TRSDOS™-II Reference Manual

CUSTOM MANUFACTURED IN U.S.A. BY RADIO SHACK, A DIVISION OF TANDY CORPORATION

TRS-8Ø®

TRSDOS™-II REFERENCE MANUAL

About This Manual

This manual shows how you can use TRSDOS-II to:

- Store, retrieve, or manipulate information on disk
- Use TRSDOS-II system routines within your own machine-language programs

Terms

Below is a list of terms that we use frequently in this manual. The underlined words represent variable information which you must supply.

command	represents the TRSDOS-II command you want to execute.
comment	is an optional field used to document the purpose of the command line.
{options}	is a list of one or more parameters that may be needed by the command. Some commands have no options. If you don't use a comment at the end of the command line, you can usually omit the braces { } around options.
parameter	is a variable item of information which customizes a command.
filespec	is a standard TRSDOS-II file specification having the general form: filename/ext.password:drive(disk name)
TO	is a delimiter (separator) which you usually can replace with a space. For example, BACKUP :Ø TO :1 is the same as BACKUP :Ø :1.
hard disk	refers only to a hard disk, Drives 4-7.
diskette	refers only to a floppy diskette, Drives Ø-3.

disk	refers to a disk that may be either a hard disk or a floppy diskette. Drives Ø-7.
primary drive	refers to the disk drive that contains the operating system information, Drive Ø or 4.
RAM	(random access memory) is memory storage that can be changed (written to) as well as read.
RAM buffer	is an area in RAM for temporary data storage.

Notations

For clarity and brevity, we use some special notations and type styles in this manual.

CAPITALS and punctuation
indicate material that you must enter exactly as it appears or material that you see on your computer's video display.

<KEYBOARD CHARACTER>
indicates the key you press.

lower-case underlined
represent words, letters, characters or values you supply.

X'nnnn'
specifies nnnn as a hexadecimal (base 16) number. All other numbers in the text of this manual are in decimal (base 1Ø) form, unless otherwise noted.

About TRSDOS-II

TRSDOS-II (pronounced Triss-Doss Two) is a powerful and easy-to-use disk operating system which provides you with a full set of library commands and utilities. In addition, many of the most useful system routines can be called directly by your machine-language programs.

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CHANGES AND CORRECTIONS

TO THE

TRSDOS-II REFERENCE MANUAL

Make the following corrections to your TRSDOS-II Reference Manual:

page

2/7 ATTRIB -- the WRITE option no longer exists. If you specify WRITE, it defaults to RENAME.

2/6Ø FORMS -- two new options:

O specifies that a DMP or DWP series printer is attached, such as a DWP-41Ø or a DMP-4ØØ.

F specifies that an older printer is attached, such as a Line Printer V or a Daisy Wheel II.

To use DMP type printer with TRSDOS-II type:

```
FORMS O
```

at TRSDOS-II Ready. You may wish to put this command in an automatic command file (see AUTO) so that it is executed every time you start up TRSDOS-II (TRSDOS-II starts up with FORMS F).

2/57 FORMAT -- SIZ can be any number from 1 - 122Ø (**not** 222Ø).

2/93 SAVE -- the DC/DM options should be used with wildcards only.

2/1Ø3 SPOOL -- using background printing, you can print **from** a spool file while you use the system.

3/1Ø6 SOUND SVC -- the sound duration must be stored in the L register. The H register is ignored.

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INTRODUCTION

Loading TRSDOS-II

When you install and power up your computer, you see the TRSDOS-II startup logo. This means you are in the TRSDOS-II operating system. You are then prompted to enter the date. Enter the date in the form mm/dd/yyyy. For example, type:

```
Ø8/25/1982
```

for August 25, 1982. You are then prompted to enter the time. You can skip this question by simply pressing <ENTER>. The time starts at ØØ.ØØ.ØØ.

If you want to set the time, type the time in the 24-hour format -- hh.mm.ss. The seconds are optional. For example, type:

```
14.3Ø <ENTER>
```

for 2:3Ø p.m.

After you enter the date and time, the following prompt is displayed.

```
TRSDOS-II Ready
.........................................
```

This means that you are at the TRSDOS-II command level. At this level you can execute a program, utility, or library command.

> Note: To perform any other operation, your system must be under the control of an application program.

If an error occurs while the system is under the control of TRSDOS-II, you receive one of the error messages listed in Appendix B.

If you get an error message not listed, it came from an application program. See the application program manual for an explanation of the error message.

Entering a Command

You may enter a command whenever the TRSDOS-II Ready prompt is displayed. The command can have up to 8Ø characters.

You must capitalize all letters in a command. Therefore, you may find it convenient to operate the keyboard in the caps mode. The keyboard is in the caps mode when the <CAPS> light is on. Press <CAPS> to turn the light on or off.

When in the caps mode, all alphabet keys are interpreted as capital letters, regardless of whether you press <SHIFT>. (Numeral and symbol keys remain the same.)

End each command by pressing <ENTER>.

For example, type:

```
CLS <ENTER>
```

and TRSDOS-II clears the display.

> Note: TRSDOS-II allows key-aheads of up to 8Ø characters. This means you can type in commands while previous ones are being executed. (The key-ahead is not displayed until TRSDOS-II or the application program is ready to interpret it.)

Executing a Program

You can also execute a program (such as SCRIPSIT™ or PROFILE™) at the TRSDOS-II Ready prompt. If what you enter is not a recognized command, TRSDOS-II checks to see if it is the name of a program. It checks for the program file on all the drives, beginning with the primary drive (unless you specify a drive number).

If TRSDOS-II finds a matching program file, it loads and executes the file. Otherwise, you get an error message.

Disk Files

You can keep a record of information you type into your computer by storing it on a disk in a "disk file." A disk file can contain a program, a collection of data, a project report you intend to make, or almost anything you want.

When your computer stores the file, it indexes the file's name and disk location in a special place on the disk called the disk's directory. Whenever you want to access the file, the computer can immediately find its location by using this directory.

Filespec

When you create a disk file, you need to give it a name. The name is just one part of a file specification -- filespec for short.

The filespec is the standard TRSDOS-II format. It contains the following information:

filename/ext.password:drive(disk name)

filename

The name of your file can be any you like; however, do not use the name of a library command or utility. The filename may be typed in lower case. It may be no longer than eight alphanumeric characters; the first character must be a letter. For example, if you want to save a file containing an inventory list, you could name it simply:

INVNTRY

/ext -- extension

If you want to further identify your file, you can give it a second name by adding an extension. An extension is preceded by a slash and has one to three alphanumeric characters. The extension, too, may be typed in lower case.

