

8510/a
Graphics Computer System

Variable Density Disk Drive Controller

QB-QX Drive Controller-Handler Comparison & Disk Formatting Procedures

Part No. 50-0018-001 Rev. C

This document contains a discussion of the differences between 8510/a systems equipped with the original Single Density Drive Controller & Handler (QX) and the new Single and Variable Density Drive Controllers & Handler (QB). This document lists the procedures to install a pure QB Handler for those customers that do not need QB-QX transportability and the procedures required to format the diskettes for single and double density encoding. Also included are the steps required to upgrade a system to QB-QX transportability and listings of the files on the disks required to convert a system to variable density operation.

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8510/a GRAPHICS COMPUTER SYSTEM
VARIABLE DENSITY DISK DRIVE CONTROLLER
QB-QX DRIVE CONTROLLER-HANDLER COMPARISON & DISK FORMATTING PROCEDURES
THIRD EDITION
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1. INTRODUCTION

TERAK has upgraded the 8510/a Graphics Computer System with two new higher performance Floppy Disk Drive Controllers. The original quad-width Single Density Disk Drive Controller has been replaced by a new dual-width Single Density-only Disk Drive Controller. As an option, a new dual-width Variable Density Disk Drive Controller is also available. The media and drive attributes of these new Controllers are described in detail in the TERAK document "Variable Density Disk Drive Controller Reference Guide", Part No. 50-0010-002. These new Controllers provide for:

- DMA Data Transfers
- Variable Sector Size
- User Formatting
- Error Logging
- FM and MFM Recording Formats
- Single & Dual Head Drives
- Phase Lock Loop Data Recovery
- Write Precompensation & Low-Current Switching
- Parallel Head Seek
- Multiple Heads Down
- DMA Key Word Search
- Unit Number Selection (accessible on the rear of the units)
- "Dual-Width" Controller PWBs (5" x 8.5", approximately)
- Transparency & Backwards Compatibility with the original Single Density Disk Drive Controller

A Variable Density Disk Drive Controller must be installed in an 8510 unit to utilize the double density (MFM) encoding technique. The 8510/a system must be equipped with dual-head drives to achieve double sided recording.

NOTE: Double Density formatting requires diskettes that are certified for double density recording. Media originally formatted in single density may not necessarily be reliable if re-formatted in double density.

The original Floppy Disk Handler, (QX), and original Disk Drive Controller, were designed to support single-sided, single density disk drive operations. A new Floppy Disk Handler, (QB), and the new Variable Density Disk Drive Controller, have been designed to support single and double sided, single and double density, disk drive operations. The downward compatibility of the QB handler also provides for the use, without modification, of the new Single Density-only Disk Drive Controller on an 8510/a system.

Labels in the lower right corners of the 8510, 8512, and 8515 front panels indicate the type of Controller installed and the media capabilities of the drives. The labels are shown in Figure 1-1, and are defined as follows:

QX(0,1,2 or 3): Drive capable of single sided, single density (SSSD) operation. (8510 equipped with the original quad-width Single Density Controller; the original QX handler must be utilized.)

Single Density: Drive capable of single sided, single density (SSSD) operation. (8510 equipped with a new dual-width Single Density Controller; the new QB handler must be utilized.)

Dual Density: Drive capable of single sided, double density (SSDD) and SSSD operation. (8510 equipped with a dual-width Variable Density Controller; the new QB handler must be utilized.)

Quad Density: Drive capable of double sided, double density (DSDD), SSDD and SSSD operation. (8510 equipped with a dual-width Variable Density Controller; the new QB handler must be utilized.)

NOTE: The number, (0, 1, 2, or 3), affixed to the label, denotes the drive address.

As shown in Figure 1-2, a Quad Density drive can access all three formats (SSSD, SSDD and DSDD). A Dual Density drive can access SSDD and SSSD diskettes, but not DSDD diskettes, (the index holes on single sided and double sided diskettes are at different locations). The Single Density and QX drives can only access SSSD diskettes.

The new Single Density & Variable Density Controllers require a new device handler and bootstrap. One of three software kits, containing conversion disks for RT-11 V03B, Pascal 1.5, or Pascal 2.0 systems, are offered for the new Single Density & Variable Density Controller-equipped 8510/a systems. These conversion disks contain new monitors with device handlers and bootstrap handlers for Pascal 1.5, Pascal 2.0, RT-11 V03B and MUBASIC VI systems. The RT-11 conversion disk is used to convert the MUBASIC VI system disk. The part numbers of the software kits are:

94-0015-001	RT-11 V03B Software Kit
94-0015-003	Pascal 1.5 Software Kit
94-0015-002	Pascal 2.0 Software Kit

2. QB-QX DRIVE CONTROLLER & HANDLER COMPARISON

The QB handler is a standard system device handler, capable of functioning as an auxiliary peripheral handler as well as the system device handler. The QB handler is unique in that it adapts itself to the disk drive and diskette attributes (i.e., density, number of sides, number of drives, etc.). This capability provides media transparency between single density, double density and quad density diskettes.

When a drive is accessed, the QB handler examines the drive and installed diskette attributes, and then interfaces the drive unit to the operating system. The QB handler supports the IBM 3740/2D format for double sided, double density, modified frequency modulation, (MFM), encoding; the 3740/1D format for single sided, double density, MFM encoding; as well as the IBM 3740/1 single sided, single density, frequency modulation, (FM), encoding format.

The QB handler accomodates the following diskettes:

- A. SSSD: Single sided, single density (FM) 3740/1
- B. SSDD: Single sided, double density (MFM) 3740/1D
- C. DSDD: Double sided, double density (MFM) 3740/2D

The diskette labels are color-coded for ease of identification, as shown in Figure 1-4.

The SSSD diskettes are transportable between the new QB handler and the original QX handler; the mechanisms for handling and accessing the diskettes are identical. All diskettes previously created under the QX handler can be used under the QB handler; only the SSDD and DSDD diskettes are unique and must be created and used under the QB handler.

The procedures defined in this document are intended for the conversion of the users' copies (work disks) of the operating system disks. For those users that intend to run programs on the QX-configured single-density systems, as well as QB-configured variable-density systems, the procedures for QB installation and QX installation should be followed.

For those new users, who have QB-configured variable-density systems, and will not require QB-QX transportability, only the procedures for QB installation need be followed. However, if QX capabilities are required at a later date, the QB-installed disks can be modified to include the QX capabilities.

For those users who have just received Pascal, RT-11 and/or MUBASIC VI software kits, back-up copies of the operating system disks should be made, as follows:

1. Apply power to the 8510/a system.
2. Insert the appropriate conversion disk into drive unit 0 and boot the system.

The RT-11 V03B conversion disk is TERA P/N 95-0010-101.
The Pascal 1.5 conversion disk is TERA P/N 95-0010-103.
The Pascal 2.0 conversion disk is TERA P/N 95-0010-102.

3. Make a copy of these system disks, in the software kits.

The RT-11 V03B disk #2 (TERA P/N 61-0008-002).
The Pascal 1.5 disk #1 (TERA P/N 61-0007-001).
The Pascal 2.0 disk #1 (TERA P/N 61-0011-001).
The MUBASIC VI disk #3 (TERA P/N 61-0002-003).

4. Use the disk just copied as the operating system work disk; install the QB system onto these disks, as described in Part 4 of this document. It is not necessary to convert all of the QX-compatible disks in the software kit; they can be considered as disks that contain additional capabilities, to be selectively copied to the work disk as the need arises. A copy of each disk in the software kits, however, should be made as protection against loss. When making copies, it is not necessary to convert the disks to QB-types first, since the new QB handler/Controller system is downward-compatible with QX-type disks. However, when copying files on RT-11 systems and associated language processors, substitute QB0, QB1, QB2 and QB3 for QX0, QX1, QX2 and QX3, respectively, whenever a volume I.D. is required.

