIGN
A:F1
B:WINI1
C:WINI2
D:MEM1
E:F2

The steps in this GETTING STARTED section will change the drive assignments so that you will be able to boot from the hard disk. When you are finished, your new drive assignments will look like this:

DISK DRIVE
ASSIGN
A:WINI1
B:WINI2
C:MEM1
D:F1

You may wish to reconfigure MP/M-86 later in some other manner. This procedure describes a standard installation for a Monarch computer with a 19MB or 46MB Winchester hard disk.

Overview.

- Boot MP/M-86 from Distribution Disk #1.
- Format the Winchester hard disk.
- Copy the MP/M-86 files onto the Winchester hard disk.
- Format two new floppy disks.
- Copy the MP/M-86 operating system onto one of the formatted floppy disks.
- Copy the MP/M-86 files from the Winchester onto the formatted floppy disks.
- Reconfigure your disk drives.
- Install MP/M-86 onto the Winchester hard disk.
- Reboot MP/M-86 from the Winchester hard disk.

Follow the steps below. Screen displays are shown in bold type. On your console, type in the entries that are shown in bold type and underlined.

STEP 1 — Boot MP/M-86 from Distribution Disk #1

1. Turn on the computer and the console. The computer will run a series of diagnostics, and then prompt you for the boot medium.
2. Insert Distribution Disk #1 in the floppy drive and turn the lever down. The label on the distribution disk should face up and the long open slot should point toward the computer.
3. Type **F** (Floppy) to boot from the floppy drive.

Your Selection? **F**

4. You will see the MP/M-86 operating system prompt **QA>**. Your system is ready to accept commands.

QA>

STEP 2 — Format the Winchester hard disk

Formatting the Winchester will erase all files that may exist on that drive. Before you format a Winchester that already has files on it, be sure to make a backup copy of those files by copying them to floppy disk or tape.

To format the Winchester hard disk:

1. **QA>FORMAT<CR>**
2. The **FORMAT** menu will appear on the screen.
Your selection ? **FP<CR>**
3. You will be prompted for the number of the physical drive to format.
Enter Format Option or <RETURN> to Exit Option: **1<CR>**
4. **FORMAT** will report the size of drive 1. **FORMAT** will then either tell you that it will use a previously created bad track table or that it will create a **NEW** bad track table.

It will also remind you:

This option WILL ERASE EVERYTHING on the drive that you have just selected.

Press <RETURN> to start format or <ESC> <RETURN> to Exit **<CR>**

Formatting will take from 10 to 30 minutes, depending on the size of

the Winchester hard disk.

5. When completed, the screen will display a bad track table. Your next action will depend on whether or not you received a Bad Track List with your Monarch computer.

If You DID NOT Receive a Bad Track List:

If your Monarch's shipping carton did not contain a document titled Bad Track List, then type <CR> to the following prompt and proceed to step 6 below.

Enter One of the Above Options or <RETURN> to Accept: <CR>

If You DID Receive a Bad Track List:

If your Monarch's shipping carton contained a Bad Track List but did not contain a notice that the Winchester was formatted at the factory (and the bad tracks entered), you must make sure that all bad tracks are listed in the screen display. To do this you will need the Bad Track List that was shipped with your Monarch. Check the values listed under its column headed LOGICAL TRACK against the values listed in the screen display. You must manually enter into the software's Winchester Bad Track Table any logical track values not already displayed in the table.

NOTE

You must enter bad tracks in ASCENDING order, lowest values to highest.

To enter a bad track in response to the following prompt, type:

Enter one of the above options or <RETURN> to accept: n

where:

n is the logical track number. This value is found on the Bad Track List under the column headed LOGICAL TRACK.

The logical track number you enter will then appear in the Winchester Bad Track Table. Continue in this manner until you have entered all bad tracks from the Bad Track List. Then type a <CR> to exit the Winchester Bad Track Table:

Enter One of the Above Options or <RETURN> to Accept: <CR>

6. The next screen will display the size of the Winchester hard disk and your choices of logical drives for your system. We recommend choosing option B for two logical drives, so press <CR>:

Select option or <RETURN> for option B: <CR>

***** Format Completed O.K. *****
Press <RETURN> for Menu <CR>

7. Select the EX option and press <CR> to return to the operating system prompt.

STEP 3 — Copy the MP/M-86 files onto the Winchester hard disk

Distribution Disk #1 should still be in the floppy disk drive. Use the MP/M-86 PIP utility to copy the MP/M-86 files onto the Winchester.

1. ØA>PIP B:=A:*. *[ROV] <CR>

The screen will display the file names of the files being copied onto the Winchester hard disk.

2. Wait until your console displays the system prompt ØA>.
3. Log onto the Winchester hard disk.

ØA>B:<CR>

ØB>

4. Take Distribution Disk #1 out of the floppy drive.
5. Insert Distribution Disk #2 into the floppy drive and type the following command:

ØB>DSKRESET<CR>

6. Copy the files from Distribution Disk #2 onto the Winchester hard disk.

ØB>PIP B:=A:*. *[ROV] <CR>

Wait until your console displays the system prompt ØB> and then remove Distribution Disk #2 from the floppy drive.

