Pioneer® New Media Technologies, Inc.

DRM-602X and DRM-604X CD-ROM Changers

Software Driver Installation Guide

Owner's Manual

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Introduction

Congratulations on the purchase of your new Pioneer CD-ROM Changer! The unit is packaged with floppy disks that contain device drivers necessary for connecting the Pioneer CD-ROM Changer to an IBM-PC or compatible computer or to a Macintosh computer. The device drivers allow the CD-ROM Changer and the computer to communicate and exchange data. On the next page is a SET UP & DRIVER INSTALLATION OVERVIEW describing the steps to follow as you install the device driver software and begin using your Changer.

Before you proceed, make sure you have fully reviewed the ***Hardware Installation Owner's Guide*** that is included with your Pioneer CD-ROM Changer. The ***Hardware Installation Owner's Guide*** provides safety precautions, system requirements, hardware installation procedures, and other pertinent information.

Also, carefully review the instructions in this manual prior to installing the software device drivers. Here is a synopsis of what you will find in each chapter.

Chapter 1 provides the Introduction to this Manual, a synopsis of subsequent chapters, and a Set Up & Driver Installation Overview.

Chapter 2 provides Pre-Installation Notes. This section recommends that you back-up the driver diskettes. It also explains conventions used in the manual and provides some tips for IBM-PC and Compatible computer users: Make sure your SCSI host adapter (interface card) supports Multiple LUNs; Refer to Context-Sensitive ON-LINE Help during installation of drivers under DOS or Windows; Selection methods.

Chapter 3 provides an IBM-PC and Compatibles Driver Diskette Inspection Checklist; describes Quick Installation; Operations Check; Custom Installation Options; Installing more than one Pioneer CD-ROM Changer and using XDISC; Using the MPC utility included on the driver diskette.

Chapter 4 describes the Macintosh Driver Installation Process: Installation Overview; Inspection Checklist; Quick Installation; Operations Check; Other Installation Options/ Installing more than one Pioneer CD-ROM Changer; Using the CLD ACCESS ROM Controller and the Menu icon; Using CLD REMOTE.

Chapter 5 provides information about Special Issues such as Third Party Device Drivers; Networking; Maximizing Performance; Audio on CD-ROMs; Compressed Audio and Digital Audio; Sound Cards; Kodak Photo CDs.

Chapter 6 is Questions and Answers.

Set-Up & Driver Installation Overview

1) Install a SCSI host adapter (interface card) in the IBM PC or compatible computer, as per instructions from interface card Manufacturer and in ***Hardware Install Owner's Guide***. **NOTE:** The Macintosh has a built in SCSI port.

2) With the power turned OFF on both the computer and the CD-ROM Changer, attach the proper SCSI cable, connecting the two machines.

3) Set the SCSI ID number on the CD-ROM Changer. When it is the only device attached to an IBM or compatible computer, the factory-set SCSI ID at 0 should work just fine. Otherwise, set the SCSI ID to a number that is not used by any other device on the SCSI bus. **NOTE:** The Pioneer Installer for IBM-PC and compatibles will automatically search the SCSI bus and indicate the proper SCSI ID number, unless you over-ride this feature. See Chapter 3, page 3-14 for details. When connecting the Pioneer CD-ROM changer to a Macintosh, select a SCSI ID number between 1 & 6.

5) Power-ON the computer and back-up the driver diskettes included with the Pioneer CD-ROM Changer.

4) Power-ON the Pioneer CD-ROM Changer.

6) Launch the Installer program included on the driver diskette. This will offer you a few simple options, then install the drivers. See Chapters 3 & 4 for details.

8) Reboot your computer. Follow the "Operations Check" for IBM-PC and compatibles or for Macintosh. If you encounter any difficulties, refer to Troubleshooting Appendices at the back of this manual.

9) You are ready to use your Pioneer CD-ROM Changer. See page 3-9 for IBM-PC and compatibles, see pages 4-6 and 4-7 for Macintosh.

****

IBM PC/XT/AT/386 User's, refer to the
Chapter 3 for installation instructions.

Macintosh User's, refer to
Chapter 4 for installation instructions.

Pre-Installation Notes

Back Up Diskettes

The license agreement that is enclosed with your Pioneer product allows you to make a backup of the driver diskettes, in case your originals become lost, damaged or corrupted. We strongly recommend that you take this precautionary step before you proceed with the installation of your software device drivers.

Your DOS operating system comes with a utility such as a [DISKCOPY] and/or [COPY] command which you can use to make a duplicate disk. Follow the instructions in your DOS manual. If you have a Macintosh, simply copy the files to a back up floppy. Once the files have been backed up, it's a good idea to date and label the disk.

IBM-PC & Compatible Users, Check SCSI Host Adapter

Make sure the SCSI host adapter (interface card) you are using supports multiple LUNs (Logical Unit Numbers). A Logical Unit Number is an address assignment which allocates a separate drive letter to each of the 6 CD-ROM discs.

Example:

Floppy Drives	=	Drive Letters A and B
Hard Drive	=	Drive Letter C
CD-ROM Discs	=	Letters D,E,F,G,H, & I

Most SCSI host adapters do support multiple LUNs, but we recommend you check the card's documentation or call the manufacturer to verify that your interface card will meet this requirement.

On-Line Help for IBM-PC & Compatible INSTALLATION

The Pioneer IBM-PC DOS/WINDOWS installation software has an On-Line Help feature available from all of the installation menus. This Help feature can be accessed at any time by pressing the [F1] key. On-Line Help is context-sensitive, so the Help Dialog Box that appears after pressing [F1] is directly related to the item highlighted at the time you press the [F1] key. Abbreviated Help information appears in the bar at the bottom of the screen.

Figure 1 - DOS/WINDOWS Installer: Accessing On-Line Help

For example, if you press [F1] when the highlight bar is on the QUICK INSTALL line, the Help screen in **Figure 2** will appear:

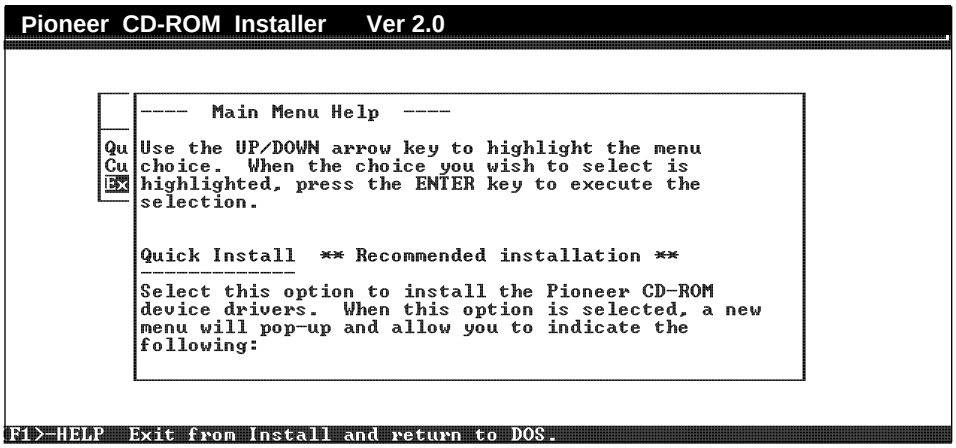


Figure 2 - DOS/WINDOWS Installer: On-Line Help Screen

Selection methods for IBM-PC & compatible users

The table below indicates how to select/deselect menu options and how to move around in the installation screens when installing the IBM-PC DOS/Windows drivers:

Action	**Key Stroke**
Move to another Menu	Use the Up ↑ and Down ↓ Arrow Keys or the [TAB] for selection Down [SHIFT-TAB] for Up until the correct menu selection becomes highlighted. You can also roll the mouse until the cursor appears on the line you wish to change, then click the left mouse button. Go back one Menu screen Press the "Esc" key or click the right mouse button.
Edit a Menu selection	There are four ways to edit a menu item: 1. Press the [GREY +] sign on the keyboard number pad. 2. Press the [SPACE BAR] then type the new entry. 3. Press the [INS] key then type the new information. 4. If you're using a mouse, with the cursor over the selection you wish to change, Click the left mouse button then type in the new information.
Using the Mouse to make a Menu Selection	Click or Double Click
Confirm the Menu Selection	Moving to the next line using the Down ↓ arrow key will confirm your selection.
Bring up an adjacent menu	Press the [SPACE BAR] or press the [F3] key.
Confirm an Adjacent Menu selection	Press [ENTER].
Return to DOS	Select "Exit" from the Installation Menu
[F3]	Accesses the Help Screens for currently highlighted item. (See page 2-2 for details about using On-Line Help.)

Conventions used in this manual

This Installation Guide uses the following conventions to help you interpret and follow the information provided as you install and use the device driver software:

Characteristic and/or Key	Comment / Definition
Bold Type	Bold type represents a command which you must type. To carry out a command, type the bold-faced word(s) then press [ENTER]. Example: If you are instructed to type **A:**, type the A, type the : (colon) then press the [ENTER] key.
[ ] Square brackets	Square brackets are used to surround keys which you must press. DO NOT type the square brackets.
Function Keys	Function keys which you must press appear in "non-bold faced" text, in square brackets. Example: Pressing the [F3] key will bring up an adjacent menu.
Italics ***Bold Italics***	Italics are used to emphasize a point. Bold Italics are used when referencing another section in this book or the ***Hardware Installation Guide***.
SMALL CAPS BOLD	**SMALL CAPS** in bold are used to indicate Menu Titles.
ALL CAPS NO BOLD	All Caps, without bold-faced print, indicate a menu selection to be made.
[ENTER]	"Press [ENTER]" means that you must press the ENTER key to confirm a menu selection. Some instructions in this manual do not tell you to "Press" ENTER, they simply state [ENTER]. In those instances, the word "Press" is understood.
✓	The check mark is used to indicate a helpful hint or to note additional and pertinent information.

DOS /WINDOWS device driver installation Inspection Checklist / PC

Pioneer® Changers are packaged with a floppy disk containing software device drivers and the MSCDEX file for IBM-PC and compatible computers. The disk also contains an Installation program, Installation Help file, a file to load and remove the MPC control utility and XDISC, a program that allows assignment of one drive letter to each daisy-chained drive. Before you proceed with the installation, verify that you have the necessary files on the diskette:

Step 1: Exit your current computer application and go to the DOS prompt.
Step 2: Insert the diskette into the "A" or "B" drive, depending on your system configuration;
Step 3: Type: **DIR A:** or **DIR B:** indicating the drive where the diskette has been inserted and press [ENTER]. C:>**DIR A:**

The following file names should be listed on the screen:

1. INSTALL.EXE
2. MSCDEX.EXE
3. DRD600.SYS
4. DRD60PS.SYS
5. DRD60ASP.SYS
6. INSTALL.CWA
7. INSTALL.HLP
8. MPC.COM
9. MPCRMV.COM
10. README.DOC
11. XDISC.EXE

If your disk does not contain all of the files listed above, please contact your Authorized Pioneer Dealer or call the Pioneer Bulletin Board System using your computer, modem and computer software to obtain current drivers. (See ***Appendix F, Pioneer Technical Resource Numbers*** for Pioneer BBS number.)

After you've verified the contents of the disk, proceed to the next page for QUICK INSTALLATION instructions.

Quick Installation

Installing software drivers so you can use your Pioneer CD-ROm Changer with your computer is easy! This flow chart details the installation process. If you are installing from the DOS prompt, follow the DOS instruction path on the left side of the chart. If you are installing from WINDOWS, follow the path on the right.

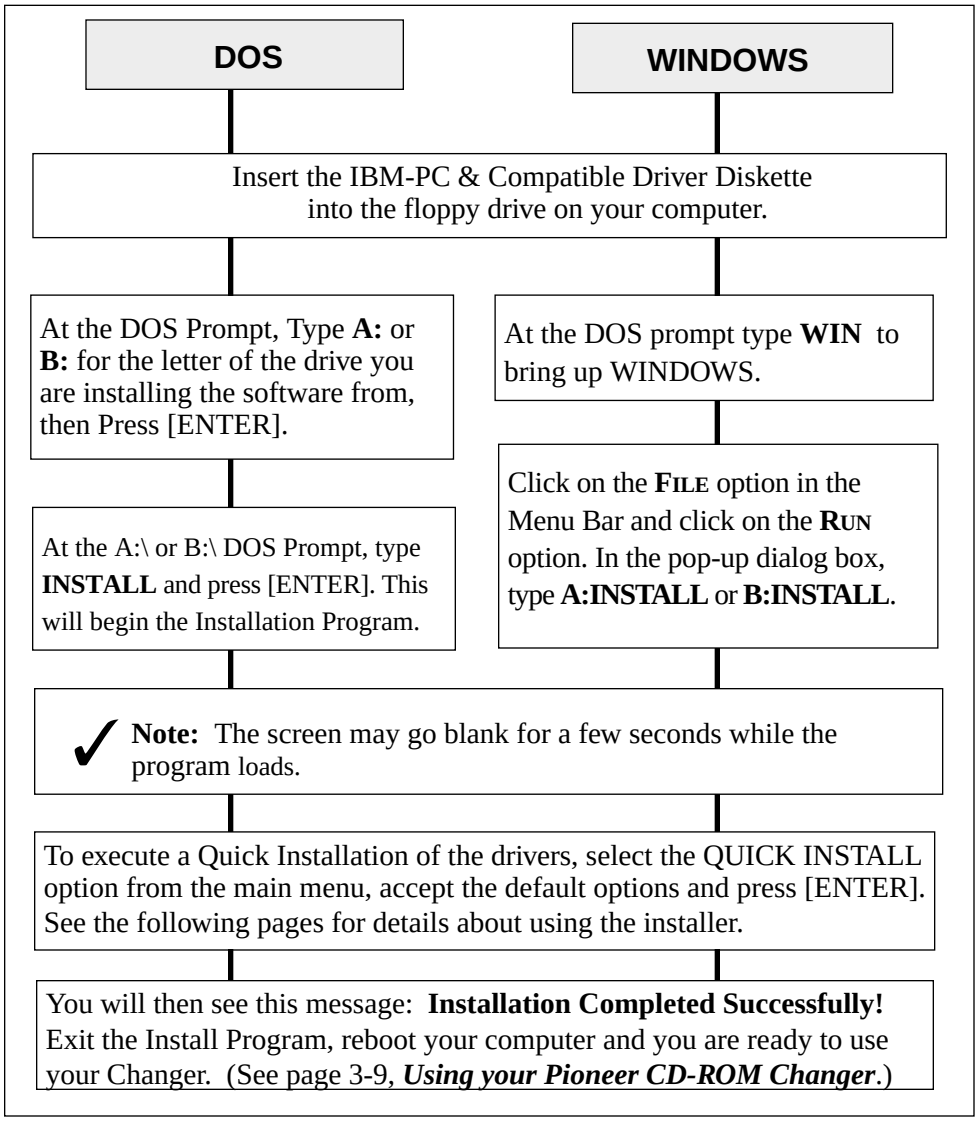


Figure 3 - DOS/WINDOWS - Quick Install Process

Figure 4 - DOS/WINDOWS Installer: Main Menu

Click on QUICK INSTALL to bring up the QUICK INSTALL Parameters.

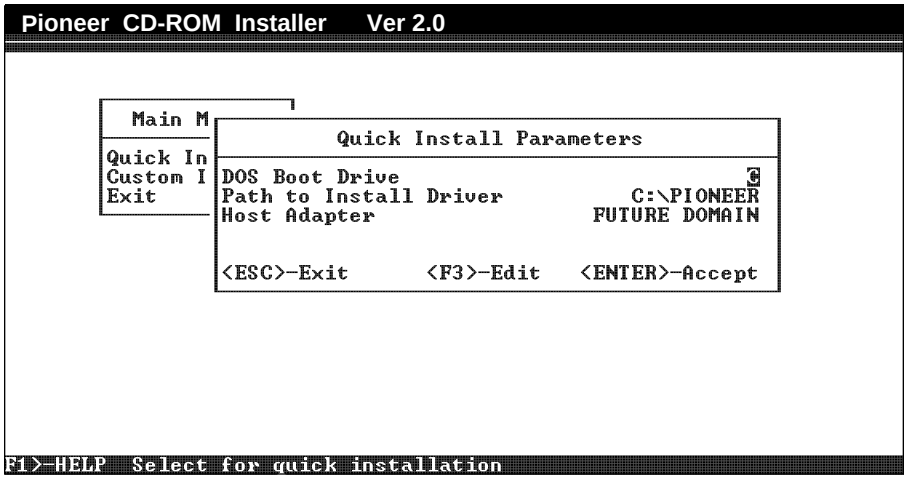


Figure 5 - DOS/WINDOWS - Quick Install Default Settings

The QUICK INSTALL parameters pop-up as an adjacent menu, as illustrated below:

✓ **NOTE:** An Auto SCSI ID Search is built into the installation program. This searches the SCSI bus and automatically identifies the SCSI ID number set on the Changer.

These default settings are suitable for most computer configurations. If you need to change the settings, refer to the QUICK INSTALL Parameters on page 3-5. If you choose to over-ride the Auto SCSI ID Search feature using the Custom Install options, make sure the SCSI ID number selected in the Custom Install matches the number indicated on the back of the Pioneer CD-ROM Changer.