With both single and variable density handlers installed, the work disks can be transported between single density QX, single density QB and variable density QB systems. (It should be noted that this transportability applies only to SSSD diskettes, since the original QX handler and drive electronics only support SSSD formats.) A special transportable bootstrap is contained on the user's conversion diskettes, along with the new QB handler and the original QX handler.

For those users who do not need the QB-QX transportability capability, it is recommended that a "pure" QB system be installed on the user's RT-11, Pascal, or MUBASIC work disks. By so doing, disk space will be conserved and bootstrap execution time will be reduced.

3. REQUIRED FILE COMBINATIONS IN PASCAL 1.5 & PASCAL 2.0

To install the QB handler, and the QX handler, certain files in Pascal 1.5 and Pascal 2.0 must be used in combination. The Pascal 1.5 disks from TERAk, UCSD and SOFTECH all contain interpreters with data media (DM) emulators. The Pascal 2.0 disks from TERAk contain interpreters with both TERAk and DM emulators. The Pascal 2.0 disks from UCSD and SOFTECH usually have the DM interpreter and operating system files installed as SYSTEM.PDP-11 and SYSTEM.PASCAL, respectively. Other disks in the UCSD and SOFTECH kits may contain the TERAk interpreter and operating system files as TK.8510??? and TK.PASCAL. (The question marks in the file name refers to the type of TERAk Handler/Controller that is installed in the system; i.e., /A = QX Handler-original Single Density Controller; .QB = QB Handler-new Single or Variable Density Controller; .QX = QX Handler-new Single or Variable Density Controller.) To use an operating system file, it must be transferred to the user's system work disk and re-named SYSTEM.PASCAL. The matching .QB interpreter file must also be transferred to the work disk and re-named SYSTEM.8510.QB. Also, for transportability between QX and QB based systems, the matching /A interpreter file must also be transferred to the work disk and changed to SYSTEM.8510.QX. Consequently, the following files must be used in combination on the user's work disk.

3.1 TERAk PASCAL 1.5 (Data Media Emulator)

Use the SYSTEM.PASCAL file, from the PASCAL1 disk of the Pascal 1.5 software kit, with the SYSTEM.8510.QB interpreter file, from the Pascal 1.5 Conversion disk. If QB-QX transportability is desired, the SYSTEM.8510/A file, from the PASCAL1 disk of the Pascal 1.5 software kit, must also be on the user's work disk and re-named SYSTEM.8510.QX.

Use the SYSTEM.PASCAL file, from the PASCAL2 disk of the Pascal 1.5 software kit, with the STUDENT.8510.QB interpreter file, from the Pascal 1.5 Conversion disk. If QB-QX transportability is desired, the SYSTEM.8510/A file, from the PASCAL2 disk of the Pascal 1.5 software kit, must also be on the user's work disk and re-named SYSTEM.8510.QX.

3.2 TERAk PASCAL 2.0 (Data Media Emulator)

Use the DM.PASCAL file, from the PASCAL6 disk of the Pascal 2.0 software kit, with the DM.8510.QB interpreter file, from the Pascal 2.0 Conversion disk. If QB-QX transportability is desired, the DM.8510/A file, from the PASCAL6 disk of the Pascal 2.0 software kit, must also be on the user's work disk and re-named SYSTEM.8510.QX,

Use the STDm.PASCAL file, from the PASCAL6 disk of the Pascal 2.0 software kit, with the STDm.8510.QB interpreter file, from the Pascal 2.0 Conversion disk. If QB-QX transportability is desired, the STDm.8510/A file, from the PASCAL6 disk of the Pascal 2.0 software kit, must also be on the user's work disk and re-named SYSTEM.8510.QX.

3.3 TERA K PASCAL 2.0 (TERAK Emulator)

Use the SYSTEM.PASCAL file, from the PASCAL1 disk of the Pascal 2.0 software kit, with the SYSTEM.8510.QB interpreter file, from the Pascal 2.0 Conversion disk. If QB-QX transportability is desired, the SYSTEM.8510/A file, from the PASCAL1 disk of the Pascal 2.0 software kit, must also be on the user's work disk and re-named SYSTEM.8510.QX.

Use the SYSTEM.PASCAL file, from the PASCAL2 disk of the Pascal 2.0 software kit, with the STTK.8510.QB interpreter file, from the Pascal 2.0 Conversion disk. If QB-QX transportability is desired, the SYSTEM.8510/A file, from the PASCAL2 disk of the Pascal 2.0 software kit, must also be on the user's work disk and re-named SYSTEM.8510.QX.

3.4 UCSD/SOFTECH PASCAL 1.5 (Data Media Emulator)

Use the SYSTEM.PASCAL file, from one of the UCSD/SOFTECH Pascal 1.5 disks, with the SYSTEM.8510.QB interpreter file, from the Pascal 1.5 Conversion disk. If QB-QX transportability is desired, the SYSTEM.PDP-11 file, from one of the UCSD/SOFTECH Pascal 1.5 disks, must also be on the user's work disk and re-named SYSTEM.8510.QX.

3.5 UCSD/SOFTECH PASCAL 2.0 (Data Media Emulator)

Use the SYSTEM.PASCAL file, from one of the UCSD/SOFTECH Pascal 2.0 disks, with the DM.8510.QB interpreter file, from the Pascal 2.0 Conversion disk. If QB-QX transportability is desired, the SYSTEM.PDP-11 file, from one of the UCSD/SOFTECH disks, must also be on the user's work disk and re-named SYSTEM.8510.QX.

-NOTE-

THE FOLLOWING PROCEDURES MUST BE PERFORMED ON A SYSTEM THAT CONTAINS EITHER A NEW SINGLE DENSITY OR A NEW VARIABLE DENSITY DISK DRIVE CONTROLLER.

IN THESE PROCEDURES, THE QUESTION MARKS IN THE FILE NAMES OF RT-11 FILES (E.G., QXMN??.???) ARE INDICATIVE OF THE MONITOR OPTIONS SELECTED; FILL IN THOSE SPACES WITH THE LETTERS THAT SPECIFY THE MONITOR YOU WISH TO INSTALL (E.G., QXMNSJ.SYS). FOR DEFINITIONS OF THESE LETTERS, THE USER IS REFERRED TO THE RT-11 DISTRIBUTION KIT THAT DESCRIBES MONITOR OPTIONS AND THE NAMING CONVENTIONS USED.

IF THE RT-11 ERROR MESSAGE "PIP-F-Device full QBO:(QBMN??.???)\" OR THE PASCAL ERROR MESSAGE "Output file full" IS DISPLAYED AT ANY TIME DURING A COPY OR TRANSFER PROCEDURE, THIS WILL INDICATE THAT THE USER'S DISK DOES NOT CONTAIN ENOUGH SPACE TO COPY A FILE. CONSEQUENTLY, FILES WILL HAVE TO BE TRANSFERRED OFF THE USER'S DISK TO ACCOMODATE THE NEW FILES BEING COPIED.

WHEN COPYING FILES BETWEEN MEDIA THAT HAVE DIFFERING DENSITY ATTRIBUTES, ALWAYS USE A FILE-TO-FILE TRANSFER; DO NOT USE A DEVICE OR IMAGE TYPE TRANSFER.

-WARNING-

THE NEW DISK DRIVE ELECTRONICS PROVIDE FOR DRIVE ADDRESS SELECTION AT THE REAR OF THE UNITS. MAKE CERTAIN THAT THE DRIVE ADDRESS DIP SWITCHES ON THE VARIABLE DENSITY EIBS (EXTERNAL INTERFACE BOARDS) ARE NOT SET TO IDENTICAL ADDRESSES. SEE FIGURE 1-3 FOR THE SWITCH LOCATIONS.