STEP 4 — Format two floppy disks

Do not forget that formatting a disk erases everything that is already on it. So be sure that the floppy disk you format doesn't have data on it that you need. Remember also that you can write on an 8-inch floppy disk only if the write-protect notch is covered.

1. Make sure that Distribution Disk #2 is not in the floppy disk drive.

2. Insert a blank floppy disk into the floppy drive. Insert the floppy disk with the label face up. If the floppy disk has no label, insert it with the smooth unseamed side up. This floppy disk must be in the drive before you try to run the FORMAT utility.

3. ØB>FORMAT A:SS1<CR>

where:

A is the floppy drive
S designates single-sided floppy disk
S designates single-density
1 designates 64 directory entries

MP/M-86 will confirm these values before prompting you to press the carriage return to start the actual formatting of the floppy disk.

4. Press <CR> to start the formatting. If FORMAT tells you that the floppy disk is bad, verify that it is in the drive properly and that the floppy drive lever is down. Try to format again. If this doesn't work, try another floppy disk.

5. The screen display will tell you when the format operation is complete and will return you to the system prompt.

***** Format completed O.K. *****

ØB>

6. Repeat steps 2 through 5 above to format another floppy disk.

STEP 5 — Copy the MP/M-86 operating system onto one of the formatted floppy disks.

After you have formatted the two floppy disks, you will make one of them a system disk so that you can boot from it. You will use DYNASYS to make an identical copy of the MP/M-86 operating system on one of the floppy disks you just formatted. Leave the newly formatted disk in the drive.

1. ØB>DYNASYS<CR>

2. Select the CD (Create System Disk) option of DYNASYS

Enter Menu Item ? CD<CR>

3. Select the WR option from the Create System Disk menu.

Enter Menu Item ? WR<CR>

4. You will be asked where the system files are located and onto which drive they will be written.

(WR) System files located on disk drive (A-P) ? B<CR>
(WR) Write system to disk drive (A-P) ? A<CR>

Please insert proper disk
and

press <RETURN> to start or <ESC><RETURN> to exit:<CR>

Now creating system. Please wait.

GENSYS is the MP/M-86 system generation program. For more information on GENSYS, refer to the "GENSYS Operation" section of your Digital Research MP/M-86 System Guide.

The GENSYS parameters with the defaults in parentheses are displayed below. Monarch MP/M-86 recommended values are presented (underlined) after each prompt.

MP/M-86 2.1 System Generation

All Values in HEX, Default in Parentheses

Delete MPM86.SYS File (N) ? Y<CR>
Reading MPM Modules
Starting Paragraph of Operating System (40) = <CR>
Number of System Consoles (8) = <CR>
Number of System Printers (4) = <CR>
Total Character Control Blocks (20) = <CR>
Enable Compatibility Attributes (N)? <CR>
Number of Ticks Per Second (3C) = <CR>
System Drive (A) = <CR>
Temporary File Drive (A) = <CR>
Maximum Locked Records per Process (10) = <CR>
Total Locked Records in System (20) = <CR>
Maximum Open Files per Process (10) = <CR>
Total Open Files in System (20) = <CR>
Day File Logging at Console (Y) = <CR>
Number of Flags (20) = <CR>
Number of Extra Process Descriptors (10) = <CR>
Maximum Paragraphs Per Process (2000) = <CR>
Number of Queue Control Blocks (20) = <CR>
Size of Queue Buffer Area in Bytes (200) = <CR>
Number of Extra Memory Descriptors (10) = <CR>

If you make a mistake while you're entering the values below, enter FFFF to terminate the list, enter carriage returns to the subsequent prompts and then again invoke the WR option from the Create System Disk menu (see STEP 5, number 3 above). Do NOT enter Control-C to abort GENSYS. Doing so will destroy the MPM86.SYS file on the Winchester.

Memory Partitions, End List With 'FFFF'

Starting Paragraph = 40
Length = FC0
Starting Paragraph = 1000
Length = 400
Starting Paragraph = 1400
Length = 400
Starting Paragraph = 1800
Length = 400
Starting Paragraph = 1C00
Length = 400
Starting Paragraph = 2000
Length = 800
Starting Paragraph = 2800
Length = 800
Starting Paragraph = FFFF

Include Resident System Processes

CLOCK (Y) ? Y<CR>
ECHO (Y) ? N<CR>
MPMSTAT (Y) ? N<CR>
TMP (Y) ? Y<CR>

Reading OSPs

Ignore the message that the memory banks have been trimmed. This is normal.

Operating System Begins at Paragraph 40, Ends at B0C

It will tell you to wait until DYNASYS is finished and then inform you when GENSYS is complete. Press <CR> to return to the Create System Disk menu.