You can use an extension to provide additional information on a file. For example, using extensions such as /NEW, /IRS, and /PAY, you could distinguish files that have the same name or divide files into categories.

You can also use an extension to indicate the type of file you have. For example, you may wish to use some of the following:

/BAS	for	BASIC programs
/TXT	for	ASCII text
/DAT	for	Data files
/OBJ	for	Object code
/REL	for	Relocatable code
/SRC	for	Source code

If the extension /DAT is added to the inventory name, the filespec becomes:

```
INVNTRY/DAT
```

.password

Some files let you protect them. You can give this protection via a password either when creating the file or when using the ATTRIB command.

A password is a sequence of up to eight alphanumeric characters, the first of which must be a letter. A period (.) precedes it as a delimiter. The password may be typed in lower case.

There are two levels of passwords and the protection they provide -- access password and update password. These passwords can inhibit entry to a file. In addition, the access password can provide various levels of protection.

When you create a file and assign a password, the access and update passwords are the same. (If you do not assign a password, eight blanks are used.) Later, if you choose, you can change these passwords by using the ATTRIB command. This provides the additional protection to your files. (See the ATTRIB command for details.)

With the password SESAME, the new filespec of the inventory file is:

INVNTRY/DAT.SESAME

:drive

Often when you use your computer, you'll use more than one disk at a time. To speed the file access, you can specify the number of the drive that contains the file. The drive number is a number from Ø-7. It is preceded by a colon.

If you omit the drive number from your filespec, your computer automatically starts looking for the file on all available drives, beginning with the primary drive.

To indicate that your inventory program is located in Drive 2, use the filespec:

INVNTRY/DAT.SESAME:2

Refer to your hardware's owner's manual for information on your drive numbers.

(disk name)

You may want to indicate the name of the disk on which the file is stored. The disk name was assigned when you formatted or backed up the disk.

The disk name is a field of up to eight alphanumeric characters, the first of which is a letter. Parentheses ( ) surround the name. If you specify the disk name, you must also specify the drive number.

By adding the disk name WREHSE to the inventory program, you form the filespec:

INVNTRY/DAT.SESAME:2(WREHSE)

Of course, every filespec you enter won't include all of these optional specifications. However, you can use any combination of the fields as long as you follow the guidelines described above.

Here are more examples of valid TRSDOS-II filespecs:

```
DOPROG.OPEN
CLR/BAS:1
COMPTR:Ø(OPRSYS)
DEPT69/TXT.BOSS:4(PAYROLL)
GAMES:1
THESIS/OLD:2
TEST/CMD
```

Wildcard

Certain commands and supervisor calls (SVCs) let you specify a collection of files by using a "wildcard" mask. An asterisk (*) in a file specification represents a wildcard field and means "any sequence of zero or more characters." For example:

```
*/BAS:1
```

represents all the files stored on the diskette in Drive 1 that have the extension /BAS.

```
D*
```

represents all the files stored on the disk in the primary drive that begin with D and do not have extensions. For example, if you want a directory of all the files that begin with the letter D and have an extension, type:

```
DIR D*/* <ENTER>
```

TRSDOS-II returns a listing of all the files beginning with D and having extensions:

```
Disk Name:TRSDOS          Drive:4          Ø9/3Ø/82    ØØ.27.18
 File Name      Created   Updated   Atrb  Fil  Rec   # of  ----Sectors----
                MM/DD/YY  MM/DD/YY        Typ  Len  Records  Alloc  Used
DECRPT/BAS      Ø4/28/82  Ø4/28/82  D*XØ  F    256       55     55     55
DATASALE/BAS    Ø4/28/82  Ø4/28/82  D*XØ  F     64      1ØØ     26     25
DANTE/BAS       Ø4/28/82  Ø4/28/82  D*XØ  F    256       39     39     39
DEF/DTA         1Ø/15/8Ø  Ø4/28/82  D*XØ  F    255       12     12     12
DISBRK/CMD      1Ø/3Ø/8Ø  Ø3/Ø3/82  P*XØ  F    256        1      1      1
DIR/EFC         Ø8/14/8Ø  Ø1/29/82  P*XØ  F    256        4      4      4
6 Files Displayed
```

Super Wildcard

Besides the wildcard (*), TRSDOS-II has a super wildcard (!). You can use it to specify all files, with and without extensions.

For example, you may want to FCOPY from a diskette to hard disk all files, regardless of whether they have extensions. Using the wildcard, you must give two FCOPY commands:

```
FCOPY */*:1 TO 4 <ENTER>
FCOPY *:1 TO 4 <ENTER>
```

The first command copies files with extensions. The second then copies files without extensions.

If, however, you use the super wildcard and type:

```
FCOPY !:1 TO 4 <ENTER>
```

you can do the entire FCOPY in one step. TRSDOS-II copies **all** Drive 1 files to the hard disk.

You can use the wildcard and super wildcard with these commands:

DIR	FCOPY
FILES	KILL
MOVE	

COMMANDS & UTILITIES

How to Use This Section

This section contains an alphabetical listing of all TRSDOS-II commands and utilities.

Commands

Commands are system operations that do not use user memory. You can use commands from within programs.

To see a list of all commands, use the LIB command. Type:

```
LIB <ENTER>
```

and the following list is displayed:

```
TRSDOS-II Ready
LIB

AGAIN  ATTRIB  AUTO   CLEAR  CLICK  CLS    DATE   DEBUG  DIR    DO
DUAL   ECHO    ERROR  FC     FLOPPY FORMS  FREE   HOST   I      KILL
LIB    LOAD    PAUSE  PROT   PURGE  RENAME RESET  SCREEN SETCOM SPOOL
STATUS TIME    T      VERIFY
```

Utilities

Utilities use some or all of user memory. They return to TRSDOS-II Ready; you cannot use them effectively within programs.

The utilities are:

```
APPEND   BACKUP   BUILD   COPY    CREATE   DRIVE
DUMP     FCOPY    FILES   FORMAT  HELP     LIST
MEMTEST  MOVE     PATCH   PRINT   RECEIVE  RESTORE
SAVE     TERMINAL
```

Entry Organization

Each entry in this section is identified as either a command or a utility.

The "syntax" is the first line you see after the keyword. Use it as your guide to type in a command. (See "Syntax" below for details.)

A definition of the command or utility follows the syntax. This definition tells you exactly what the command or utility does.

Next, the entry includes additional information on the parameters of the command. A command may require you to supply some values. It also may offer several "options" that customize the command to your needs. Values and options are discussed in the additional parameter information.

