Sample FORMAT Command Line:

DCS F F: /V:MYVOL /I4 /S

The DCS FORMAT command, DCS F, tells the FORMAT program to format the disk cartridge in drive F (F:) . The /V switch tells the FORMAT program to assign the target volume a label of "MYVOL." The interleave switch, I4, sets the interleave factor to 4, and the /S switch instructs the program to copy the system files to the disk cartridge.

NOTES:

● All information within an MS-DOS partition on the disk cartridge is destroyed when the disk is formatted by FORMAT. Use FORMAT only on new disks or on disk cartridges containing data you have backed up elsewhere or that you no longer need.

● The FORMAT command partitions the disk cartridge for MS-DOS.

● If no partitioning information exists, or the surface verification option (/F) was specified, the cartridge is partitioned to a full MS-DOS partition. If the cartridge being formatted contains a valid MS-DOS partition and the /F option is not specified, the format process affects only the MS-DOS partition and does not destroy any other partition on the cartridge.

● FORMAT may be used to reformat a disk cartridge that has been generating errors. If a disk cartridge fails to format, refer to the section on Media Related Problems in Chapter 5.

● You must have the system files installed on one of your drives to use the system option (/S). The system checks the default drive, then drive B for the system files. (TANDY.SYS must be on the system disk and loaded into the system before FORMAT will operate.)

● Use the surface verification option (/F) on disk cartridges that have been generating errors. The /F option is automatic for all new disk cartridges.

DCSBACK

Purpose:

The DCSBACK utility (DCSBACK.EXE) makes backup copies of all the files or selected files from a source disk to one or more formatted target disks. The DCSBACK process transcribes data from one disk to another in a format different from the original. The backup image thus created is not directly useable and is intended primarily for archival storage. The DCSREST utility will restore DCSBACK backup files to their normal format. This utility is most commonly used to:

● Back up the files from a hard disk onto a disk cartridge.

● Back up the files from a disk cartridge onto another disk cartridge.

● Back up the files from a disk cartridge onto floppy diskettes.

DCSBACK Menu

This utility cannot be accessed by a menu, and can be used only by entering a valid DCSBACK command at the appropriate MS-DOS command line prompt.

DCSBACK Command Line Format

DCSBACK [sourcedr:][srcpath][filename[.ext]] targetdr:[tgtpath] [/optionsw][;]

NOTE: DCSBACK processing is performed in one of two modes; sizing mode or backup mode. If the sizing mode option switch (/Z) is set, the DCSBACK routine is restricted to measuring the amount of disk space required to back up the designated files. An actual backup operation is not performed. If the sizing switch (/Z) is not appended to the command string, DCSBACK performs backup processing

Explanation

sourcedr:
The source drive is an optional parameter. If you do not specify a source drive (the drive containing the files you want backed up), the program assumes the files are on the default drive.

srcpath
The source path identifies the specific directory that contains the files you want backed up. If a path is not specified, the program assumes the files being backed up are on the current directory of the source drive.

filename
The source filename identifies a specific file or set of files for backup. Like MS-DOS, the DCSBACK program recognizes the question mark symbol (?) and the asterisk (*) as wildcards in writing file names. (Refer to your MS-DOS Manual for wildcard usage.) If no files are specified, the DCSBACK program does a backup on all files in the specified source path.

.ext
The source file extension is used only when a source file is specified.

NOTE: Do not use the target drive or target path parameters if the sizing option (/Z) is being used. An error message will result.

targetdr:
The target drive is mandatory for backup mode operations and must be specified. This tells the DCSBACK program where to write the backup image.

tgtpath
The target path identifies a specific directory on the disk or disk cartridge where the backup file is to be placed. If no target path is specified, the DCSBACK program assumes it to be the current directory of the target drive.

Option Switches

/F
The filename display options tells the DCSBACK program to display the name of each file as it is processed.

FORMAT Command Line Format

DCS F [*targetdr:*] [/F] [/In] [/S] [/Vlabel]

Explanation

DCS F
This is the disk cartridge system FORMAT command using the short form (F).

targetdr:
The target drive specification option. If you do not specify a drive, the first DCS drive (drive E) is assumed.

Option Switches

/F
The surface verification option causes the program to check the disk surface and replace bad sectors and tracks with spares. This option should be used with all new disk cartridges and any disk cartridge that has been generating errors.

/In
The target interleave option allows you to set the interleave value (*n*) for the target disk. Valid interleave values (*n*) are 1, 2, 4, 8, 16, or 32. If no value is specified, COPY uses interleave 4, which is the recommended value for the Tandy 2000 system.

/S
The system option copies the system onto the cartridge disk.

/Vlabel
The volume label option provides an 11-character field for entering a volume name (or number) for the disk cartridge being formatted. This option instructs the FORMAT program to label the volume with the name (up to 11 characters) following the /V option switch. If you do not enter the volume label option switch (/V) followed by the volume label, the FORMAT utility will prompt you for a volume name.

/S The subdirectory option causes processing (backup mode or sizing mode) in each subdirectory in the path specified (or assumed) in the command line. If the subdirectory option (/S) is not appended to the command string, only the files in the designated directory will be processed.

/SP Subdirectory prompt option tells the DCSBACK program to interrupt processing as it finds each subdirectory in the path specified (or assumed) in the command line, and to prompt you to confirm whether the subdirectory should be processed. You have four choices (selectable with the [Y], [N], [A], and [Q] keys) at the prompt:

[Y] means yes, process the specified subdirectory.

[N] means no, do not process. Go on to the next subdirectory in the path.

[A] means yes, process the specified subdirectory and all of its subdirectories.

[Q] means stop the process and exit DOS.

/Dmm-dd-yy The date option restricts the BACKUP utility to processing only those files that have been changed on or since the date specified (mm-dd-yy). MS-DOS changes a file's date each time it is altered. If this option is not specified, file dates are ignored.

/M The modified files option uses DCSBACK to process only those files modified since the last backup. The "clear modified" option (/C) normally is used in conjunction with the modified files option (/M) to clear the modified attribute of each file on the source disk after it is backed up. If the /M option is not specified, the attributes of the source files will be ignored.

FORMAT

Purpose:

The FORMAT utility is used to format DCS disk cartridges for use with the MS-DOS operating system.

FORMAT Menu:

When you select FORMAT at the main menu (or enter DCS F and press [ENTER]), the FORMAT menu appears. Enter a selection or press [ENTER] to accept default values. If you have problems or do not understand the messages, read the **NOTES** at the end of the section carefully. For recurring errors refer to the suggestions in Chapter 5, Solving Problems.

```
┌─────────────────────────────────────────┐
│         DCS FORMAT Version 4.x           │
├─────────────────────────────────────────┤
│              Target Drive                │
│           >>E:  DCS  10Mb<<              │
│             F:  DCS  10Mb                │
├─────────────────────────────────────────┤
│                Options                   │
│  Format cartridge at interleave:      4  │
│  Do internal surface verify?         No  │
│  Copy system to formatted cartridge? No  │
│  Retain DOS 2.X compatibility       Yes  │
│  Volume label for cartridge:             │
├─────────────────────────────────────────┤
│       Press Esc to quit, Tab for help,   │
│          Enter to begin execution        │
└─────────────────────────────────────────┘
```

/C

The "clear modified attribute" option clears the modified attribute of each file on the source disk as it is backed up. Files cleared of the modified attribute are passed over during the next backup, assuming the modified files option (/M) is used, unless they have been modified again. This option normally is used in conjunction with the "modified file" (/M) option. If the "clear modified attribute" option (/C) is not specified, the attributes of the source files will not be altered. This option is ignored if the sizing switch (/Z) is appended to the command.

NOTE: If the source disk is write-protected, the modified attribute of its files will not be cleared as they are backed up, and no error message will be provided.

/V

The verify option forces the DCSBACK process to verify that the backup image is written to the target disk reliably.

/W

The wait option causes a pause after DCSBACK program loading, so that you can replace your DCS utilities disk cartridge or diskette with one containing the files you want to back up.

/Z

The sizing option restricts DCSBACK processing to calculating the amount of disk space required to backup the file specified. It prohibits actual backup processing. The purpose of the sizing mode option is to provide you with an approximation of target disk space requirements. When the /Z option is not appended to the DCSBACK command, specified files are backed up.

;

The prompt suppressor semicolon (;) tells the DCSBACK utility program to begin execution immediately. Normally, after the DCSBACK program is entered, it returns a prompt to the screen, "Press any key to begin." This prompt is suppressed when the semicolon (;) is appended to the command string. If the

This copies all the files with the complete file structure of the second 10Mb disk onto the CART2 subdirectory of the 20Mb disk cartridge. The append (/A) option enables you to copy the contents of the second disk cartridge without deleting the data that is already on the target disk cartridge.

To avoid problems with file names and subdirectory names that are duplicates of file and subdirectory names on the target disk, copy files into an empty subdirectory on the target disk, such as illustrated in the previous example. Files and subdirectories with the same name can cause the copy process to fail. When a COPY routine fails, a "DOS function error" message may appear.

semicolon is not appended, DCSBACK prompts you to press a key before starting a backup or sizing process. The prompt suppressor option is provided to automate the use of the DCSBACK routine from a batch file.

Example DCSBACK Commands:

EXAMPLE 1

DCSBACK C:\DATABASE /M /C /Z;

The command in example 1 does not result in any files being backed up because the sizing option (/Z) limits the command to space measurement only. The /Z option instructs the DCSBACK utility program to calculate the size of the files and the target space requirements to back up all modified files (/M) in the DATABASE directory. The full path to the database directory is shown as c:\DATABASE. Since no files are backed up by this operation, the "clear modified attributes" (/C) option is ignored. The ending semicolon (;) signals DCSBACK to execute the command without pausing for confirmation.

EXAMPLE 2

DCSBACK C:\DATABASE*.DAT D:\ /SP /M /C /F /V

The command in example 2 tells DCSBACK to backup all files having a .DAT extension (*.DAT) that are in the DATABASE directory of drive C. The backup process will be limited to those files that have been modified (/M) since the last backup. The command also tells the BACKUP utility to clear the modified attribute (/C) on the source disk for each backed up file. The subdirectory prompt switch (/SP) instructs the program that when scanning subdirectories subordinate to \DATABASE, it is to prompt you for each subdirectory in which it finds .DAT files and to process only those .DAT files you approve. Finally, it instructs the utility to display the names of the files as they are loaded (/F), and to verify that the backup image has been written correctly to the target disk (/V).

NOTE: The append option (/A) and the current subdirectory option (/C) also can be used together to copy part of the source disk to a subdirectory of the target disk without deleting all the files on the target disk.

• To prevent accidental erasure of any data, always write-protect your source disk.

• When you make a copy from one DCS cartridge to another, all of the partition information on the target disk cartridge is destroyed.

• If your system has two 20Mb disk cartridge drives, you can copy the files from two 10Mb disk cartridges to one 20Mb disk cartridge. To do this, insert the first 10Mb cartridge in drive E and a formatted 20Mb cartridge in drive F. Assume you are operating from a hard disk system and DCS.EXE files are on the hard disk. Type:

DCS C E: F: ENTER

This copies all the files from the 10Mb cartridge in drive E to the 20Mb cartridge in drive F in a file-by-file format.

• Then type:

MD F:CART2   ENTER

This creates the CART2 subdirectory on the 20Mb disk.

• Now type:

CD F:CART2   ENTER

This changes the current directory on the F drive to the new CART2 subdirectory you just created.