Quick Install Parameters

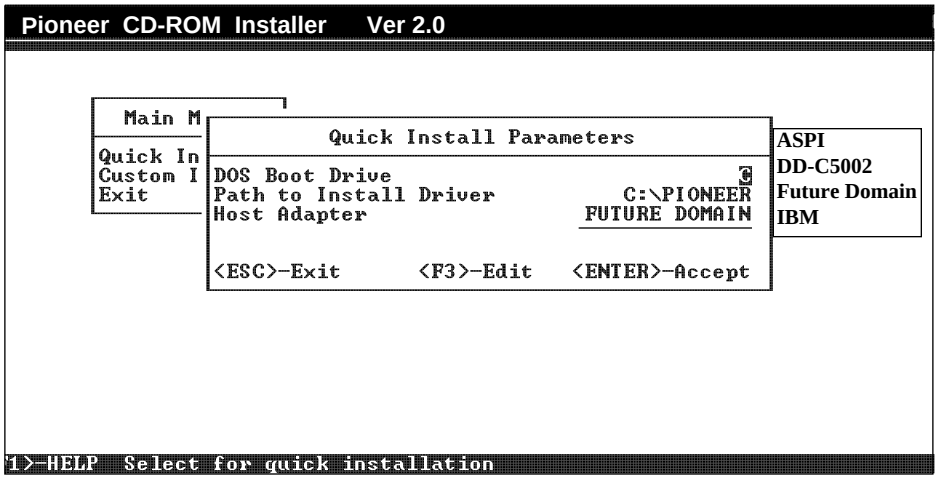


Figure 6 - DOS/WINDOWS - Select SCSI Host Adapter

The default settings work well with most computer configurations. Most basic changes can be made by modifying the Quick Install Parameters, as described below:

Boot Drive - The drive from which MS DOS will boot.
The default DOS boot drive is C. To change the drive letter, highlight the menu selection for the DOS BOOT DRIVE, press the [F3] key to edit, type in the replacement drive letter and press the [ENTER] key.

Path - The directory path indicating where all the driver files will be copied. The default path is C:\PIONEER. To change the path, highlight the menu selection for PATH TO INSTALL DRIVER, press the [F3] key to edit and then type in the replacement path name.

SCSI host adapter - Indicates the adapter to which the CD-ROM Changer is connected. The default setting for the SCSI host adapter is Future Domain. Either

Indicate the SCSI Host Adapter you have installed

If you are using a Future Domain SCSI Host Adapter, accept the default setting: **Future Domain** is highlighted. Press [ENTER].

If you are not using a Future Domain SCSI Host Adapter, press the [F3] key to bring up the adjacent menu and then, select the name of the host adapter (interface card) you are using, **ASPI , DD-C5002, Future Domain, or IBM**. **NOTE:** ASPI refers to ASPI compatible cards, such as Adaptec, etc.

Keyboard
Use the Up and Down arrow keys to highlight your selection then press [ENTER] to confirm.

Mouse
Click on the selection with the mouse. Double Click to accept, or press [ENTER].

✓ **Note:** If you are using an ASPI Compatible host adapter, make sure you *first* load the ASPI Manager provided by the card manufacturer. This software must be loaded BEFORE the Pioneer drivers.

Figure 7 - Select Correct SCSI Host Adapter / Overview

accept the default selection or Press [F3] to bring up the adjacent menu that allows you to select a different host adapter. Use the UP or DOWN arrow keys, or a mouse to indicate the kind of SCSI host adapter you are using. See **Figure 6**.

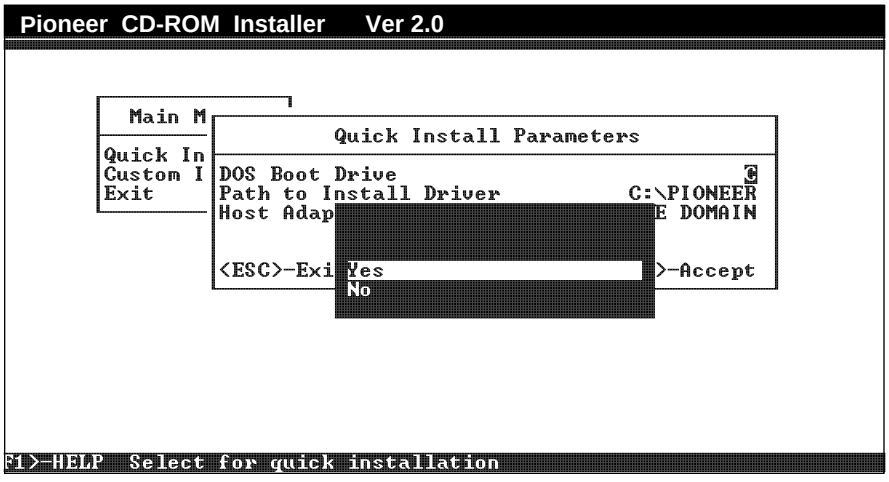
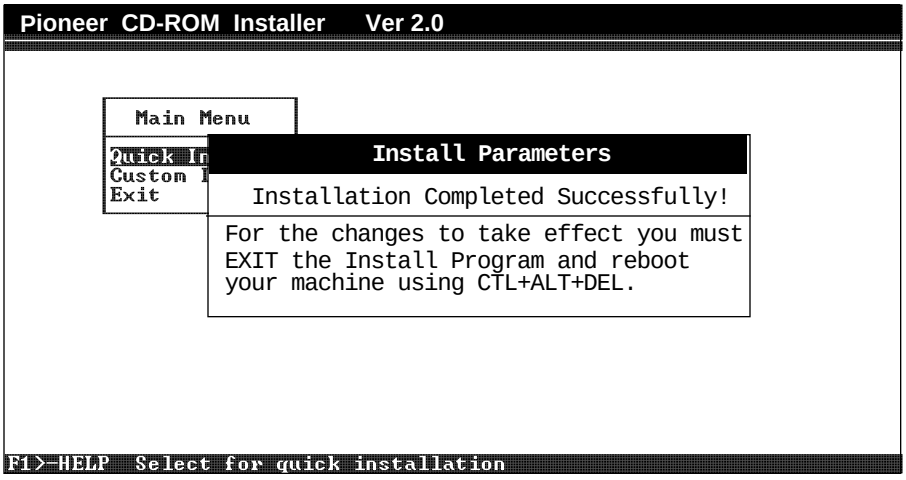


Figure 8 - DOS/WINDOWS Installer: To Begin Installation

To accept the QUICK INSTALL Parameters press the [ENTER] key from anywhere in the menu, or click on **<ENTER>-Accept** in the lower right corner of the menu. Then, the following screen will pop-up:

If you are not satisfied with the options you chose, select NO. Then press the [Esc] key to go back one menu at a time. If you are satisfied with the options,



select YES to start the installation. To abandon the installation, select EXIT, at the main menu.

After you select YES, the installation process will begin. While the program is installing the necessary files, a screen with “PLEASE WAIT” will blink.

Once the installation is complete, the following Dialog Box will appear:

Figure 9 - DOS/WINDOWS Installer: Installation Complete

To exit the installation program, follow these steps:

1: Press the [ESC] key twice to return to the main menu.

2: Press the Down arrow key to move to the EXIT menu

selection and press [ENTER].

This Completes the Quick Installation

Note: If you choose CUSTOM INSTALL, you must still return to QUICK

```
PIONEER CD-ROM DEVICE DRIVER VER x.xx
for MSCDEX Ver. x.xx - IBM PC-XT/AT/AX PS/2/55, Future Domain
Copyright (c) Pioneer Electronic Corporation. 1990-1994
Portion (c) 1986-1994 Future Domain Corporation
        Inquiry ID=0 : PIONEER CD-ROM DRM-600 2404

The LDP/CDP Device Driver for SCSI model  Ver. 1.03
Copyright (c) Pioneer Electronic Corporation. 1990,1991

C:\>DOS\MSCDEX.EXE /D:MSCD000 /D:MSCD000 /E /M:4
MSCDEX Version 2.23
Copyright (C) Microsoft Corp. 1986-1993. All rights reserved.
                Drive E: =      Drive MSCD000 unit 0
                Drive F: =      Drive MSCD000 unit 1
                Drive G:=       Drive MSCD000 unit 2
                Drive H:=       Drive MSCD000 unit 3
                Drive I: =      Drive MSCD000 unit 4
                Drive J:=       Drive MSCD000 unit 5
```

Figure 10 - DOS/WINDOWS - Operations Check on Boot-Up

✓ **NOTE:** If the messages scroll by too quickly to read, you can pause the screen by quickly pressing [CTRL + S]. To continue with the boot up, press any key.

✓ **NOTE:** If you performed a QUICK INSTALLATION, the Installation program will begin with the first available letter on your system. Drive Letter E is often selected as your beginning drive letter. Under CUSTOM INSTALL, you can select a different starting drive letter.

✓ **NOTE:** Depending on your specific computer configuration, additional lines may be interspersed and some of the lines in the Operations Check Screen may vary from those described above.

Using Your Pioneer CD-ROM Changer

You are now ready to use the Pioneer CD-ROM Changer connected to your computer system.

For use under DOS follow the instructions shown on the left side of the chart. For use under WINDOWS, follow the instructions on the right:

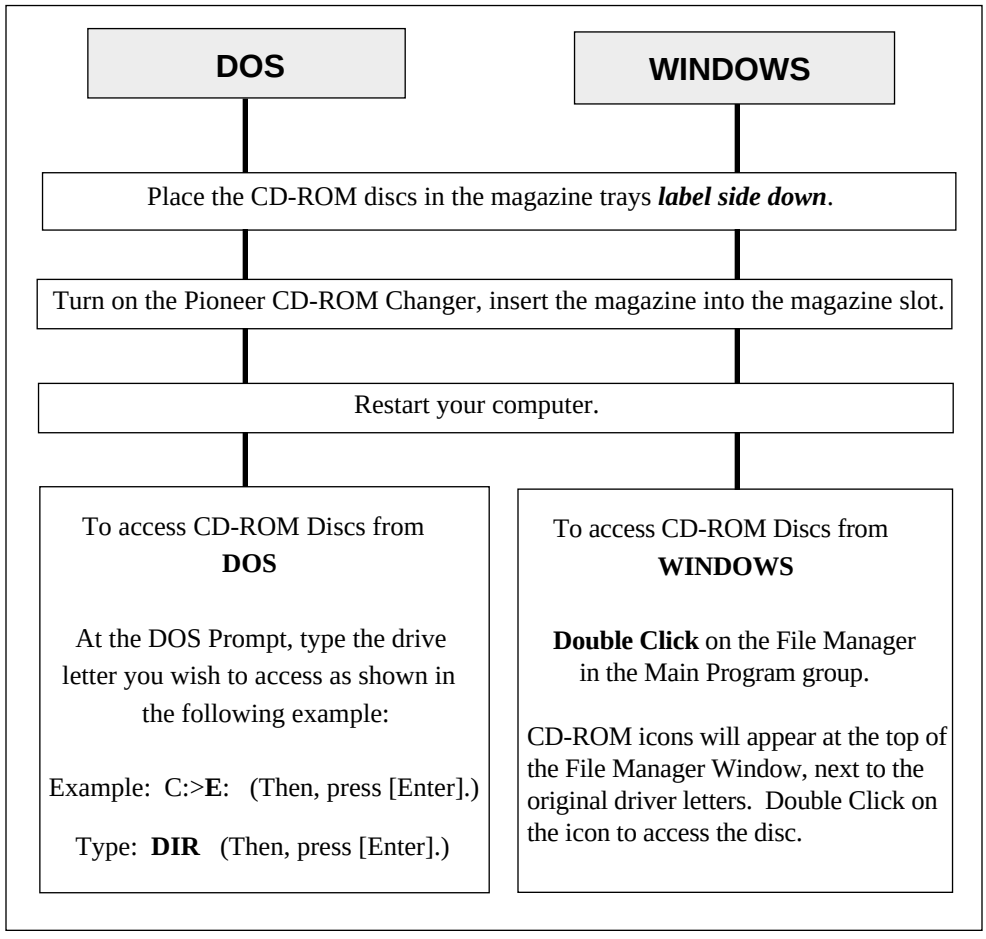


Figure 11 - DOS/WINDOWS - Using the Pioneer CD-ROM Changer

Custom Installation Options

Select CUSTOM INSTALL if you are installing two Pioneer Changers in a daisy-chained configuration, or if you want to indicate some specific changes to the driver to complement your specific system configuration. **NOTE:** You must return to QUICK INSTALL, indicate the type of host adapter you are using, then select INSTALL to complete a CUSTOM INSTALLATION.

Custom Settings

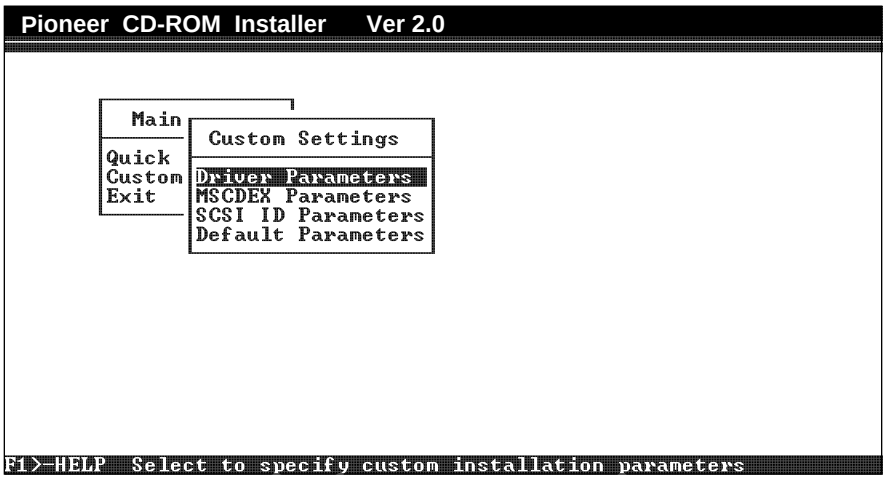


Figure 12 - DOS/WINDOWS Installer: Custom Settings Menu

Device Driver Parameters

This menu allows you to indicate the MSCDEX label name, Use EMS memory or Install Pioneer CDP support. (See page 3-10 for details.)

MSCDEX Parameters

The menu allows you to select MSCDEX parameters. (See pg. 3-11 for details)

SCSI ID Parameters

This menu allows you to over-ride the Auto Search capability of the Install program and indicate SCSI ID numbers for up to two drives.

Default Parameters

If you make any changes that you are not sure you want to include, select this option and all Custom Settings will be returned to their defaults. When the settings are returned to their defaults, the program returns to QUICK INSTALL. From there you have the option of installing or returning to the main menu to EXIT.

Device Driver Parameters

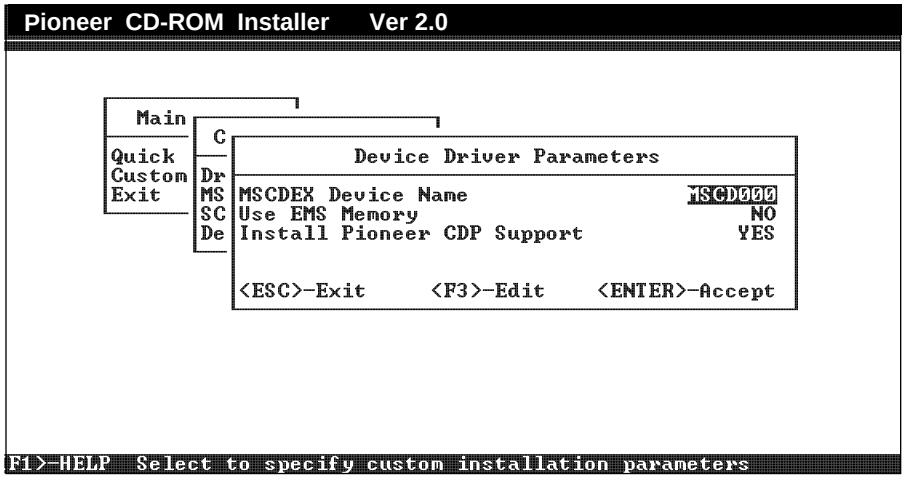


Figure 13 - DOS/WINDOWS - Driver Parameters Menu

MSCDEX Device Name

This is the label that will be declared in both the MSCDEX Device Driver line in the AUTOEXEC.BAT and the Pioneer Device Driver line in the CONFIG.SYS. The label name must match in both files.

Use EMS Memory

The drivers and MSCDEX can be loaded into Expanded memory by selecting this option. This will be indicated by the /E switch found in the device driver line of the CONFIG.SYS and in the MSCDEX driver line of the AUTOEXEC.BAT. See ***Appendix C*** for details: Driver Command Line Switches and MSCDEX Command Line Switches. If the computer does not have expanded memory, the drivers are loaded into conventional memory.

NOTE: If you are using a memory manager, you may need to reconfigure it after installation unless you switch the EMS Memory option to "NO".

Install Pioneer CDP Support

Installing this option allows the player to be controlled by CD Player Commands, See ***Appendix D***.

MSCDEX Parameters

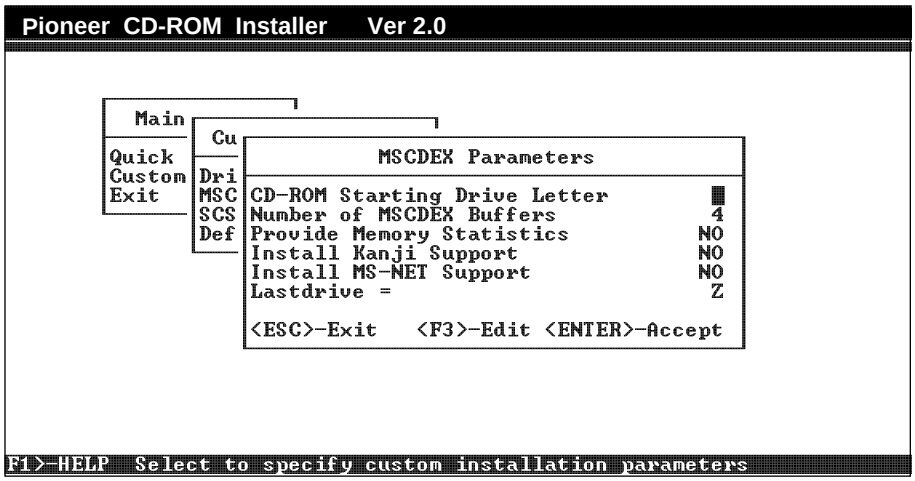


Figure 14 - DOS/WINDOWS - MSCDEX Parameters Menu

CD-ROM starting drive letter

This option allows you to indicate any letter after the hard drives, hard drive partitions, or network volumes as the starting drive letter for the individual discs in the Pioneer CD-ROM Changer. This letter is reflected in the /L: switch where the first drive letter for the CD-ROM discs in the individual trays is defined. For example: /L:H.