Operation complete. Press <RETURN> to continue: <CR>

5. Select the EX option and press <CR> to exit to the main DYNASYS menu.
6. Select EX option and press <CR> to exit to the operating system.

DYNASYS complete.

7. Leave the new system disk in the floppy disk drive.

STEP 6 -- Copy the MP/M-86 files from the Winchester hard disk to the formatted floppies.

You should still be logged onto the Winchester hard disk drive `ØB>`. Be sure also that your new floppy disk with the operating system is still in the floppy disk drive. Enter the following command exactly as shown because the spaces are very important.

1. `ØB>SUBMIT COPY1 B A<CR>`

Your screen will display the file names of files being copied from the Winchester onto the floppy disk. When this is complete you will receive the following message:

submit complete

`ØB>`

2. Remove the floppy disk from the drive and label it COPY -- MP/M-86 DV1.3A Disk 1 of 2.
3. Insert the second formatted floppy disk into the floppy drive.

`ØB>DSKRESET<CR>`

`ØB>SUBMIT COPY2 B A<CR>`

4. Your console will again display the file names of the files being copied. When the copy is complete, you will see the following message:

Submit Complete

`ØB>`

5. Remove the floppy disk from the drive and label it COPY -- MP/M-86 DV 1.3A Disk 2 of 2.

STEP 7 -- Reconfigure your disk drives.

You will next reconfigure your system with DYNASYS so that MP/M-86 will boot directly from the Winchester hard disk. To do this, you must run DYNASYS to reassign the Winchester as logical drive A. You should still be logged onto the Winchester disk drive `ØB>`.

After reconfiguring your disk drives, you may want to change your port assignments. We recommend typing DYNASTAT before you invoke DYNASYS to see what the current port assignments and parameters are. Before you start, decide how many consoles and printers you will use with your Monarch because you will have to answer this question in GENSYS. The number you enter to the GENSYS prompt should match how many consoles and printers you subsequently assign in the CA option of DYNASYS.

1. 0B>DYNASYS<CR>
2. Select the DA option the main DYNASYS menu.
Enter Menu Item? DA<CR>
3. Select A when it asks you which drive you want to change.
Drive to change A-P (<RETURN> to leave as is)? A<CR>
4. Then when it starts prompting you with the drive letters, respond according to the example below. Type the characters that are underlined.
A: = ? (<RETURN> To Set To Null) ? WIN1<CR>
B: = ? WIN2<CR>
C: = ? MEM1<CR>
D: = ? F1<CR>
E: = ? <CR>
5. After you enter that last carriage return, the top part of the screen display should look like this:
A: WIN1
B: WIN2
C: MEM1
D: F1
E: F2
6. If your system has only one floppy drive, you should remove the E:F2 designation from the configuration. You will be prompted again for the drive to change.
Drive to change A-P (<RETURN> to leave as is) ? E<CR>
E: = ? (<RETURN> to set to null) <CR>
7. The Winchester is assigned to two logical drives — A and B — because it was divided into two drives when you formatted it. The memory disk is now drive C and the floppy drive on your Monarch is drive D.
A: WIN1
B: WIN2
C: MEM1
D: F1
8. Press the carriage return to return to the main DYNASYS menu.
9. If you want to change how Monarch's physical ports are assigned, this is a good time to do it. If you want to change the number of console or printers currently assigned to your system, use the CA option of DYNASYS. To change the parameters of any of these ports (baud rate, stop bits, bit per character and parity), use the AS option of

DYNASYS. Section 3.3 of the Monarch MP/M-86 User's Guide (Rev. B) explains how to use DYNASYS to reconfigure your ports.

STEP 8 — Install MP/M-86 onto the Winchester hard disk.

You will now generate a new system onto the Winchester hard disk while you are still in DYNASYS.

1. From DYNASYS, You will be prompted to select a menu item.

Enter Menu Item ? CD<CR>

2. You will be prompted to select an option from the Create System Disk Menu.

Enter Menu Item ? WR<CR>

3. You will be asked where the source files are located and then onto which drive to write the new system.

(WR) System file located on disk drive B<CR>

(WR) Write system to disk drive B<CR>

4. Then it will display the files being copied and inform you:

Now creating system. Please wait.

At this point GENSYS will run again but this time you will create a system disk on the Winchester hard disk. Also, this time you will NOT create an identical copy of the distributed MP/M-86 but will customize the operating system for your number of consoles, printers and amount of RAM installed. Monarch MP/M-86 recommended values are presented (underlined) after each prompt.