• Now insert the second 10Mb disk cartridge in drive E, and type:

DCS C E: F:/A   ENTER

NOTES:

- You can exit the DCSBACK utility program after it has begun by pressing the [ESC] key.

CAUTION: Do not use the [CTRL]-[BREAK] combination to exit the program. Results can be unpredictable.

- To access and display the BACKUP help screen, type DCSBACK and press [ENTER].

- The clear modified attribute option (/C) normally is used in conjunction with the modified files option (/M) to clear the modified attribute of each file after it is backed up. This procedure prevents files from being backed up again until they are modified.

- The DCSBACK utility program can use several target disks to process a single large source. When the target disk becomes full, the backup file is closed on the first disk and a second disk is requested. Processing continues on subsequent target disks until all the requested files have been backed up.

- The DCSBACK utility program generates a single DCSBACK file (.IBK file) containing all the original files backed up. This backup file is given a name consisting of the month and day and a daily sequential backup number (mmdd-nn) with the extension .IBK. The utility skips any files with an extension of .IBK. When a single backup file spans more than one target disk a letter designator (A, B, C, etc.) is added at the end of the two-digit sequence number for each target disk used. For example, if the file 0228-01.IBK spans three disks, the .IBK filename for the first disk is 0228-01A.IBK, 0228-01B.IBK for the second disk, and 0228-01C.IBK for the third disk.

- The DCSBACK utility program tends to compress files into a smaller disk space by eliminating the gaps between files. The backup file created by DCSBACK frequently is smaller than the total space used by all the files before they were backed up. This compression is more noticeable when you back up large numbers of small files.

Type R (for retry) to tell COPY to make another attempt to copy the file containing the error.

Type I (for ignore) to tell COPY to ignore the error and continue copying the file. The file transferred to the target file using the "ignore" option may be unusable.

Pressing the [ESC] key terminates the copy process.

- Copying between different sizes of disks takes more time than copying between two disks of the same size. COPY requires 2 to 5 minutes to make a copy between two DCS disk cartridges of the same type and size.

- When copying between different types or sizes of disks, COPY performs a file-for-file copy of data from the source disk to the target disk. If the source disk is larger than the target disk, or if it simply contains more information than the target disk can accept, COPY stops processing when the target disk is filled even though all information has not been transferred from the source disk.

NOTE: The last file that COPY attempts to transfer from the source to the target may not be completed and may not appear on the target disk.

- If the target disk is a DCS disk cartridge, COPY formats the target disk before the copy utility begins to read the source disk. The interleave factor for the target disk can be set to a different value than that of the source disk. With this option, copies that will optimize performance on different computers can be made. For example, a copy of a cartridge disk set at interleave 4 for the Tandy 2000 can be set at interleave 2 for use with an IBM AT. A new volume label can be specified for the target disk.

- COPY destroys all files residing on the target disk, unless the append option (/A) is used. If you are not using a newly formatted target disk, be sure you no longer need the data on the target disk.

- The DCSBACK utility program uses all the RAM available in the system to increase performance. Generally, the more RAM you have available, the greater the speed of the DCSBACK processing. For even better performance, you are advised to use some of your RAM to provide between 20 and 40 buffers. To do this, you must change the buffer count specified in the CONFIG.SYS file.

- If you have less than 256k of RAM in your system, you may wish to make a separate boot disk for DCSBACK and DCSREST, with a CONFIG.SYS file that specifies more buffers than defined on your normal boot disk.

- Most of the available options can be combined in a single DCSBACK command, but there are exceptions. For example, if the sizing option (/Z) is specified, conflicting commands are ignored. Also, specifying a target drive in a command containing the sizing option (/Z) will cause an error message. For example, the command:

    DCSBACK C:\ DATABASE D: /Z /SP

    ... causes an error message because the target drive (D:) is specified in a command string for the sizing mode; but the following command

    DCSBACK C:\ DATABASE /Z /SP

    ... returns the requested size information.

CAUTION: If you use the interleave option (/I) to specify an interleave value that is different from the one currently assigned to the target disk, you will lose all the files on the target disk if a sector-by-sector format is processed. This is true even if the append (/A) option is used to protect files on the target disk. If you append the file copy option (/F) to the command string, a file-by-file copy format is processed and the interleave option (/I) is ignored.

/Vlabel Target volume label option. This option instructs the COPY program to label the volume with the *label* you insert following the /V switch. If you use the option switch (/V) without a label following it, the program will insert a prompt asking you to provide a new volume label for the target disk. If a new volume label is not entered, COPY uses the volume label on the source disk.

Example COPY Command:

DCS C C: E: /V [ENTER]

This command instructs the DCS COPY routine to copy the files from the hard disk (drive C) onto the disk cartridge (drive E). The volume label option (/V) instructs the COPY program to prompt the operator to furnish a volume label for the target disk. The COPY program responds with an on-screen message ending with an 11-character field prompting the operator to enter a new volume label for the disk in drive E.

NOTES:

- When copying between two DCS disk cartridges, COPY performs a sector-for-sector transfer of data from the disk cartridge in the source drive to the disk cartridge in the target drive.

- If, while doing a file-for-file copy, an error occurs:

    Type A (for abort) to stop the copy process on the file having the problem, and to cause COPY to go on to the next file.

DCSREST

Purpose:

The DCSREST utility program (DCSREST.EXE) restores files from the DCSBACK format to MS-DOS format. The DCSREST command is used to restore all the files in an .IBK file or files from a selected directory. It also restores files selected by filename, by extension, or both. The target disk can be the original or any other DOS disk.

DCSREST Command Line Format:

DCSREST [sourcedr:][srcpath]backupfile[(filespec)] targetdr: [tgtpath][/optionsw][:]

NOTE: DCSREST processing is performed in one of two modes: sizing mode or restore mode. If the sizing mode option switch (/Z) is set, the DCSREST routine is restricted to measuring the total size of the .IBK file. An actual restore operation is not performed. If the sizing switch (/Z) is not appended to the command string, DCSREST performs file restore processing.

Explanation

sourcedr: The source drive is an optional parameter that identifies the drive containing the .IBK file you want to restore. If no source drive is designated, the DCSBACK utility program assumes it to be the default drive.

srcpath   The source path identifies the directory in which the .IBK file can be found. It is an optional parameter. If no path is provided, the DCSBACK program assumes the .IBK file is in the current directory of the specified or assumed source drive.

backupfile   The name of the .IBK backup file is a **mandatory** variable that provides the program with the name of the .IBK file you intend to restore. The file was assigned a name with an .IBK extension by the DCSBACK utility (mmdd-nn.IBK). The mmdd represents the

When you use the /A option, the file structure from the source disk is added to the current directory on the target disk. To avoid problems occuring as a result of duplicate file names and subdirectory names, make a new subdirectory on your target disk, and make it the current directory. Copy the contents of the second source disk to the new subdirectory of the target disk.

CAUTION: Files and/or subdirectories with the same names can cause the copy to fail and make your target disk unusable.

CAUTION: Make sure your target disk is not write-protected. A write-protected disk will cause the COPY utility to fail.

/F   The file copy option forces COPY to execute a file-copy procedure rather than a sector-for-sector copy. This copy option can be used to arrange files on a disk more efficiently.

/C   The current subdirectory option switch restricts the COPY program to processing only those files on the source disk that are in the current subdirectory and its subdirectories. If not used, all directories and their files from the source disk are processed.

NOTE: The append option (/A) and the current subdirectory option (/C) can be used together to copy part of the source disk to a subdirectory of the target disk without deleting all the files on the target disk.

/In   Target interleave option. The /I option allows you to set the interleave value (n) for the target disk, making it possible to create copies that can be exchanged between computers such as the IBM AT and the IBM PC that run at different interleave values. Valid interleave values (n) are 1, 2, 4, 8, 16, or 32. If no value is specified, COPY uses interleave 4.

month and day the backup was created, and nn is the daily sequential backup number). The .IBK extension is assumed and any other extension you may assign is ignored.

(filespec)   The source file specification option (filespec) allows you to specify which file or files within the .IBK file you wish to process. If you do not include a file specification, the DCSBACK utility processes all files contained in the specified .IBK file. Syntax for filespec is:

([path][filename[.ext]])

If the path specification is provided, only the files from that path are processed. If the filename is provided, only files matching that filename are processed. The extension element (.ext) is an optional part of the filename. Like MS-DOS, wildcards may be used to generalize filenames and extensions. You **must** type the parentheses (not the square brackets) around any source file specification. The append (/A), filename prompt (/FP), and forced restore (/R) option switches can modify the effect of this parameter.

NOTE: Do not use the target drive or the target path parameters if the sizing option (/Z) is being used. An error message will result.

targetdr: The target drive is a mandatory parameter for the DCSREST program. This tells DCSREST where to place the restored file(s). If, however, you want to perform a sizing process, the target drive **must be omitted** from the command string, or an error message will result.

tgtpath   The target path identifies the directory where the files are to be placed as they are restored. If no target path is specified, restoration of the files begins in the current directory of the target drive with their original

---

Typical COPY Menu

```
                  DCS COPY Version 4.x
      Source Drive              Target Drive
   »E:  DCS  10Mb«           E:  DCS  10Mb
     F:  DCS  10Mb           F:  DCS  10Mb

                  Options                        4
   Format target disk at interleave:
   New target disk volume label:

            Press Esc to quit, Tab for help
                 Enter to begin execution
```

COPY Command Line Format:

DCS C [sourcedr:] targetdr: [/A] [/C] [/F] [/In] [/Vlabel]

Explanation

DCS C   Disk Cartridge System Copy command, using the short form (C) instead of the long form (COPY).

sourcedr: Source drive is optional. If you do not specify the source drive, the default drive is assumed.

targetdr: Target drive. You MUST specify a target drive.

Option Switches

/A   The append option enables you to append the files from two source disks to a single target. COPY normally deletes all data from the target disk before it copies the data from the source. If the /A option is selected, COPY leaves the files on the target disk undisturbed and adds the files from the second source.

directory structure, but as subdirectories of the current directory. We recommend using a backslash (\), as any other path specification may produce unexpected results. For example, restoring files originally coming from the \DOS directory with a specified target path of \DOS would create a path \DOS\DOS.

Options Switches

/F The display filename option instructs the DCSREST utility to display the name of each file as it is processed.

/FP Filename prompt. When this option is used, it instructs the DCSREST utility to display the name of each qualifying file and to query with a prompt whether the files should be processed. You may respond to the prompt with one of three choices (selected with the [Y], [N], or [Q] keys). These are explained as follows.

[Y] confirms that the file is to be processed.

[N] instructs the program to ignore the file and not process it. The program then proceeds to the next file.

[Q] signals the utility to stop DCSREST processing and exit to DOS.

/A The append option protects files already on the target disk from being overwritten by files of the same name that are being restored. Where normal operation is to restore all the selected files, the append option (/A) prohibits DCSREST from performing restore processes on files that already exist on the target disk.

/R Forced restore. Where normal DCSREST operations would be to recognize and comply with file protection attributes, the forced restore option (/R) signals DCSREST to ignore hidden, system, or read-only attributes, and to overwrite files with these attributes.

COPY

Purpose:

The COPY utility is used to copy files from one disk cartridge to another and from a hard disk to a disk cartridge or disk cartridge to a hard disk. Do not use DCS COPY to copy files to or from floppy diskettes.

The DCS COPY program uses one of two copy formats, depending on the source and target device, source and target media, and optional parameters appended to a DCS COPY command entered to the command line.