Further explanation of the command follows the parameter information. This explanation includes special instructions on the command and switches and tells how best to use the command for your purposes.

Finally, each entry gives examples of the command's use.

Syntax

The command's syntax tells you what format to use when you type the command.

For example, the syntax for the CLS (Clear Screen) command is simply:

```
CLS
```

CLS <ENTER> is all you type to execute this command.

The syntax for the KILL command includes an additional parameter (a value you supply):

```
KILL filespec
```

The value is indicated by lower-case underlined. In this case, it is a TRSDOS-II filespec. For example, if you want to kill the disk file named SAMPLE in Drive 1, you type:

```
KILL SAMPLE:1 <ENTER>
```

The COPY command has even more parameters:

COPY source filespec to destination {option}

Here, you must supply the name of the source filespec you wish to copy and the destination to which you want it copied. For example:

COPY NEW/DAT:1 TO NEWDAT/1:2 <ENTER>

copies the Drive 1 file NEW/DAT onto the diskette in Drive 2; names the new file NEWDAT/1.

Sometimes the additional information is required, as are the filespecs in the above examples. Sometimes a command offers several options. These are indicated in braces and may be either optional or required. The text tells you which are required. The COPY example above has one option:

{ABS}

When typing the COPY command, you must decide if you need this option. (ABS tells TRSDOS-II to overwrite any existing file if it has the same name as the destination.) If you need it, type:

COPY NEW/DAT:1 TO NEWDAT/1:2 ABS <ENTER>

Unless you include a comment or omit a second, optional filespec, you usually can omit the braces.

Although the variable comment is not included in every syntax statement, you may add one at any time. Comments are for your information only. For example:

COPY NEW/DAT:1 TO NEWDAT/1:2 {ABS} Latest version

documents the purpose of the COPY command.

You may want to use the comment if you are calling the command from a DO file (see the DO command) or a program.

Every command uses some variation of the syntax forms discussed above. The command entry will help you decide which values and options to use.

AGAIN **Library Command**

AGAIN

Re-executes the most recently entered command.

You cannot use AGAIN after certain library commands, utilities, and user programs. For example, you cannot use it after FCOPY {DIR}.

Example

If you just executed the command:

TIME <ENTER>

type:

AGAIN <ENTER>

to re-execute it.

APPEND **Utility Program**

APPEND source filespec TO destination

Copies the contents of the source filespec onto the end of the contents of the destination. (The contents of the source file remain the same.)

The destination can be a filespec or drive number.

If the destination is a drive number, TRSDOS-II appends only if the drive contains a disk file with the same name as the source filespec.

The types of the two files must match. Both must contain variable-length records (VLRs) or both must contain fixed-length records (FLRs). (See "Record Length" in the "Technical Information" section.)

You cannot use the APPEND command with ISAM files (indexed access files used by some compilers, such as the COBOL compiler) or TRSDOS-II DO files.

Examples

```
APPEND WORDFILE/2 TO WORDFILE/1 <ENTER>
```

copies the contents of WORDFILE/2 onto the end of WORDFILE/1.

```
APPEND REGION1/DAT TO TOTAL/DAT.GUESS <ENTER>
```

appends REGION1/DATA to TOTAL/DAT, which is protected by the password GUESS.

ATTRIB **Library Command**

ATTRIB filespec {options}

Assigns or changes the password and protection level of a filespec.

When you create a file, you may specify one password. TRSDOS-II assigns this as both the **access password** and the **update password.**

The access password limits your file access to operations such as read and execute.

The update password gives you total file access -- the authority to do all file operations, including change, rename, and kill.

If the access and update passwords are the same, you have total access. (See "Filespec" in the "Introduction" for further explanation of passwords.)

ATTRIB divides file access. It lets you assign two passwords; it also lets you assign different levels of protection to the access password.

The options are:

ACC=password sets the access password. If you omit this option, the access password stays the same.

UPD=password sets the update password. If you omit this option, the update password stays the same.

PROT=level sets the access protection level. If you omit this option, the level stays the same. The optional protection levels for access to a file are:

NONE	No access
EXEC	Execute only
READ	Read and execute
WRITE	Read, execute, and write
RENAME	Rename, read, execute, and write
KILL	Kill, rename, read, execute, and write (gives the access password total access)

The access password, which protects the file's contents at the level set by PROT, could be for the operator. For example, if the protection level is READ, the operator can only read and execute the file.

Similarly, the update password could be for the programmer. When the update password is used, TRSDOS-II ignores the protection level and gives the programmer total access.

Examples

```
ATTRIB DATAFILE ACC=JULY14, UPD=MOUSE <ENTER>
```

sets the access password to JULY14 and the update password to MOUSE. The protection level remains at the previous level.

```
ATTRIB PAYROLL/BAS.PW PROT=EXEC <ENTER>
```

leaves the access and update words unchanged, but changes the protection level to EXEC (execute).

```
ATTRIB DATAFILE/1.PRN UPD=OPEN PROT=READ <ENTER>
```

sets the update password to OPEN and the protection level to READ.

AUTO **Library Command**

AUTO command line

Stores the command line, which executes automatically whenever you start up TRSDOS-II. (After you enter the date and time, TRSDOS-II loads and executes the command.)

The command line is optional. It can be a TRSDOS-II command or the name of an executable program file. If you omit the command line, TRSDOS-II simply deletes the auto command line currently stored.

When you enter the auto command line, TRSDOS-II does not check it for errors. Errors are detected when the command executes.

To override a set auto command line, press <HOLD> before or after you enter the date when you start up the system.

Examples

```
AUTO DIR {SYS} <ENTER>
```

executes the command DIR {SYS} at startup and then displays TRSDOS-II Ready.

```
AUTO BASIC <ENTER>
```

executes BASIC.

```
AUTO DO DRIVESET <ENTER>
```

executes the command file named DRIVESET. (See the BUILD and DO commands for details on creating and executing command files.)

```
AUTO <ENTER>
```

turns off the auto command currently stored.

BACKUP Utility Program

BACKUP drivel **TO** drive2 {options}

(FOR FLOPPY DISKETTE USE ONLY)
Makes an exact, mirror-image copy of the source diskette in floppy drivel to the destination diskette in floppy drive2.

If the destination diskette is unformatted, the BACKUP utility formats it before copying.

To use BACKUP, you must have at least two floppy drives (drivel and drive2 cannot be the same drive number). If you don't have at least two floppy drives, use the COPY command.

The options are:

ID=diskette-name assigns the name of the new diskette. If you omit this option, TRSDOS-II gives the new diskette the same name as the source diskette.