MP/M-86 V2.1 System Generation

All Values in HEX, Default in Parentheses

Delete MPM86.SYS File (N) ? Y<CR>

Reading MPM Modules

Starting Paragraph of Operating System (40) = <CR>

Number of System Consoles (8) = enter the no. of consoles you will use

Number of System Printers (4) = enter the no. of printers you will use

Total Character Control Blocks (20) = <CR>

Enable Compatibility Attributes (N)? <CR>

Number of Ticks Per Second (3C) = <CR> (enter 32 on Monarchs set for
for 230 VAC operation)

System Drive (A) = <CR>

Temporary File Drive (A) = <CR>

Maximum Locked Records per Process (10) = <CR>
 Total Locked Records in System (20) = <CR>
 Maximum Open Files per Process (10) = <CR>
 Total Open Files in System (20) = <CR>
 Day File Logging at Console (Y) = <CR>
 Number of Flags (20) = <CR>
 Number of Extra Process Descriptors (10) = <CR>
 Maximum Paragraphs Per Process (2000) = <CR>
 Number of Queue Control Blocks (20) = <CR>
 Size of Queue Buffer Area in Bytes (200) = <CR>
 Number of Extra Memory Descriptors (10) = <CR>

If your Monarch has only the standard 256K of RAM installed, use the following values. If your Monarch has any RAM expansion boards installed, see the Technical Tip on "MP/M-86 Memory Partition Assignments" for recommended memory partition values.

Memory Partitions, End List With 'FFFF'

Starting Paragraph = 40
 Length = FC0
 Starting Paragraph = 1000
 Length = 400
 Starting Paragraph = 1400
 Length = 400
 Starting Paragraph = 1800
 Length = 400
 Starting Paragraph = 1C00
 Length = 400
 Starting Paragraph = 2000
 Length = 800
 Starting Paragraph = 2800
 Length = 800
 Starting Paragraph = FFFF

Include Resident System Processes

CLOCK (Y) ? Y<CR>
 ECHO (Y) ? N<CR>
 MPSTAT (Y) ? N<CR>
 TMP (Y) ? Y<CR>

Reading OSPs

Operating System Begins at Paragraph 40, Ends at B0C

Ignore the message that the memory banks have been trimmed. This is normal. Press <CR> to return to Create System Disk menu.

Operation complete. Press <RETURN> to continue: <CR>

6. Press EX<CR> to return to the main DYNASYS menu.
7. Press EX<CR> to return to the operating system prompt 0B>.

DYNASYS complete

ØB>

STEP 9 — Reboot MP/M-86 from the Winchester hard disk

You may now boot the system from the Winchester hard disk and read the new assignments.

1. Remove any floppy disk from the floppy disk drive.
2. Press the reset button on the rear of the computer.
3. The computer will run a series of diagnostics and prompt you for the boot drive. Select H to boot from the hard disk.
4. The system will display the prompt:

ØA>

Your system is now configured as a four drive system. Drives A and B are on the Winchester hard disk, drive C is the memory disk, and drive D is the floppy disk drive. This can be seen from the following list of disk drive assignments, as it would appear using DYNASTAT:

DISK DRIVE
ASSIGN
A:WINI1
B:WINI2
C:MEM1
D:F1

Getting Started on 92MB Systems

This section describes how to get MP/M-86 DV1.3A up and running onto a Monarch that has 92MB of Winchester hard disk storage capacity. Follow the steps in this section if your Monarch is a model 6900-92.

When MP/M-86 is first booted from Distribution Disk #1, drive A is automatically assigned to the floppy drive, drives B and C are assigned to the Winchester hard disk and drive D is assigned to the memory disk. Drive E is assigned to the second floppy drive in case you have added one to your Monarch.

DISK DRIVE
ASSIGN
A:F1
B:WINI1
C:WINI2
D:MEM1
E:F2

The steps in this Getting Started section will change the drive assignments so that you will be able to boot from the hard disk. These instructions will also show you how to format and configure the full 92MB of Winchester hard disk. When you are finished, your new drive assignments will look like this:

DISK DRIVE
ASSIGN
A:WINI1
B:WINI2
C:WINI9
D:WINI10
E:MEM1
F:F1

WINI1 and WINI2 are logical drives on the first physical 46MB hard disk. WINI9 and WINI10 are logical drives on the second physical 46MB hard disk. Together they comprise the 92MB Winchester capacity.

You may wish to reconfigure MP/M-86 later in some other manner. This procedure describes a standard installation for a 92MB Winchester system.

Overview.

- Boot MP/M-86 from Distribution Disk #1.
- Format the first Winchester hard disk.
- Copy the MP/M-86 files onto the first Winchester hard disk.
- Format two new floppy disks.
- Copy the MP/M-86 operating system onto one of the formatted floppy disks.
- Copy the MP/M-86 files from the Winchester onto the formatted floppy disks.
- Reconfigure your disk drives.
- Install MP/M-86 onto the first Winchester hard disk.
- Reboot MP/M-86 from the first Winchester hard disk.
- Format the second Winchester hard disk.

Follow the steps below. Screen displays are shown in bold type. On your console, type in the entries that are shown in bold type and underlined.