Number of MSCDEX Buffers

This sets the buffer size (caching) for each driver letter. Each buffer uses 2K of memory.

Provide Memory Statistics

Provides memory usage statistics on how much memory is used by buffers, memory resident code, and resident data.

Install Kanji Support

Tells MSCDEX to use Kanji file structures, if present.

Install MS-NET Support

Tells MSCDEX to patch DOS to allow sharing of CD-ROM drives on MS-NET based networks.

Last Drive =

Indicates the final drive letter to be installed. The default is Z.

SCSI ID Parameters

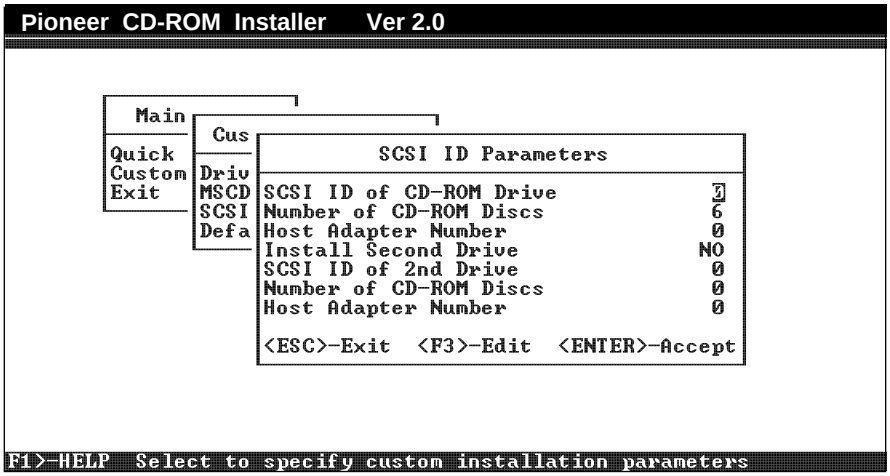


Figure 15 - DOS/WINDOWS - SCSI ID Parameters Menu

SCSI ID of Drive

This indicates the the SCSI ID of the first drive. (0-6). **NOTE:** Make sure the SCSI ID number entered here matches the number set on the back of the Changer.

Number of CD-ROM Discs in 1st Drive

This indicates the maximum number of discs you will be accessing in the first, drive. The default is 6.

Host Adapter Number

This indicates the the ID of a host adapter to which the first Changer is attached.

SCSI ID of 2nd Drive

This indicates the SCSI ID of a second, daisy-chained Changer. (0-6.) **NOTE:** Make sure this is different from the number of the first CD-ROM Drive on the SCSI chain and that it matches the number set on the back of the second Pioneer Changer on the SCSI chain.

Number of Discs in 2nd Drive

This indicates the maximum number of discs you will be accessing in a second, daisy-chained Changer. The default is 6.

Host Adapter Number

This indicates the the ID of a host adapter to which a second drive may be attached.

Notice – Changes Not Saved

This dialog box will appear whenever you select Custom Install, change some of the parameter settings, and then decide not to save them. It is basically warning you that the changes have not been saved and the default settings have been retained. When you press [ESC] you will be returned to the Main Menu, with QUICK INSTALL highlighted.

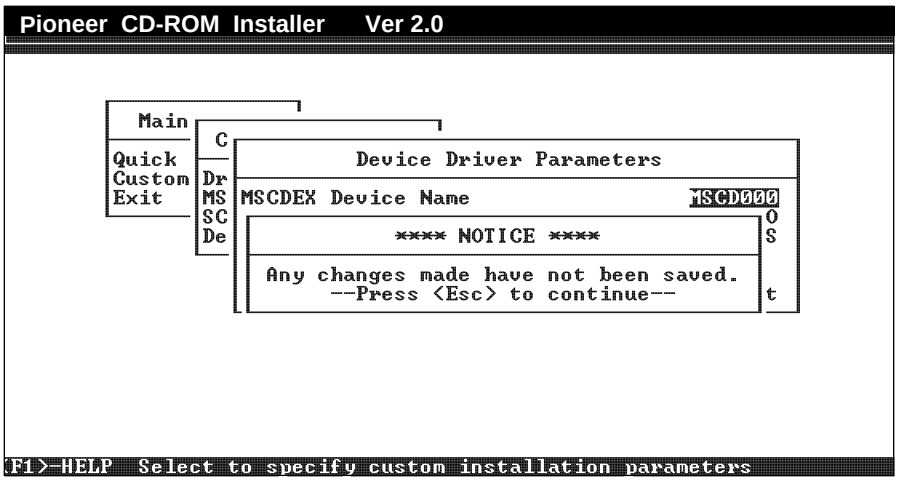


Figure 16 - DOS/WINDOWS - NOTICE Changes Not Saved

Installing More Than One Pioneer CD-ROM Drive

Installing Two Pioneer CD-ROM Changers on one SCSI Chain

Two Pioneer Changers can be installed on one SCSI chain by using the Pioneer device drivers for IBM-PCs and compatibles that ship with the unit. Use a Centronic 50 Pin SCSI cable to connect the two drives. Make sure the drive in the middle of the chain is not terminated and the last drive is terminated. Assign each drive it's own specific SCSI ID number. Then select CUSTOM INSTALL and indicate the SCSI ID numbers of each drive and the number of discs to be accessed by each drive.

You can also enter the SCSI ID numbers of the two units into the Pioneer Device Driver line in the CONFIG.SYS with the **/S:** switch as indicated in the example below. Also, the **/N:** switch must be placed into this line to indicate the number of discs (1-6) to access in each unit.

DEVICE = C:\DEV\DRD600.SYS /D:MSCD000 /N:6,6 /S:0,1 /C:CDP

Installing Three Pioneer CD-ROM Changers on one SCSI Chain

Three or more Changers can be installed on one SCSI chain by editing the Pioneer Device Driver line in the CONFIG.SYS to add an **/S:** switch and an **/N:** switch. The **/S:** switch indicates the SCSI ID number of each Changer installed on the SCSI chain. The **/N:** switch indicates the number of discs in each specific Changer. See example below:

DEVICE= C:\DEV\DRD600.SYS /D:MSCD000 /N: 1,3,6,6 /S:0,1,2,3 /C:CDP

In the Changer with ID 0, one disc, represented by single drive letter, is accessible;
In the Changer with ID 1, three discs, represented by three drive letters are accessible;
In the Changer with ID 2, six discs, represented by six drive letters are accessible;
In the Changer with ID 3, six discs, represented by six drive letters are accessible.

NOTE: For the example above, drive letters d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s will be used. ***Total number of drive letters within the system cannot exceed 24***. If you decide to assign an individual drive letter to all six discs within each changer, you will be limited to three units on one SCSI Chain. To access all six discs in up to seven Pioneer CD-ROM Changers, use the **XDISC** utility, described below.

Use a Centronic 50 Pin SCSI cable to connect the third drive to the second drive on the SCSI Chain, and so forth. Terminate the last changer on the SCSI chain and do not terminate those in the middle of the chain. See ***Hardware Installation Guide*** for more information about daisy chaining Pioneer CD-ROM Changers. Assign each Changer on the SCSI chain its own specific SCSI ID.

Using XDisc to Assign Single Drive Letters to Each Changer

A special utility, XDISC.EXE, is included on the Pioneer Driver Diskette. If you edit the CONFIG.SYS file and then launch XDISC one drive letter will be assigned for each Pioneer CD-ROM Changer installed on the SCSI Chain. **NOTE:** Although XDISC can designate up to 8 separate drive letters, a maximum of seven units can be installed on the SCSI bus.

First, edit the CONFIG.SYS Pioneer Device Driver line so it includes an **/S:** switch indicating the SCSI ID numbers of each drive installed, and an **/N**: switch, set to 0 for each drive you want to install. See example below:

DEVICE= C:\DEV\DRD600.SYS /D:MSCD000 /N: 0,0,0,0 /S:0,1,2,3 /C:CDP

Using XDisc (cont.)

Then, activate XDISC by typing **C:\PIONEER\XDISC**. Once XDISC is launched, type **XDISC** (space) **E** (space) **3** to access the third disc in the changer assigned drive letter "E". **NOTE:** Drive letters are assigned the next available letter after the hard drive, floppy drives, etc. **NOTE:** Do not set 0 and other numbers together as /N: settings. To use **XDISC** the /N: switch must be set to all 0s.

Multi Player Control (MPC) Program

MPC for DOS

The Multi Player Control v 1.2 is a memory resident "audio" remote control program for the Pioneer CD-ROM Changer. Multi Player Control operates the Pioneer CD-ROM Changer as a CD Player during execution of most programs on a PC. Multi Player Control consists of one file to make it resident in memory and another program to remove it from memory. Use **MPC.COM** to install Multi Player Control Program and use **MPCRMV.COM** to remove it from memory.

Install it by typing **C:\ Pioneer\MPC.COM.** Once it is installed you can bring it up with the <ALT+ HYPHEN> keys at any time. From within this program you can select the disc, track number, instruct the unit to play, pause, or eject the disc, and you can turn the volume up or down. Use the arrow key to select functions, and press the space key or enter key to execute a selected function. Use the <ESC> key to close the MPC window. Type **C:\ Pioneer\MPCRMV.COM** to remove the program**.**

You can also send direct commands to the player from within MPC. Select the Command function to make the command window pop up. Then type a specific mnemonic command string such as TR3SEPL <CR> Carriage Return. This will search to TRACK 3, and PLAY. Or send the command 1KL <CR> to turn Key Lock ON and disable the eject button on the front of the player. Or send 0KL <CR> to turn Key Lock OFF. The player will send back an "R" indicating it received and executed the command. See ***Appendix D*** for a complete list of CDP commands to control the CD-ROM Changer.

Calling MPC within Windows

This program can also be used in Windows. Run the Program Manager and open the MS-DOS Prompt icon. Read instructions and press <ALT+ENTER> to open a DOS window within Windows. This window can be moved and made smaller. Within that Window, press <ALT+ HYPHEN> to bring up MPC. Press <ESC> at any point to put MPC away. Type [**EXIT]** to return to Windows.

MPC for DOS Error Message:

"Device Driver Not installed. MPC Program is not resident"

MPC.COM will not install if the device driver is not installed or if the **/C:CDP** switch has not been included in the Pioneer device driver line. Check the Pioneer device driver line in the CONFIG.SYS to make sure that the Pioneer driver has been loaded and make sure the /C:CDP switch is at the end of the device driver line. Install the driver if it has not been installed, and/or type in **/C:CDP at the end of the device driver line,** if it is missing.

Failure to Remove MPC Program

If, for some reason, the MPC program is not removed When you type C:**Pioneer\MPCRMV.COM**, don't worry. The next time you boot up our machine it will not appear.

Macintosh Driver Installation
Inspection Checklist / Installation Overview

Insert the 3.5" PIONEER Macintosh diskette that ships with the Pioneer CD-ROM Changer into the floppy drive of your Macintosh Computer. Double click on the PIONEER diskette icon. You will see these icons:

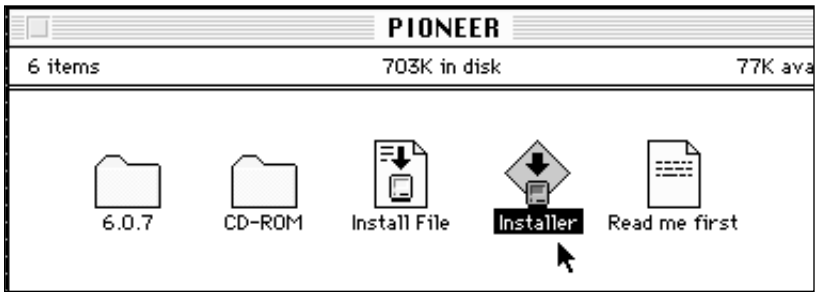


Figure 17 - Macintosh Installation Diskette

NOTE: The **CD-ROM Folder** contains: CLD Access, Apple CD-ROM, CLD Remote, CLD Remote Read Me, Foreign File Access, Audio CD Access, ISO 9660 File Access, High Sierra File Access and Apple CD-ROM driver v 5.0.1. ***Do not remove any of the files from this folder.*** Follow instructions for installation for System 7.0 and above on page 4-3. Leave all of the files in these folders, so the installer can run properly. The **6.0.7 Folder** contains only CLD Access 1.2. To install drivers for System 6.0.7 and below see pg 4-4.

With SYSTEM 7.0 and Above

Double click on the Installer to automatically install the required files into System 7.0 or above. Files required are contained in **CD-ROM Folder**. This complete folder must be present on the diskette, for a successful installation. See next page.

With SYSTEM 6.0.7 and Below

If you are running System 6.0.7 or below, double click on the **6.0.7 Folder.** Click on the file "CLD Access 1.2" and drag it into the **System Folder**. Open the **CD-ROM Folder** by double clicking on it. Then highlight these four files by clicking on them and holding down the SHIFT key: Foreign File Access, Audio CD Access, ISO 9660 File Access, High Sierra File Access. Drag these four files into the **System Folder**. Power-ON the Pioneer CD-ROM drive and then Power-ON the Macintosh. Access a CD-ROM disc mounted on the desktop by double clicking on its icon. For details see page 4-4.

Quick Installation for System 7.0 and above

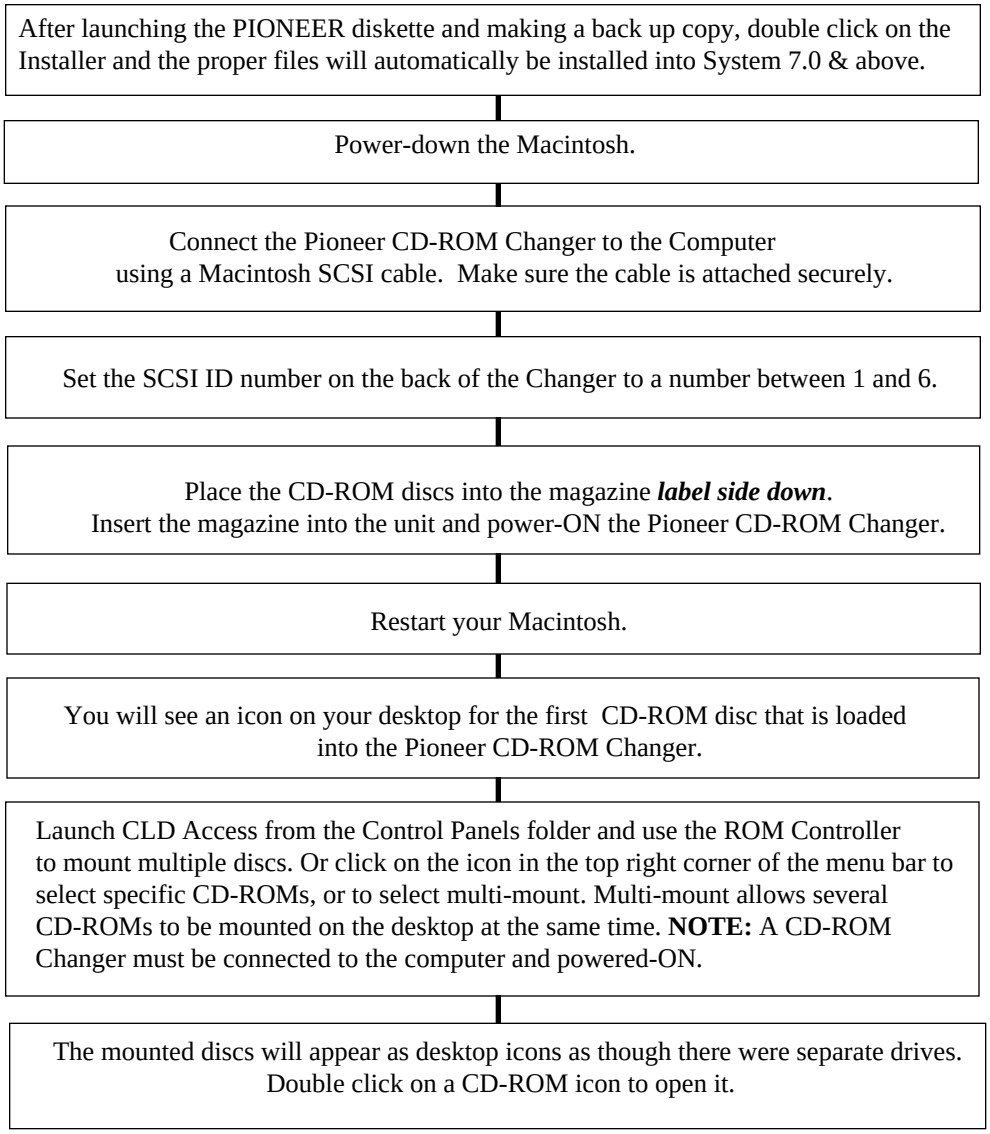


Figure 18 - MACINTOSH - System 7.0 and above QUICK INSTALL

✓ **NOTE:** Updates to the drivers may mean that different files will be on the diskette you receive with your Pioneer CD-ROM Drive. You can download the most recent version of the Macintosh Drivers, file CDROMXX.CPT, from the Pioneer Bulletin Board. See ***Appendix F***, ***Pioneer Technical Resource Numbers***.