PW=source-password indicates the master password of the source diskette. TRSDOS-II duplicates a diskette only if you give the correct password or if PW=PASSWORD. (All disks distributed by Radio Shack use PASSWORD as the default master password.) If PW does not equal PASSWORD and you do not give the correct password, backup aborts with an error.

NEW=destination-password assigns the password of the new diskette. If you omit this option, TRSDOS-II uses the password of the source diskette.

ABS overwrites, without prompting, any data already on the destination diskette. If you omit this option, TRSDOS-II prompts you before overwriting.

By using BACKUP to duplicate your TRSDOS-II diskette, you can create another operating system diskette.

We suggest that you make copies of all your diskettes -- especially your system diskette -- and store your originals

in a safe place. This reduces the possibility of losing important information should something happen to the diskette you are using.

If you try to back up a single- to a double-sided diskette, TRSDOS-II performs the backup automatically. If you try to back up a double- to a single-sided diskette, however, an error occurs.

Examples

BACKUP Ø TO 1 <ENTER>

makes an exact, mirror-image copy of the diskette in Drive Ø to the diskette in Drive 1.

BACKUP Ø TO 3 {ID=ACCTDISK NEW=MAY24} <ENTER>

copies the diskette in Drive Ø to the diskette in Drive 3; names the new diskette ACCTDISK and assigns it the master password MAY24.

BACKUP 1 TO Ø <ENTER>

copies a data diskette in Drive 1 to a diskette in Drive Ø. After entering this command, you are prompted to remove the system diskette and place your destination diskette in Drive Ø.

BUILD **Utility Program**

BUILD filespec

Creates or lets you edit a DO file, an automatic command input file which contains one or more library commands, utilities, or programs. You can execute the DO file with the DO command.

The filespec may not include an extension.

Creating a Do File

When you enter the BUILD command with a non-existing filespec, BUILD creates the file and then prompts you to begin inserting lines:

```
Enter Command Line (1-8Ø)
.............................
```

At this prompt, you can enter a command line of up to 8Ø characters.

Or, to end the file, simply press <ENTER> at the prompt.

Pressing <BREAK> also ends the file, but it omits the last line in the file, unless you end that line with a carriage return.

Example

To create a new file named COPYSCR, type:

```
BUILD COPYSCR <ENTER>
```

TRSDOS-II displays the command line prompt:

```
Enter Command Line (1-8Ø)
.............................
```

Answer the prompt by typing:

```
COPY NEWFILE/LST:4 TO Ø <ENTER>
```

to command TRSDOS-II to copy NEWFILE/LST from Drive 4 to Drive Ø whenever you type DO COPYSCR.

TRSDOS-II then asks if you want to:

```
Store Line? (cr/esc)
```

If you wish to store the line and continue building the file, press <ENTER>. If you do not wish to store the line, press <ESC>. In this case, press <ENTER>.

Now, type and store these command lines as you did the first:

```
COPY DIRECTRY/NME:4 TO Ø
COPY TRANSFER/ACT:4 TO Ø
PAUSE "INSERT DISK Ø"
<ENTER>
```

The last line tells TRSDOS-II that you have finished entering command lines. TRSDOS-II displays the prompt:

```
******** Edit Complete ********
```

and returns to TRSDOS-II Ready.

Now, whenever you type:

```
DO COPYSCR <ENTER>
```

TRSDOS-II executes the file by copying the files from the diskette in Drive 4 to the diskette in Drive Ø. Then, it pauses, displaying the message:

```
PAUSE "INSERT DISK Ø"
Press any Key to Continue
```

Editing a Do File

When you enter the BUILD command with an existing filespec, TRSDOS-II copies the file into a new file with the same name and the extension /OLD. Then, you can edit the file.

Example

To edit the file you created, type:

```
BUILD COPYSCR <ENTER>
```

TRSDOS-II displays the first command line and the edit prompt:

```
COPY NEWFILE/LST:4 TO Ø
Keep, Delete, Fix, Replace, Insert, or Quit?
Enter (K,D,F,R,I,Q)....
```

This prompt allows the following options:

KEEP	Copies the line, as is, into the new file.
DELETE	Deletes the line by not copying it into the new file.
FIX	Lets you edit the line. (For details on FIX, see the FC command.)
REPLACE	Deletes the displayed line and lets you insert replacement lines. Press <ENTER> at the beginning of a line to stop replacing.
INSERT	Lets you insert lines ahead of the line being displayed. Press <ESC> to erase errors in the insert line.
QUIT	Ends the editing session.

Type K <ENTER> to keep the first line, as is, and display the second line for editing.

```
COPY DIRECTRY/NME:4 TO Ø
```

To delete this line, type D <ENTER>. The message **Line Deleted from File** appears. TRSDOS-II displays the next line for editing:

```
COPY TRANSFER/ACT:4 TO Ø
```

To "fix" the line, type F <ENTER>. TRSDOS-II displays the line, with the cursor positioned over the first character.

Press <right arrow> to move the cursor to where you want to make the change. Change the extension to LGR, by typing LGR over ACT. After making the change, press <ENTER> once to move the cursor to the beginning of the line.

Press <ENTER> again to store the new line in the file.

Type Q <ENTER> to quit the session. TRSDOS-II prompts:

```
**END OF FILE -- Add to EOF (Y/N)?**
```

Type Y <ENTER> if you want to add lines to the end of the BUILD file. If you do not want to add lines, type N <ENTER>; TRSDOS-II Ready is displayed.

CLEAR **Library Command**

CLEAR

Clears user memory and returns to TRSDOS-II. It does not re-initialize the input/output (I/O) drivers or protected high memory.

Example

CLEAR <ENTER>

CLICK **Library Command**

CLICK {switch}

Turns the key entry sound on or off for those computers that support sound.

The switch options are:
ON turns on CLICK
OFF turns off CLICK

Example

```
CLICK ON <ENTER>
```

causes the computer to generate sound whenever you press certain keys. <CTRL>, <CAPS>, <LOCK>, <SHIFT>, and <REPEAT> do not generate sound.

CLS — Library Command

CLS

Clears the display and positions the cursor at the upper left corner of the display.

Example

```
CLS <ENTER>
```

COPY Utility Program

COPY source filespec TO destination {ABS}

Copies the source filespec to the destination.

The destination can be a filespec or drive number.

If you specify a filespec as the destination, TRSDOS-II checks to see if the destination already exists. If the file does not exist, TRSDOS-II creates it (on the specified or first available drive).

If you specify only the drive number as the destination, TRSDOS-II copies the source filespec to the disk in that drive. It gives the destination file the same name as the source filespec.