4. QB INSTALLATION PROCEDURES

4.1 QB INSTALLATION IN RT-11 MULTIPLE DRIVE SYSTEMS

1. Insert the RT-11 conversion disk into drive unit 0; boot the system.

2. Insert the user's RT-11 disk into drive unit 1.

3. Key in the following, in response to the prompt (.):

```
COPY/SYS QBO:QBMN???.??? QB1:QBMN??.SYS <RET>
```

4. Key in the following, in response to the prompt (.):

```
COPY/BOOT QB1:QBMN??.SYS QB1: <RET>
```

The user's RT-11 disk now contains a QB system. If QB-QX transportability is not desired, the original QXMN??.SYS file can be removed, to conserve disk space. If QB-QX transportability is desired, leave the QXMN??.SYS file intact and see Section 5 of this document.

4.2 QB INSTALLATION IN RT-11 SINGLE DRIVE SYSTEMS

1. Insert the RT-11 conversion disk into the drive; boot the system.

2. Key in the following, in response to the prompt (.):

```
R SETSDS <RET>
```

```
System message: "SINGLE DRIVE SYSTEM"
```

3. Key in the following, in response to the prompt (.):

```
COPY/SYS QBO:QBMN???.??? QB1:QBMN??.SYS <RET>
```

```
System prompt: "?MOUNT DISK 1"
```

4. Remove the TERAQ RT-11 conversion disk from the drive; insert the user's RT-11 disk into the drive. The system will automatically read the QBMN???.??? file into memory. The system will prompt you with:

```
"?MOUNT DISK 0"
```

if the entire file is not loaded into memory. Respond by removing the user's RT-11 disk and inserting the TERAQ conversion disk into the drive. Continue to swap these two disks in response to the system message "?MOUNT DISK 0 (or 1)" until the monitor prompt (.) occurs.

5. Insert the RT-11 conversion disk into the drive.

Key in the following, in response to the prompt (.):

```
COPY/BOOT QB0:QBMN??.SYS QB1: <RET>
```

System prompt: "?MOUNT DISK 1"

6. Repeat Step 4.

The user's RT-11 disk now contains a QB system. If QB-QX transportability is not desired, the original QXMN??.SYS file can be removed, to conserve disk space. For QB-QX transportability, see Section 5 of this document.

4.3 QB INSTALLATION IN PASCAL MULTIPLE DRIVE SYSTEMS

1. Insert the Pascal conversion disk into drive unit 0; boot the system.

2. Insert the user's Pascal system disk into drive unit 1.

3. Key in F, to load the Filer; then perform the following:

Key in T, (for a file Transfer).

System prompt: "Transfer what file?"

Key in QBBOOT <RET>

System prompt: "To where?"

Key in #5:\$ <RET>

System message:

```
"QB20CVT:QBBOOT -----> (User's Vol.ID):QBBOOT"
```

or,

```
"QB15CVT:QBBOOT transferred to (User's Vol.ID):QBBOOT"
```

-NOTE-

BEFORE PROCEEDING WITH THE NEXT STEP, REFER TO SECTION 3 OF THIS DOCUMENT, TO DETERMINE WHICH INTERPRETER TO INSTALL ON THE WORK DISK.

4. Key in T (for a file transfer).

System prompt: "Transfer what file?"

Key in the interpreter selected from Section 3, then <RET>.

System prompt: "To where?"

Key in #5:SYSTEM.8510.QB <RET>

System message:

"QB20CVT:(INTERPRETER) ---> (User's Vol.ID):SYSTEM.8510.QB"

or,
"QB15CVT:(INTERPRETER) transferred to (User's Vol.ID):SYSTEM.8510.QB"

Key in Q, to quit the Filer.

5. Perform the following:

Key in X, to execute a code file.

Key in BOOTER <RET>

System prompt: "This program is a general bootstrap mover."
"Enter name of file to be installed as a bootstrap:"

Key in #5:QBBOOT <RET>

"Enter name of volume on which bootstrap is to be installed:"

Key in #5: <RET>

System message: "***Bootstrap installed sucessfully***"

The user's Pascal system disk now contains a QB system. If QB-QX transportability is not desired, the QX interpreter file (SYSTEM.8510/A, DM.8510/A, STDM.8510/A or SYSTEM.PDP-11) can be removed, to conserve disk space. However, if QB-QX transportability is desired, leave the QX interpreter file intact and see Section 5 of this document.

4.4 QB INSTALLATION IN PASCAL SINGLE DRIVE SYSTEMS

1. Insert the Pascal conversion disk into the drive; boot the system.

2. Key in F, to load the Filer.

3. Key in T, for a file Transfer.

System prompt: "Transfer what file?"

4. Key in QBBOOT <RET>

System prompt: "To where?"

5. Remove the new conversion disk; insert the user's Pascal system disk into the drive.

6. Key in #4:\$ <RET>

System prompt: "Put QB15CVT: (or QB20CVT:) in Unit #4"
"Type <space> to continue."

7. Remove the user's Pascal system disk; insert the new conversion disk into the drive. Type the space bar once.

System prompt: "Put destination disk in Unit #4" or,
"Insert destination disk."
"Type <space> to continue."

8. Remove the new conversion disk; insert the user's Pascal system disk into the drive. Type the space bar once.

System message: "QB20CVT:QBBOOT -----> (User's Vol.ID):QBBOOT" or,
"QB15CVT:QBBOOT transferred to (User's Vol.ID):QBBOOT"

9. Remove the user's Pascal system disk; insert the new conversion disk into the drive.

-NOTE-

BEFORE PROCEEDING WITH THE NEXT STEP, REFER TO SECTION 3 OF THIS DOCUMENT, TO DETERMINE WHICH INTERPRETER TO INSTALL ON THE WORK DISK.

10. Key in T (for a file transfer).

System prompt: "Transfer what file?"

Key in the interpreter selected from Section 3, then <RET>.

System prompt: "To where?"

11. Remove the conversion disk; insert the user's Pascal system disk into the drive.

12. Key in #4:SYSTEM.8510.QB <RET>

System prompt: "Put QB15CVT: (or QB20CVT:) in Unit #4."
"Type <space> to continue."

13. Remove the user's Pascal system disk; insert the new conversion disk into the drive. Type the space bar once.

System prompt: "Put destination disk in Unit #4."
"Type <space> to continue."

14. Remove the new conversion disk; insert the user's Pascal system disk into the drive. Type the space bar once.

System message:

"QB20CVT:(INTERPRETER) ----->(User's Vol.ID):SYSTEM.8510.QB"
or,
"QB15CVT:(INTERPRETER) transferred to (User'sVol.ID):SYSTEM.8510.QB"

15. Remove the user's Pascal system disk; insert the new conversion disk into the drive.

16. Key in Q, to quit the Filer.

17. Perform the following:

Key in X, to execute a code file.

Key in BOOTER <RET>

System prompt: "This program is a general bootstrap mover."
"Enter name of file to be installed as a bootstrap:"

Key in #4:QBBOOT <RET>

System prompt:
"Enter name of volume on which bootstrap is to be installed:"

18. Remove the new conversion disk; insert the user's Pascal system disk into the drive.

19. Key in #4: <RET>

System message: "***Bootstrap installed sucessfully**"
System prompt: Put "QB15CVT: (or QB20CVT:) in Unit #4."

At this time, the head-down LED in the drive door will be blinking; when the LED goes off, depress the door button to eject the user's disk. Insert the new conversion disk and close the drive door. The system will respond by displaying the Pascal command line at the top of the monitor screen. The user's Pascal system disk now contains a QB system. If QB-QX transportability is not desired, the QX interpreter file (SYSTEM.8510/A, DM.8510/A, STDM.8510/A or SYSTEM.PDP-11) can be removed, to conserve disk space. However, if QB-QX transportability is desired, leave the QX interpreter file intact and see Section 5 of this document.