Using the Installer with System 7.0 and Above

Launch the installer that ships with the diskette to automatically install the drivers and files that are needed by the Macintosh to communicate with the Pioneer CD-ROM Changer. **NOTE:** Remove all virus protection software or other INITs that may conflict from your **System Folder** while you are installing the Pioneer drivers. Don't forget to replace them in the **System Folder** after installation of the Pioneer drivers is complete. You will see this screen when you launch the installer:

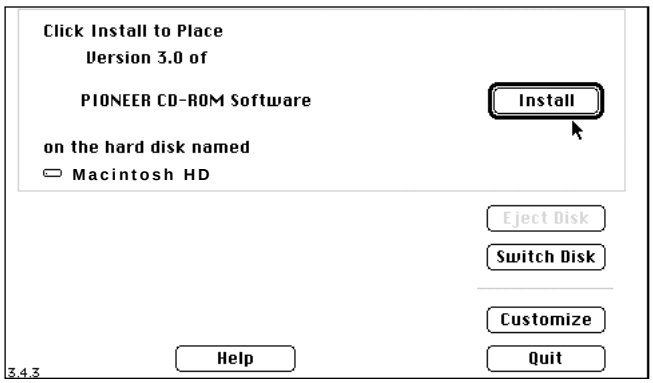


Figure 19 - MACINTOSH Installer Screen

Click on INSTALL to automatically install the necessary files. HELP informs you of the functionality of different buttons. Make sure that you are running the install program from the PIONEER diskette that ships with the drive. Select CUSTOMIZE to select specific files to install. This option is useful if you only need to install CLD-Access (the driver) but do not need to install the specific Extensions. The dialog box in the lower left side of the Custom Install Screen describes each highlighted item.

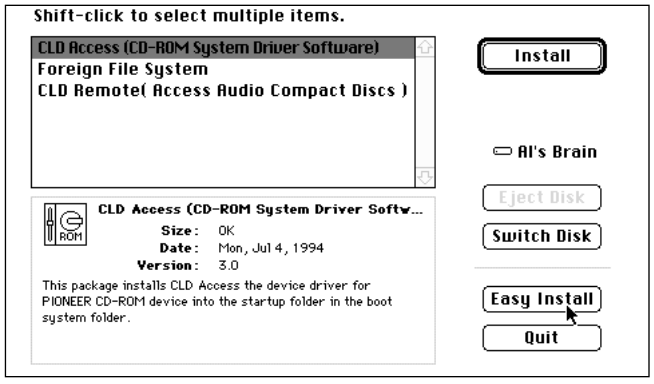


Figure 20 - MACINTOSH Custom Install

This is the message you will see when installation is completed successfully:

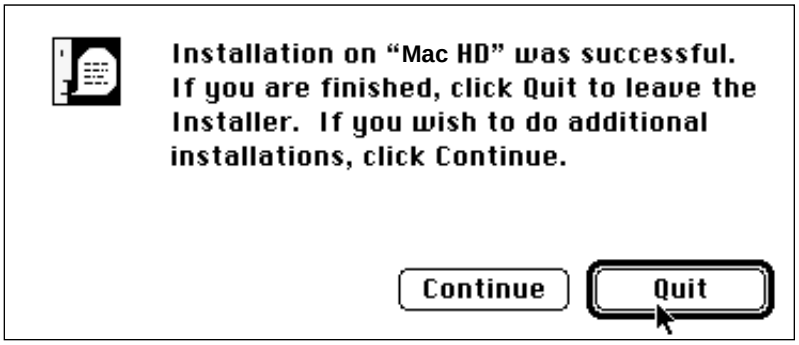


Figure 21 - MACINTOSH - Successful Install Screen

Click on QUIT, to leave the installer. **NOTE:** Replace any virus protection software or other inits you may have removed for this installation back into the **System Folder**. Restart your computer.

Installing drivers for System 6.0.7 and below

You will need to click on specific files and drag them into the **System Folder** if you are using System 6.0.7 or below. **NOTE:** ONLY use the installer for Macintosh Systems 7.0 and above.

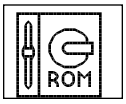
Double click to open the Pioneer Macintosh diskette that ships with your Pioneer CD-ROM Changer. Then double click on the **6.0.7 Folder**, to open it. Inside this folder you will see the file CLD Access 1.2. Highlight this file, hold the mouse button down, and drag it over the System Folder icon for System 6.0.7 or below. When the System Folder is highlighted, you can release the mouse button.

Then double click on the **CD-ROM Folder** contained on the Pioneer diskette. Select these four files by clicking on them, while simultaneously holding down the shift key: Audio CD Access, Foreign File Access, ISO 9660 File Access, and High Sierra File Access. When they are all highlighted, drag them over the **System Folder** icon for System 6.0.7 or below. As described above, when the **System Folder** is highlighted, you can release the mouse button.

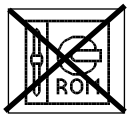
Operations Check

CHECK ICONS ON BOOT UP:

If CLD Access has been installed properly and a Pioneer CD-ROM Changer is attached via SCSI cable to the Macintosh and powered ON, the following icon will be seen at the bottom of the screen at start-up. Look for it, to make sure it has been installed properly.



If the Pioneer Macintosh Drivers have been installed, but the CD-ROM Changer is not connected to the Macintosh and Powered ON, the following icon will appear on boot-up.



CHECK THAT THESE FILES ARE LOADED PROPERLY

Under System 7.0 and above, CLD Access and Apple CD-ROM files should be in the **Control Panel Folder**. ISO 9660, High Sierra, Foreign File Access and Audio CD Access should be in the **Extension Folder**.

If you are running System 6.0.7 or below, all of these files should be in the **System Folder**: CLD Access 1.2, ISO 9660, High Sierra, Foreign File Access, Audio CD Access.

✓ **NOTE:** If you are using the Apple CD 150 or CD SC Plus, or CD SC with the Pioneer CD-ROM Changer and running System 6.0.7 or below, **DO NOT** install the Apple CD-ROM device driver. If an Apple CD-ROM driver is installed, remove it. CLD Access 1.2 supports the Apple Drives listed above. If you are using the Pioneer CD-ROM Changer with the Apple CD-300 or CD-300i (for Power PC) or newer Apple CD-ROM drives and running System 6.0.7, use CLD Access 3.0 and Apple CD-ROM Driver v 5.0.1. Drag them from the **CD-ROM Folder** into the **6.0.7 System Folder**. CLD-Access 1.2 does not support newer Apple CD-ROM drives. If you install CLD-Access 3.0 under System 6.0.7 or below, enable MultiFinder, then restart. CLD-Access 3.0 will not change discs in regular Finder mode. With System 7.0, install CLD-Access 3.0 and the Apple CD-ROM 5.0.1 if using a Pioneer Changer with an Apple CD-ROM drive.

Other Installation Options

If you ar installing more than one SCSI Device, make sure the SCSI devices on the chain each have individual SCSI ID address numbers between 1 and 6 when the Pioneer Changer is connected to a Macintosh computer. Only the last device on the SCSI chain is terminated. All other devices should not be terminated.

Using CLD Access

CLD Access is a control panel document. Select Control Panels from under the Apple Menu, then double click on CLD Access or go into the **System Folder** and open **Control Panels Folder**, then double click on CLD Access to launch it. You will see the ***ROM Mount Controller*** dialog box:

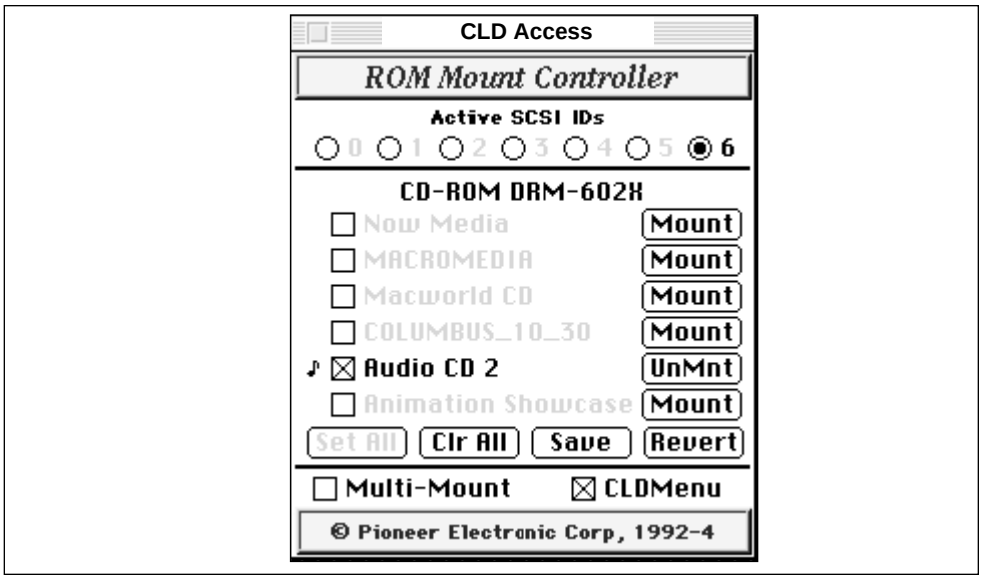


Figure 22 - CLD Access / ROM Mount Controller

This controller indicates the SCSI ID number of the Pioneer CD-ROM Changer. And it also shows the discs loaded into the Pioneer Changer. If there is an X in the box next to the title and the title is in black lettering, you know the disc is mounted. **NOTE:** To the left of the title, you will see a musical note, if as in the example above, the CD-ROM contains CD-Digital Audio.

Multi-Mount Option

Unless Multi-Mount is selected, the drive will unmount the disc currently mounted and mount the next disc selected. Click on the Multi-Mount box if you wish to have more than one disc mounted on the desktop at one time.

CLD Menu Option

If the CLD Menu box is selected, you will see the CLD Menu icon below appear at the far right hand side of the Macintosh's top menu bar. Select CLD Menu by checking the box in the lower left hand corner of CD-ROM Controller dialog box and restart computer. On boot up, you will see the icon on the menu bar. Clicking on this icon will allow you to select mounted discs from the desktop, without having to bring up CLD Access.

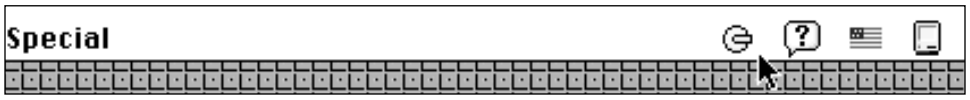


Figure 23 - CLD Menu Icon

Using CLD Remote

There is one utility program included with the Macintosh Pioneer CD-ROM drivers. This is CLD Remote, a remote control program for the Macintosh that can be used to control CD Audio discs.

When CLD Remote is opened, the controller screen for CD-ROM changer appears if the drivers are installed, the CD-ROM Changer is attached to the Macintosh via SCSI and powered ON. You will see this screen:

Figure 24 - MACINTOSH CLD Remote

Here are descriptions of the CLD REMOTE indicators and control panel:

A — This indicates the title of the Audio CD and Track number currently playing.

B — These numbers indicate the SCSI ID (1-6) of the drive; the disc tray in which the active Audio CD is in (1-6); the track number that is currently playing; and the elapsed time of the track, if DISC TIME is selected under the FILE MENU.
Note: If Absolute Time is selected in the File Menu, this time number will indicate total time that has elapsed during playback of the CD.

C — The top bar indicates the elapsed time within the track (Disc Time) and the bottom bar indicates the elapsed time within the entire CD (Absolute Time).

D — This is a volume control. *(Descriptions are continued on next page.)*

Descriptions of CLD REMOTE indicators and control panel (continued)

E — These are the control buttons. The large one in the top right corner is PLAY, the one below it is PAUSE, the on the lower left is STOP, the two above that are SCAN FORWARD and SCAN REVERSE, and the two above those in the upper right side of this small panel are STEP FORWARD and STEP REVERSE.

F — The Menu Bar has pull down menus entitled: FILE EDIT DISC TRACK and REPEAT. Here is a description of what you will find under each one:

FILE: This allows you to SAVE, set ABSOLUTE TIME or DISC TIME, and to QUIT. **NOTE:** When ABSOLUTE TIME is selected, the time numbers that appear in the CLD REMOTE panel indicate total time elapsed on the entire CD audio disc. When DISC TIME is selected, the time numbers that appear in the CLD REMOTE panel indicate the time elapsed on the particular TRACK that is playing.

EDIT: There are options for UNDO, CUT, COPY, PASTE, CLEAR.

DISC: This menu item indicates the titles of the CD Audio discs loaded into the Pioneer CD-ROM Changer. **NOTE:** Titles of non-audio CDs do not appear, they are indicated by the words “NON-AUDIO DISC”.

TRACK: This indicates the Tracks on the CD audio disc.

REPEAT: This allows the user to instruct the player to REPEAT TRACK, REPEAT DISC or REPEAT ALL. SEQUENTIAL or RANDOM Repeat can also be selected.

Special Issues

for IBM-PC & Compatible Users

These are some special issues that may be encountered with IBM-PC & compatible computers when connecting a Pioneer CD-ROM Changer:

Third Party Device Drivers

A number of third party device drivers are available for different operating systems. Please refer to Pioneer ***Product Information Bulletin #25.*** This document is also available on the ***Pioneer LaserFacts System*** by ordering document number 34 024 and 34 025. See ***Appendix E*** for information about the ***Pioneer LaserFacts System***. Also, see ***Appendix F*** for ***Pioneer Technical Resource Numbers***.

Networking

Using a Pioneer CD-ROM Changer as a network resource may require third party software. A list of several companies and their software products has been compiled as a resource. It is available as Pioneer ***Product Information Bulletin #25.*** This document is also available on the ***Pioneer LaserFacts System*** by ordering document number 34 024 and 34 025. See ***Appendix E*** for information about the ***Pioneer LaserFacts System***. See ***Appendix F*** for ***Pioneer Technical Resource Numbers***.

Maximizing Performance

- Setting High memory; Buffer Sizes

On the first installation, simplify the process by not using high memory or cache buffers. This will help you get the system up and running faster. Once the system is running smoothly, feel free to experiment with loading into high memory and conserving DOS operating space. To use High Memory, use the /E switch in the device driver line in the CONFIG.SYS and for the MSCDEX device line in the AUTOEXEC.BAT.

You can also set MSCDEX buffers to different sizes by using the /M: switch in the AUTOEXEC.BAT. Each number in the /M switch represents 2KB of memory. MSCDEX automatically allocates 8 KB into memory per disc. So using the /M switch is redundant and uses extra memory. With the /E: switch on, it will allocate this into EMS memory.

About AUDIO on CD-ROMs

There are three types of Audio that you will find on CD-ROM discs:

- CD-DA Compact Disc Digital Audio (Conforms to the Red Book Standard)
- Compressed Audio (ADPCM, Adaptive Pulse Code Modulation). Conforms to the Yellow Book Standard and is found on CD-ROM discs.
- Compressed Audio (ADPCM) that is interleaved with computer data and found on CD-ROM XA discs.

Compact Disc Digital Audio is high quality audio you're probably familiar with on audio compact discs (CDs). This audio is output through the RCA jacks on the back of the Pioneer CD-ROM Changer. Cables from these RCA jacks can be connected to an amplifier and speakers or to powered speakers. You can also hear the audio through headphones connected to the headphone jack on the front of the unit.

Compressed Audio found on most CD-ROMs requires that a Sound Card be installed in the computer. The drive transfers the compressed audio data to the host computer for decompression and conversion through the sound card. The sound card processes the audio through the computer and outputs the audio through jacks to an amplifier and speakers or to powered speakers.

Check with the publisher or distributor of the CD ROM product to determine if it uses CD-DA or compressed audio. Remember if the CD-ROM product outputs compressed audio, you will need a sound card in your computer to hear the audio.

Kodak Photo CDs - Single Session/ Multi-Session

Pioneer CD-ROM Changers are Kodak Photo-CD compatible and can read multi-session Kodak Photo-CDs. Multi-session Photo-CDs are those where sets of photographs are encoded onto the disc at different times. Single-session Photo-CDs have only one set of photos on the disc, encoded at one time. A program that will open Photo-CD files for viewing is also required, such as Kodak Viewer, Aldus PhotoShop, QUICKTIME for the Macintosh, or Microsoft Video for Windows.

Using CD Player (CDP) commands to control the drive

After installing the proper device driver, the /C:CDP switch should be found in the Device line of the CONFIG.SYS. When this switch is present, CD Player commands can be sent the player either from the DOS Prompt or by using the MPC utility as described in Chapter 3 for IBM-PC and compatible computers.

For example, when sending commands from the DOS prompt:

C:\>ECHO 1KL >CDP <CR> Turns on the Key Lock (disables eject button).
C:\>ECHO 0KL >CDP <CR> Turns off the Key Lock (enables eject button).

See ***Appendix D*** for a list of CDP Commands. These commands can be used after the ECHO statement in the lines described above.

Questions and Answers

Here are some common questions asked about Pioneer CD-ROM Changers.

Can I use my Pioneer CD-ROM Changer on a network?

There are many third party drivers available for networking a Pioneer CD-ROM Changer. Order ***Pioneer LaserFacts System*** document number 34 024 and 34 025. See ***Appendix E*** for more information on the ***Pioneer LaserFacts System***.

What if there is no sound audible?

The disc is probably outputting Compressed Audio. This data needs to be transferred from the unit to the host computer for decompression and conversion to audio. Make sure you have a sound card installed to handle these tasks. If you do have a sound card installed and are still unable to hear compressed audio, check with the sound card manufacturer or disc publisher.