ABS is optional. If you include ABS, TRSDOS-II overwrites without prompting any non-protected, existing file that has the same name as the destination. If you omit ABS, TRSDOS-II prompts you before overwriting.

Normally, COPY uses memory below X'3ØØØ'. However, when copying from one diskette to another in a **single** drive, it uses memory up to the beginning of unprotected memory (see "Memory Requirements" in the "Technical Information" section).

Examples

```
COPY OLDFILE/BAS:3 TO NEWFILE/BAS:2 <ENTER>
```

copies OLDFILE/BAS from the diskette in Drive 3 to the diskette in Drive 2 and names the new file NEWFILE/BAS.

```
COPY NEW/DAT TO DEFUNCT/DAT:2 ABS <ENTER>
```

searches for NEW/DAT and copies the file (from the first drive that contains it) to DEFUNCT/DAT in Drive 2. If you already have a disk file named DEFUNCT/DAT in Drive 2, TRSDOS-II overwrites it with the new file.

```
COPY FILE/A:4 TO FILE/B:1(DOUBLE) <ENTER>
```

copies FILE/A from the diskette in Drive 4 to the diskette in Drive 1 and names the new file FILE/B.

```
COPY TESTPROG TO 3 <ENTER>
```

searches for TESTPROG and copies the file from the first drive that contains it to the diskette in Drive 3. It names the new file TESTPROG.

CREATE Utility Program

CREATE filespec {options}

Creates a file named filespec and pre-allocates space for its contents. If you use CREATE, TRSDOS-II does not de-allocate (recover) unused space when you close the file.

If you do not use CREATE, TRSDOS-II allocates space for your file dynamically as you write to it. Then, when you close the file, TRSDOS-II de-allocates the unused space.

The options are:

NGRANS=number allocates number * 5 sectors to the file. For example, if you want to allocate 1ØØ sectors to the file, set NGRANS to 2Ø.

NRECS=number assigns the specified number of fixed-length records to the file. If you use this option, you must also use the LRL= option.

LRL=number (used only with the NRECS= option) assigns number as the logical record length. The number can be from 1-256. If you omit this option, the record length defaults to 256.

TYPE=V specifies the record type as variable-length.

TYPE=F specifies the record type as fixed-length. If you omit both TYPE= options, TRSDOS-II uses TYPE=F. (The extended mode does not apply to CREATE.)

NGRANS and NRECS are mutually exclusive. If you use NGRANS, do not use NRECS. If you use NRECS, do not use NGRANS.

(For more information about record lengths and types, see "Disk Files" in the "Technical Information" section.)

Examples

```
CREATE DATAFILE/BAS  NRECS=3ØØ,LRL=256 <ENTER>
```

creates a file named DATAFILE/BAS and allocates space for 3ØØ 256-byte fixed-length records (FLRs).

```
CREATE TEXT/1  NGRANS=1ØØ,TYPE=V <ENTER>
```

creates a variable-length record file (VLR file) named TEXT/1 and allocates 5ØØ sectors to it.

```
CREATE NAMES/TXT.IRIS  NRECS=5ØØ,LRL=3Ø <ENTER>
```

creates an FLR file named NAMES/TXT, which is protected by the password IRIS. The file can hold 5ØØ 3Ø-byte records.

DATE **Library Command**

DATE {mm/dd/yyyy}

Resets the date or displays the date and time string.

You first set the date when you start up your computer. DATE lets you change it without resetting your computer.

mm/dd/yyyy is optional. Use it to reset the date. mm is a 2-digit month specification; dd is a 2-digit day of the month specification; yyyy is a 4-digit year specification. If you omit this option, TRSDOS-II displays the current date and time.

Examples

DATE <ENTER>

displays the current date and time as:

Thu Jul 1 1982 182 -- 14.55.Ø5

for Thursday, July 1, 1982, the 182nd day of the year, 2:55:Ø5 p.m. Note that leading zeroes are not displayed.

DATE Ø8/21/1982 <ENTER>

resets the date to August 21, 1982, and displays the new information.

DEBUG **Library Command**

DEBUG {switch}

Sets up the debug monitor which lets you enter, test, and debug machine-language programs.

The switch options are:
ON turns on DEBUG
OFF turns off DEBUG

The switch is optional. If you omit it when DEBUG is off, TRSDOS-II returns the status DEBUG. If you omit it when DEBUG is on, TRSDOS-II enters DEBUG.

While DEBUG is on, you automatically enter the debug monitor whenever you load and execute a user program. In this mode, you can enter any of a special set of single-key commands to study how your program is working.

DEBUG loads into the high-memory area sometimes reserved by TRSDOS-II for special programming. (See "Memory Requirements" in the "Technical Information" section.) While DEBUG is on, TRSDOS-II automatically protects this area from being overlaid by BASIC or other user programs.

You can use DEBUG only on programs in the user area X'28ØØ' to TOP. (See the STATUS command to locate TOP.)

To use DEBUG from BASIC, you must turn on DEBUG before you start BASIC.

Examples

DEBUG ON <ENTER>

turns on DEBUG (loads it into high memory, protects high memory, and sets up a "scroll window" -- a block of lines that is to be scrolled). The lower 11 lines of the display make up the scroll window. The upper 13 lines contain the debug monitor display.

DEBUG OFF <ENTER>

turns off DEBUG and removes protection of high memory.

```
DEBUG <ENTER>
```

enters DEBUG if it is on; returns the status of DEBUG if it is off.