STEP 1 — Boot MP/M-86 from Distribution Disk #1

1. Turn on the computer and the console. The computer will run a series of diagnostics, and then prompt you for the boot medium.
2. Insert Distribution Disk #1 in the floppy drive and turn the lever down. The label on the distribution disk should face up and the long open slot should point toward the computer.
3. Type **F (Floppy)** to boot from the floppy drive.

Your Selection? F

4. You will see the MP/M-86 operating system prompt **QA>**. Your system is ready to accept commands.

QA>

STEP 2 — Format the First Winchester hard disk

Formatting a Winchester will erase all files that may exist on that drive. Before you format a Winchester that already has files on it, be sure to make a backup copy of those files by copying them to floppy disk or tape.

To format the first Winchester hard disk:

1. 0A>FORMAT<CR>

2. The FORMAT menu will appear on the screen.

Your selection ? FP<CR>

3. You will be prompted for the number of the physical drive to format.

Enter Format Option or <RETURN> to Exit Option: 1<CR>

4. FORMAT will report the size of drive 1. FORMAT will then either tell you that it will use a previously created bad track table or that it will create a NEW bad track table.

It will also remind you:

This option WILL ERASE EVERYTHING on the drive that you have just selected.

Press <RETURN> to start format or <ESC> <RETURN> to Exit <CR>

Formatting will take about 30 minutes.

5. When completed, the screen will display a bad track table. Your next action will depend on whether or not you received a Bad Track List for Winchester drive 1 in your Monarch's shipping carton.

If Drive 1 Does Not Have a Bad Track List:

If your Monarch's shipping carton did not contain a Bad Track List for Winchester drive 1, then type <CR> to the following prompt and proceed to step 6 below.

Enter One of the Above Options or <RETURN> to Accept: <CR>

If Drive 1 Has a Bad Track List:

If your Monarch's shipping carton contained a Bad Track List for Winchester drive 1 and the drive was not formatted at the factory (and the bad tracks entered), you must make sure that all bad tracks are listed in the screen display. To do this you will need the Bad Track List that was shipped with your Monarch. Check the values listed under its column headed LOGICAL TRACK against the values listed in the screen display. You must manually enter into the software's Winchester Bad Track Table any logical track values not already displayed in the table.

NOTE

You must enter bad tracks in ASCENDING order,
lowest values to highest.

To enter a bad track in response to the following prompt, type:

= Enter one of the above options or <RETURN> to accept: Tn

where:

n is the logical track number. This value is found on the Bad Track List under the column headed LOGICAL TRACK.

The logical track number you enter will then appear in the Winchester Bad Track Table. Continue in this manner until you have entered all bad tracks from the Bad Track List. Then type a <CR> to exit the Winchester Bad Track Table:

Enter One of the Above Options or <RETURN> to Accept: <CR>

6. The next screen will display the size of the Winchester hard disk and your choices of logical drives for your system. We recommend choosing option B for two logical drives:

Select option or <RETURN> for option B: <CR>

***** Format Completed O.K. *****
Press <RETURN> for Menu <CR>

7. Select the EX option and press <CR> to return to the operating system prompt.

STEP 3 — Copy the MP/M-86 files onto the first Winchester hard disk

Distribution Disk #1 should still be in the floppy disk drive. Use the MP/M-86 PIP utility to copy the MP/M-86 files onto the first Winchester.

1. ØA>PIP B:=A:*. *[ROV] <CR>

The screen will display the file names of the files being copied onto the Winchester hard disk.

2. Wait until your console displays the system prompt ØA>.
3. Log onto the Winchester hard disk.

ØA>B: <CR>

ØB>

4. Take Distribution Disk #1 out of the floppy drive.
5. Insert Distribution Disk #2 into the floppy drive and type the following command:

```
ØB>DSKRESET<CR>
```

6. Copy the files from Distribution Disk #2 onto the first Winchester hard disk.

```
ØB>PIP B:=A:*. * [ROV]<CR>
```

Wait until your console displays the system prompt ØB> and then remove Distribution Disk #2 from the floppy drive.

STEP 4 — Format two floppy disks

Do not forget that formatting a disk erases everything that is already on it. So be sure that the floppy disk you format doesn't have data on it that you need. Remember also that you can write on an 8-inch floppy disk only if the write-protect notch is covered.

1. Make sure that Distribution Disk #2 is not in the floppy disk drive.
2. Insert a blank floppy disk into the floppy drive. Insert the floppy disk with the label face up. If the floppy disk has no label, insert it with the smooth unseamed side up. This floppy disk must be in the drive before you try to run the FORMAT utility.
3. ØB>FORMAT A:SS1<CR>

where:

A is the floppy drive
S designates single-sided floppy disk
S designates single-density
1 designates 64 directory entries

MP/M-86 will confirm these values before prompting you to press the carriage return to start the actual formatting of the floppy disk.