If the audio is CD-DA (Compact Disc-Digital Audio) the audio light on the front panel of the unit will appear. The audio will be output through the headphone jack on the front of the unit, or through the jacks on the back of the unit to an amplifier and speakers or to powered speakers. To test that these connections have all been made properly, insert a compact audio disc (CD) into the first tray, make sure the drivers are properly installed, then use MPC for the PC or CLD Remote for the Macintosh to play the CD in the Changer.

Will a combination sound card/SCSI interface card work with Pioneer CD-ROM Changers?

A sound card with a SCSI interface included will work fine with Pioneer drives, as long as the SCSI card is ASPI compliant and supports multiple LUNS (Logical Unit Numbers). Install the ASPI Manager that ships with the card, then install ASPI compatible drivers suich as Pioneer DRD60ASP.SYS. If possible, make sure the card is comapatible with a 50 pin Centronics SCSI connector. Otherwise, you may need an adapter to enable connecting the 50 pin Centronics SCSI cable to the external port of the card.

Can I use the Pioneer CD-ROM Changers with a sound card?

You can use the Pioneer units with any sound card as long as the card is supported by the actual software on the CD-ROM disc that you are using. Remember, if the CD-ROM disc uses compressed audio, you will need a sound card. Contact the CD-ROM disc publisher or distributor to find out what sound cards the product

supports ***before*** you purchase a CD-ROM disc that includes compressed audio.

What should I do if the CD-ROM Changer always inserts the first or the same disc, no matter which disc the software has been instructed to use?

The software package was probably written to work with a single CD-ROM Drive. Try placing the disc in the first slot and then reinstall the application. Contact the software manufacturer to see if a version of the software exists that supports multiple subunits.

If you are using an ASPI compatible host adapter, the ASPI Manager may require an /L: or /ET: statement to enable access to multiple logical units. Refer to the documentation accompanying the host adapter or contact the host adapater manufacturer..

What should I do if the BUSY light flashes at one second intervals and the drive does not respond to commands?

This is a visual indicator from the drive that something is affecting the CD-ROM Changer's ability to perform. It may be a mechanical problem. Or, the drive may be in Test Mode. Make sure the switch for Test Mode is DOWN/OFF. For almost all DOS applications, only the terminator switch (SW #2) on the DRM-602X should be up. All others on the DRM-602X and all switches on the DRM-604X should be down.

What should I do if the Magazine will not eject from the unit?

There are two possible causes of this symptom. One is that the software has locked the magazine into the machine and will not let the user eject the disk. The other is that the user has set the last dip switch UP/ON so it has disabled the eject switch on the front panel. In either case, to remove the magazine, make sure that the last dip switch is DOWN. Then turn the Pioneer CD-ROM Changer OFF and back ON. This should allow the front panel eject button to work.

NOTE: If the magazine still does not eject, call End-User CD-ROM Technical Support. See ***Appendix F*** for ***Pioneer Technical Resource Numbers***.

Troubleshooting IBM-PC DOS/WINDOWS Installation

If the Pioneer CD-ROM Changer does not respond after running through the Operations Check on page 3-7 of this ***Software Installation Guide***, note any error messages that may appear in the Inquiry ID line on boot up.

Error messages and how to correct them are described on individual pages of this Appendix as indicated below. If you do need to call for Pioneer End-User CD-ROM Technical Support (See ***Appendix E*** for ***Pioneer Technical Resource Numbers***), please be prepared to describe any error messages and the contents of the CONFIG.SYS and AUTOEXEC.BAT files in your system. This will help Pioneer Industrial Representatives solve your problem more quickly.

1. Driver Error Messages ***page #***

- SCSI interface card can't communicate with drive....A-2
- Timeout during selection phase....A-4
- Timeout waiting for initial bus free phase status phase or data phase....A-5
- Characters on the Inquiry "ID=0" line are jumbled....A-5
- The "Inquiry ID=0 Pioneer CD-ROM DRM-xxxX" line is blank....A-6

2. MSCDEX Error Messages

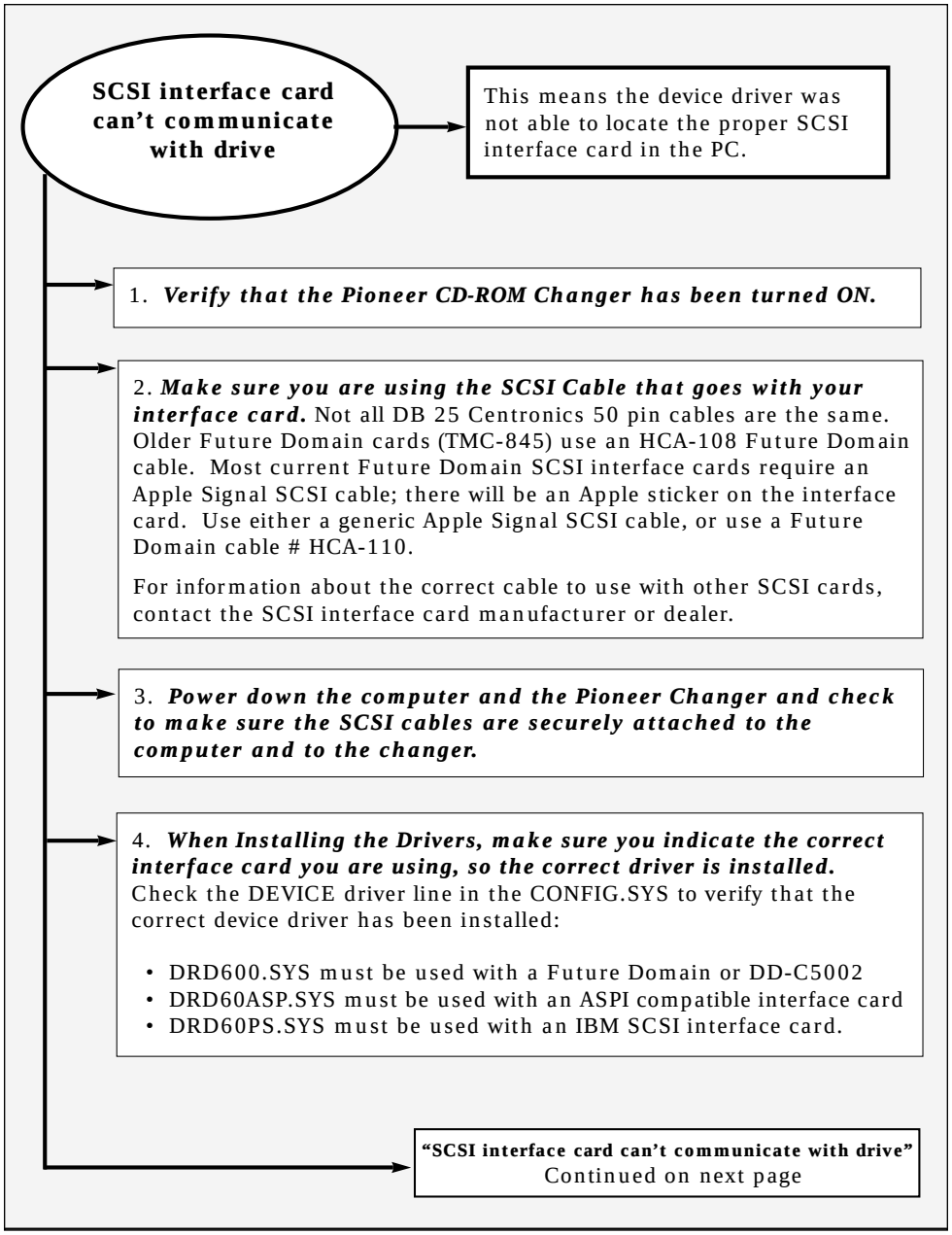
- CDR101 Not Ready Reading Drive D....A-7
- CDR 103 Disk is not ISO 9660 or High Sierra....A-8
- Device Driver Not Found....A-8
- Incorrect DOS Version....A-9

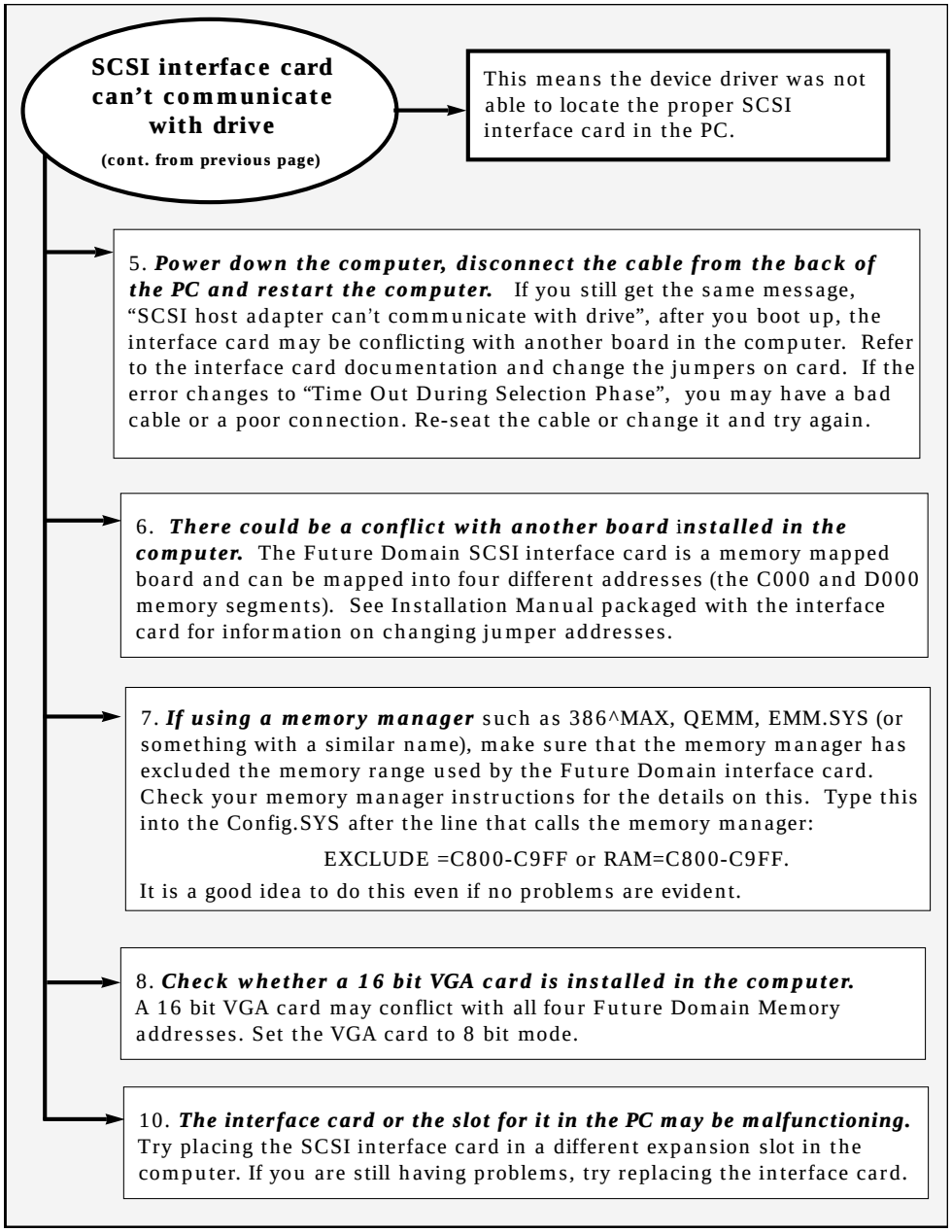
3. DOS Error Message

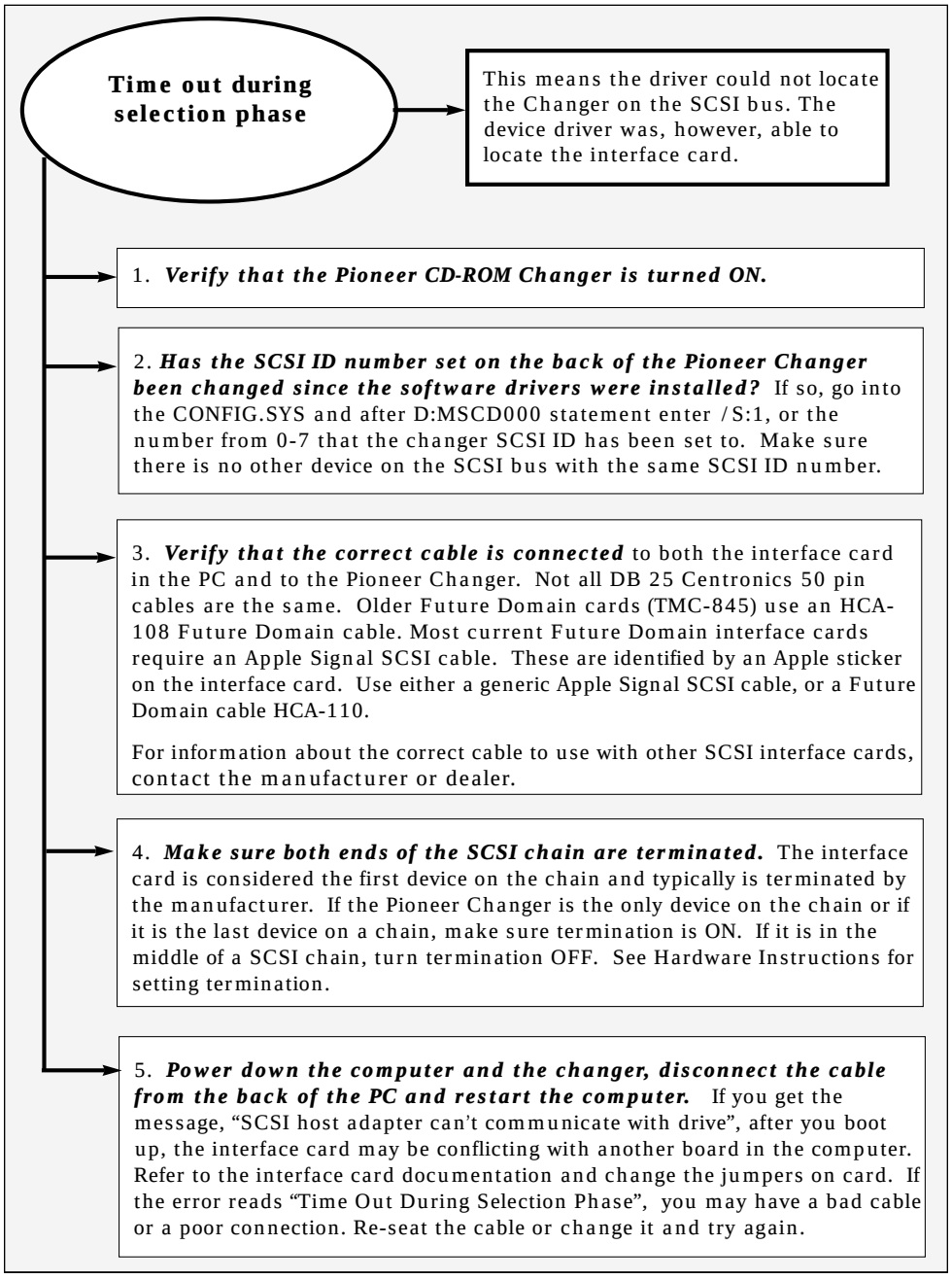
- Invalid Drive Specification....A-9

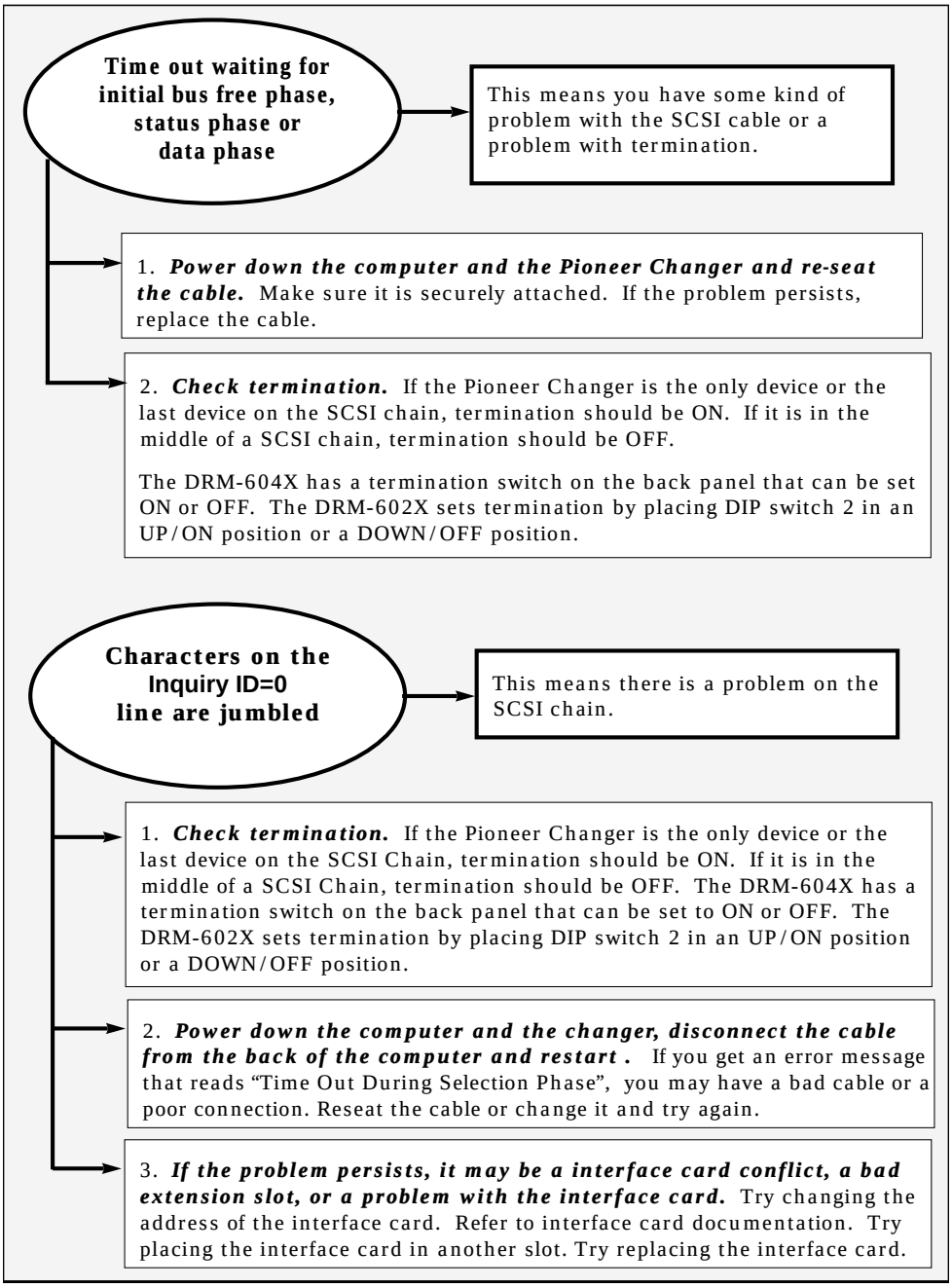
4. Hardware Issues. What to do if.....