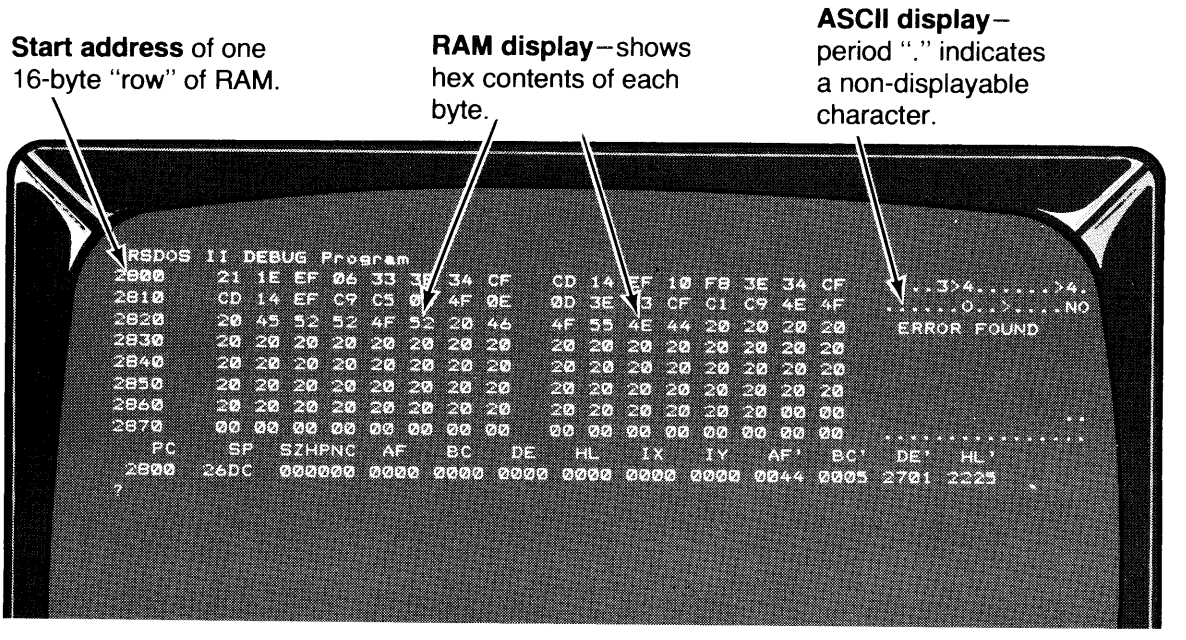
To Enter the Debug Monitor

To enter the monitor when DEBUG is off, type:

```
DEBUG ON <ENTER>
DEBUG <ENTER>
```

To enter the monitor when DEBUG is on, do one of the following:

- Type DEBUG. TRSDOS-II enters the debug monitor.
- Load a user program by typing its filespec. TRSDOS-II loads the program and enters the debug monitor. The transfer address for the program is in Register PC's display.



Z-8ØA Register Contents & RAM Display. SZHPNC are the flag bits in Register F.

The ? is the command prompt; it indicates that you can enter one of the single-key commands. Press <H> (for "help") to display a "menu," a list of DEBUG commands. To enter one of the commands, press the letter you see capitalized in the command menu. For example, to enter the memory command "raM," press <M>.

Most commands prompt you to enter additional information or subcommands. While entering commands and subcommands, you'll find the following keys useful:

<ESC>	Returns to the ? prompt and cancels the current command
<BACKSPACE>	Backspaces the cursor and erases the previous character
<left arrow>	Backspaces the cursor without erasing characters
<right arrow>	Moves the cursor forward without erasing characters
<F1>	Positions the cursor at the starting memory address when used with certain subcommands
<TAB>	Tabs the cursor when used with certain subcommands

Command Description

B (Breakpoint)

When execution reaches a breakpoint which you have set in a program, control returns to the debug monitor, and the program counter points to the breakpoint address.

Press <B> to set a breakpoint. Place the breakpoint at the beginning byte of an opcode -- **never** in the middle of an instruction.

TRSDOS-II prompts you to enter the breakpoint number. You can enter up to eight breakpoints, so type in a number from 1 to 8.

Next, TRSDOS-II prompts you to enter the new address for that breakpoint. If the breakpoint is already set, TRSDOS-II displays the old breakpoint address, and the original instruction that goes in that address.

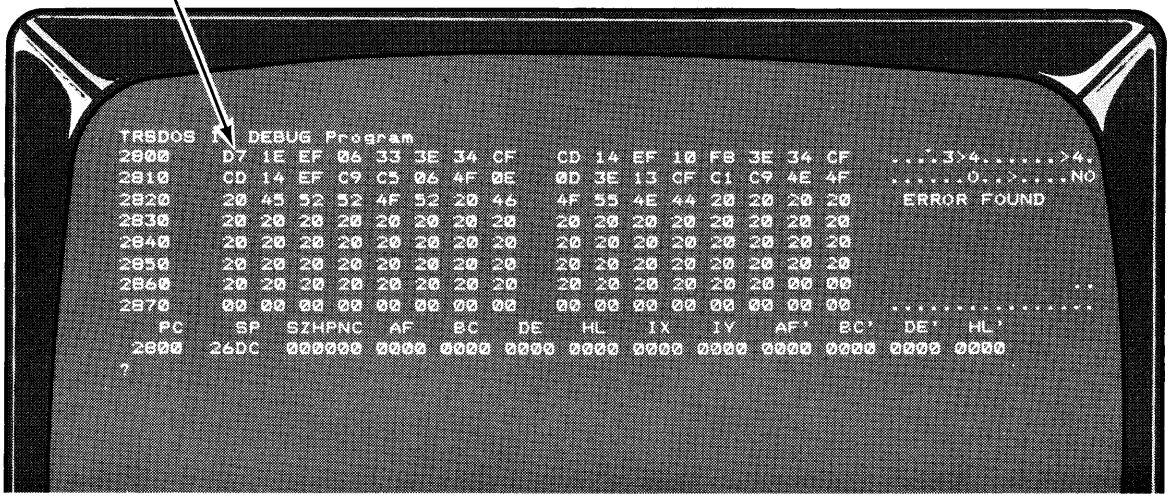
While a breakpoint is in place, the memory display for the breakpoint address shows X'D7'.

For example:

```
? B #=1 A=28ØØ
```

puts a breakpoint (#1) at address X'28ØØ'. The memory display for X'28ØØ' shows X'D7'.

X'D7' indicates a breakpoint has been set at this address.



To delete a single breakpoint without affecting any others, press <ENTER> instead of providing a new address for the breakpoint.

C (Continue)

After the debug monitor has stopped at a breakpoint, press <C> to resume execution of your program at the address pointed to by PC. The original instruction at the breakpoint address executes, but the breakpoint remains in place.

D (Decimal Format)

Press <D> to display all addresses in decimal form. (TRSDOS-II still displays the contents of all registers and memory addresses in hexadecimal.) In the decimal display format, you must enter all addresses as 5-digit decimal numbers.

E (Empty Breakpoint Table)

Press <E> to delete all breakpoints. TRSDOS-II restores all breakpointed instructions.

F (Find Hex String)

Press <F> to search in memory for a string of up to 2Ø bytes. DEBUG prompts you to type in the start (S=) and end (E=) addresses of the area to be searched. It also prompts you for the data (D=) for which to search.

Type in the search string in hexadecimal format, then press <ENTER>. The debug monitor displays the first occurrence of the string. If the string is not in the search area, the current memory display stays the same.

Example

```
? F S=28ØØ  E=4ØØØ  D=C3ØØ7Ø  <ENTER>
```

searches memory from X'28ØØ' through X'4ØØØ' for the 3-byte hexadecimal string X'C3ØØ7Ø'.