4. Press <CR> to start the formatting. If FORMAT tells you that the floppy disk is bad, verify that it is in the drive properly and that the floppy drive lever is down. Try to format again. If this doesn't work, try another floppy disk.
5. The screen display will tell you when the format operation is complete and will return you to the system prompt.

```
***** Format completed O.K. *****
```

```
ØB>
```

6. Repeat steps 2 through 5 above to format another floppy disk.

STEP 5 — Copy the MP/M-86 operating system onto one of the formatted floppy disks.

After you have formatted the two floppy disks, you will make one of them a system disk so that you can boot from it. You will use DYNASYS to make an identical copy of the MP/M-86 operating system onto one of the floppy disks you just formatted. Leave the newly formatted disk in the drive.

1. ØB>DYNASYS<CR>
2. Select the CD (Create System Disk) option of DYNASYS.
Enter Menu Item ? CD<CR>
3. Select the WR option from the Create System Disk menu.
Enter Menu Item ? WR<CR>
4. You will be asked where the system files are located and onto which drive they will be written.
(WR) System files located on disk drive (A-P) ? B<CR>
(WR) Write system to disk drive (A-P) ? A<CR>

Please insert proper disk
and
press <RETURN> to start or <ESC><RETURN> to exit:<CR>

Now creating system. Please wait.

GENSYS is the MP/M-86 system generation program. For more information on GENSYS, refer to the "GENSYS Operation" section of your Digital Research MP/M-86 System Guide.

The GENSYS parameters with the defaults in parentheses are displayed below. Monarch MP/M-86 recommended values are presented (underlined) after each prompt.

MP/M-86 2.1 System Generation

All Values in HEX, Default in Parentheses

Delete MPM86.SYS File (N) ? Y<CR>
Reading MPM Modules
Starting Paragraph of Operating System (40) = <CR>
Number of System Consoles (8) = <CR>

Number of System Printers (4) = <CR>
 Total Character Control Blocks (20) = <CR>
 Enable Compatibility Attributes (N)? <CR>
 Number of Ticks Per Second (3C) = <CR>
 System Drive (A) = <CR>
 Temporary File Drive (A) = <CR>
 Maximum Locked Records per Process (10) = <CR>
 Total Locked Records in System (20) = <CR>
 Maximum Open Files per Process (10) = <CR>
 Total Open Files in System (20) = <CR>
 Day File Logging at Console (Y) = <CR>
 Number of Flags (20) = <CR>
 Number of Extra Process Descriptors (10) = <CR>
 Maximum Paragraphs Per Process (2000) = <CR>
 Number of Queue Control Blocks (20) = <CR>
 Size of Queue Buffer Area in Bytes (200) = <CR>
 Number of Extra Memory Descriptors (10) = <CR>

If you make a mistake while you're entering the memory values below, enter FFFF to terminate the list, enter carriage returns to the subsequent prompts and then again invoke the WR option from the Create System Disk menu (see STEP 5, number 3 above). Do NOT enter Control-C to abort GENSY. Doing so will destroy the MPM86.SYS file on the Winchester.

Memory Partitions, End List With 'FFFF'

Starting Paragraph = 40
 Length = FC0
 Starting Paragraph = 1000
 Length = 400
 Starting Paragraph = 1400
 Length = 400
 Starting Paragraph = 1800
 Length = 400
 Starting Paragraph = 1C00
 Length = 400
 Starting Paragraph = 2000
 Length = 800
 Starting Paragraph = 2800
 Length = 800
 Starting Paragraph = FFFF

Include Resident System Processes

CLOCK (Y) ? Y<CR>
 ECHO (Y) ? N<CR>
 MPMSTAT (Y) ? N<CR>
 TMP (Y) ? Y<CR>

Reading OSPs

Ignore the message that the memory banks have been trimmed. This is normal.

Operating System Begins at Paragraph 40, Ends at B0C

It will tell you to wait until DYNASYS is finished and then inform you when GENSYS is complete. Press <CR> to return to the Create System Disk menu.

Operation complete. Press <RETURN> to continue: <CR>

5. Select the EX option and press <CR> to exit to the main DYNASYS menu.
- = 6. Select EX option and press <CR> to exit to the operating system.
DYNASYS complete.
7. Leave the new system disk in the floppy disk drive.

STEP 6 -- Copy the MP/M-86 files from the first Winchester hard disk to the formatted floppies.

You should still be logged onto the Winchester hard disk drive 0B>. Be sure also that your new floppy disk with the operating system is still in the floppy disk drive. Enter the following command exactly as shown because the spaces are very important.

1. 0B>SUBMIT COPY1 B A<CR>

Your screen will display the file names of files being copied from the Winchester onto the floppy disk. When this is complete you will receive the following message:

submit complete

0B>

2. Remove the floppy disk from the drive and label it COPY -- MP/M-86 DV1.3A Disk 1 of 2.
3. Insert the second formatted floppy disk into the floppy drive.

0B>DSKRESET<CR>

0B>SUBMIT COPY2 B A<CR>

4. Your console will again display the file names of the files being copied. When the copy is complete, you will see the following message:

Submit Complete

0B>

5. Remove the floppy disk from the drive and label it COPY -- MP/M-86 DV 1.3A Disk 2 of 2.

STEP 7 — Reconfigure your disk drives.