5. QB-QX TRANSPORTABILITY PROCEDURES

The procedures defined in this Section assume that the conversion process documented in Section 4 has been performed successfully. The steps in Parts 5.1 through 5.4 describe how to install QX systems in a form that provides for QB-QX transportability.

-NOTE-

A PRIOR CONVERSION TO THE QB SYSTEM IS REQUIRED BEFORE QB-QX TRANSPORTABILITY CAN BE ACHIEVED.

5.1 QX INSTALLATION IN RT-11 MULTIPLE DRIVE SYSTEMS

1. Insert the user's RT-11 disk into drive unit 0; boot the system.
2. Insert the RT-11 conversion disk into drive unit 1.
3. Key in the following, in response to the prompt (.):

```
COPY QB1:Q2BOOT.SAV QB0: <RET>
```

```
System message: "Files copied:"
```

```
"QB1:Q2BOOT.SAV to QB0:Q2BOOT.SAV"
```

4. If an SJ, (Single Job), monitor is desired, proceed to Step 6. If not, remove the RT-11 conversion disk from drive unit 1 and insert the RT-11 disk (TERAK P/N 61-0008-002) that contains the PATCH.SAV file into drive unit 1.

```
Key in RU QB1:PATCH <RET>
```

```
System prompt: "FILE NAME--"
```

```
Key in Q2BOOT.SAV <RET>
```

```
In response to the prompt (.), key in 1410/
```

```
System response: 1410/ "?????"
```

The system will return a 5-digit code (?????) that identifies the type of monitor currently used. Key in one of the following codes and then execute <RET>.

```
55202 = (Single Job)
```

```
54162 = (Foreground-Background)
```

5. Key in E
6. Key in the following, in response to the prompt (.):

```
COPY/BOOT QB0:Q2BOOT.SAV QB0: <RET>
```

7. Remove the disk containing the PATCH.SAV file from drive unit 1. If, in Part 4.1 of this document, the QXMN??.SYS file was left intact, then the following step (8), may not be necessary. Examine the files on the user's disk by keying in: DIR <RET>

The directory will be listed on the monitor. If QXMN??.SYS is listed, step 8 can be omitted; if not, do step 8.

8. Insert the RT-11 multi-drive monitor disk (TERAK P/N 61-0008-001) into drive unit 1. Key in the following:

```
COPY/SYS QB1:QXMN??.??? QB0:QXMN??.SYS <RET>
```

NOTE: Make certain that the QX monitor copied to the user's disk is the same type (i.e., both SJ) as the QB monitor that was installed in Part 4.1, of this document.

The user's RT-11 disk is now QB-QX transportable. Verify the transportability by booting the RT-11 disk on QX-configured and QB-configured systems.

5.2 QX INSTALLATION IN RT-11 SINGLE DRIVE SYSTEMS

1. Insert the RT-11 conversion disk into the drive; boot the system.
2. Key in the following, in response to the prompt (.):

```
R SETSDS
```

```
System message: "SINGLE DRIVE SYSTEM"
```

3. Key in COPY QB0:Q2BOOT.SAV QB1: <RET>

```
System message: "Files copied:"
```

```
System prompt: "?MOUNT DISK 1"
```

4. Remove the RT-11 conversion disk from the drive; insert the user's RT-11 disk into the drive. The system will prompt you with:

```
"?MOUNT DISK 0"
```

if the entire file is not loaded. Continue to swap the user's disk and the conversion disk, in response to the prompts ?MOUNT DISK 1 and ?MOUNT DISK 0, until the message:

```
"Files copied:"  
"QB0:Q2BOOT.SAV to QB1:Q2BOOT.SAV"
```

and the prompt ?MOUNT DISK 0 appears.

5. Remove the RT-11 user's disk; insert the RT-11 conversion disk into the drive. If an SJ, (Single Job), monitor is desired, proceed to Step 8. If not, proceed as follows.

```
Key in RU QB1:PATCH
```

System prompt: "?MOUNT DISK 1"

6. Remove the conversion disk from the drive; insert the RT-11 disk (TERAK P/N 61-0008-002) that contains the PATCH.SAV file into the drive.

System prompt: "?MOUNT DISK 0"

7. Remove the disk that contains the PATCH.SAV file; insert the RT-11 conversion disk into the drive.

System prompt: "FILE NAME--"

Key in Q2BOOT.SAV <RET>

In response to the prompt (.), key in 1410/

System response: 1410/ "?????"

The system will return a 5-digit code (?????) that identifies the type of monitor currently used. Key in one of the following codes and then execute <RET>.

55202 = (Single Job)

54162 = (Foreground-Background)

Key in E

8. Key in the following, in response to the prompt (.):

COPY/BOOT QB1:Q2BOOT.SAV QB1: <RET>

System prompt: "?MOUNT DISK 1"

9. Remove the RT-11 conversion disk from the drive; insert the user's RT-11 disk into the drive. When the prompt (.) appears, remove the user's disk, then insert the conversion disk into the drive. If, in Part 4.2 of this document, the QXMN??.SYS file was left intact, then the following step (10) may not be necessary. Examine the files on the user's disk by keying in:

DIR <RET>

System prompt: "?MOUNT DISK 0"

Remove the conversion disk; insert the user's RT-11 disk into the drive. The directory will be listed on the monitor. If QXMN??.SYS is listed, step 10 can be omitted; if not, do step 10.

10. Key in the following, in response to the prompt (.):

COPY/SYS QB1:QXMN??.??? QB0:QXMN??.SYS <RET>

System prompt: "?MOUNT DISK 1"

Remove the user's RT-11 disk from the drive; insert the RT-11 single-drive monitor disk (TERAK P/N 61-0008-004) into the drive.

The system will prompt you with:

"?MOUNT DISK 0"

if the entire file is not loaded into memory. Continue to swap the monitor disk and the user's disk in response to the system prompts "?MOUNT DISK 0 or ?MOUNT DISK 1" until the monitor prompt (.) occurs.

NOTE: Make certain that the QX monitor copied to the user's disk is the same type (i.e., both SJ) as the QB monitor that was installed in Part 4.2 of this document.

The user's RT-11 disk is now QB-QX transportable. Verify the transportability by booting the RT-11 disk on QX-configured and QB-configured systems.

5.3 QX INSTALLATION IN PASCAL MULTIPLE DRIVE SYSTEMS

1. Insert the Pascal conversion disk into drive unit 0; boot the system.
2. Insert the user's Pascal system disk into drive unit 1.
3. Perform the following:

Key in F, to load the Filer

Key in E, to display a disk directory

System prompt: "Dir listing of what vol?"

Key in #5: <RET>

Scan the directory for one of the interpreter files: "SYSTEM.8510/A, DM.8510/A, STDM.8510/A or SYSTEM.PDP-11"; if present, it must be changed to "SYSTEM.8510.QX", as follows.

Key in C, to change a filename.

System prompt: "Change what file?"

Key in #5:(INTERPRETER) <RET>

System prompt: "Change to what?"

Key in #5:SYSTEM.8510.QX <RET>

System prompt: "(INTERPRETER) ----> SYSTEM.8510.QX" or,

"(INTERPRETER) changed to SYSTEM.8510.QX"

Key in Q, to Quit the Filer.

4. Perform the following:

Key in X, to execute a code file.

Key in BOOTER <RET>

System prompt: "This program is a general bootstrap mover."

"Enter name of file to be installed as a bootstrap."

Key in Q2BOOT <RET>

System prompt: "Enter name of volume on which bootstrap is to be installed."

Key in #5: <RET>

System message: "***Bootstrap installed successfully**"

The user's Pascal disk is now QB-QX transportable. Verify the transportability by booting the Pascal disk on QX-configured and QB-configured systems.

5.4 QX INSTALLATION IN PASCAL SINGLE DRIVE SYSTEMS

1. Insert the user's Pascal system disk into the drive; boot the system.

2. Perform the following:

Key in F, to load the Filer.