• The COPY routine uses the sector-by-sector copy format only when copying from one DCS disk cartridge to another DCS disk cartridge of the same size. For example, the program will not do a sector-by-sector copy between a hard disk drive and a cartridge disk drive or between a 20Mb cartridge disk and a 10Mb cartridge disk. You can override the sector-by-sector format if you use the command line to run the COPY program, and use the file copy parameter (/F) to specify a file-by-file copy format. When disk cartridges are copied sector-by-sector, the program duplicates the directory and file structure from the source disk to the target disk.

• The COPY routine uses the file-by-file copy format when copying from a hard disk to a disk cartridge, from a disk cartridge to a hard disk, or any time the file copy parameter (/F) is appended to a COPY command on the command line. When the COPY process uses the file-by-file format, the copied files are entered to the current directory of the target disk.

COPY Menu:

If you select COPY from the main menu (or enter DCS C) and press [ENTER], the menu for the COPY program appears. From this menu, you are asked to select "source" and "target" drives and to set two options. Instructions contained at the bottom of the menu guide you in activating the utility. If you have problems or do not understand the messages, read the NOTES at the end of this section carefully. For recurring errors, refer to the suggestions in Chapter 5, Solving Problems.

- [/option switch]

Each utility has a variety of option switches that can be used to limit or enhance the manner in which the utility processes information. The brackets tell you their use is optional. Option switches are always specified by a slash character (/). The slash character typically is followed by an alphabetic character to identify the switch function it performs.

Utilities activated via the command line use the same prompts, status messages, and error messages as those activated via the menu method.

The command DCS H (HELP) will display a usage summary for all DCS routines.

Utility Descriptions

The remainder of this chapter contains individual utility descriptions. Where applicable, the description includes an illustration of the utility menu format, an example of the command line format, and a list/description of parameters. In addition, a **NOTES** section is appended at the end of each description to help resolve questions.

/V   The verify option causes the DCSREST utility program to verify that each file was reliably written to the target disk.

/W   The wait option causes a pause after DCSREST program loading, so that you can replace your DCS utilities disk cartridge or diskette with one containing the file you want to restore.

/Z   The sizing option restricts DCSREST processing to calculating the size of the .IBK files. It prohibits actual backup processing. The sizing mode option provides you with an approximation of target disk space requirements. When the /Z option is not appended to the DCSBACK command, specified files are backed up. Do not specify the target drive or the target path when using this option or an error message will result.

;   The prompt suppressor semicolon (;) tells the DCSREST utility program to begin execution immediately. Normally, after the DCSREST program is entered, it returns a prompt to the screen, "Press any key to begin." This prompt is suppressed when the semicolon (;) is appended to the command string. If the semicolon is not appended, DCSREST prompts you to press a key before starting a backup or sizing process. The prompt suppressor option is provided to automate the use of the DCSBACK routine from a batch file.

Sample DCSREST Command Lines:

EXAMPLE 1

DCSREST D:0920-01 (\ DATABASE \ *.DAT) /Z;

The command in example 1 includes the sizing option (/Z) to instruct the DCSREST utility program to calculate the total size of all files having a .DAT extension in the DATABASE subdirectory (\ DATABASE \ *.DAT). This subdirectory is found in the first backup file (.IBK file) made on September 20 on the disk in drive D: (d:0920-01). The prompt suppressor semicolon (;) causes the command to be executed without a pause for confirmation.

EXAMPLE 2

DCSREST D:0920-01 (\DATABASE*.DAT) C:\ /FP /R /V

This command line tells the DCSREST utility program to restore all files having an extension .DAT in the DATABASE subdirectory (\DATABASE*.DAT). This subdirectory is on the disk in drive D, in the first backup file (.IBK) made on September 20 (D:0920-01). The program is to restore the file to the root directory of the disk in drive C:(C:\). It also tells the DCSREST utility to query for confirmation (/FP) before restoring each file, to overwrite any files with special attributes (/R), and to verify that each file is written correctly to the target disk (/V).

NOTES:

• To access and display the DCSREST utility help screen, type:

  DCSREST H [ENTER]

• Remember that the "packing" (file space compression) that occurred during backup will cause the actual space requirements for restored files to be larger than the space required for the backup file. For these reasons, DCSREST does not provide an exact estimate of the space required on the target disk.

• DCSREST uses as much RAM as is available. Generally, more RAM will increase the speed of DCSREST. For better performance, you can use some of your RAM to provide between 20 and 40 buffers. The buffer count is specified in the CONFIG.SYS file.

• If the .IBK file spans several disks, the DCSREST utility will request each disk in the order they were created, beginning with number one, until it has restored all of the requested files. Each disk must be processed in sequence.

• If you attempt to halt the DCSREST utility while it is processing a file that crosses over to another disk in a large backup file, a warning message tells you that the file was not completed and that it has been deleted. Only the fragment of the file restored to the target disk is deleted. The backup copy of the file remains intact in the .IBK file.

Each utility program has its own set of parameters that define the way the program executes. Refer to the detailed description of each utility later in this chapter for a list of parameters linked to that utility. The following generalized example illustrates a typical command line format.

  DCS *utility* [*sourcedr:*] *targetdr:* [/*optionsw*]

The elements used in this example are explained as follows:

• DCS

DCS is the command that calls for a utility program from the DCS.EXE file.

• *utility*

Lowercase italics informs you that you must supply the name of the DCS utility. You can use the full name of the utility (COPY, FORMAT, INSTALL, PARTITION, or TOOLS), or you may use its initial (C, F, I, P, or T).

• [*sourcedr:*]

Brackets enclosing this parameter indicate that it is optional whether you designate the source drive. If you do not specify a source drive, the program uses the default drive as the source. Lowercase italics tell you that you must supply a letter specifying the source drive, if you choose to use this parameter. Whenever a letter on the command string represents a disk drive, it must be followed by a colon (:).

• *targetdr:*

Lowercase italics tell you to supply the appropriate letter to specify the target drive. Don't forget the colon (:) that must follow a drive designator. Since this parameter is not enclosed by brackets, it is a mandatory entry.

Actuating Utilities with a Command Entry

When you become more familiar with your DCS, you may find it easier and quicker to activate DCS.EXE utility routines (COPY, FORMAT, INSTALL, and TOOLS) from the MS-DOS prompt (command line) rather than using the menu. The PARTITION routine can be accessed only through the menu system. DCSBACK and DCSREST can be accessed via a command string entered on the command line (at the appropriate MS-DOS prompt) and are explained later in this chapter.

When you use the command line format to use the utility routines contained in the DCS.EXE file, type the command (DCS) at the appropriate prompt. The DCS command instructs MS-DOS that the DCS.EXE program is to be executed. The way the program executes depends on the parameters, if any, that you append to the DCS command before entering it with the ENTER key. The utilities program will execute as follows.

1. The program looks for a parameter that identifies which routine to execute. If you fail to specify a utility routine, the DCS.EXE program always displays the main menu.

2. To specify a routine on the command line, follow the DCS command with a blank space, followed by the first letter of the desired utility's name. For example, if you wish to use the COPY utility, your entry to the command line will look this:

   DCS C ENTER

   The DCS utilities program looks for one or more additional parameters on the command string for instructions on how to execute the utility. If no other parameter is specified, the program assumes you wish to use the menu from which to select options, so it displays the menu for the selected utility program.

3. To append parameters on the command line, leave a blank space following the previous entry, and type the next parameter. You must leave a blank space between each parameter entered on the command line.

Display Contents of .IBK File

You can list the contents of an .IBK file on the screen with a DCSREST command using the sizing option. To list the contents, type:

DCSREST D:0920-01 /F /2

In this example, the DCSREST program will execute a sizing operation on the first .IBK file created on September 20th and a list of the files it contains will scroll down the screen. To freeze the display, press the HOLD key. To continue scrolling, press the space bar.

INSTALL

Purpose:

The INSTALL routine contained in the DCS.EXE file provides for automated installation of the TANDY.SYS, CONFIG.SYS, and ANSI.SYS files onto a system disk. It also provides optionally for the installation of the DCS.EXE utility file.

The install utility routine is partially described in Chapter 2, including a procedure for performing the initial INSTALL process. For this initial installation, you were provided a specific example to follow. This section provides a more detailed description of the INSTALL routine and procedures for using either a menu option or a command string for subsequent INSTALL processing.

INSTALL Menu

You can access and display the INSTALL menu in either of two ways; by selecting the INSTALL option from the utilities main menu (see the main menu description earlier in this chapter), or by accessing the INSTALL menu directly via a menu command. To enter an INSTALL menu command, type:

DCS I [ENTER]

A menu display, similar to the one illustrated below, will appear on your monitor.

DCS INSTALL Version 4.x	
Source Drive	**Target Drive**
»A: Floppy Disk«	A: Floppy Disk
B: Floppy Disk	B: Floppy Disk
E: DCS 10Mb	E: DCS 10Mb
F: DCS 10Mb	F: DCS 10Mb

Options	
Move utility package to system disk?	No

Press **Esc** to quit, **Tab** for help,
Enter to begin execution

4. Press the [PGDN] key to move from the source or target window to the "options" window. The [PGUP] key will return your cursor to the source/target windows if necessary. The options listed in this window are labeled and their default values are displayed.

5. Use the [↑],[↓] cursor control keys to position the cursor on any displayed option value you wish to change. The following protocol applies when you need to change displayed values.

• The [Y] or [N] keys are used to verify your choice on option items requiring a "Yes" or "No" response.

• With the cursor highlighting a value field, pressing a [→] or [←] cursor control key will increment numeric values to their next highest value until all possible values have been displayed. Continued use of left/right arrow keys will repeat the cycle.

• When an option value consists of two choices, such as "enable" and "disable," pressing either the left or right cursor key will toggle the selection between the two possible choices.

• Some utility programs provides for optional assignment of a volume label. When this option is available, an 11-character field is provided for specifying a volume name.

6. Press [TAB] to get a help screen. The help function will provide you with an on-screen explanation of how the various keys are used.

7. Press [ENTER] to execute the utility.

8. Press [ESC] to abort the utility.

9. Check the bottom window of the menu for prompts and other status messages.

Instructions are printed in the bottom window to guide you in implementing this utility. Press the [TAB] key to get on-screen help and additional guidance. You can toggle the value of the system disk option to select YES, or you can press [ENTER] to accept the NO default value. If you have problems or do not understand the messages, read the **NOTES** at the end of the section carefully. For recurring errors, refer to the suggestions in Chapter 5, Solving Problems.

INSTALL Command Line Format

DCS I [sourcedr:] targetdr: [/optionsw]

Explanation

sourcedr: The source drive specification is optional, so if you specify only one drive on the command string, the system assumes it is the target drive, which is a mandatory parameter. If you do not enter a valid source drive selection, the system assumes the source drive to be the default drive.

targetdr: The target drive specification is mandatory. If only one drive is designated on the command string, the system assumes it to be the mandatory target drive.

Option Switches

/I   The utility package option is used when the target disk has sufficient space to accept the DCS.EXE file. When appended to the command string, the utility package option (/I) instructs the install program to copy the DCS.EXE file (containing the COPY, INSTALL, FORMAT, PARTITION, and TOOLS utility routines) to the system diskette.

NOTE: The INSTALL routine also installs ANSI.SYS and CONFIG.SYS files to the system disk if not already installed, and deletes any references to old DCS drivers in the CONFIG.SYS file.