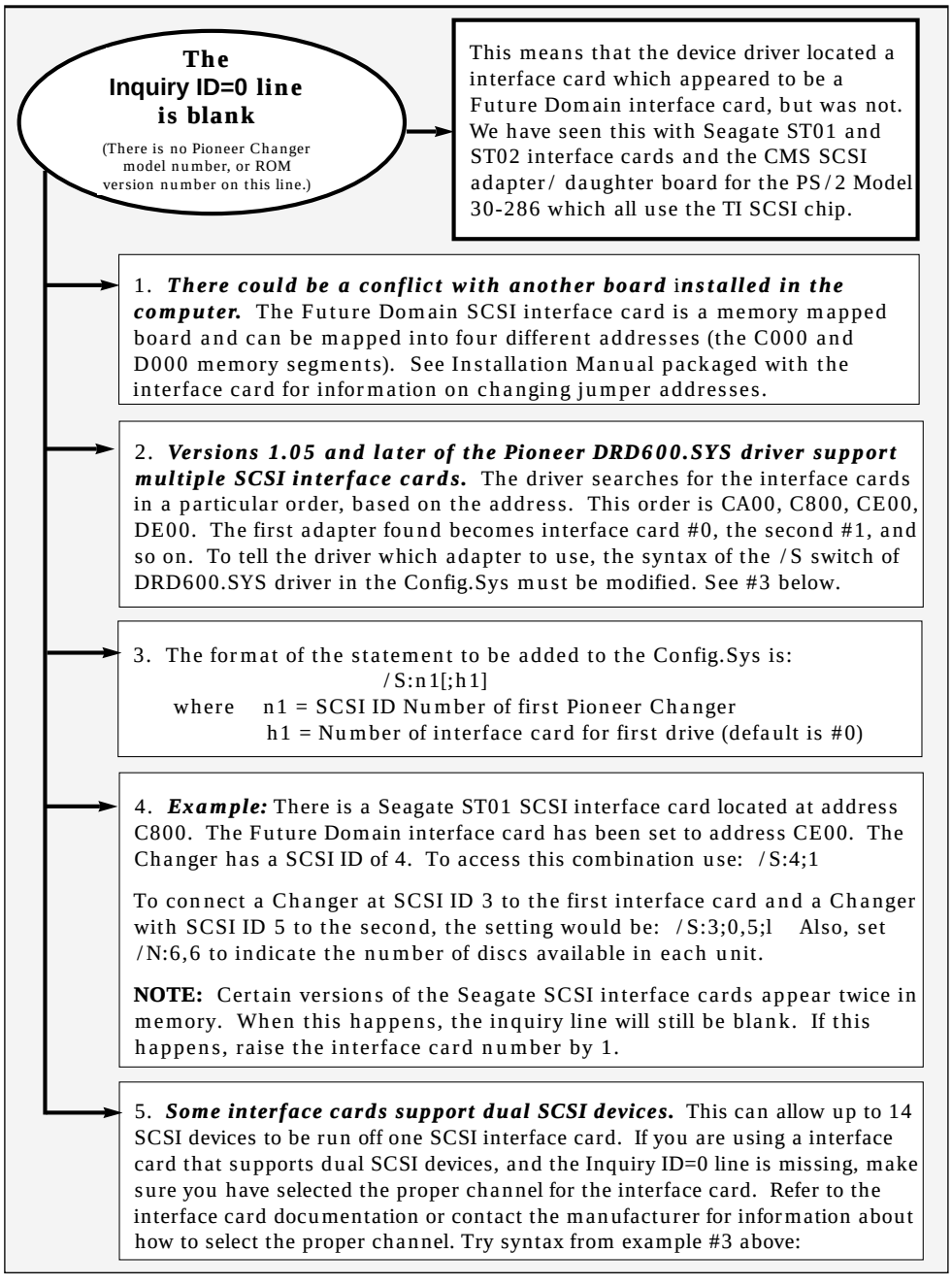
- The cartridge will not eject from the Minichanger....A-10
- The drive always inserts the first or the same disc, no matter which disc the software has been instructed to use....A-10
- The BUSY light flashes at one-second intervals and the drive does not respond to commands....A-11
- Boot problems or the unit only accesses Drive D....A-11

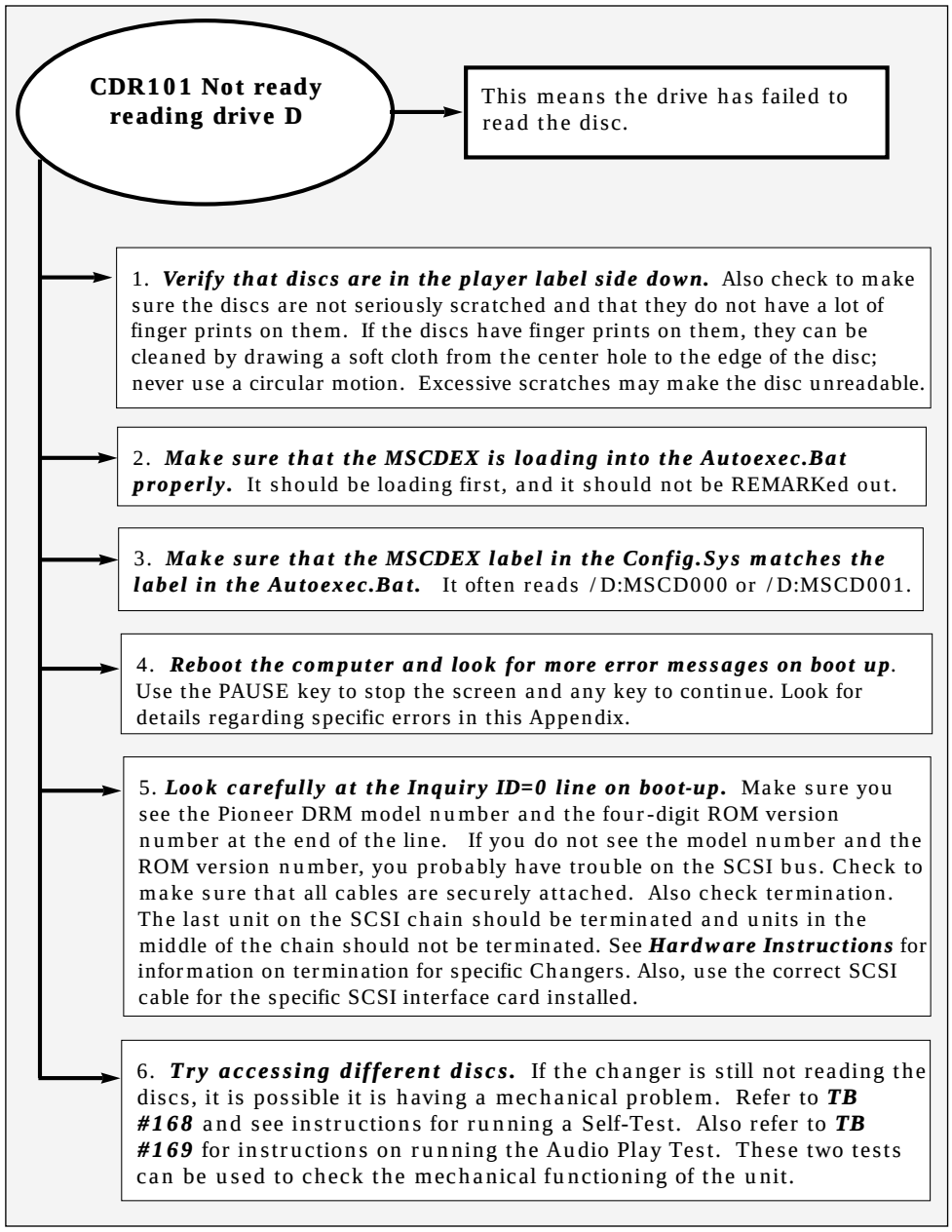

SCSI interface card can't communicate with drive
This means the device driver was not able to locate the proper SCSI interface card in the PC.
1. Verify that the Pioneer CD-ROM Changer has been turned ON.
2. Make sure you are using the SCSI Cable that goes with your interface card. Not all DB 25 Centronics 50 pin cables are the same. Older Future Domain cards (TMC-845) use an HCA-108 Future Domain cable. Most current Future Domain SCSI interface cards require an Apple Signal SCSI cable; there will be an Apple sticker on the interface card. Use either a generic Apple Signal SCSI cable, or use a Future Domain cable # HCA-110.
For information about the correct cable to use with other SCSI cards, contact the SCSI interface card manufacturer or dealer.
3. Power down the computer and the Pioneer Changer and check to make sure the SCSI cables are securely attached to the computer and to the changer.
4. When Installing the Drivers, make sure you indicate the correct interface card you are using, so the correct driver is installed. Check the DEVICE driver line in the CONFIG.SYS to verify that the correct device driver has been installed:
• DRD600.SYS must be used with a Future Domain or DD-C5002
• DRD60ASP.SYS must be used with an ASPI compatible interface card
• DRD60PS.SYS must be used with an IBM SCSI interface card.
"SCSI interface card can't communicate with drive"
Continued on next page

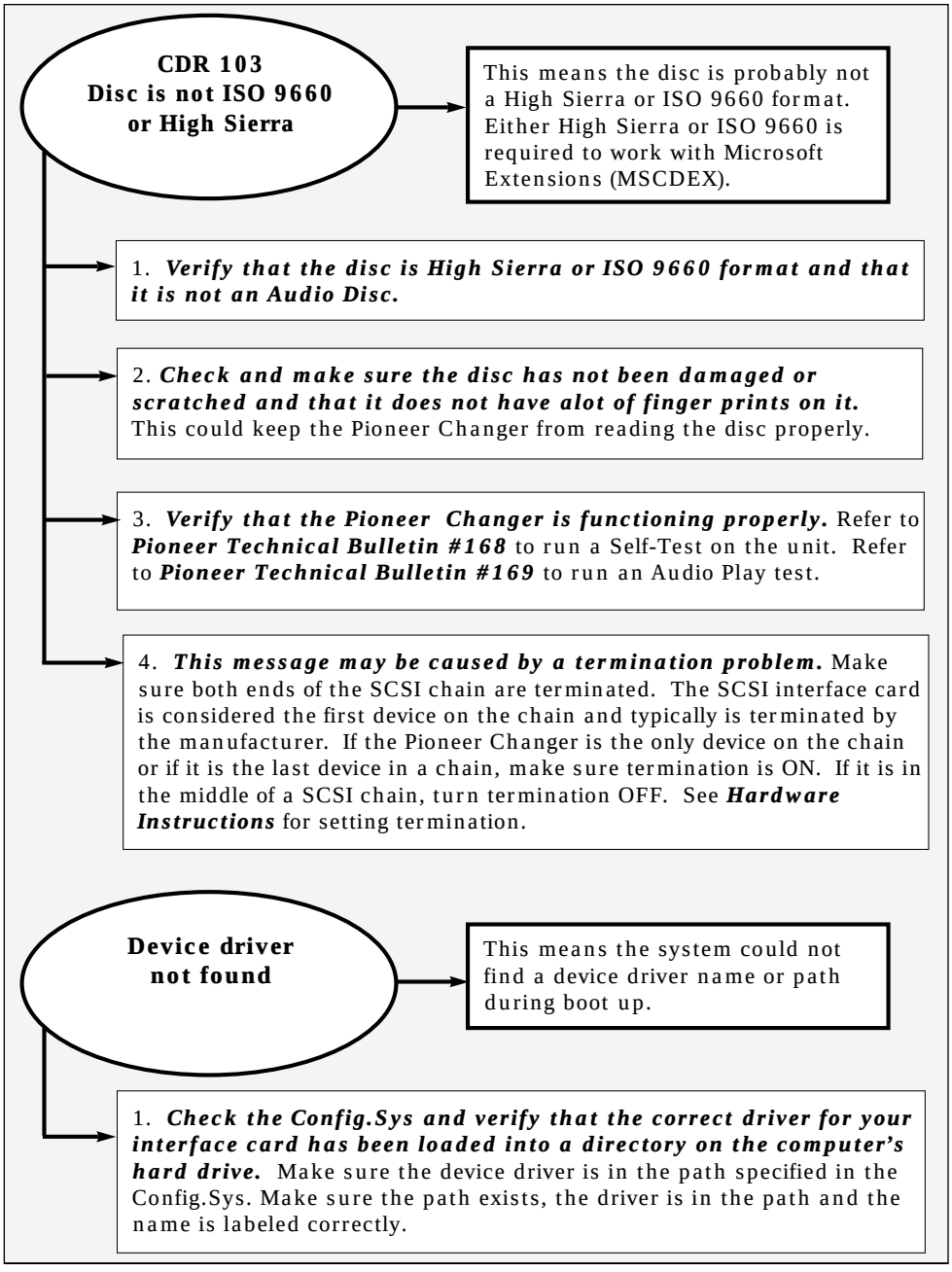

SCSI interface card can't communicate with drive
(cont. from previous page)
This means the device driver was not able to locate the proper SCSI interface card in the PC.
5. Power down the computer, disconnect the cable from the back of the PC and restart the computer. If you still get the same message, "SCSI host adapter can't communicate with drive", after you boot up, the interface card may be conflicting with another board in the computer. Refer to the interface card documentation and change the jumpers on card. If the error changes to "Time Out During Selection Phase", you may have a bad cable or a poor connection. Re-seat the cable or change it and try again.
6. There could be a conflict with another board installed in the computer. The Future Domain SCSI interface card is a memory mapped board and can be mapped into four different addresses (the C000 and D000 memory segments). See Installation Manual packaged with the interface card for information on changing jumper addresses.
7. If using a memory manager such as 386^MAX, QEMM, EMM.SYS (or something with a similar name), make sure that the memory manager has excluded the memory range used by the Future Domain interface card. Check your memory manager instructions for the details on this. Type this into the Config.SYS after the line that calls the memory manager:
EXCLUDE =C800-C9FF or RAM=C800-C9FF.
It is a good idea to do this even if no problems are evident.
8. Check whether a 16 bit VGA card is installed in the computer. A 16 bit VGA card may conflict with all four Future Domain Memory addresses. Set the VGA card to 8 bit mode.
10. The interface card or the slot for it in the PC may be malfunctioning. Try placing the SCSI interface card in a different expansion slot in the computer. If you are still having problems, try replacing the interface card.