Key in E, to display a disk directory.

System prompt: "Dir listing of what vol?"

Key in #4: <RET>

Scan the directory for one of the interpreter files: "SYSTEM.8510/A, DM.8510/A, STD.8510/A or SYSTEM.PDP-11"; if present, it must be changed to "SYSTEM.8510.QX", as follows:

Key in C, to change a filename.

System prompt: "Change what file?"

Key in (INTERPRETER) <RET>

System prompt: "Change to what?"

Key in SYSTEM.8510.QX <RET>

System prompt: "(INTERPRETER) ----> SYSTEM.8510.QX" or,
"(INTERPRETER) changed to SYSTEM.8510.QX"

Key in Q, to Quit the Filer.

3. Remove the user's Pascal disk; insert the conversion disk into the drive; boot the system.

4. Perform the following:

Key in F, to load the Filer.

Key in T, to Transfer a file.

System prompt: "Transfer what file?"

Key in Q2BOOT <RET>

System prompt: "To where?"

5. Remove the conversion disk; insert the user's Pascal system disk into the drive.

Key in #4:\$ <RET>

System prompt: "Put QB15CVT (or QB20CVT) into Unit #4"
"Type <space> to continue"

6. Remove the user's Pascal system disk; insert the conversion disk into the drive. Type the space bar once.

System prompt: "Put destination disk in Unit #4"
"Type <space> to continue"

7. Remove the conversion disk; insert the user's Pascal system disk into the drive. Type the space bar once.

System message:

"QB20CVT:Q2BOOT ----->(User's Vol. ID):Q2BOOT" or,

"QB15CVT:Q2BOOT transferred to (User's Vol. ID):Q2BOOT"

8. Key in Q, to Quit the Filer.

System prompt: "Put in QB15CVT (or QB20CVT)"

At this time, the head-down LED in the drive door will be blinking rapidly; when the LED goes off, depress the door button to eject the user's disk. Insert the conversion disk and close the drive door. The system will respond by displaying the Pascal command line at the top of the monitor screen.

9. Key in X, to execute a code file.

System prompt: "Execute what file?"

Key in BOOTER <RET>

System prompt: "This program is a general bootstrap mover."

"Enter name of file to be installed as a bootstrap."

Key in #4:Q2BOOT <RET>

System prompt: "Enter name of volume on which bootstrap is to be installed."

10. Remove the conversion disk; insert the user's Pascal system disk into the drive.

Key in #4: <RET>

System message: "***Bootstrap installed successfully***"

System prompt: "Put in QB15CVT (or QB20CVT)"

At this time, the head-down LED in the drive door will be blinking; when the LED goes off, depress the door button to eject the user's disk. Insert the conversion disk and close the drive door. The system will respond by displaying the Pascal command line at the top of the monitor screen. The user's Pascal disk is now QB-QX transportable. Verify the transportability by booting the Pascal disk on QX-configured and QB-configured systems.

6. QB-QX INSTALLATION IN MUBASIC SYSTEMS

The RT-11 conversion disk (TERAK P/N 95-0010-101), must be used to convert the MUBASIC VI disk #3 (TERAK P/N 61-0002-003), in the following procedures.

6.1 MUBASIC DISK CONVERSION IN MULTIPLE DRIVE SYSTEMS

1. Insert the RT-11 conversion disk into drive unit 0; boot the system.
2. Insert the MUBASIC VI disk #3 into drive unit 1.
3. Key in the following, in response to the prompt (.):

DEL/SYS/NOQ QB1:*.SYS <RET>

DEL/NOQ QB1:MUBAS2.SAV,QB1:MUBAS3.SAV <RET>

SQ/NOQ QB1: <RET>

COPY/SYS QB0:*.SYS QB1: <RET>

System message: "Files copied:"

```
"QB0:SWAP.SYS      to      QB1:SWAP.SYS
QB0:CHRSET.SYS    to      QB1:CHRSET.SYS
QB0:QX.SYS        to      QB1:QX.SYS
QB0:QXMNSJ.SYS    to      QB1:QXMNSJ.SYS
QB0:QB.SYS        to      QB1:QB.SYS
QB0:NL.SYS        to      QB1:NL.SYS
QB0:TT.SYS        to      QB1:TT.SYS
QB0:QBMNSJ.SYS    to      QB1:QBMNSJ.SYS"
```

4. Key in the following, in response to the prompt (.):

COPY/BOOT QB0:Q2BOOT.SAV QB1: <RET>

COPY QB0:STARTS.COM QB1: <RET>

System message: "Files copied:"

```
"QB0:STARTS.COM    to      QB1:STARTS.COM"
```

5. Remove the RT-11 conversion disk from drive unit 0; insert the MUBASIC disk #3 (which is in drive unit 1) into drive unit 0; boot the system.

6. Key in the following, in response to the prompt (.):

DATE dd-MMM-yy <RET>

R MUBAS <RET>

The system will respond as follows:

"CONFIGURATION FILE: OLD (O), NEW (N), OR NONE (CR)" Key in N <RET>

"FILE NAME--" Key in 1BUSER <RET>

"KEEP USR RESIDENT (Y OR N)" Key in Y <RET>

"ENTER AVAILABLE DEVICES:"

"?" Key in QBOPR,1PR <RET>

"?" Key in <RET>

"xxxx WORDS REMAINING" (The value xxxx is variable.)

"SYSTEM BUFFERS SPECIFICATION (NUMBER, SIZE (WORDS)):"

"?" Key in 1, 256 <RET>

"?" Key in <RET>

"xxxx WORDS REMAINING"

"SYSTEM I/O AREA SIZE (WORDS) ?" Key in 1 <RET>
 "NUMBER OF USER CHANNELS?" Key in 5 <RET>
 "NUMBER OF SYSTEM CHANNELS?" Key in 1 <RET>
 "MAXIMUM NUMBER OF CHANNELS FOR UNPRIVILEGED USER?" Key in 5 <RET>
 "MAXIMUM NUMBER OF BLOCKS IN OPEN FOR UNPRIVILEGED USER?"
 Key in 50 <RET>
 "DEFAULT NUMBER OF BLOCKS FOR OPEN?" Key in 50 <RET>
 "OPT FNS (N-NONE, A-ALL, OR I-INDIVIDUAL)?" Key in A <RET>
 "xxxx WORDS CORE AVAILABLE"
 "HOW MANY USERS?" Key in 1 <RET>
 "TERM #1?" Key in <RET>
 Key in BYE <RET>

The user's MUBASIC disk #3 is now QB-QX transportable. The QXMNSJ.SYS file can be removed, to conserve disk space, if QB-QX transportability is not desired.

6.2 MUBASIC DISK CONVERSION IN SINGLE DRIVE SYSTEMS

1. Insert the RT-11 conversion disk into the drive; boot the system.
2. Key in the following, in response to the prompt (.):

R SETSDS <RET>

System prompt: "SINGLE DRIVE SYSTEM"

Key in DEL/SYS/NOQ QB1:*.SYS <RET>

System prompt: "?MOUNT DISK 1"

3. Remove the RT-11 conversion disk; insert the MUBASIC disk #3 into the drive.

System prompt: "?MOUNT DISK 0"

4. Remove the MUBASIC disk #3; insert the RT-11 conversion disk into the drive.

5. Key in DEL/NOQ QB1:MUBAS2.SAV, QB1:MUBAS3.SAV <RET>

System prompt: "?MOUNT DISK 1"

6. Remove the RT-11 conversion disk; insert the MUBASIC disk #3 into the drive. Continue to swap these two disks in response to the prompts "? MOUNT DISK 1 or ?MOUNT DISK 0" until the prompt (.) appears, then insert the RT-11 disk into the drive.