Sample Utility Menu

```
┌──────────────────────────────────────────┐
│            DCS COPY Version 4.x           │
├───────────────────┬──────────────────────┤
│   Source Drive    │     Target Drive      │
│  »E: DCS  10Mb«    │    E: DCS  10Mb       │
│   F: DCS  10Mb     │    F: DCS  10Mb       │
├───────────────────┴──────────────────────┤
│                 Options               4   │
│                                           │
│  Format target disk at interleave:        │
│  New target disk volume label:            │
├───────────────────────────────────────────┤
│       Press Esc to quit, Tab for help     │
│         Enter to begin execution          │
└───────────────────────────────────────────┘
```

Generalized Menu Procedures

In this example, the menu for the COPY utility is divided into five windows. The top window contains the identification of the selected utility. Three interactive windows are labeled "Source Drive," "Target Drive," and "Options." The bottom window contains procedural information. The procedure that follows uses the DCS COPY menu as an example for a generalized overview of how any utility menu can be used.

1. When the menu appears, select the desired drive for the copy "source" via the [↑], [↓] cursor control keys (up/down arrow keys). The cursor highlights the name of the selected drive.

2. With the name of the selected drive highlighted by the cursor, move from the "source" window to the "target" window via the right cursor control key [→]. If you need to return to the "source" window, use the left cursor control [←].

3. Use the [↑], [↓] cursor control keys to select the desired "target" drive.

Example INSTALL Command:

DCS I B: A: /I

The command illustrated above tells the INSTALL utility program to copy the TANDY.SYS, CONFIG.SYS, ANSI.SYS, AND DCS.EXE files from the DCS utilities diskette residing on drive B to the system diskette residing on drive A.

NOTES:

- The INSTALL program modifies an existing CONFIG.SYS file, or creates one if none exists.

- The INSTALL program deletes any references to previous versions of the DCS driver from the CONFIG.SYS file.

- If adequate space is not available on the system disk for the DCS.EXE file INSTALL will not copy it onto the target disk.

- The DCS driver (TANDY.SYS) is always copied onto the root directory of the target disk.

Utilities Main Menu

Disk Cartridge Utilities . . .	Version 4.x
»COPY« —> Cartridge image copier.	
FORMAT —> Cartridge formatter.	
INSTALL —> DCS system installer.	
PARTITION —> Cartridge partitioner.	
TOOLS —> Unique TANDY system options.	
Press **Esc** to quit, **Tab** for help	
Enter to begin execution	

When the menu appears, select the desired utility routine via the ↑ , ↓ cursor control keys. With the name of the selected routine highlighted by the cursor, press the ENTER key to activate the selection.

After you have entered your selection, observe that the main menu fades from the screen and is replaced by the utility menu specified. Each utility program has its own distinctive menu similar to the following COPY menu. The COPY menu is used as an example for the generalized menu procedures that follow.

NOTE: You can bypass the main menu by typing DCS at the appropriate MS-DOS prompt, followed by a space and then the first letter of the utility name. When you press ENTER, the menu for the utility appears.

For example, to display the COPY utility menu, type:

DCS C ENTER

In addition, DCSBACK and DCSREST are accessible only by using a command typed on the command line. No menu is available for the DCSBACK and DCSREST utilities.

Table 4-1 lists each utility program by name, summarizes its purpose, and shows whether it can be actuated via a menu or a command line.

Table 4-1. DCS Utility Summary

Utility Name	Function	Activate By: Command	Menu
COPY	Duplicates data on DCS cartridges and fixed disks.	■	■
FORMAT	Formats DCS disk cartridges for use with DOS.	■	■
DCSBACK	Makes backup copies of all, or selected files, from a source disk to one or more target disks.	■	
DCSREST	Restores all the files, or selected files, to DOS readable format after being created with DCSBACK.	■	
INSTALL	Installs the DCS driver and utilities on a system disk or diskette.	■	■
PARTITION	Partitions a DCS cartridge	■	■
TOOLS	Enables or disables the DiskSaver option.	■	■

Menus

All utility programs contained in the DCS.EXE file can be accessed using the main menu. The DCSBACK and DCSREST utilities can be used only via a typed command entered at the DOS prompt.

To display the main menu on your screen, type DCS at the appropriate prompt, and then press the [ENTER] key. A menu similar to the following will be displayed on your screen.

PARTITION

Purpose

The partition program enables users to create and modify the MS-DOS partition on a disk cartridge. When appropriate, it can also be used to change the active partition on a disk cartridge.

PARTITION Menu

You can access and display the PARTITION menu in either of two ways; select the PARTITION option from the utilities main menu (see the main menu description earlier in this chapter), or access the PARTITION menu directly via a PARTITION menu command. To enter a PARTITION menu command, type:

DCS P [ENTER]

A menu display similar to the one illustrated below will appear on your monitor:

```
DCS PARTITION Version 4.x

             Target Drive
           »E:  DCS 10Mb«
            F:  DCS 10Mb

          Partition Information
Partition  Type    Status   Start  End   Size
1          MS-DOS  Active    0      305   306
2
3
4

Cartridge Size:   10,027,008  Total bytes
                        306   Tracks Total
                          0   Tracks Unused

          Press Esc to quit, Tab for help
```

Instructions are printed in the bottom window to guide you in implementing this utility. Press the [TAB] key to get on-screen help and additional guidance. You can change variable values by placing the highlighted cursor at the field requiring change and typing the new value.

When you are finished setting up your partition, press the [INSERT] key to create it.

CAUTION: All MS-DOS information on the disk cartridge is destroyed when the MS-DOS partition is created or modified.

If you have problems or do not understand the messages, read the **NOTES** at the end of the section carefully. For recurring errors, refer to the suggestions in Chapter 5, Solving Problems.

PARTITION Command Line Format

The PARTITION routine cannot be implemented using a command string procedure. To implement a partition process, use the partition menu procedure described on the previous page.

Notes

• The PARTITION utility cannot be implemented using a command line entry.

• The PARTITION utility recognizes only cartridges that have been formatted with the DCS FORMAT 4.x utility.

• To delete the MS-DOS partition, position the cursor over the MS-DOS line in the table and press the [DELETE] key. The MS-DOS values will fade.

• The size of the MS-DOS partition can be changed by positioning the cursor in the Start or End column and changing the value.

• The PARTITION utility can be used only to delete, create, or modify the MS-DOS partition.

Chapter 4

USING DISK CARTRIDGE UTILITIES

This chapter contains details on how to use the disk cartridge utilities to obtain the greatest value from your Disk Cartridge System (DCS). You should become thoroughly familiar with how these utilities function so that you will be able to use the full range of DCS capabilities.

You are reminded that the DCS utilities will not operate unless AN-SI.SYS and the DCS driver (TANDY.SYS) are installed on your system disk or diskette, and you must be using MS-DOS version 2.11.

You will be able to use your disk cartridge system for typical data storage and backup purposes, but you will not be able to start your system (boot) from a disk cartridge.

You can access the utility programs contained in the DCS.EXE file either through a menu or by typing and entering an appropriate command at the MS-DOS system prompt.

• If you are on a two-floppy system using a system diskette with level-1 DCS installation (see Chapter 2), insert your system diskette in drive A and start the system. Insert the DCS utilities diskette in drive B. After system start, log-on to drive B to run the DCS utilities at the B> prompt.

• If you are on a two-floppy system using a system diskette with level-2 DCS installation (see Chapter 2), insert your system diskette in drive A and start the system. Run the DCS utilities from drive A at the A> prompt.

• With a hard disk system, all DCS software files except DCSBACK and DCSREST are installed on drive C, provided you followed the installation procedure for a hard disk drive as outlined in Chapter 2. Run the DCS utilities from drive C at the C> prompt.

Unless you have copied the DCSBACK and DCSREST files to your hard disk or a backup disk with system files installed, backup and restore processing can be run only by using the DCS utilities diskette in drive B for a two floppy system, or in drive A for a hard disk system.

- The MS-DOS partition is not created or modified until you are prompted to press Y .

- All the MS-DOS files on a disk cartridge are destroyed when the MS-DOS partition is modified or deleted. Be certain you have backed up the files you may need before changing the size of an MS-DOS partition.

- You can change disk cartridges while the PARTITION utility is loaded and the partition information for the new disk will appear in the menu.

- Four partitions per cartridge are allowed, only one of which can be an MS-DOS partition.

TOOLS

Purpose

The TOOLS utility is used to toggle the DCS DiskSaver on and off. Using the "enable/disable" DiskSaver option affects both disk cartridge drives in a two-drive system.

TOOLS Menu

You can access and display the TOOLS utility menu in either of two ways; by selecting the TOOLS option from the main utilities menu (see the main menu description earlier in this chapter), or by accessing the TOOLS menu directly via a TOOLS menu command. To enter a TOOLS menu command, type:

DCS T [ENTER]

A menu display similar to the one illustrated below will appear on your monitor.

```
DCS TOOLS Version 4.x

               Target Drive
            »E:  DCS 10Mb«
             F:  DCS 10Mb

                Options

DiskSaver option:                    Enable
Lock the Drive Latch:                No

        Press Esc to quit, Tab for help
          Enter to begin execution
```

Instructions are printed in the bottom window to guide you in implementing this utility. Press the [TAB] key to get on-screen help and additional guidance. You can change variable values by placing the highlighted cursor at the field requiring change and using the right or left cursor arrow keys to toggle the values. To enter your selection or to accept the default values, press the [ENTER] key. For recurring errors refer to the suggestions in Chapter 5, Solving Problems.

---

4. Select the drive containing the disk cartridge you wish to format by using the [↑],[↓] arrow keys to highlight your selection with the cursor.

5. Use the page down [PGDN] key to move the cursor into the Options window, and use the up/down arrow keys ([↑],[↓]) to position the cursor at selected options. When a selected option value is highlighted, use the left [←] or right [→] arrow control keys to toggle between "yes" and "no" (can also use the [Y] or [N] keys) and to cycle interleave value through its entire range.

- The option window displays the default (recommended) values for each option.

- An interleave value of 4 is the appropriate setting for efficient DCS operation on the Tandy 2000, and should not be changed.

- The internal verify feature causes the format program to replace any defective tracks or sectors on the disk with spares. The "Yes" option should always be used with new disk cartridges.

- If you want your disk cartridge to contain system files, set the system option to "Yes" and place a diskette containing the system files in drive A.

- Set the DOS 2.X option to YES.

- An 11-character field is available to label your DCS disk cartridge with a volume name.

NOTE: Chapter 4 contains more information on the options available.

6. When the options are set, press [ENTER] to begin formatting. The FORMAT utility will tell you when the format process is complete.

TOOLS Command Line Format

DCS T [targetdr:] [optionsw]

Explanation

targetdr: The target drive specification is an optional parameter used to specify the drive on which the TOOLS utility is to be implemented. If you do not specify a drive, the default drive is assumed.

Option Switches

/E The enable option is used to tell the TOOLS utility program to enable (turn on) the DiskSaver.

/D The disable option instructs the TOOLS utility to disable (turn off) the DiskSaver.

NOTE: Do not use the drive door lock or unlock options described below on the Tandy 2000.

/L The lock drive latch option instructs the TOOLS utility to lock the latch on the selected drive.

/U The unlock drive latch option instructs the TOOLS utility to unlock the latch on the selected drive.

TOOLS Example Command

DCS T E: /E

The command in this example implements the TOOLS utility program and instructs it to enable the DiskSaver on drive E.

NOTES:

- The head on the last disk accessed moves in a random pattern over the disk to reduce wear on the media. It is this feature that is enabled or disabled using the DiskSaver option.

  CAUTION: Disabling the DiskSaver will shorten the life of your disk cartridges.

Hard Disk System

1. Confirm you are operating from the hard disk (drive C), with the hard disk containing TANDY.SYS, ANSI.SYS, CONFIG.SYS and the DCS utilities (DCS.EXE).