X (Hex Format)

Press <X> to return the display to hexadecimal format. In this mode, you must enter all addresses as 4-digit hexadecimal numbers.

J (Jump)

Press <J> to load the "jump" address into Register PC.

This is a 2-step process:

1. Press <J> and type in the jump address. This loads the address into Register PC.

2. Press <C> to continue execution at that point.

For example, type:

```
? J A=28ØØ
```

then press <C> to start execution at X'28ØØ'.

L (Load or Copy Memory to Memory)

Press <L> to copy a block of memory. DEBUG prompts you to type in the start (S=) and end (E=) addresses of the block to be copied and the destination address (T=) for the first byte to be copied.

The copy is incremental. DEBUG copies the first byte to the first destination address, then the second byte to the second destination address, and so on.

Examples

```
? L S=28ØØ  E=28FØ  T=3ØØØ
```

copies from addresses X'28ØØ' through X'28FØ' into memory at X'3ØØØ' through X'3ØFØ'.

You can use this command to fill memory with a specific value. Put the desired value in address nnnn and use a command such as this:

```
? L S=nnnn E=xxxx T=nnnn + 1
```

This copies the value in nnnn into every location from nnnn + 1 to xxxx. For example, if X'28ØØ' contains X'2Ø', then:

```
? L S=28ØØ E=3ØØØ T=28Ø1
```

fills memory from X'28Ø1' to X'3ØØØ' with X'2Ø'.

O (Debug Off)

Press <O> to exit the debug monitor and turn off DEBUG. All breakpoints are removed from your program, and DEBUG returns to TRSDOS-II. If you want only to exit DEBUG, press <S>; DEBUG remains "on."

P (Print Display)

Press <P> to send a copy of the display to the printer.

M (Examine and Change Memory)

Press <M> to enter this command. DEBUG prompts you to type in the starting address of memory to be examined. As soon as you type in the complete address, the memory display shows the 128-byte area that starts at that address.

While the A= prompt is present, you can scroll through memory 64 bytes at a time by pressing <ENTER>. The up and down arrows move the cursor in 128-byte increments.

To modify any memory in the display area, press <F1> while the A= prompt is displayed. The cursor moves up into the memory display area.

When the cursor is in the hexadecimal area, enter hexadecimal values. DEBUG updates the memory display as you type in each nibble (hexadecimal character, half a byte).

When the cursor is in the ASCII area, enter ASCII characters. Press </> to return to hexadecimal entry.

To cancel all changes in memory, press <ESC>. **To effect all changes,** press <F2>.

R (Modify Registers)

Press <R> to change a register pair. The R=> prompt appears. Type in a letter indicating which register pair you want to change:

A for	AF	B for	BC	D for	DE	H for	HL
X for	IX	Y for	IY				
F for	AF'	C for	BC'	E for	DE'	L for	HL'

The cursor moves to the first byte of the register pair. While in the register modify mode, use the cursor control keys <right arrow> and <left arrow> to move over one nibble at a time. Use <TAB> to advance to the next register pair.

To cancel changes in register contents, press <ESC>. **To effect changes** made, press <F2>.

S (System)

Press <S> to return to the TRSDOS-II Ready mode. DEBUG is still on; when you load and execute a program, you again enter DEBUG.

While the cursor is in the memory display area, the cursor control keys are:

<F1>	Homes the cursor
<TAB>	Tabs the cursor
<ENTER>	Moves the cursor to the start of the next row
</>	Moves the cursor in and out of the ASCII area
	Moves the cursor:
<up arrow>	up
<down arrow>	down
<left arrow>	left
<right arrow>	right

DIR **Library Command**

DIR source {options}

Displays the specified disk's directory.

The source can be a standard TRSDOS-II filespec, a wildcard, or a drive number (Ø-7). If you omit the drive number, TRSDOS-II goes to the primary drive.

The options are:

PRT sends the directory listing to the printer. If you omit this option, TRSDOS-II displays the directory on the screen.

SYS lists system files. If you omit this option, TRSDOS-II displays only user files.

Disk Name:TRSDOS Drive:4 Ø9/3Ø/82 ØØ.27.18

File Name	Created MM/DD/YY	Updated MM/DD/YY	Atrb	Fil Typ	Rec Len	# of Records	----Sectors---- Alloc	Used
DESIGN2	Ø2/18/82	Ø2/18/82	P*XØ	F	256	2	2	2
SAMPPROG	Ø1/Ø1/81	12/28/81	D*XØ	V	+++	+++	4	4
SAMPPROG/BAS	Ø1/Ø1/81	12/28/81	D*XØ	V	+++	+++	7	7
OLDFILE	Ø1/Ø1/81	Ø1/Ø4/82	D*XØ	F	1ØØ	2Ø	8	8
NEWFILE	Ø1/Ø1/81	12/28/81	D*XØ	F	1Ø6	2Ø	9	9
HOLD	1Ø/29/8Ø	Ø4/28/82	D*XØ	F	256	6	6	6
ABC/DTA	11/Ø3/81	Ø4/28/82	D*XØ	F	255	+++	Ø	+++
RDTEST4	11/Ø3/81	Ø4/28/82	D*XØ	F	256	6	6	6

8 Files Displayed

What the Column Headings Mean

- Disk Name -- The name assigned to the diskette when it was formatted or backed up.
- File Name -- The name and extension assigned to a file when it was created.
- Creation Date -- The date on which the file was created.

- Update Date -- The date on which the file was last updated.

- Attributes -- A 4-character field which lists the file's attributes:

  The first character is either P for "program file" or D for "data file."

  The second character is either S for "system file" or * for "user file."

  The third character gives the password protection status.

X	The file is unprotected (has no passwords).
A	The file has an access word only.
U	The file has an update word only.
B	The file has both update and access words.

  The fourth character specifies the level of access assigned to the access word:

Ø,1	Kill, rename, read, execute, and write
2	Rename, read, execute, and write
3	Not used
4	Read, execute, and write
5	Read and execute
6	Execute
7	No access

  See the ATTRIB command for an explanation of how to change the access password, update password, and protection level.

- File Type -- Indicates the record type for the file:

F	Fixed-length records
V	Variable-length records

- Record Length -- The length assigned when the file was created (applies only to FLR files). Plus signs (+) indicate a VLR file.

- Number of Records -- The number of logical records that have been written. Plus signs (+) indicate that none has been written or that the file has variable-length records, so the number cannot be calculated.

- Sectors Allocated -- The number of sectors (256-byte blocks) allocated to the file.
- Sectors Used -- The number of sectors to which data has been written. Plus signs (+) indicate the file has no data.
- Files Displayed -- The number of files on the directory listing.