7. Key in the following, in response to the prompt (.):

SQ/NOQ QB1: <RET>

System prompt: "?MOUNT DISK 1"

8. Repeat step 6.

9. Key in the following, in response to the prompt:

COPY/SYS QBO:*.SYS QB1: <RET>

System message: "Files copied:"

System prompt: "?MOUNT DISK 1"

10. Repeat step 6.

System message: "QBO:SWAP.SYS to QB1:SWAP.SYS
QBO:CHRSET.SYS to QB1:CHRSET.SYS
QBO:QX.SYS to QB1:QX.SYS
QBO:QXMNSJ.SYS to QB1:QXMNSJ.SYS
QBO:QB.SYS to QB1:QB.SYS
QBO:NL.SYS to QB1:NL.SYS
QBO:TT.SYS to QB1:TT.SYS
QBO:QBMNSJ.SYS to QB1:QBMNSJ.SYS"

11. Key in the following, in response to the prompt (.):

COPY/BOOT Q2BOOT.SAV QB1: <RET>

System prompt: "?MOUNT DISK 1"

12. Repeat step 6.

13. Key in the following, in response to the prompt (.):

COPY QBO:STARTS.COM QB1: <RET>

System message: "Files copied:"

System prompt: "?MOUNT DISK 1"

14. Repeat step 6.

System message: "QBO:STARTS.COM to QB1:STARTS.COM"

15. Remove the RT-11 conversion disk; insert the MUBASIC disk #3 into the drive; boot the system.

16. Key in the following, in response to the prompt (.):

DATE dd-MMM-yy <RET>

R MUBAS <RET>

The system will respond as follows:

"CONFIGURATION FILE: OLD (O), NEW (N), OR NONE (CR)" Key in N <RET>

"FILE NAME--" Key in 1BUSER <RET>

"KEEP USR RESIDENT (Y OR N)" Key in Y <RET>

"ENTER AVAILABLE DEVICES:"

"?" Key in QBOPR,1PR <RET>

"?" Key in <RET>

"xxxx WORDS REMAINING" (The value xxxx is variable.)

"SYSTEM BUFFERS SPECIFICATION (NUMBER, SIZE (WORDS)):"

"?" Key in 1, 256 <RET>

"?" Key in <RET>

"xxxx WORDS REMAINING"

"SYSTEM I/O AREA SIZE (WORDS)?" Key in 1 <RET>

"NUMBER OF USER CHANNELS?" Key in 5 <RET>

"NUMBER OF SYSTEM CHANNELS?" Key in 1 <RET>

"MAXIMUM NUMBER OF CHANNELS FOR UNPRIVILEGED USER?" Key in 5 <RET>

"MAXIMUM NUMBER OF BLOCKS IN OPEN FOR UNPRIVILEGED USER?"

Key in 50 <RET>

"DEFAULT NUMBER OF BLOCKS FOR OPEN?" Key in 50 <RET>

"OPT FNS (N-NONE, A-ALL, OR I-INDIVIDUAL)?" Key in A <RET>

"HOW MANY USERS?" Key in 1 <RET>

"TERM #1?" Key in <RET>

Key in BYE <RET>

The user's MUBASIC disk #3 is now QB-QX transportable. The QXMNSJ.SYS file can be removed, to conserve disk space, if QB-QX transportability is not desired.

7. DISK FORMATTING

The Terak utility FORMAT is used to format 8 inch IBM 3740 floppy diskettes. The formatting procedure creates a data shell or "super structure" on the diskette which is needed to locate physical sectors on the diskette. In addition, formatting initializes the media attribute identifier area on the diskette. The program has the ability to format all three density attributes supported by TERAk.

7.1 RT-11 FORMATTING PROCEDURES

-WARNING-

DOUBLE DENSITY FORMATTING REQUIRES DISKETTES THAT ARE CERTIFIED FOR DOUBLE DENSITY RECORDING. MEDIA ORIGINALLY FORMATTED IN SINGLE DENSITY MAY NOT NECESSARILY BE RELIABLE IF RE-FORMATTED IN DOUBLE DENSITY.

FORMAT is a standard RT-11 executable program, and can be activated like any other program. Begin the Formatting Procedure by typing the command:

```
R FORMAT <return>
```

The program will request that you choose media attributes with the following prompt:

```
0 = Single-sided, Single-density
1 = Single-sided, Double-density
2 = Double-sided, Double-density
S = STOP
?
```

Respond by typing the number corresponding to the media attributes you want. The program will then prompt, asking for the number of the drive (unit) you will place your blank diskette into

```
?Drive Number (0,1,2 or 3)
```

Respond by typing in the number from the front of the disk drive you will use, 0,1,2 or 3. The program will prompt with:

```
PLACE DISK IN DRIVE # - TYPE ANY KEY WHEN READY
```

Where # is the number of the drive (unit) you are using.

Place the diskette in the drive (unit) you have chosen and close the door. Type any key. The program will display "Cylinder (x10): 0" and update with 1-7 as the formatting proceeds. When completed, the program will respond with:

```
FORMAT COMPLETED - NO ERRORS DETECTED
```

followed by:

- 0 = Single-sided, Single-density
- 1 = Single-sided, Double-density
- 2 = Double-sided, Double-density
- S = STOP
- ?

At this time the Format procedure may be repeated for another disk. If all disks have been formatted then type S, to return to the operating system. After you type "S", the program will respond with:

?REBOOT ADVISED?

After formatting or reformatting one or more diskettes, we recommend that you reboot the system to insure proper determination of all disk attributes that might have been changed during the Format process.

7.1.1 RT-11 BAD BLOCK SCAN.

To ensure that the disk is valid and ready to use, a bad block scan is necessary. This is done by utilizing the System Utility DUP. Begin the bad block scan by typing:

R DUP

The program will respond with an asterisk (*), you should respond by typing:

QB?:/H/K

where ? = # of your drive (unit)

The system will proceed with a bad block scan. You will note that the red light on the disk drive door remains on while scanning proceeds. When finished the monitor will prompt with:

?DUP-I-No bad blocks found

If you receive a message listing bad blocks you should repeat the formatting procedure. If you still have bad blocks you may want to discard the disk. If you wish to skip the bad blocks, refer to the DUP, option /B covering bad blocks.

After the disk has been formatted, use the appropriate system procedures to establish a directory on the disk. When copying files between media that have differing density attributes, always use a file-to-file transfer, do not use a device or image type transfer.

(with formatted disk in D01, do the following)

.INITIALIZE/BADBLOCKS D01: *(gives 1126 Blocks)*

etc

.COPY SYSTEM D00:*.* -25- *(do copy from D00 to D01)*

.COPY /BOOT D00:01MNST.SYS D01: *(copy boot to disk)*

etc

7.1.2 RT-11 ERROR MESSAGES

There are several error messages that can occur during the formatting procedure. All messages are preceded by "FORMAT ABORTED BECAUSE:", followed by the reason. For example:

* FORMAT ABORTED BECAUSE: WRITE PROTECT ON *

STO/3 ST1 ST2 C H R N
01101001

Refer to the TERA Variable Density Controller Reference Guide (Part No. 50-0010-002), which describes these control status words for each of the operations.

ERROR MESSAGE	CHECK
o DRIVE NOT READY	o Power On? o Cables Connected? o Disk Inserted? o Door Closed?
o WRITE PROTECT ON	o Tab on write protect notch?
o SINGLE SIDED DISK	o You have asked for formatting of a dual sided disk with a single sided disk in the drive or the drive being used is single headed.
o WRITE FAILURE	o Try formatting again.
o FORMAT FAILURE	o May indicate a faulty disk.
o CONTROLLER BOARD FAULT	o Reboot and try again, if error persists controller board failure may be indicated.
o EXECUTE PHASE SYNC FAULT	
o RESULT PHASE SYNCH FAULT	
o SEEK FAILURE	o Reboot and try again, if error persists a failure in the drive may be indicated
o RECALIBRATION FAILURE	

At this time the Format procedure may be repeated for another disk. If all disks have been formatted then type "S", to return to the operating system. After you type "S", the program will respond with:

?REBOOT ADVISED?