2. Insert a disk cartridge in the top drive of your DCS.

3. At the C> prompt, type:

   DCS FORMAT [ENTER]

When you press the [ENTER] key the DCS utility program causes a FORMAT menu to appear on your monitor similar to the one illustrated below.

```
        DCS FORMAT Version 4.x

           Target Drive
         »E:  DCS  10Mb«
          F:  DCS  10Mb

              Options
Format cartridge at interleave:        4
Do internal surface verify?          Yes
Copy system to formatted cartridge?   No
Retain DOS 2.X compatibility?        Yes
Volume label for cartridge:

        Press Esc to quit, Tab for help,
            Enter to begin execution
```

The display contains two interactive windows. The first window, labeled "Target Drive," lists the DCS drives available on your system. The second window, labeled "Options," lists the format options and their default (recommended) values.

4. Select the drive containing the disk cartridge you wish to format by using the arrow keys (↑ , ↓) to highlight your selection with the cursor.

5. Use the page down PG DN key to move the cursor into the Options window, and use the arrow keys (↑ , ↓) to position the cursor at selected options. When a selected option value is highlighted, use the left ← or → cursor control to toggle between "Yes" and "No" (can also use Y or N keys) and to cycle interleave value through its entire range.

- The option window displays the default (recommended) values for each option.

- An interleave value of 4 is the appropriate setting for efficient DCS operation on the Tandy 2000 and should not be changed.

- The internal surface verify feature causes the format program to replace any defective tracks or sectors on the disk with spares. The "Yes" option should always be used with new disk cartridges.

- If you want your disk cartridge to contain the system files, set the system option to "Yes" and place a diskette containing the system files in drive A.

- Set the DOS 2.X option to YES.

- An 11-character field is available to label your DCS disk cartridge with a volume name.

NOTE: Chapter 4 contains more information on the options available.

6. When the options are set, press ENTER to begin formatting. The FORMAT utility will tell you when the format process is complete.

SOLVING PROBLEMS

This chapter, which offers suggestions for solving problems that might occur while you are using your disk cartridge system, is organized into four topics.

- Failure of the System to Operate

- Media Related Problems

- Drive Access Problems

- DCS Utility Error Messages

If you are not familiar with the hardware or the concepts presented in this manual, let an expert Radio Shack technician handle the problem for you. Also, if you try all the recommended solutions and the problem persists, contact your Radio Shack dealer.

Failure of the System to Operate

If your system fails to operate while you are using the DCS utilities, check and verify the following.

- Confirm that the DCS is plugged in and the power switch is turned on.

- Confirm that the cable connecting the DCS to the interface board is correctly installed and securely seated.

- Confirm that the interface board is correctly installed.

- Confirm that the DCS driver software (TANDY.SYS) is correctly installed on your system disk or diskette.

- Confirm that no conflict exists between the port address of the Tandy interface board and other option boards that might be in your system.

- If the system diskette does not contain the DCS.EXE file, insert the DCS utilities diskette in drive B, log-on to drive B, and confirm that the B> prompt is displayed.

2. Insert a disk cartridge in the top drive of your DCS and close the drive door.

3. At the DOS prompt, type the DCS command, followed by a blank space, followed by FORMAT or its initial (F). For example:

   DCS F [ENTER]

When you press [ENTER], the DCS utilities program causes a FORMAT menu to appear on your monitor similar to the one illustrated below.

```
┌─────────────────────────────────────┐
│       DCS FORMAT Version 4.X         │
├─────────────────────────────────────┤
│            Target Drive              │
│        »E:  DCS  10Mb«               │
│         F:  DCS  10Mb                │
├─────────────────────────────────────┤
│            Options                   │
│ Format cartridge at interleave:   4  │
│ Do internal surface verify?      Yes │
│ Copy system to formatted cartridge? No│
│ Retain DOS 2.X compatibility?    Yes │
│ Volume label for cartridge:          │
├─────────────────────────────────────┤
│     Press Esc to quit, Tab for help, │
│        Enter to begin execution      │
└─────────────────────────────────────┘
```

The display contains two interactive windows. The first window, labeled "Target Drive," lists the DCS drives available on your system. The second window, labeled "Options," lists the format options and their default (recommended) values.

• Confirm that you are using DOS version 2.11.

Media Related Problems

Media related problems are frequently revealed through error messages appearing on your screen. These messages normally refer to one of the following types of errors.

• Cartridge error

• Error during format

• Error during copy process

If you receive these types of messages, try the following suggestions.

• If you have trouble formatting a new cartridge in a new drive, check that you are executing the formatting procedure correctly and that the disk cartridge is not write-protected. Try again. If the problem persists, try to format a different disk cartridge. If this solves the problem, and you think you have a defective disk cartridge, contact your Radio Shack dealer.

• If your disk cartridge system has received extensive use, clean the drive head using a head cleaning disk cartridge kit. Head cleaning kits are available from your Radio Shack dealer.

• If you are using an old cartridge that is worn, back up the data on the faulty disk cartridge and try reformatting it using the surface verification option (/F).

If you try all of these suggestions and still are having media problems, you probably are dealing with a disk cartridge that has excessive wear or that is defective. Refer to the section in your Disk Cartridge System owner's Manual on Handling a Disk Cartridge, and to the instruction sheet that comes with the cartridge. Contact your dealer if the cartridge is still under warranty. If the cartridge is no longer under warranty, discard it and use the data from your backup copy.

DISK CARTRIDGE PREPARATION

Disk cartridges must be formatted using the DCS FORMAT utility before they can be used with MS-DOS. This chapter includes a description of the basic procedure for using the FORMAT utility for the Tandy 2000 system, with either two floppy disk drives or one floppy drive and a hard disk.

To format a disk cartridge, follow the appropriate procedure outlined for the type of system you have (two-floppy system or hard disk system).

The FORMAT utility requires that you specify the drive containing the disk cartridge to be formatted. If your DCS contains a single drive, it is specified as drive E. If your DCS contains two drives, the top drive is designated as drive E and the bottom drive is designated as drive F.

CAUTION: Never use the FORMAT utility on a disk containing information you might need. The FORMAT utility erases all information on the disk, and may safely be used only on new disks when preparing them for use, and on old disks that contain information you no longer need.

Two-Floppy System

If you have a two-floppy system, follow these instructions whenever you need to format a disk cartridge. These procedures are based on the assumption that you are familiar with proper disk handling practices, such as the write-protect feature and disk insertion/removal as outlined in your Tandy DCS Owner's Manual.

1. Confirm that your system is operating under MS-DOS with a system diskette containing TANDY.SYS, ANSI.SYS, and CONFIG.SYS.

• If the system diskette also contains the DCS utilities (DCS.EXE) file, log-on to drive A and confirm that the A> prompt is displayed.

NOTE: This installation process does not transfer copies of DCSBACK.EXE and DCSREST.EXE to your hard disk. You must use the DCS utilites diskette in drive B to use either of these utility programs, or, alternatively, use the MS-DOS COPY command to copy them to your hard disk.

5. Remove the MS-DOS diskette from drive A, and leave drive A empty.

6. Restart your system using your newly configured hard disk. Press the RESET switch, or hold down CTRL and ALT and press DELETE at the same time.

If the driver file (TANDY.SYS) is successfully installed, the following message will appear on the screen.

Tandy add-on driver version 4.X supporting [n] drives starting with drive E

The DCS driver (TANDY.SYS) will load automatically whenever you start your system from a disk (system diskette or hard disk) that contains the TANDY.SYS file and the ANSI.SYS file.

Drive Access Problems

When you have a drive access problem, the DCS software will alert you with an error message displayed on your screen. Drive access related error messages are as follows:

● Drive not ready

● Hardware error

● Invalid drive specification

● Tandy version 4.X: no interface card found

To evaluate and correct a drive access problem, use the following checklist.

● Confirm that all cables and interface boards are seated correctly.

● Confirm that a disk cartridge is in the drive you are trying to access, and that the drive door is closed.

● Confirm that the drive specified actually exists and is the one you are trying to access.

● Confirm that the driver (TANDY.SYS) is installed correctly. If necessary, restart (reboot) the computer.

● Confirm that the DCS interface board is installed correctly in your system's main unit, and that its port address does not conflict with the port address of any other interface board in your system.

DCS Utility Error Messages

Appendix A contains a list of error messages that could be encountered while using the DCS utilities (DCSBACK, DCSREST, COPY, FORMAT, INSTALL, PARTITION, and TOOLS). Error messages contained in Appendix A are listed according to the utility program they are linked to. Each error message is explained and an analysis of possible solutions is provided, with a procedure that will help you resolve the problem.

Install Tandy Driver (TANDY.SYS) and DCS Utilities (DCS.EXE) onto a Hard Disk System

If your system has a hard disk, follow the steps outlined below to install the TANDY.SYS, ANSI.SYS, CONFIG.SYS, and DCS.EXE files. This procedure assumes that the operating system also is installed on the hard disk.

1. START SYSTEM. Confirm that your system is running under MS-DOS version 2.11 from your hard disk drive. If not, start your system using drive C.

2. After the C> prompt has appeared on the screen, insert your DCS utilities diskette in drive A and close the drive door.

3. Execute the DCS INSTALL routine to transfer a copy of the TANDY.SYS, DCS.EXE, CONFIG.SYS, and ANSI.SYS files to your hard disk. Type the following command at the C> prompt.

A:DCS I A: C:/I ENTER

This command instructs the INSTALL routine (contained on the DCS utilities diskette in drive A) to transfer a copy of the TANDY.SYS and DCS.EXE files from the diskette in drive A to the hard disk (drive C). The program also looks on the hard disk for CONFIG.SYS and ANSI.SYS files. If it finds a CONFIG.SYS file, the program modifies it; if not, the install program creates a new CONFIG.SYS file and installs it on the system disk. If it finds an ANSI.SYS file on the hard disk, the installation process will be complete.

If the INSTALL routine is unable to find an ANSI.SYS file on your hard disk, the message, "Cannot find ANSI.SYS" will appear on your screen.

4. When this message appears, remove the DCS utilities diskette from drive A, replace it with your MS-DOS version 2.11 diskette, and press ENTER . The DCS INSTALL routine will automatically transfer a copy of the ANSI.SYS file from your MS-DOS diskette to your hard disk, completing the install routine.

Appendix A

ERROR MESSAGE INDEX

The error messages indexed and described in this appendix may occur when operating the TANDY DCS utilities. Each error message is categorized according to the program it serves. An explanation of the message and an analysis of possible solutions to the problem follow each error message. If you are still unable to solve the problem after reviewing the solutions provided in this appendix, contact your authorized Radio Shack technician for assistance.

DCS GENERAL ERROR MESSAGES

ANSI.SYS is not installed

The requested operation requires the ANSI.SYS driver before it can be executed. Load the ANSI.SYS driver and retry the operation.

Bad cartridge, format failure

The disk cartridge is worn out or defective. Try reformatting the disk cartridge. If the disk fails to format, discard it.

Bad request structure length

An error occurred while reading data from the disk cartridge. Retry the operation. If the error recurs, the disk cartridge may need to be reformatted.

Command line error, expected a parameter

You made an error in the entry on the command line. You typed a slash character (/) without a parameter following it.

Adding the /I option to the install command instructs the INSTALL routine to transfer a copy of the DCS.EXE file from the DCS utilities diskette to the system diskette in addition to the TANDY.SYS file. The program also looks on the system diskette for CONFIG.SYS and ANSI.SYS files. If it finds a CONFIG.SYS file, the program modifies it; if not, the install program creates a new CONFIG.SYS file and installs it on the system disk. In addition, when the program finds no ANSI.SYS file on your system diskette, the message, "Cannot find ANSI.SYS" will appear on your screen.