You will next reconfigure your system with DYNASYS so that MP/M-86 will boot directly from the Winchester hard disk drive and can access both Winchesters. To do this, you must run DYNASYS to reassign the first Winchester as logical drives A and B and to assign the second Winchester as logical drives C and D. You should still be logged onto the Winchester disk drive `0B`.

After reconfiguring your disk drives, you may want to change your port assignments. We recommend typing `DYNASTAT` before you invoke DYNASYS to see what the current port assignments and parameters are. Before you start, decide how many consoles and printers you will use with your Monarch because you will have to answer this question in GENSYS. The number you enter to the GENSYS prompt should match how many consoles and printers you subsequently assign in the CA option of DYNASYS.

1. `0B>DYNASYS<CR>`
2. Select the DA option the main DYNASYS menu.
Enter Menu Item? `DA<CR>`
3. Select A when it asks you which drive you want to change.
Drive to change A-P (<RETURN> to leave as is)? `A<CR>`
4. Then when it starts prompting you with the drive letters, respond according to the example below. Type the characters that are underlined.
A: = ? (<RETURN> To Set To Null) ? `WINI1<CR>`
B: = ? `WINI2<CR>`
C: = ? `WINI9<CR>`
D: = ? `WINI10<CR>`
E: = ? `MEM1<CR>`
F: = ? `F1<CR>`
G: = ? `<CR>`
5. After you enter that last carriage return, the top part of the screen display should look like this:

```
A: WINI1
B: WINI2
C: WINI9
D: WINI10
E: MEM1
F: F1
```

The first Winchester is assigned to two logical drives -- A and B -- because it was divided into two drives when you formatted it. You have assigned the second physical Winchester drive as drives C and D in preparation for formatting it. The memory disk is now drive E and the floppy drive on your Monarch is drive F.

6. Press the carriage return to return to the main DYNASYS menu.
7. If you want to change how Monarch's physical ports are assigned, this is a good time to do it. If you want to change which physical ports are used for consoles and which are used for printers, use the CA option of DYNASYS. To change the parameters of any of these ports (baud rate, stop bits, bits per character and parity), use the AS option of DYNASYS. Section 3.3 of the Monarch MP/M-86 User's Guide (Rev. B) explains how to use DYNASYS to reconfigure your ports.

STEP 8 -- Install MP/M-86 onto the first Winchester hard disk.

You will now generate a new system onto the first Winchester hard disk while you are still in DYNASYS.

1. From DYNASYS, You will be prompted to select a menu item.

Enter Menu Item ? CD<CR>

2. You will be prompted to select an option from the Create System Disk Menu.

Enter Menu Item ? WR<CR>

3. You will be asked where the source files are located and then onto which drive to write the new system.

(WR) System file located on disk drive B<CR>

(WR) Write system to disk drive B<CR>

4. Then it will display the files being copied and inform you:

Now creating system. Please wait.

At this point GENSYS will run again, but this time you will create a system disk on the Winchester hard disk. Also, this time you will not create an identical copy of the distributed MP/M-86 but will customize the operating system for your number of consoles, printers and amount of RAM installed. Monarch MP/M-86 recommended values are presented (underlined) after each prompt.

MP/M-86 V2.1 System Generation

All Values in HEX, Default in Parentheses

Delete MPM86.SYS File (N) ? Y<CR>

Reading MPM Modules

Starting Paragraph of Operating System (40) = <CR>

Number of System Consoles (8) = enter the no. of consoles you will use

Number of System Printers (4) = enter the no. of printers you will use

Total Character Control Blocks (20) = <CR>

Enable Compatibility Attributes (N) ? <CR>

Number of Ticks Per Second (3C) = <CR> (enter 32 on Monarchs set
for 230 VAC operation)

System Drive (A) = <CR>

Temporary File Drive (A) = <CR>

Maximum Locked Records per Process (10) = <CR>

Total Locked Records in System (20) = <CR>

Maximum Open Files per Process (10) = <CR>

Total Open Files in System (20) = <CR>

Day File Logging at Console (Y) = <CR>

Number of Flags (20) = <CR>

Number of Extra Process Descriptors (10) = <CR>

Maximum Paragraphs Per Process (2000) = <CR>

Number of Queue Control Blocks (20) = <CR>

Size of Queue Buffer Area in Bytes (200) = <CR>

Number of Extra Memory Descriptors (10) = <CR>

If your Monarch has only the standard 256K of RAM installed, use the following values. If your Monarch has any RAM expansion boards installed, see the Technical Tip on "MP/M-86 Memory Partition Assignments" for recommended memory partition values.