After formatting or reformatting, one or more diskettes, we recommend that you reboot the system to insure proper determination of all disk attributes that might have been changed during the Format process.

7.2.1 PASCAL BAD BLOCK SCAN

To ensure that the disk is valid and ready to use, a bad block scan is necessary. To scan a disk in Pascal you must invoke the Filer; do so by typing the following command:

F

Begin the bad block scan by typing:

B

The program will prompt with : "BAD BLOCK SCAN OF WHAT VOL ?"

In Pascal, #N: is used to indicate volume ID. The system drive (8510) is #4:, the second drive is #5:, a third is #9:, and the fourth is #10:. Respond by typing the one that corresponds to the drive you wish to scan. The system will then proceed with a bad block scan. You will note that the red light on the disk drive door remains on while scanning proceeds. When finished, the monitor will respond with:

"NO BAD BLOCKS"

If you receive a message listing bad blocks, you should repeat the formatting procedure. If you still have bad blocks you may want to discard the disk. If you wish to mark the bad blocks, refer to the eXamine command under Filer, covering bad blocks.

After the disk has been formatted, use the appropriate system procedures to establish a directory on the disk. When copying files between media that have differing density attributes, always use a file-to-file transfer, do not use a device or image type transfer.

7.2.2 PASCAL ERROR MESSAGES

There are several error messages that can occur during the formatting procedure. All messages are preceded by "FORMAT ABORTED BECAUSE:", followed by the reason. For example:

* FORMAT ABORTED BECAUSE: WRITE PROTECT ON *

```
      ST0/3   ST1   ST2   C   H   R   N
01101001
```

Refer to the TERA Variable Density Diskette Controller Reference Guide (Part No. 50-0010-002), which describes control status words for each of the operations.

ERROR MESSAGE	CHECK
o DRIVE NOT READY	o Power On? o Cables Connected? o Disk Inserted? o Door Closed?
o WRITE PROTECT ON	o Tab on write protect notch?
o SINGLE SIDED DISK	o You have asked for formatting of a dualsided disk with a single sided disk in the drive or the drive being used is single headed.
o WRITE FAILURE	o Try formatting again.
o FORMAT FAILURE	o May indicate a faulty disk. Try again.
o CONTROLLER BOARD FAULT o EXECUTE PHASE SYNC FAULT o RESULT PHASE SYNCH FAULT	o Reboot and try again, if error persists controller board failure may be indicated.
o SEEK FAILURE o RECALIBRATION FAILURE	o Reboot and try again; if error persists a failure in the drive may be indicated

8. CONVERSION DISK DIRECTORY LISTINGS

8.1 RT-11 Conversion Disk Directory

24-Sep-80

Volume ID: RT11 V3b

Owner : QB Upgrade

SWAP .SYS	24	03-Dec-78	14	CHRSET.SYS	4	05-Dec-78	38
QX .SYS	3	09-Apr-80	42	PIP .SAV	16	03-Dec-78	45
DUP .SAV	21	06-Jan-79	61	DIR .SAV	17	03-D	QXMNSJ.SYS
NL .SYS	2	19-Sep-80	166	TT .SYS	2	19-Sep-80	168
QBMNSJ.SYS	63	19-Sep-80	170	Q2BOOT.SAV	5	19-Sep-80	233
STARTS.COM	1	19-Sep-80	238	QBMNFB.FGM	73	24-Sep-80	239
QBMNSJ.STM	66	24-Sep-80	312	QBMNFB.FTM	75	24-Sep-80	378
FORMAT.SAV	7	24-Sep-80	453	SETSDS.SAV	14	24-Sep-80	460
< UNUSED >	20		474				

17 Files, 446 Blocks

34 Free blocks

QB.SYS = The QB system handler.

QBMNSJ.SYS = QBMNSJ.SGM = Single job, multi-drive, glass teletype monitor.

QBMNSJ.STM = Single job, multi-drive, TERAk emulator monitor.

QBMNFB.FGM = Foreground/background, multi-drive, glass teletype monitor.

QBMNFB.STM = Foreground/background, multi-drive, TERAk emulator monitor.

Q2BOOT.SAV = QX-QB Transportable bootstrap.

FORMAT.SAV = RT-11 Diskette format utility.

QXMNSJ.SYS = QX single job, multi-drive, glass teletype monitor; provided for QX-QB transportability.

SETSDS.SAV = Single drive-mode utility.

8.2 PASCAL CONVERSION DISK DIRECTORIES

8.2.1 Pascal 1.5 Disk Directory

QB15CVT:

SYSTEM.8510.QB	23	25-Sep-80	6	512	Datafile
SYSTEM.8510.QX	21	27-Apr-79	29	512	Datafile
SYSTEM.CHARSET	5	2-Feb-78	50	512	Datafile
SYSTEM.FILER	32	5-Oct-78	55	512	Codefile
SYSTEM.PASCAL	38	3-Feb-79	87	512	Codefile
QXBOOT	2	20-Sep-80	125	512	Datafile
QBBOOT	2	20-Sep-80	127	512	Datafile
Q2BOOT	2	20-Sep-80	129	512	Datafile
FORMAT.CODE	7	25-Sep-80	131	512	Codefile
STUDENT.8510.QB	23	25-Sep-80	138	512	Datafile
BOOTER.CODE	3	25-Sep-80	161	512	Codefile
< UNUSED >	330		164		

11/11 files<listed/in-dir>, 164 blocks used, 330 unused, 330 in largest

8.2.2 Pascal 2.0 Disk Directory

QB20CVT:

SYSTEM.8510.QB	24	25-Sep-80	6	512	Datafile
SYSTEM.8510.QX	23	11-Aug-80	30	512	Datafile
SYSTEM.CHARSET	5	2-Feb-78	53	512	Datafile
SYSTEM.FILER	28	22-Jul-79	58	512	Codefile
BOOTER.CODE	3	25-Sep-80	86	512	Codefile
SYSTEM.PASCAL	33	25-Mar-80	89	512	Datafile
QXBOOT	2	20-Sep-80	122	512	Datafile
QBBOOT	2	20-Sep-80	124	512	Datafile
Q2BOOT	2	20-Sep-80	126	512	Datafile
DM.8510.QB	22	25-Sep-80	128	512	Datafile
FORMAT.CODE	7	25-May-80	150	512	Codefile
STTK.8510.QB	24	25-Sep-80	157	512	Datafile
STDM.8510.QB	23	25-Sep-80	181	512	Datafile
< UNUSED >	291		203		

13/13 files<listed/in-dir>, 203 blocks used, 291 unused, 291 in largest

SYSTEM.8510.QB = TERAk emulator, QB system.

SYSTEM.8510.QX = TERAk emulator, QX system; provided for transportability.

QXBOOT = Boot code for SYSTEM.8510.QX.

QBBOOT = Boot code for SYSTEM.8510.QB.

Q2BOOT = Boot code for SYSTEM.8510.QB-SYSTEM.8510.QX.

DM.8510.QB = Data media emulator, QB system.

FORMAT.CODE = Pascal diskette format utility.

STTK.8510.QB = TERAk emulator, QB system, student mode.

STDM.8510.QB = Data media emulator, QB system, student mode.