When this message appears, remove the DCS utilities diskette from drive B, replace it with your MS-DOS version 2.11 diskette, and press ENTER. The DCS INSTALL routine will automatically transfer a copy of the ANSI.SYS file from your MS-DOS diskette to your system diskette, completing the install routine at level-2.

When this installation process is complete, your system diskette will contain the TANDY.SYS (DCS Driver), ANSI.SYS, and CONFIG.SYS files. If you used the /I option, DCS.EXE (DCS Utilities) also will reside on your system diskette.

NOTE: This installation process does not transfer copies of DCSBACK.EXE and DCSREST.EXE to your system diskette. You either must insert the DCS utilites diskette in drive B to use either of these utility programs, or copy them to a system diskette (or hard disk) using DOS file copy procedures. Also, if you installed at level-1, you will need the DCS utilities diskette to use the routines on the DCS.EXE file.

5. Restart your system using your newly created system diskette by pressing the RESET switch or by holding down CTRL and ALT and pressing DELETE at the same time.

If the driver file (TANDY.SYS) is successfully installed, the following message will appear on the screen.

Tandy add-on driver version 4.X supporting [n] drives starting with drive E

Command Line Error
Usage: xxxxxxxxxxxxxxxxxxxxxx

The command line contained a syntax error. The command line is displayed and the error is marked. The correct syntax for that command line is displayed. Re-enter the command line correctly.

Data error (CRC)

An error occurred while reading data from the disk cartridge. Retry the operation. If the error recurs, the file may need to be restored using the DCSREST utility.

Disk is write-protected

The selected disk is write-protected. Remove the disk from the drive and slide the write-protect switch from the protected position to the write-enable position.

DOS function error

This error occurs when a DOS function is misused. For example, this message would result if you tried to create a subdirectory that already exists.

Drive not ready

The specified drive is not ready. The door to the drive probably is open.

General failure

Something prevented the utility from beginning execution. Restart (boot) the system and try the operation again.

Incompatible Version of DRIVER.SYS [X.X]

The driver version and utility version will not work together. The driver and utility package must have the same or compatible version numbers (for example, Tandy Add-On Driver Version 4.x).

NOTE: In the procedure that follows, the DCS INSTALL routine checks your system diskette for a CONFIG.SYS file. If it finds one, the program modifies the file to reflect the added DCS device. If CONFIG.SYS is not found, DCS INSTALL creates a new CONFIG.SYS file for this purpose and installs it on your system diskette.

4. Perform DCS software installation to enable your disk cartridge system. Select Installation Level-1 if your system diskette is limited in available space and you want to install the TANDY.SYS, ANSI.SYS, and CONFIG.SYS files only. Select Installation Level-2 if your system diskette has sufficient space to accept the DCS.EXE file.

• Installation Level-1. At the A> prompt, type the following command:

   B:DCS I B: A: ENTER

This command transfers a copy of the TANDY.SYS file from the DCS utilities diskette in drive B to the system diskette in drive A. The program also looks on the system diskette for CONFIG.SYS and ANSI.SYS files. If it finds a CONFIG.SYS file, the program modifies it; if not, the install program creates a new CONFIG.SYS file and installs it on the system disk. In addition, when the program finds no ANSI.SYS file on your system diskette, the message, "Cannot find ANSI.SYS" will appear on your screen.

When this message appears, remove the DCS utilities diskette from drive B, replace it with your MS-DOS version 2.11 diskette, and press ENTER. The DCS INSTALL routine will automatically transfer a copy of the ANSI.SYS file from your MS-DOS diskette to your system diskette, completing the install routine at level-1.

• Installation Level-2. At the A> prompt, type the following command.

   B:DCS I B: A:/I   ENTER

Invalid Disk Change

A disk cartridge was not inserted when requested or a disk cartridge was removed while an operation was being performed. Insert the correct disk and retry.

DRIVER.SYS is not installed

The requested operation requires that the Tandy driver (TANDY.SYS) be on the system disk before it can be executed. Load the driver and retry the operation.

TANDY DCS [utility name] aborted

The operation was halted. This message usually occurs in conjunction with another error message. Retry the operation.

Please wait . . . .

Please wait while one of the drives spins up.

Read fault

An error occurred while reading data from the disk cartridge. Retry the operation. If the error recurs, the read/write head may need to be cleaned or the disk cartridge reformatted.

Sector not found

The drive could not find the correct sector on the disk cartridge during a read/write operation. Retry the operation. If the error recurs, the read/write head may need to be cleaned or the disk cartridge reformatted.

Seek error

The drive could not find the correct track on the disk cartridge during a read/write operation. Retry the operation. If the error recurs, the read/write head may need to be cleaned or the disk cartridge reformatted.

The TANDY.SYS, DCS.EXE, ANSI.SYS, and CONFIG.SYS files combined require a minimum of 92,000 bytes of disk space. The TANDY.SYS, ANSI.SYS, and CONFIG.SYS files combined need only 12,000 bytes of space.

As a minimum, the disk cartridge system requires installation of the TANDY.SYS, ANSI.SYS, and CONFIG.SYS files. Installing the DCS utilities (DCS.EXE) on the system diskette is not necessary.

● The first level of installation provides for installing TANDY.SYS, ANSI.SYS, and CONFIG.SYS files onto your system diskette (boot diskette). This is the minimum installation that will enable the operation of the DCS system.

● The second level of installation provides for the transfer of a copy of the DCS.EXE file to your system disk, in addition to the three files transferred at level 1.

NOTE: Do not attempt to install the DCS.EXE file if your system diskette does not have sufficient space.

Install DCS utilities on a two-floppy system using the following procedure.

1. Confirm that your system diskette is still in drive A, the drive door is closed, and the A> prompt is displayed.

2. Confirm that your DCS utilities diskette is in Drive B and the drive door is closed.

3. Check the disk space available on the system diskette by typing and entering the following DOS command at the A> prompt:

DIR ENTER

A list of the files residing on your system disk will appear on the screen. The amount of free disk space remaining is revealed at the bottom of the list.

Unknown command

You have used a command that is not part of the TANDY DCS utilities. Retry the operation.

Unknown media

This message is generated by MS-DOS. Retry the operation. If the error recurs, the system may need to be rebooted.

Unknown unit

The selected drive does not exist. The DCS drives for the Tandy 2000 are assigned sequential alphabetic letter designators beginning with drive E.

Write fault

An error occurred while writing data to the disk cartridge. Retry the operation. If the error recurs, the read/write head may need to be cleaned or the disk cartridge reformatted.

You do not have enough memory available

You have enough memory to load the utilities but not enough to execute them.

DCS COPY ERROR MESSAGES

Bad BPB, cannot create the volume label

The error is caused by a worn or defective disk cartridge. Discard the disk cartridge.

Cannot copy to a 10MB disk in a 21Mb drive

A 10Mb disk cartridge has been inserted in a 20Mb drive. Remove the disk cartridge and insert a 20Mb disk.

- Lowercase Italics. Those portions of the command string illustrated in lowercase italics represent variables (information) that you must provide.

- Uppercase. Some alphabetic characters are illustrated in uppercase format. This simply means that if you use the segment illustrated in uppercase, you must use the exact alphabetic characters shown, without substituting any other variable or value. When you reproduce the segment, you can use either uppercase or lowercase characters.

- Brackets [ ]. Parameters contained within brackets are optional; that is, you have the choice of using the parameter or not using it. Your choice depends on whether you want the effect that the parameter provides. The brackets are not part of the actual command string, and are used in the command line illustration only to inform you that the parameter they enclose is optional. **DO NOT include the brackets when you type the parameter on the command line.**

- Other Characters. Normally, other characters and punctuation marks (such as colons, semicolons, parentheses, slashes, blank spaces, and so on) included in the command string illustration are reproduced as shown.

Install Tandy Driver (TANDY.SYS) and DCS Utilities (DCS.EXE) onto a Two-Floppy System

Two levels of installation are possible for two-floppy systems. The level you use depends on how much free disk space you have on your system diskette (the one you use to boot your system). Your system diskette must have enough free space on it to accept the TANDY.SYS, ANSI.SYS, and CONFIG.SYS files required to successfully operate the disk cartridge system (DCS). In addition, installing a copy of the DCS.EXE file (basic utility routines) onto the system diskette would be convenient, though not necessary.

A directory of the files residing on your DCS diskette in drive A will appear on your screen, similar to the following:

Volume in Drive A is Version 4.x Directory of A:\

```
TANDY     .SYS
DCS       .EXE
README    .DOC
DCSBACK   .EXE
DCSREST   .EXE
```

4. Ensure that the DCS driver file (TANDY.SYS) is listed and that the disk volume label specifies version 4.11 or higher. If the DCS driver file is missing, contact your authorized Tandy dealer for a replacement diskette.

Entering a Command

Before you install the DCS utility programs, read carefully the following example and description that explains the command line notation we have used to illustrate syntax rules used in command line format examples.

EXAMPLE   DCS [*utility*] [*sourcedr:*] *targetdr:* [*/Vlabel*]

Explanation: In this example of a command line format, DCS is the command that specifies a routine from the DCS.EXE file. DCS and /V are illustrated in uppercase, which indicates they must be reproduced without change. The DCS.EXE utility name, source drive, and volume label switch are enclosed in brackets, indicating they are optional parameters. The DCS command and target drive are not illustrated by enclosing them in brackets, thus identifying them as mandatory entries. The entries *sourcedr:*, *targetdr:*, and *label* are in lowercase italics, which signifies that you must supply the appropriate entry (A:, B:, E:, F:, or MYVOL, etc.).

• <u>Command Strings.</u> Commands usually are illustrated as a "command string," which includes the command followed by one or more parameters. Parameters added to a command have the effect of modifying or limiting the effect of a command.

Drive error, source and target drive cannot be the same!

A disk cannot be copied onto itself. Retry the operation and specify separate source and target drives.

File copy error, target disk is full

If the source disk is larger than the target disk, the COPY utility fills the target disk and stops. To copy all the files from a source disk that has a larger capacity than the target disks, use the DCSBACK and DCSREST utilities.

DCS COPY requires two drives

The COPY utility will not operate in menu mode if only one DCS drive and no fixed disks are in the system. COPY will operate from the command line between the DCS drive and a floppy but will fill only one floppy with information. To back up a disk cartridge to floppy disks, use the DCSBACK and DCSREST utilities.

DCS FORMAT ERROR MESSAGES

Bad BPB, cannot create the volume label

The error is caused by a worn or defective disk cartridge. Discard the disk cartridge.

Cannot format, no MS/DOS partition on 4X5:

The disk cartridge has a partition table, but no MS-DOS partition is defined in it. Use the PARTITION utility to create an MS-DOS partition, then retry the format procedure.

Format requires at least one drive

A least one Tandy DCS drive must be in the system before the FORMAT utility will function.

Non-system disk, place system disk in drive "x"
create system disk

The system option was selected but the system cannot be found. Place a system disk in drive A and continue the operation.

Retaining cartridge interleave of nn
Non-MS-DOS partitions are on the disk

If a disk contains non-MS-DOS partitions, the interleave for the disk cannot be changed when formatting the MS-DOS partition.

DCS INSTALL ERROR MESSAGES

Cannot copy to a 10Mb disk in a 21Mb drive

A 10Mb disk cartridge has been inserted in a 20Mb drive. Remove the disk cartridge and insert a 20Mb disk.