Memory Partitions, End List With 'FFFF'

Starting Paragraph = 40
Length = FC0
Starting Paragraph = 1000
Length = 400
Starting Paragraph = 1400
Length = 400
Starting Paragraph = 1800
Length = 400
Starting Paragraph = 1C00
Length = 400
Starting Paragraph = 2000
Length = 800
Starting Paragraph = 2800
Length = 800
Starting Paragraph = FFFF

Include Resident System Processes

CLOCK (Y) ? Y <CR>

ECHO (Y) ? N <CR>
MPMSTAT (Y) ? N <CR>
TMP (Y) ? Y <CR>
Reading OSPs

Operating System Begins at Paragraph 40, Ends at B0C

Ignore the message that the memory banks have been trimmed. This is normal.
Press <CR> to return to Create System Disk menu.

Operation complete. Press <RETURN> to continue: <CR>

6. Press EX<CR> to return to the main DYNASYS menu.
7. Press EX<CR> to return to the operating system prompt 0B>.

DYNASYS complete

0B>

STEP 9 — Reboot MP/M-86 from the first Winchester hard disk.

Boot the system from the first Winchester hard disk.

1. Remove any floppy disk from the floppy disk drive.
2. Press the reset button on the rear of the computer.
3. The computer will run a series of diagnostics and prompt you for the boot drive. Select H to boot from the hard disk.
4. The system will display the prompt:

0A>

STEP 10 — Format the second Winchester hard disk.

To format the second Winchester hard disk:

1. 0A>FORMAT<CR>
2. The FORMAT menu will appear on the screen.
Your selection ? FP<CR>
3. Enter 2 this time when you are prompted for the number of the physical drive to format.
Enter Format Option or <RETURN> to Exit Option: 2<CR>
4. FORMAT will report the size of drive 2. FORMAT will then either tell you that it will use a previously created bad track table or that it will create a NEW bad track table.

It will also remind you:

This option WILL ERASE EVERYTHING on the drive that you have just selected.

Press <RETURN> to start format or <ESC> <RETURN> to Exit <CR>

Formatting will take about 30 minutes.

5. When completed, the screen will display a bad track table. Your next action will depend on whether or not you received a Bad Track List for drive 2.

If Drive 2 Does Not Have a Bad Track List:

If your Monarch's shipping carton did not contain a Bad Track List for Winchester drive 2, then type <CR> to the following prompt and proceed to step 6 below.

Enter One of the Above Options or <RETURN> to Accept: <CR>

If Drive 2 Has a Bad Track List:

If your Monarch's shipping carton contained a Bad Track List for Winchester drive 2 and the drive was not formatted at the factory (and the bad tracks entered), you must make sure that all bad tracks are listed in the screen display. To do this you will need the Bad Track List that was shipped with your Monarch. Check the values listed under its column headed LOGICAL TRACK against the values listed in the screen display. You must manually enter into the software's Winchester Bad Track Table any logical track values not already displayed in the table.

NOTE

You must enter bad tracks in ASCENDING order, lowest values to highest.

To enter a bad track in response to the following prompt, type:

Enter one of the above options or <RETURN> to accept: Tn

where:

n is the logical track number. This value is found on the Bad Track List under the column headed LOGICAL TRACK.

The logical track number you enter will then appear in the Winchester Bad Track Table. Continue in this manner until you have entered all bad tracks from the Bad Track List. Then type a <CR> to exit the Winchester Bad Track Table:

Enter One of the Above Options or <RETURN> to Accept: <CR>

6. The next screen will display the size of the Winchester hard disk and your choices of logical drives for your system. Choose option B for two logical drives:

Select option or <RETURN> for option B: <CR>

***** Format Completed O.K. *****
Press <RETURN> for Menu <CR>

7. Select the EX option and press <CR> to return to the operating system prompt.

Your system is now configured as a six drive system. Drives A, B, C and D are on the Winchester hard disks, drive E is the memory disk, and drive F is the floppy disk drive. This can be seen from the following list of disk drive assignments, as it would appear using DYNASTAT.

```
-----  
|DISK DRIVE|  
|  ASSIGN  |  
-----  
| A:WINI1  |  
| B:WINI2  |  
| C:WINI9  |  
| D:WINI10 |  
| E:MEM1   |  
| F:F1     |  
-----
```

New Feature

DV1.3A supports the TAPE utility as described in the Monarch MP/-86 User's Guide (Rev. B).

Software Fixes

1. BDOS.MPM Program

The correct error code is now returned when you read random records in unwritten extents. BDOS.MPM formerly returned an error code of 01 (Reading unwritten data) instead of 04 (Seek to unwritten extent).

2. BDOS.MPM Program

The module number is now correctly preserved when you call the Read Random function (number 33) with an FCB module number of 80h and a random record number of 3F000h or greater.

3. SUP.MPM Program

A list status call through Function 50 (Direct XIOS entry) now passes the correct printer number to the I/O module.

Unsupported Features

Subsequent releases of MP/M-86 will support the following features:

- BACKUP utility
- RS-422 port support for communications
- MODEM port synchronous communication