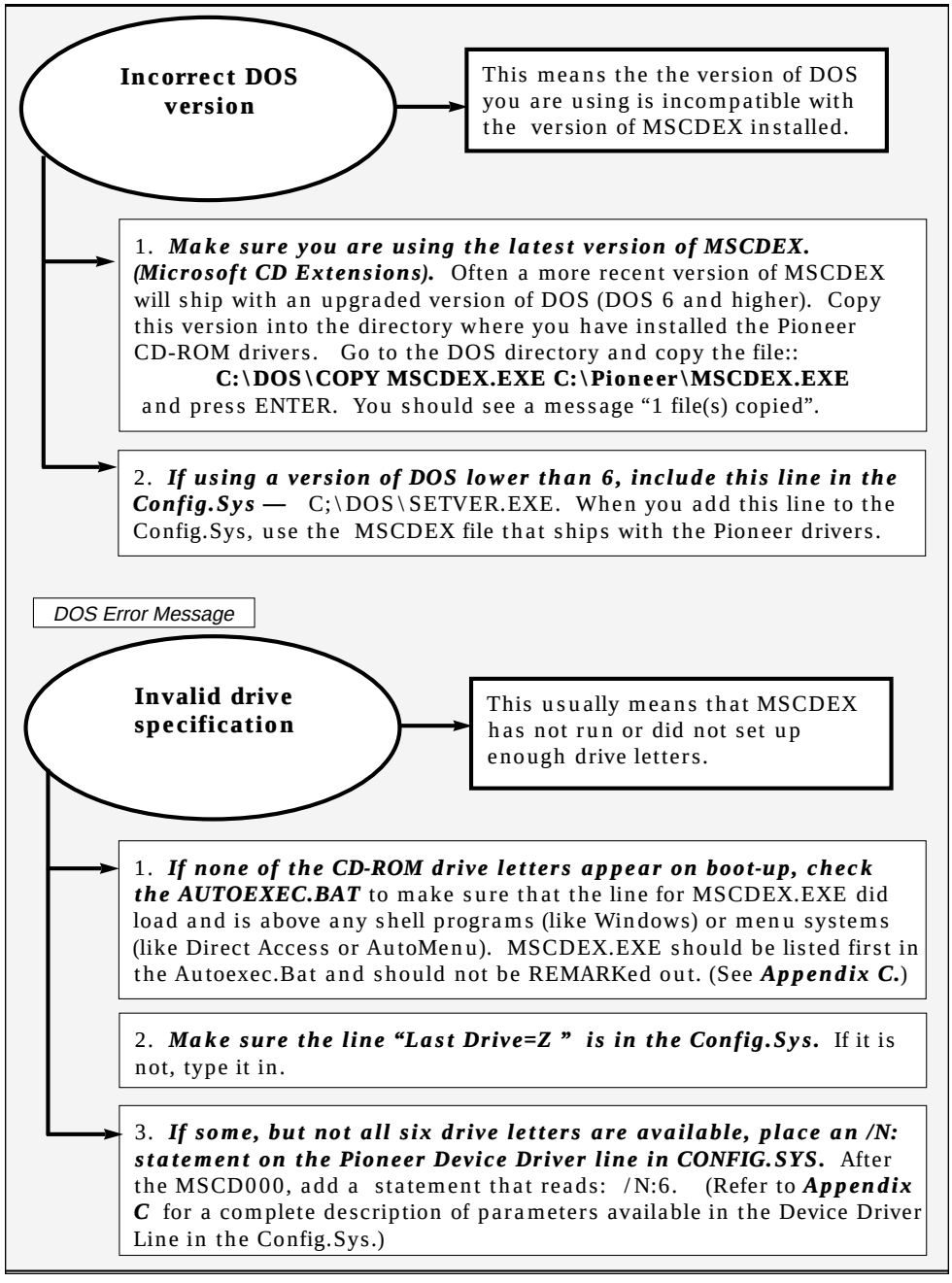

Time out during selection phase
This means the driver could not locate the Changer on the SCSI bus. The device driver was, however, able to locate the interface card.
1. Verify that the Pioneer CD-ROM Changer is turned ON.
2. Has the SCSI ID number set on the back of the Pioneer Changer been changed since the software drivers were installed? If so, go into the CONFIG.SYS and after D:MSCD000 statement enter /S:1, or the number from 0-7 that the changer SCSI ID has been set to. Make sure there is no other device on the SCSI bus with the same SCSI ID number.
3. Verify that the correct cable is connected to both the interface card in the PC and to the Pioneer Changer. Not all DB 25 Centronics 50 pin cables are the same. Older Future Domain cards (TMC-845) use an HCA-108 Future Domain cable. Most current Future Domain interface cards require an Apple Signal SCSI cable. These are identified by an Apple sticker on the interface card. Use either a generic Apple Signal SCSI cable, or a Future Domain cable HCA-110.
For information about the correct cable to use with other SCSI interface cards, contact the manufacturer or dealer.
4. Make sure both ends of the SCSI chain are terminated. The interface card is considered the first device on the chain and typically is terminated by the manufacturer. If the Pioneer Changer is the only device on the chain or if it is the last device on a chain, make sure termination is ON. If it is in the middle of a SCSI chain, turn termination OFF. See Hardware Instructions for setting termination.
5. Power down the computer and the changer, disconnect the cable from the back of the PC and restart the computer. If you get the message, "SCSI host adapter can't communicate with drive", after you boot up, the interface card may be conflicting with another board in the computer. Refer to the interface card documentation and change the jumpers on card. If the error reads "Time Out During Selection Phase", you may have a bad cable or a poor connection. Re-seat the cable or change it and try again.

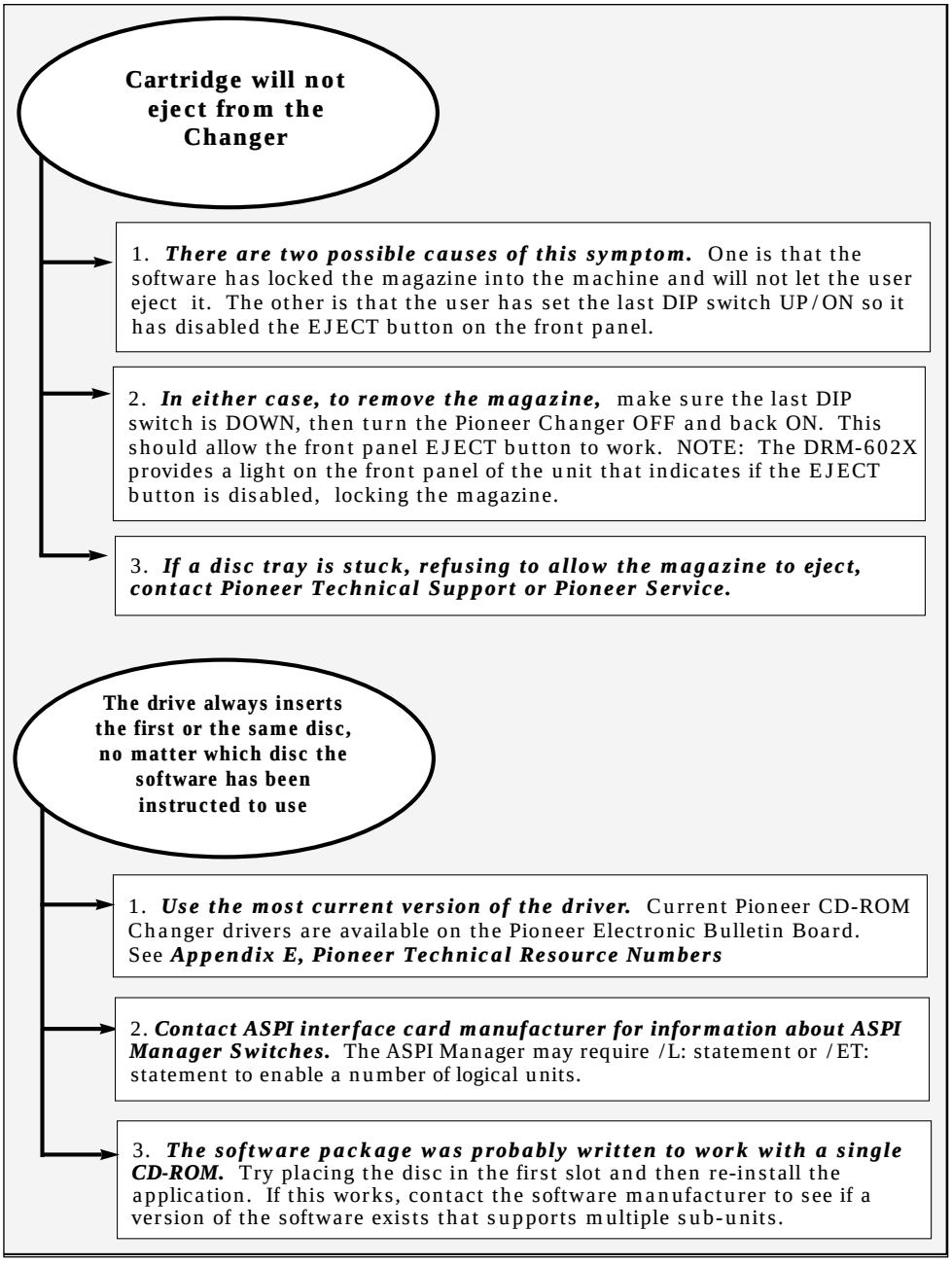

Time out waiting for initial bus free phase, status phase or data phase
This means you have some kind of problem with the SCSI cable or a problem with termination.
1. Power down the computer and the Pioneer Changer and re-seat the cable. Make sure it is securely attached. If the problem persists, replace the cable.
2. Check termination. If the Pioneer Changer is the only device or the last device on the SCSI chain, termination should be ON. If it is in the middle of a SCSI chain, termination should be OFF.
The DRM-604X has a termination switch on the back panel that can be set ON or OFF. The DRM-602X sets termination by placing DIP switch 2 in an UP/ON position or a DOWN/OFF position.
Characters on the Inquiry ID=0 line are jumbled
This means there is a problem on the SCSI chain.
1. Check termination. If the Pioneer Changer is the only device or the last device on the SCSI Chain, termination should be ON. If it is in the middle of a SCSI Chain, termination should be OFF. The DRM-604X has a termination switch on the back panel that can be set to ON or OFF. The DRM-602X sets termination by placing DIP switch 2 in an UP/ON position or a DOWN/OFF position.
2. Power down the computer and the changer, disconnect the cable from the back of the computer and restart . If you get an error message that reads "Time Out During Selection Phase", you may have a bad cable or a poor connection. Reseat the cable or change it and try again.
3. If the problem persists, it may be a interface card conflict, a bad extension slot, or a problem with the interface card. Try changing the address of the interface card. Refer to interface card documentation. Try placing the interface card in another slot. Try replacing the interface card.

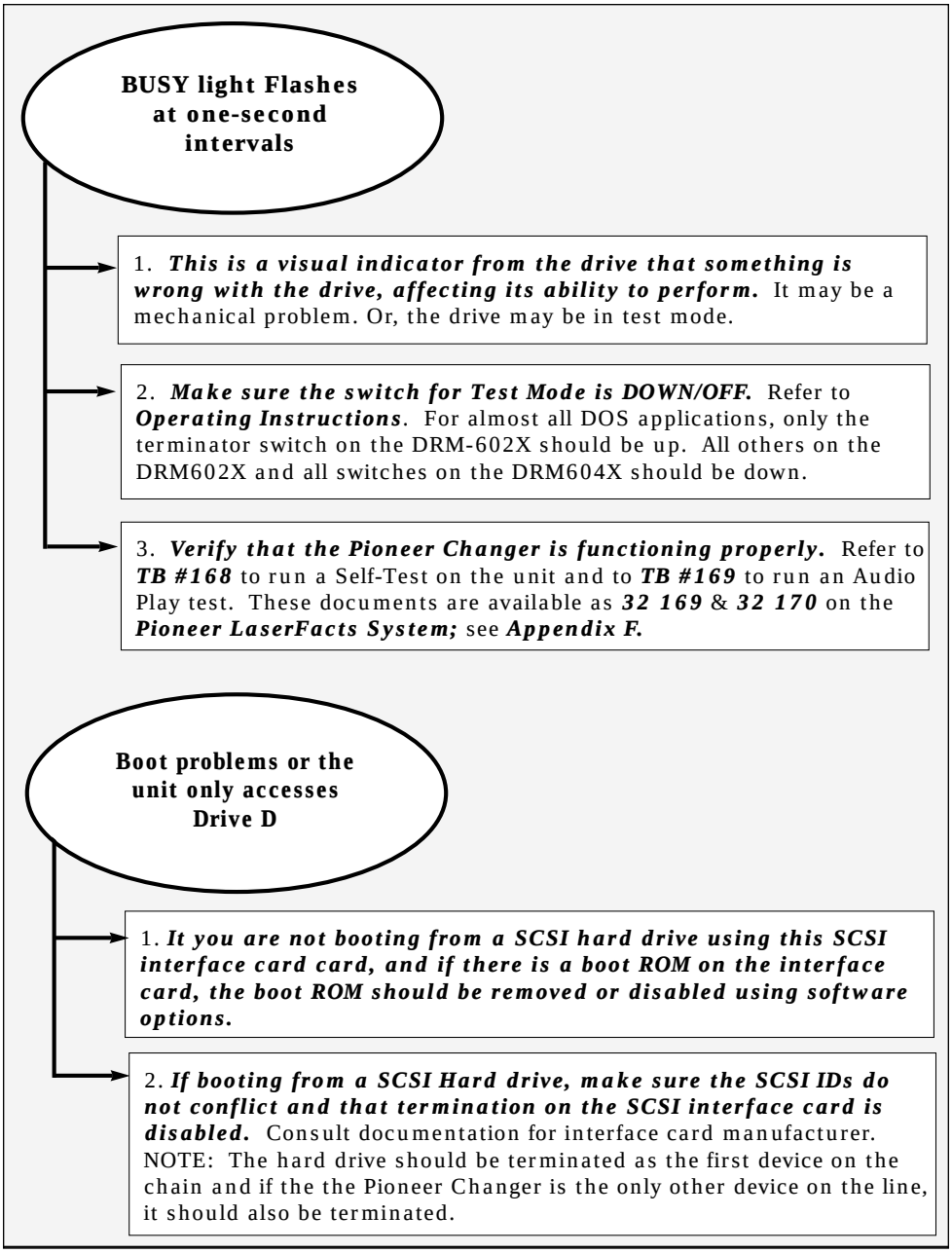

The
Inquiry ID=0 line
is blank
(There is no Pioneer Changer model number, or ROM version number on this line.)
This means that the device driver located a interface card which appeared to be a Future Domain interface card, but was not. We have seen this with Seagate ST01 and ST02 interface cards and the CMS SCSI adapter/ daughter board for the PS/2 Model 30-286 which all use the TI SCSI chip.
1. There could be a conflict with another board installed in the computer. The Future Domain SCSI interface card is a memory mapped board and can be mapped into four different addresses (the C000 and D000 memory segments). See Installation Manual packaged with the interface card for information on changing jumper addresses.
2. Versions 1.05 and later of the Pioneer DRD600.SYS driver support multiple SCSI interface cards. The driver searches for the interface cards in a particular order, based on the address. This order is CA00, C800, CE00, DE00. The first adapter found becomes interface card #0, the second #1, and so on. To tell the driver which adapter to use, the syntax of the /S switch of DRD600.SYS driver in the Config.Sys must be modified. See #3 below.
3. The format of the statement to be added to the Config.Sys is:
/S:n1[;h1]
where n1 = SCSI ID Number of first Pioneer Changer
h1 = Number of interface card for first drive (default is #0)
4. Example: There is a Seagate ST01 SCSI interface card located at address C800. The Future Domain interface card has been set to address CE00. The Changer has a SCSI ID of 4. To access this combination use: /S:4;1
To connect a Changer at SCSI ID 3 to the first interface card and a Changer with SCSI ID 5 to the second, the setting would be: /S:3;0,5;1 Also, set /N:6,6 to indicate the number of discs available in each unit.
NOTE: Certain versions of the Seagate SCSI interface cards appear twice in memory. When this happens, the inquiry line will still be blank. If this happens, raise the interface card number by 1.
5. Some interface cards support dual SCSI devices. This can allow up to 14 SCSI devices to be run off one SCSI interface card. If you are using a interface card that supports dual SCSI devices, and the Inquiry ID=0 line is missing, make sure you have selected the proper channel for the interface card. Refer to the interface card documentation or contact the manufacturer for information about how to select the proper channel. Try syntax from example #3 above:


CDR101 Not ready reading drive D
This means the drive has failed to read the disc.
1. Verify that discs are in the player label side down. Also check to make sure the discs are not seriously scratched and that they do not have a lot of finger prints on them. If the discs have finger prints on them, they can be cleaned by drawing a soft cloth from the center hole to the edge of the disc; never use a circular motion. Excessive scratches may make the disc unreadable.
2. Make sure that the MSCDEX is loading into the Autoexec.Bat properly. It should be loading first, and it should not be REMARKed out.
3. Make sure that the MSCDEX label in the Config.Sys matches the label in the Autoexec.Bat. It often reads /D:MSCD000 or /D:MSCD001.
4. Reboot the computer and look for more error messages on boot up. Use the PAUSE key to stop the screen and any key to continue. Look for details regarding specific errors in this Appendix.
5. Look carefully at the Inquiry ID=0 line on boot-up. Make sure you see the Pioneer DRM model number and the four-digit ROM version number at the end of the line. If you do not see the model number and the ROM version number, you probably have trouble on the SCSI bus. Check to make sure that all cables are securely attached. Also check termination. The last unit on the SCSI chain should be terminated and units in the middle of the chain should not be terminated. See Hardware Instructions for information on termination for specific Changers. Also, use the correct SCSI cable for the specific SCSI interface card installed.
6. Try accessing different discs. If the changer is still not reading the discs, it is possible it is having a mechanical problem. Refer to TB #168 and see instructions for running a Self-Test. Also refer to TB #169 for instructions on running the Audio Play Test. These two tests can be used to check the mechanical functioning of the unit.


CDR 103
Disc is not ISO 9660
or High Sierra
This means the disc is probably not a High Sierra or ISO 9660 format. Either High Sierra or ISO 9660 is required to work with Microsoft Extensions (MSCDEX).
1. Verify that the disc is High Sierra or ISO 9660 format and that it is not an Audio Disc.
2. Check and make sure the disc has not been damaged or scratched and that it does not have alot of finger prints on it. This could keep the Pioneer Changer from reading the disc properly.
3. Verify that the Pioneer Changer is functioning properly. Refer to Pioneer Technical Bulletin #168 to run a Self-Test on the unit. Refer to Pioneer Technical Bulletin #169 to run an Audio Play test.
4. This message may be caused by a termination problem. Make sure both ends of the SCSI chain are terminated. The SCSI interface card is considered the first device on the chain and typically is terminated by the manufacturer. If the Pioneer Changer is the only device on the chain or if it is the last device in a chain, make sure termination is ON. If it is in the middle of a SCSI chain, turn termination OFF. See Hardware Instructions for setting termination.
Device driver
not found
This means the system could not find a device driver name or path during boot up.
1. Check the Config.Sys and verify that the correct driver for your interface card has been loaded into a directory on the computer's hard drive. Make sure the device driver is in the path specified in the Config.Sys. Make sure the path exists, the driver is in the path and the name is labeled correctly.