Cannot find (filename) on drive X:

One of the files requested by the INSTALL utility cannot be found on the specified drive. Replace the disk with one that contains the requested file and continue the operation. Press the [ESC] key to continue without the file.

DCS PARTITION ERROR MESSAGES

An MS/DOS partition already exists

A disk cartridge may have only one MS-DOS partition. To increase your MS-DOS capacity, increase the size of the old one.

Cannot activate a non-existent partition

An unused partition table entry cannot be activated. Select a partition entry that contains information and retry the operation.

2. Insert your DCS utilities diskette into drive B and close the drive door.

3. At the A> prompt type:

DIR B: [ENTER]

A directory similar to the following will appear on your screen:

Volume in Drive B is Version 4.x Directory of B:\

```
TANDY    .SYS
DCS      .EXE
README   .DOC
DCSBACK  .EXE
DCSREST  .EXE
```

4. Ensure that the DCS driver file (TANDY.SYS) is listed and that the disk volume label specifies Version 4.11 or higher. If the DCS driver file is missing, contact your authorized Tandy dealer for a replacement diskette.

Hard Disk System

If your system has a hard disk, follow the steps outlined below to check the directory of the CDS utilities diskette. This procedure assumes that the operating system is installed on the hard disk.

1. START SYSTEM. Confirm that your system is running under MS-DOS from your hard disk drive. If not, start your system using drive C.

2. After the C> prompt appears on your screen, insert the DCS utilities diskette in drive A and close the drive door.

3. At the C> prompt type:

DIR A: [ENTER]

No partition table, insert (or format) the disk first

The partition table cannot be found. Make sure a disk cartridge is in the drive and the drive is latched. Retry the operation. If the error recurs format the disk cartridge.

No partition table, you must format it first

The disk cartridge in the specified drive is not formatted. Format the disk cartridge before running the PARTITION utility.

Partition too large, maximum is *nn*

A partition cannot be created that is larger than the available disk space indicated by the partition table. Retry the operation using a smaller partition size.

The door is open on drive X:

The specified drive is not latched. Latch the drive and continue the operation.

There is no room for another partition

All four entries in the partition table have been used by other operating systems. Use the partition utility from one of the other operating systems to remove its partition, then use the DCS PARTITION program to create an MS-DOS partition.

DCSBACK/DCSREST ERROR MESSAGES

Error: cannot create this directory.

The DCSREST utility program tries to create a directory and fails. Most often, either the root directory is full, or a directory already exists with the same name.

Error: cannot understand "*[something]*"

"Something" in the command string does not conform to prescribed command syntax. Check the syntax and try again.

DCS Alternate Commands

DOS Command	DCS Alternate
SYS	DCS FORMAT/S
FORMAT	DCS FORMAT
DISKCOPY	DCS COPY
FDISK	DCS PARTITION

2. DCS.EXE. This file contains a variety of routines designed to enhance the efficiency of the disk cartridge system. These routines, which include COPY, FORMAT, PARTITION, TOOLS, AND INSTALL, are explained in more detail in Chapter 4, Using Disk Cartridge Utilities.

3. README. This file contains on-screen documentation not found in the user's manual.

4. DCSBACK.EXE. This file contains a utility program that is used to back up all the files, or selected files on a disk, no matter what type of disk (diskette, fixed, or cartridge) is used. Files backed-up using this utility cannot be used until they have been restored using the DCSREST.EXE utility.

5. DCSREST.EXE. This utility program is used to restore files to their original MS-DOS configuration from backup disks created using the DCSBACK.EXE utility program.

Check Directory of DCS Utilities Diskette

Two-Floppy System

If your system has two floppy disk drives but no hard disk, perform the following steps to check the directory of the DCS utilities diskette.

1. START SYSTEM. If you have not already done so, confirm that the write-protect notch on your system diskette is not covered by a tab, insert the diskette in drive A, close the drive door, and start the system.

Error: drive X: cannot be read.

The DCSREST utility attempts to access a drive and fails. The drive is not ready or the disk cartridge is not formatted.

Error: drive X: is already full

The disk in the specified drive does not have enough unused space to create a backup (.IBK) file. Retry the operation with a different target disk.

Error: drive X: is write-protected

The disk in the specified drive is write-protected. Remove the disk and slide the write-protect switch from the protected position to the write-enable position.

Error: drive X: is not a valid drive

A drive letter was designated that does not exist in the system. DCS drives are given alphabetic drive designators that are assigned sequentially beginning with drive E.

Error: drive X: is not ready

The specified drive is not ready. The drive is not latched, the disk cartridge has not been inserted, or the disk has not been formatted.

Error: no destination path specified

A destination path was required but not specified in the command line. Retry the operation and designate a destination path, which can be a full path name or simply a drive specification letter designation.

Error: no source .IBK file specified

The DCSREST utility was not provided with a parameter specifying a legal name for the source file (a name with an .IBK extension). Check the name for the source file and retry the operation.

Chapter 2

SOFTWARE INSTALLATION

After you install the interface board and connect your Disk Cartridge System (DCS) to your computer, you need to install the system software and then format the disk cartridges for information storage. Before doing this, however, it is important that you read and understand the information in your Tandy Disk Cartridge System Owner's Manual on introductory disk handling and drive operating procedures.

Software installation procedures described in this chapter consist of:

● Checking the directory of the DCS utilities diskette.

● Executing the DCS INSTALL routine to transfer a copy of the DCS driver and utility programs onto your system diskette or hard disk, as applicable.

Software Overview

The files on your DCS utilities diskette are:

1. TANDY.SYS. This is the DCS device driver, which is a software program that enables MS-DOS to communicate with, and to operate, the Tandy Disk Cartridge System. The driver includes these major characteristics.

● The DCS driver recognizes all DCS drives, and when installed on your system (boot) disk, automatically assumes control of those drives when you start (boot) your system.

● Partitioned disks can be used and exchanged without data loss problems. Whenever you change disks, the DCS driver reads the new partition information and reports the change to the operating system. The DCS driver automatically adjusts to the appropriate partition for each disk.

● The DCS utilities provide alternate commands and features in those instances where DOS commands will not work with DCS drives.

6. Discharge any static buildup by again touching a grounded metal object.

7. Pull the lock buttons on the the cover panel attached to the interface board, and slide the board's metal panel into the slot. Push it all the way in, ensuring that it seats firmly with the connectors attached to the computer. Then push in the lock buttons to lock the board in position.

8. Reattach the display monitor to the Tandy 2000 processor, and reconnect the main unit's power cord.

9. Reconnect the electrical power cords of your peripheral units.

10. Refer to your DCS User's Manual for instructions on connecting the DCS to your system, and for introductory disk cartridge handling procedures.

If you have read the Tandy Disk Cartridge System Owner's Manual, you are ready to install the software, format the disk, and begin using your Tandy Disk Cartridge System as detailed in Chapter 2, Software Installation; Chapter 3, Disk Cartridge Preparation; and Chapter 4, Using Disk Cartridge Utilities.

Error: no such directory [*name*]

This message occurs when the command line contains a path name that does not exist. Check the path specification and retry the operation.

Error: out of sequence

Files backed up for more than one volume must be restored in the same order in which they were backed up. Check the filenames in the directory on the source disk(s) to arrange them in the proper sequence, then try again.

Error reading this directory Cancelled

This error could occur while the DCSBACK routine is scanning directories and subdirectories. Use the MS-DOS CHKDSK command to check for errors in the disk directory.

Error: the date must be set

The date was not set when the computer was booted. The DCSBACK routine must have the current date set to properly label the output file. Set the date and retry the operation.

Error: this file already exists on this disk

This message indicates that a backup file with the same name was found on the target disk. To continue, put a new disk in the target drive and press ENTER to continue, or press ESC to halt the operation.

Error: this is not a valid .IBK file.

This message tells you that the designated file was not formatted as an .IBK file. The file was possibly started by the DCSBACK utility, but was never correctly completed.

Error: too many backups (99) with this date

This error message will occur if 99 backups are made in one directory for a single day. This can be corrected if you continue the backup operation to a different directory, ensuring that the date is set correctly.

Error: too many output files (36) to create another — backup cancelled.

This error message tells you that the backup process has spanned more than 36 disks. Since the BACKUP program cannot handle more than 36 volumes during a single backup operation, break the file specification into smaller groups of files and retry the operation.

Error trying to open this file.
Error trying to create this file.
Error trying to read this file.
Error trying to write this file.
Error trying to close this file.
Error trying to find this file.
Error trying to rename this file.
Error trying to access this file.

These are general read/write errors. They usually are caused when the disk or directory is full or the target disk has not been formatted correctly for MS-DOS. When one of these errors occurs, several options are available: (1) retry the operation; (2) skip this file and move on to the next one; or (3) quit the process and begin again with another disk.

Error trying to access X:

This error message occurs when the DCBACK routine tries to access a drive that is not ready or that does not exist. Ensure that the drive is latched and the drive letter is valid, then retry the operation.

NOTE: Option boards are installed in the card cage at the back of the main unit of the Tandy 2000 system. If you have a monochrome graphics option board, it must occupy the lowest slot. Any other empty slot is suitable for the DCS interface board.
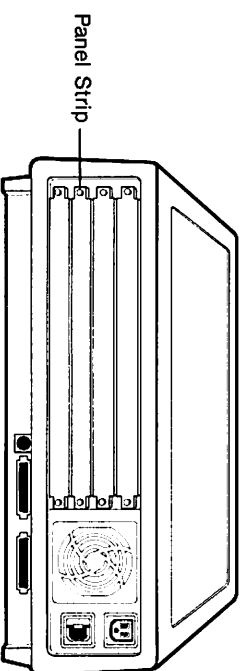
Figure 3. Tandy 2000 Rear View

5. Select an empty slot. Pull the lock buttons on either side of the panel strip covering the selected slot (refer to Figure 4) to free the panel from the back of the main unit. Remove the panel strip and discard. The panel strip is replaced by the interface board assembly.
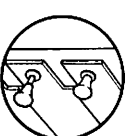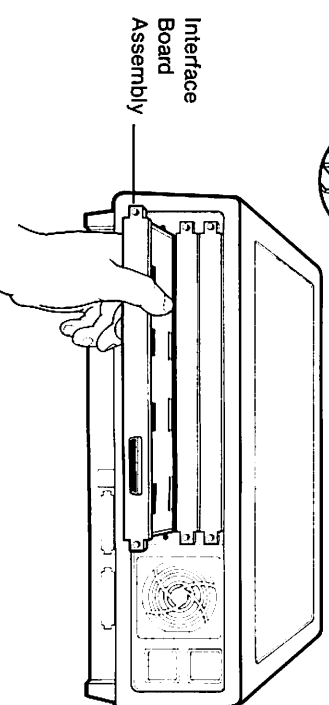

Figure 4. Tandy 2000 Expansion Slots

Error trying to update this output file.

This message can appear when the DCSBACK program is trying to close the backup file after completing the backup process. Reboot the system to reload MS-DOS.

Error: unknown record type [type] encountered.

This backup (.IBK) file probably was created by a more recent version of the DCSBACK utility. It must be restored with a corresponding version of the DCSREST utility.

Incorrect DOS version

This error message appears if MS-DOS is lower than version 2.11. Upgrade your MS-DOS system (boot) disk and try again.

Insufficient memory

This error message occurs to inform you that your computer system lacks sufficient memory to run the program you have asked it to run. Insufficient RAM memory is available. Check the CONFIG.SYS and AUTOEXEC.BAT files for commands that would consume large amounts of RAM, or install additional RAM memory in the computer.