Figure 1-1 Density Labels

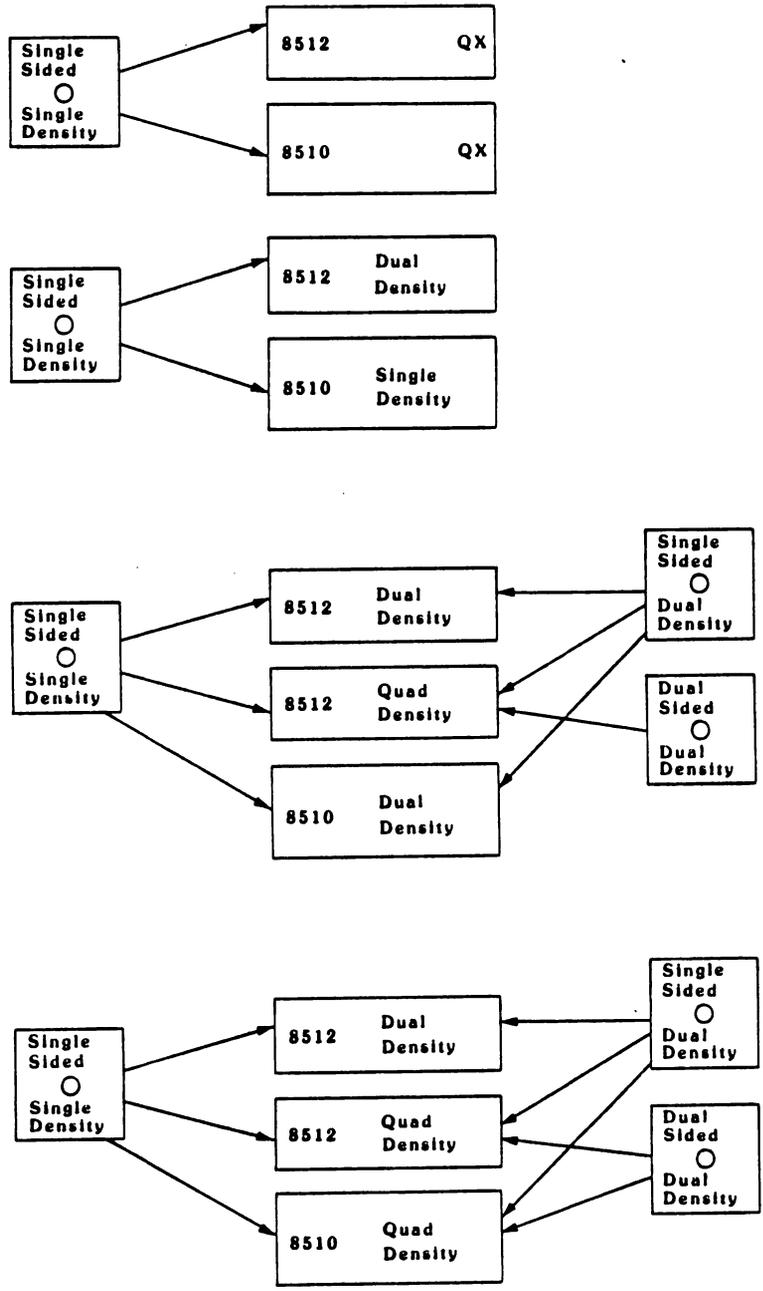
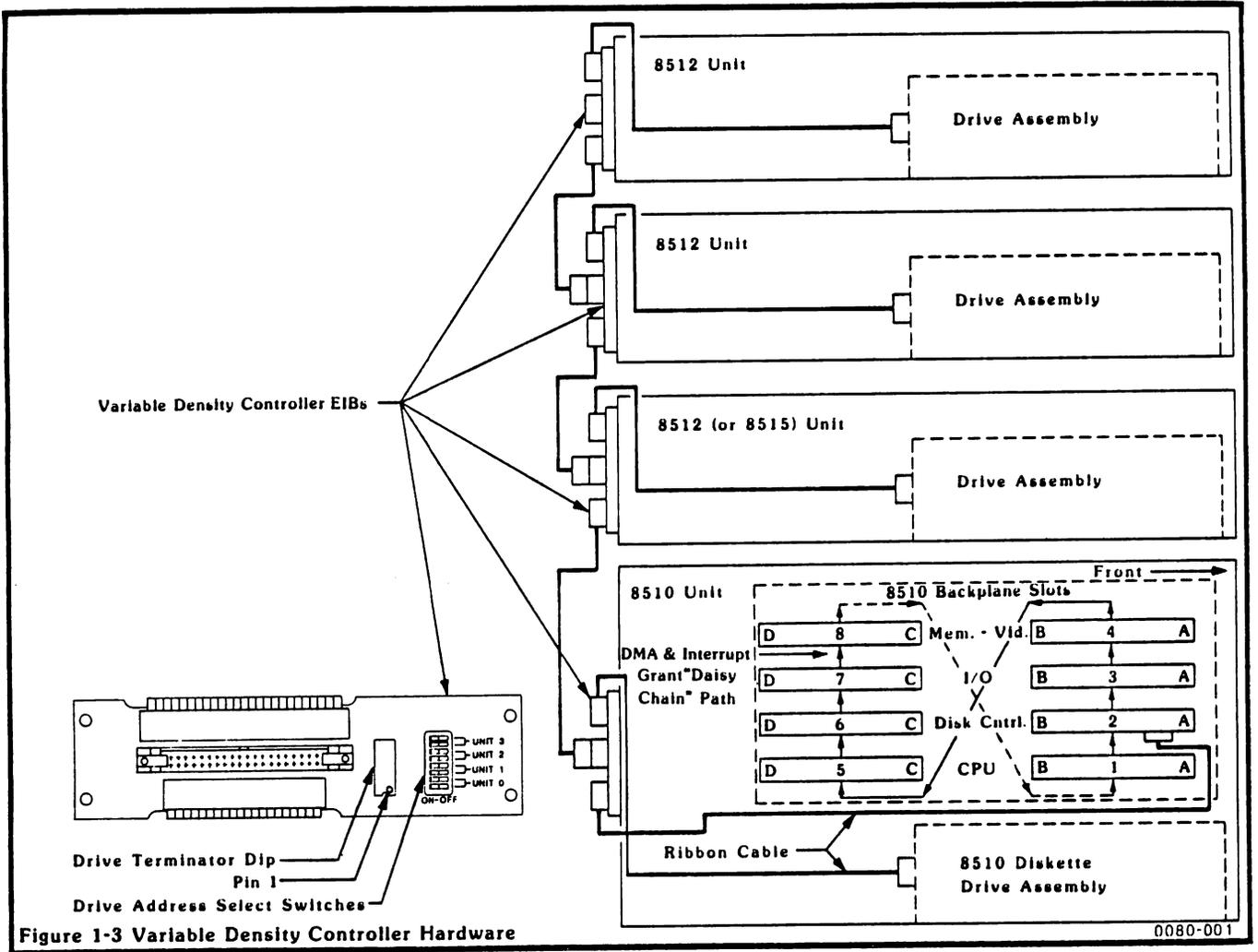


Figure 1-2 Media/Drive Compatibility

0091-001



Diskette No.
terak
3740/2D Diskette
Record Length 512 Bytes
P/N 39-0019-001

Label - Lt Yellow
1.1 M Byte
2 Sides
Double Density
(Index Hole Farther Clockwise)

Diskette No.
terak
3740/1D Diskette
Record Length 512 Bytes
P/N 39-0018-001

Label - Lt Blue
512K Byte
1 Side
Double Density

Diskette No.
terak
3740/1 Diskette
Record Length 128 Bytes
P/N 39-0017-001

Label - White
256K Byte
1 Side
Single Density

Diskette No.
terak
3740
Diskette
P/N 800089

Phasing Out Of Production
Identical To P/N 39-0017-001
Except For - Write Protect Notch
- Label

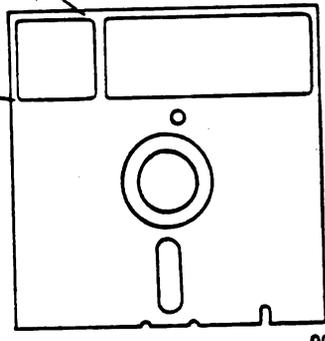


Figure 1-4 Diskette Label Color Coding

0092-001