Incorrect DOS version
This means the the version of DOS you are using is incompatible with the version of MSCDEX installed.
1. Make sure you are using the latest version of MSCDEX. (Microsoft CD Extensions). Often a more recent version of MSCDEX will ship with an upgraded version of DOS (DOS 6 and higher). Copy this version into the directory where you have installed the Pioneer CD-ROM drivers. Go to the DOS directory and copy the file:: C:\DOS\COPY MSCDEX.EXE C:\Pioneer\MSCDEX.EXE and press ENTER. You should see a message "1 file(s) copied".
2. If using a version of DOS lower than 6, include this line in the Config.Sys — C;\DOS\SETVER.EXE. When you add this line to the Config.Sys, use the MSCDEX file that ships with the Pioneer drivers.
DOS Error Message
Invalid drive specification
This usually means that MSCDEX has not run or did not set up enough drive letters.
1. If none of the CD-ROM drive letters appear on boot-up, check the AUTOEXEC.BAT to make sure that the line for MSCDEX.EXE did load and is above any shell programs (like Windows) or menu systems (like Direct Access or AutoMenu). MSCDEX.EXE should be listed first in the Autoexec.Bat and should not be REMARKed out. (See Appendix C.)
2. Make sure the line "Last Drive=Z " is in the Config.Sys. If it is not, type it in.
3. If some, but not all six drive letters are available, place an /N: statement on the Pioneer Device Driver line in CONFIG.SYS. After the MSCD000, add a statement that reads: /N:6. (Refer to Appendix C for a complete description of parameters available in the Device Driver Line in the Config.Sys.)


Cartridge will not eject from the Changer
1. There are two possible causes of this symptom. One is that the software has locked the magazine into the machine and will not let the user eject it. The other is that the user has set the last DIP switch UP/ON so it has disabled the EJECT button on the front panel.
2. In either case, to remove the magazine, make sure the last DIP switch is DOWN, then turn the Pioneer Changer OFF and back ON. This should allow the front panel EJECT button to work. NOTE: The DRM-602X provides a light on the front panel of the unit that indicates if the EJECT button is disabled, locking the magazine.
3. If a disc tray is stuck, refusing to allow the magazine to eject, contact Pioneer Technical Support or Pioneer Service.
The drive always inserts the first or the same disc, no matter which disc the software has been instructed to use
1. Use the most current version of the driver. Current Pioneer CD-ROM Changer drivers are available on the Pioneer Electronic Bulletin Board. See Appendix E, Pioneer Technical Resource Numbers
2. Contact ASPI interface card manufacturer for information about ASPI Manager Switches. The ASPI Manager may require /L: statement or /ET: statement to enable a number of logical units.
3. The software package was probably written to work with a single CD-ROM. Try placing the disc in the first slot and then re-install the application. If this works, contact the software manufacturer to see if a version of the software exists that supports multiple sub-units.


BUSY light Flashes at one-second intervals
1. This is a visual indicator from the drive that something is wrong with the drive, affecting its ability to perform. It may be a mechanical problem. Or, the drive may be in test mode.
2. Make sure the switch for Test Mode is DOWN/OFF. Refer to Operating Instructions. For almost all DOS applications, only the terminator switch on the DRM-602X should be up. All others on the DRM602X and all switches on the DRM604X should be down.
3. Verify that the Pioneer Changer is functioning properly. Refer to TB #168 to run a Self-Test on the unit and to TB #169 to run an Audio Play test. These documents are available as 32 169 & 32 170 on the Pioneer LaserFacts System; see Appendix F.
Boot problems or the unit only accesses Drive D
1. It you are not booting from a SCSI hard drive using this SCSI interface card card, and if there is a boot ROM on the interface card, the boot ROM should be removed or disabled using software options.
2. If booting from a SCSI Hard drive, make sure the SCSI IDs do not conflict and that termination on the SCSI interface card is disabled. Consult documentation for interface card manufacturer. NOTE: The hard drive should be terminated as the first device on the chain and if the the Pioneer Changer is the only other device on the line, it should also be terminated.

Troublshooting Macintosh Driver Installation

If you have trouble using the Pioneer CD-ROM Changer after you have installed the drivers, please check these points:

1. Check SCSI ID number

Remember, the SCSI ID number must be any number between 1 and 6 not already being used by any other device currently on the SCSI chain. Do not use 0 or 7.

2. Check for INIT Conflicts

Make sure the Pioneer CD-ROM Changer is connected to the computer and powered ON, with a magazine inserted and with discs placed in the magzine trays *label side down*. If your system crashes on boot-up, or if the CLD Access icon has an X through it at boot up, you most likely have an INIT conflict. Remove all other INITs from the System Folder and reboot. Or, if you are running under System 7.0 or above, disable all extensions, by using Extention Manager.

If the system fully boots with only the Pioneer Macintosh driver INITs loaded, you know you have a conflict. Try loading the Pioneer drivers first. This can be done by adding a period in front of the INIT names, since INITS load in alphabetical order. If this does not allow a successful boot, you may have a conflict that can only be resolved by not using some other INITs. Add INITs back in one-by-one, rebooting after each to see which one may conflict with the Pioneer Mac driver INITs. There are several utility programs on the market that can help you manage INIT loading.

3. If you are installing new Pioneer-MAC drivers into a System where older drivers were previously loaded

Please remove all old Pioneer-MAC drivers before installing new ones. While most of the files will be overwritten, this may not always be the case. It is best to remove the old drivers before installing the new ones.

Installation Overview for IBM-PC & Compatibles Device Driver & MSCDEX File

The INSTALL program adds a line to the CONFIG. SYS File which tells the system to load the device driver that is correct for the SCSI host adapter installed in the computer and it adds or modifies a line in the computer's AUTOEXEC.BAT file to access MSCDEX (Microsoft CD Extensions).

Device Driver Loaded into CONFIG.SYS

The device driver line in the CONFIG.SYS indicates the Directory and PATH where it is located, as well as the SCSI ID number of the CD-ROM Changer, and it installs the CDP commands. The CONFIG.SYS File should look similar to this:

DEVICE = C:\DEV\DRD600.SYS /D:MSCD000 /N:6 /S:0 /C:CDP

The device driver allows communication to take place between a computer system and a peripheral device. It is loaded when the system is booted. Pioneer supplies the following three device drivers for use with several common SCSI host adapters:

1. **DRD600.SYS**
   This device driver works with the Future Domain SCSI host adapters (TMC and MCS series) and with the Pioneer DD-C5002 SCSI host adapter.

2. **DRD60PS.SYS**
   This device driver works with the IBM SCSI host adapters for PS/2s.

3. **DRD60ASP.SYS**
   This device driver works with any ASPI compatible host adapter that supports multiple LUNs (Logical Unit Numbers). **Note:** When using an ASPI compatible host adapter, obtain the ASPI Manager file from the host adapter manufacturer or distributor. Install the ASPI Manager before you run the Pioneer Driver Installation Program.

During the QUICK INSTALLATION procedure, indicate the type of SCSI host adapter installed in your computer: ASPI Compatible , DD-C5002, FUTURE DOMAIN, or IBM. (The default is Future Domain). The INSTALL program then loads the proper driver into the CONFIG.SYS file.

NOTE: The /N: switch (indicating the number of discs to access within the changer) and the /S:switch (indicating the SCSI ID of the changer) are automatically determined by the Install Program, and will not usually appear in the command line. They can be manually added, but if they are indicated in this line, the /S: switch MUST match the SCSI ID on the back of the unit. The /N: switch default is 6, but a number from 1 to 6 can be set. If /N:3 is indicated, only the first three discs in the drive will be assigned drive letters and will be accessible.

NOTE: For information about daisy-chaining drives and about using the XDISC utility, see ***Chapter 3***, ***pages 13-15***.

See page C-2 for a descriptions of the Device Driver Command Line Switches.

See page C-3 for a description of the MSCDEX Command Line Switches

Device Driver command line switches:

Switch	Description	Example
/D:(device name) /D:MSCD000	Specifies the device name of the CD-ROM device. This name MUST agree with the device name declared in MSCDEX.	
/N:n1[,n2]	Specifies the number of CD-ROM discs that are in the magazine. This is installed automatically with Version 2.0 and above of the drivers. You may not see this switch in the device driver line .	/N:6
/C:(device name)	Specifies the device name of the character device for CDP control	/C:CDP
/S:n1[;h1][,n2[;h2]]	Specifies the SCSI ID and the host adapter number of the DRM-600. This must be the same SCSI ID as the one set by the dip switches. This is installed automatically with Version 2.0 and above of the drivers. You may not see this switch in the device driver line .	/S:0
/B or /E	Specifies whether or not the device driver should load in a look ahead buffer for prefetch. /B -> Conventional Memory /E -> Expanded Memory	

Modifications to the AUTOEXEC.BAT file

The INSTALL Program also modifies or creates an AUTOEXEC.BAT file to add an instruction that tells DOS to invoke the MSCDEX.EXE file with its correct parameters. This allows the system to communicate with the CD-ROM drive.

MSCDEX /D:MSCD000

MSCDEX.EXE command line switches:

Switch	Description	Example
/D: (device name)	Specifies the device name of the CD-ROM device. This name MUST agree with the device name declared in DRD600.SYS	/D:MSCD000
/M:n	Specifies the number of cache buffers for MSCDEX to allocate.	/M:24
/E	Tells MSCSDEX to use EMS (Expanded) memory for the cache buffers. If EMS is available, this can save lots of RAM.	
/L: (drive letter)	Specifies for MSCDEX the drive letter to start assigning the CD-ROM discs.	/L:M
/V	Provides memory usage statistics on how much memory is used by buffers, memory resident code, and resident data.	
/K	Tells MSCDEX to use Kanji file structures if present.	
/S	Tells MSCDEX to patch DOS to allow sharing of CD-ROM drives on MS-NET based networks.	

Using CDP Commands / CDP Command List

For Pioneer CD-ROM Changers

Sending CDP (CD Player) Commands from DOS:

At the DOS prompt, type the following:

C:\>ECHO 1KL>CDP <CR> (Carriage return or enter)

This will send a command to the CD-ROM Changer to put Key Lock ON, so that the Magazine cannot be ejected. 0KL will turn Key Lock OFF. See complete list of CDP Commands starting on page D-2. Any of the CDP Commands can be used in place of the 1KL in the above set of instructions.

Use the ***Multi-Player Control Program*** (MPC) described in ***Chapter Three,*** page 3-16 to send CDP commands to the CD-ROM Changer.

CDP (CD-Player) Control Commands

Player Commands

Addressing Modes

Block	MMSSFF	Specifies Minutes, Seconds, and Frames.
Index	I I	Specifies pre-mastered indices
Time	MMSS	Specifies Minutes and Seconds (Frame 0)
Track	TT	Specifies the beginning of track TT

Player Modes

P00	Home	No disc is loaded. Magazine inserted.
P01	Park	The disc is loaded, but not spinning.
P03	Stop	
P04	Play	The drive is playing audio.
P06	Pause	The disc is spinning, but audio play pauses.

The following lists the **C**ommand **M**nemonics and an explanation for each:

CM	Command	Drive Action
?A	Address Request	Returns a 10-digit string (TTIIMMSSFF) representing Track number, Index number, and P-code time for the current address. In Park mode, the string is XXXXXXXXXX, at lead-in 0000000000. At lead-out, the string is AA01000000.
?B	Block Request	Returns a six digit string representing the current address in MMSSFF format. In Park mode, XXXXXX is returned. 000000 is returned when the current address is in lead-in area.
BK	Block Mode	Sets the addressing mode to Block mode. All subsequent addresses must be in MMSSFF format.
CL	Clear	Clears the buffer which stores the stop marker. Will also cancel search mode or play modes.
?G	Catalog Request	Returns the disc's 13 digit catalog number. If the disc does not have a catalog number, or if no disc is loaded, the string will be all "X"s.
?I	Index Request	Returns a four digit string representing the track number and index number. In Park mode, XXXX is returned. 0000 is returned when the current address is in the lead-in area, and AA01 when in the lead-out area.
IX	Index Mode	Sets the addressing mode to Index mode. All subsequent addresses will be interpreted as indices.
?K	Disc Status Request	Returns an eight character string representing the attributes of the currently loaded disc. (N1 - N8)

N1:	Disc Loaded	0: No	1: Yes	X: Unknown
N2:	Audio Track	0: Not Present	1: Present	X: Unknown
N3:	Data Track	0: Not Present	1: Present	X: Unknown
N4:	CDV	0: No	1: Yes	X: Unknown
N5:	CD-I	0: No	1: Yes	X: Unknown
N6-8:	Reserved	(All X)		

CM	Command	Drive Action
*n*KL	Key Lock	Enables or disables the front panel eject button. *n* = 0: Enabled. *n* = 1: Disabled
LO	Lead Out	Lead Out Adress
NF	Scan Forward	Scans forward about 15 seconds; audio attenuated by 12 dB.
NR	Scan Reverse	Scans backwards about 15 seconds; audio attenuated by 12dB.
?O	Read ISRC	Returns the 15 digit International Standard Recording Code for the current track. (DRM-604X series only)
?P	Mode Request	Returns three digit string representing player mode: P00 - Home (No Magazine), P01 - Park Mode, P04 - Play Mode, P06 - Pause Mode, P20 - Home Mode (Magazine Inserted)
PA	Pause	Enters Pause mode at the current address.
PL	Play	Enters Play mode and begins audio play.
?Q	TOC Request	Returns TOC data as a 10 digit string (FFLLEEEEEE), where FF represents the first track, LL represents the last track number, and EEEEEE represents the lead-out address in MMSSFF format.
?Q	TOC Request	Returns TOC data for track *n* as an eight digit string (EEEEEETT), where EEEEEE represents the absolute start address of the track in MMSSFF format, and TT represents the track type. 00 means audio, 04 means data.
?R	Track Request	Returns a two digit string representing the current track. In Park mode, XX is returned. 00 is returned when the current address is in the lead-in area, an AA when in lead-out.
RJ	Reject	Stops the disc and enters Park mode.
*a*SA	Start	Starts disc rotation. The drive will pause at the beginning of the first audio track.
*a*SE	Search	Searches to address *a* and enters Pause mode.

CM	Command	Drive Action
*a*SM	Stop Marker	Sets a stop marker at address *a*. When the stop marker is reached, the drive enters Pause mode. Stop markers are cleared by CL and RJ commands.
?T	Time Request	Returns a four digit string representing the current time in MMSS format. In Park mode, XXXX is returned. 0000 is returned when the current address is in the lead-in area.
TM	Time Mode	Sets the addressing mode to Time mode. All subsequent addresses must be in MMSS format.
TR	Track Mode	Sets the addressing mode to Track Mode. All subsequent addresses must be in TT format, specifying a track number.
*n*VL	Volume	Sets the audio playback level, from 0 to 255.
?X	CDP Model	Returns the revision of the CDP ROM Example: “P150801”
?Z	Disc Query	Returns a three digit number representing the currently loaded disc. If is no disc loaded, “XXX” is returned.
ZO	Eject Magazine	Ejects the magazine.
ZR	Disc Return	Unloads the currently loaded logical unit (tray).
*n*ZS	Disc Select	Loads disc *n* (1-6). After the disc is loaded, the drive goes into Park mode

See next page for a list of Error Messages.

Comand Error Messages

Return	Error	Explanation
R	(GOOD)	The command completed successfully.
E00	Communication Error	Error in command, command too long
E04	Feature not Available	Unusable command, wrong mode, bad track
E06	Missing Argument	A required parameter was not supplied
E11	Disc not Present	No disc loaded, magazine not inserted
E12	Address Error	Search address not found
E13	Focus Error	Focus lost (Hardware problem)
E14	Spindle Unlocked	The spindle is not locking
E16	Eject Received	Front panel Eject button pressed before the command could finish execution.
E90	Panic - Mechanical	A non-recoverable error has occurred in a mechanical operation such as loading.
E91	Can't Eject Magazine	
E92	Can't Load	
E96	Can't Start	Drive was unable to spin-up the disc
E99	Panic	A non-recoverable operational error has occurred.

Example

To instruct the CD-ROM Changer to Load Disc 3 and start playing from 21m 34s 16bl, use this command string: 3ZSSABK213416SEPL<CR>.

Here is a fuller explanation of each command in the example above:

3ZS: Load Disc 3
SA: Start rotation
BK: Block Addressing Mode
213416SE: Search to 21 Minutes, 34 Seconds, 16 Blocks
PL: Begin Play.

Pioneer LaserFacts℠ System

Pioneer New Media Technologies, Inc., has placed a full library of technical resource materials on a ***Pioneer LaserFacts System.*** This is a FAX retrieval system that makes technical documents available 24-hours per day.

Please refer to the ***LaserFacts Directory of Documents*** to obtain the number of the document you wish to order. You can obtain a Directory by calling the LaserFacts line or by calling Ed-User CD-ROM Technic al Support. See ***Appendix F*** for ***Pioneer Technical Resource Numbers.***

To use the ***Pioneer LaserFacts System***, follow these easy steps:

1.) Call: 1-201-327-9273 from your FAX phone.

When you call the ***Pioneer LaserFacts System*** from your FAX phone, your documents will be FAXed to you immediately; you can request up to 3 documents in one day.

2.) Respond to the system's voice instructions.

Enter a five-digit ***Document Number*** from the ***Pioneer LaserFacts Document Directory*** to indicate the document you wish to receive. If you do not have a directory to identify a specific ***Document Number***, follow the menu options and have the directory FAXed to you. By responding to other menu options, you can access some of the most frequently requested documents without entering a document number.

3.) Hang up and wait for documents to be FAXed.

Your documents will be sent immediately when you call from your FAX phone.