The current target disk is now full.
Remove the disk in drive X:
Insert the next (formatted) disk in drive X: to continue

This message lets you know that the current target disk is full. It also prompts you to remove the disk that is full, and to insert the next target disk in the specified drive. Then press the ENTER key to continue, or press the ESC key to halt the process.

WARNING: Turn off the power to all the peripherals and the computer. Ensure that the power cords from the peripheral equipment and the computer are disconnected from their electrical outlets. Any unit that remains connected to an electrical source is a dangerous electrical shock hazard. It also is a potential source of damage to the central processing unit or other integrated circuitry.

3. Disconnect and remove the display monitor from the system and set it aside (see Figure 2).

Monitor

Figure 2. Tandy 2000 System

4. Position the Tandy 2000 main unit so that the back of the unit is readily accessible and free of obstructions as illustrated in Figure 3.

The current target disk is now full. Since the source drive is the same as the target drive, the backup will terminate.

When the target drive is also the source drive, this message lets you know what occurs when your disk is full. Since the target and source are the same disk, the target cannot be changed without changing the source, so the process must be halted.

This .IBK file was created by version X.XX and requires DCSREST Y.YY or later

Error: this .IBK file is not compatible with this version of DCSREST

These messages tell you that the backup file (.IBK) you are trying to restore was created by a more recent version of the DCSBACK utility. To restore the file use a compatible Tandy add-on driver version of the DCSREST utility.

This portion has been processed. Insert the next disk in sequence and press ENTER **to continue or press** ESC **to quit.**

This message informs you that the DCSREST routine has processed all the files on the current source disk — during a multiple disk backup operation — and is prompting you to remove the current disk from the source drive and to insert the next disk in the sequence to continue. If no "next disk" exists, you are instructed how to exit the program.

Warning: directories nested too deeply

This message is used to warn you that the directory structure is too complex to pursue. Use the DOS CHKDSK command to check for errors in the disk directory.

Warning: file [filename] is currently in progress.

This reminder message appears during a backup procedure if the target disk is filled and another target disk is necessary to complete the backup. If the backup is cancelled at this point, the named file will be incomplete and cannot be restored.

Chapter 1

INTERFACE BOARD INSTALLATION

We recommend that your local Radio Shack/Tandy computer center personnel install the interface board to ensure the best possible installation. If you choose, however, to install the board yourself, follow the instructions contained under "Installation Procedures."

CAUTION: Before handling your interface board, touch a grounded metal object to discharge any accumulated static electricity. If you discharge static electricity accumulations through a circuit board, you could destroy the board's integrated circuitry. Also, do not stand or walk on a carpeted floor while handling any circuit board.

Installation Procedures

1. Inspect the board to ensure that all the components are properly attached and undamaged.

2. Check the two option jumper pins located at the right-center of the board, and confirm that the jumper connector is attached to only one pin, as illustrated in Figure 1.

   NOTE: The option jumper pins are prepositioned at the factory for a single drive installation. If your DCS unit contains two drives, connect the two pins with the jumper connector provided.
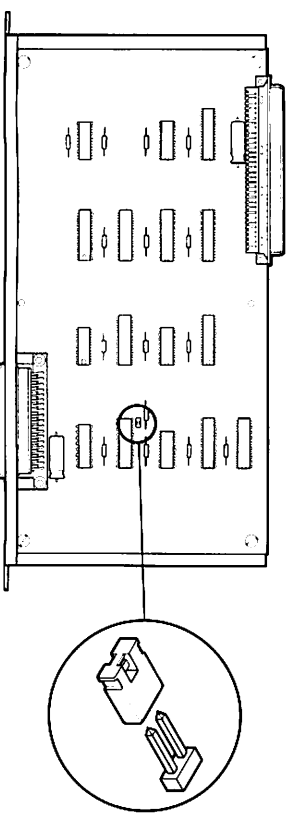

Figure 1. DCS Interface Board with Jumper Connector

Warning: this file was not completed — file deleted.

This message is used to advise you that the DCSREST process was terminated before the specified file was finished. Since the restored file is only a fragment of the backed up file, it is deleted from the target disk.

INTRODUCTION

This manual explains how to install and use your Tandy 2000 Disk Cartridge System (DCS) Interface Board. The Tandy 2000 DCS Interface Board Installation Kit includes the following:

● Interface Board.

● Connecting Cable.

● Utilities Diskette.

● User's Manual

The interface board provides the circuitry that enables the Disk Cartridge System (DCS) to communicate with your computer. The connecting cable is used to connect the interface board, which is to be installed in your computer system, to your disk cartridge system. The utilities diskette provides software programs that enable the MS-DOS system to operate efficiently with the disk cartridge drives.

The interface board contained in this kit operates with DOS version 2.11. The Tandy 2000 Disk Cartridge System requires a minimum of 128K of RAM.

Appendix B

GLOSSARY

adapter board. See Interface Board.

address. A character or group of characters that identify a particular location in memory. Items of data and peripheral devices are frequently referenced by their address.

backup file. See DCS Backup.

backup copy. A copy of data created as a security measure against the loss of the orginal. A copy can reside on the same disk or be transcribed from one disk to another, creating a copy on a second disk.

boot. This refers to the process of loading the operating system into the computer. After being booted, the computer is configured to process programs (software) controllable by the operating system.

bootable disk. See System Disk.

Central Processing Unit (CPU). The brain of the computer.

compatibility. The characteristic of one computer to accept and use programs (software) and peripheral devices (hardware) designed for another computer. Also, the ability of one computer to accept and use data prepared on another computer.

configuration. The types, numbers, and arrangements of devices and other elements in the total computer system.

DiskSaver. Random read/write head movement designed to save wear on the disk cartridge.

diagnostics. A series of tests performed on the disk drive by the host interface board to determine how well the drive is functioning and to determine the condition of the disk cartridge in the drive.

DCS Backup. DCS Backup refers to the file backup process performed by the DCSBACK.EXE utility to create archival copies of large volumes of important information quickly and efficiently. The DCSBACK process transcribes data from one disk to another in a format different from the original. The backup image created by this process is not usable directly and must be processed by the DCSREST.EXE utility to restore it to its original, usable format.

DCS Restore. DCS Restore refers to the process of restoring data to usable MS-DOS format after it has been processed by the DCSBACK.EXE utility program.

error message. A message printed on the screen by a software program, the operating system, or a firmware program in ROM, to alert you to an error or potential error in the current operation.

File Allocation Table (FAT). A table of disk addresses for all the files stored on the disk. An empty FAT is written on the disk during the format operation. Addresses are added to the FAT as new files are created. Without a FAT, no file on the disk can be located and accessed.

firmware. Software programs contained in read-only memory (ROM) that is used to boot the computer and operate such standard routines as input/output (I/O). Firmware is built into ROM and is not lost when power to the computer system is turned off.

fixed disk drive. A disk drive in which the storage medium (magnetic disk) normally is integrated physically to the personal computer hardware. Being physically attached, hard disks are not intended for removal. Fixed disk drives offer high speed/high density data storage and retrieval, similar to the capabilities of disk cartridge but without the convenience and versatility for removal, replacement, and storage.

floppy disk drive. A disk drive used to systematically record information onto a flexible material known as floppy disks.

EQUIPMENT CHECKOUT

User's Manual

Interface Board

Connecting Cable

Utilities Diskette
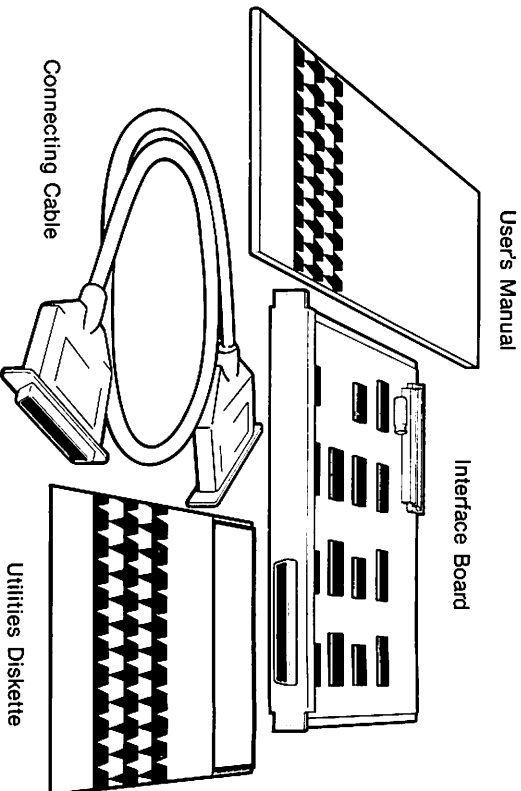
Is Something Missing?

- Recheck packaging if an item of equipment is missing.

- Contact your authorized Tandy dealer if missing item cannot be found.

formatting. Preparing a disk for use with a particular operating system, including the generation of a file allocation table (FAT). Disks also can be formatted with a "system" option switch (/S) appended to the format command. When the system option switch is used, selected command and system files from the operating system are transcribed to the disk during the format process. With system files installed, the disk can be used as a "system" disk for system start (booting). When programs are added to a "system" disk, they can be run without the need of using a separate disk containing the operating system.

hardware. This term refers to the tangible or hard components in a computer system, such as the computer, interface boards, disk drives, and printers.

installation:

   hardware: The procedure for connecting hardware to the computer.

   software: The procedure for making the software readily accessible to the operating system at boot time by placing it on the system (boot) disk.

interface board. The hardware integrated circuit (IC) board that provides the electronic interface between the computer and the Tandy Disk Cartridge System (DCS).

interleave. The number used to space sectors on a disk to optimize the system's read and write efficiency.

I/O. Input/Output.

media. Magnetic disks (hard, floppy, or mounted in a cartridge) on which information is stored.

megabyte. A megabyte (Mb) is 1,048,576 bytes. A 10 Mb Tandy disk cartridge can contain information approximately equivalent to 30 floppy diskettes.

MS-DOS. The operating system used by the Tandy 2000.

operating system. The set of software and firmware programs used by a computer to control the programs and peripherals of the computer system.

partition. A division on a fixed disk that permits different operating systems and different users to access the disk. Each user or operating system can access its partition without affecting any other area on the disk. (Refer to your MS-DOS manual for information on creating partitions.)

peripheral. Any computer operated device that is not directly connected to the central processing unit or the primary ROM and RAM for the computer system. Disk drives and printers are peripherals.

prompt. An on-screen message indicating that the computer is ready to receive information. Prompts can be issued by the operating system or by programs that are executing.

RAM. Random Access Memory.

ROM. Read Only Memory.

sector. A division of a disk track. Each sector on a disk is identified by an address consisting of a track number and a sector number.

software. The programs, languages, and utilities of a computer system.

system. A set of computer components functioning as an organized whole. The computer and all its peripherals.

system disk. A disk containing the operating system for the computer.

Tandy DCS. The Tandy disk cartridge drive system. The Tandy DCS contains one or two disk cartridge drives.

Tandy Driver. A software program (TANDY.SYS) that is used for controlling Tandy disk cartridge drives not subject to control by the computer's operating system. The Tandy driver loads automatically at boot time provided it has been installed on the system (boot) disk.

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CONTENTS

track. One of a series of concentric rings on a disk. To find a specific data item, a disk drive first finds the correct track and then the correct part (sector) of that track.

utility. A program designed to handle a routine computer task, such as the transfer of data from one disk to another.

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Disk Cartridge System Interface Kit
Installation and User's Guide

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Disk Cartridge System Interface Kit

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