Examples

```
DIR <ENTER>
```

displays the directory of the user files (that are on the disk) in the primary drive.

```
DIR 1 {SYS,PRT} <ENTER>
```

lists, to the printer, the directory of the system files in Drive 1.

```
DIR */BAS:1 <ENTER>
```

displays the directory of the user files in Drive 1 that have the extension /BAS.

```
DIR B*/* <ENTER>
```

displays the directory of the files that are in the primary drive, start with the letter B, and have extensions.

```
DIR B* <ENTER>
```

displays the directory of the files that are in the primary drive, start with the letter B, and do not have extensions.

```
DIR ! <ENTER>
```

displays the directory of all files, with or without extensions, that are in the primary drive.

DO Library Command

DO filespec

Executes a DO file, an automatic command input file that contains one or more library commands or programs. TRSDOS-II executes the commands as if you had typed them in from the keyboard.

You can create a DO file with the BUILD command. Command lines in this file may include library commands or file specifications for user programs.

You cannot include the DEBUG command in a DO file.

Also, you cannot execute a DO file and the SPOOL command at the same time. The first one executed has priority over the second.

Running User Programs from a DO file

Besides executing TRSDOS-II library commands, you can load and execute user programs from a DO file. When you do so, enter your program name as the last line in the DO file.

For example, to perform some library commands and then run a BASIC program called MENU, enter this as the last line in your program:

```
BASIC MENU <ENTER>
```

You can "chain" DO files by putting another DO command at the end of a DO file.

In addition, you can run user programs from the middle of a DO file. Your program runs normally. Your program must return to TRSDOS-II for the execution of the DO file to continue. If, however, you press <BREAK> during program execution, your program ends and control returns to TRSDOS-II.

Examples

```
DO STARTER <ENTER>
```

begins automatic command input from STARTER.

```
AUTO DO STARTER <ENTER>
```

sets DO STARTER as the auto command file. Whenever you start up, TRSDOS-II first executes the command file STARTER.

DRIVE Utility Program

DRIVE drive {options}

Lets you:

- Gain the best use of a floppy disk drive by changing the following disk drive settings:
  a) seek rate (the rate at which the computer is able to access the diskette
  b) diskette swap detection
  c) wait (for a drive ready condition)

- Turn secondary floppy or hard disk drives off-line

If you omit all options, DRIVE returns the current settings for the specified drive.

The following information offers a thorough explanation of the DRIVE command and all its options. Please read it before using this command.

The options are:

RATE=number (used for floppy drives only) Sets the seek rate of the floppy disk drive. The number is from Ø-3 where:
Ø = 3 milliseconds
1 = 6 milliseconds
2 = 1Ø milliseconds
3 = 15 milliseconds
RATE is optional. If you omit RATE, the setting stays the same.

DETECT (used for floppy drives only) sets the diskette swap detection. This causes TRSDOS-II to check the drive hardware for a "door opened" condition. Set Push-Button and Thinline drives to DETECT.

NODETECT (used for floppy drives only) sets the diskette swap to "no detection." This causes TRSDOS-II to ignore any "door opened" conditions received from the drive hardware. Set Latch drives to NODETECT.

WAIT (used for floppy drives only) sets TRSDOS-II to wait for the drive to gain proper motor speed, if a "Drive Not Ready" error occurs. TRSDOS-II tries again. If the error occurs again, the drive is considered not ready, and an error code is generated. Set Thinline drives to WAIT.

NOWAIT (used for floppy drives only) sets TRSDOS-II to not wait if a "Drive Not Ready" error occurs. Immediately generates an error code. Set Push-Button and Latch drives to NOWAIT.

OFFLINE (used for secondary drives only) sets a drive off-line. TRSDOS-II ignores that drive.

ONLINE (used for secondary drives only) sets a drive on-line. ONLINE is the default.

Gaining the Best Use of Floppy Disk Drives

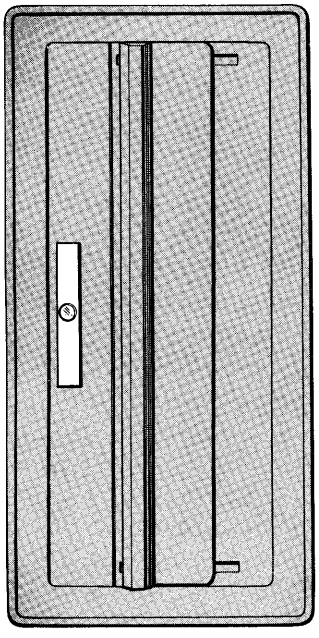
When TRSDOS-II starts up, it initializes your drives to the following settings:

Drive	Seek Rate	Swap Detect	Wait/Nowait Status
Ø	1Ø ms	DETECT	WAIT
1 - 3	15 ms	NODETECT	WAIT

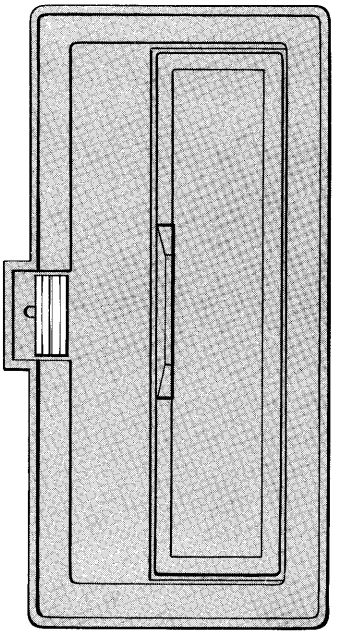
Any type of floppy drive can operate under these settings. However, to get the best use of your particular drive, try different settings.

There are three types of drives that could be on your computer. Each type has its own specifications that determine how it can be set up.

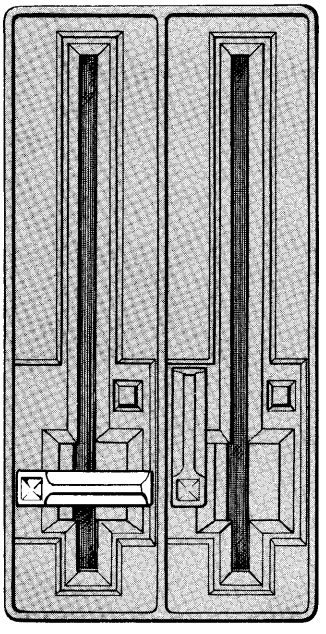
You can determine the type of drive you have by looking at the pictures on the next page.



Push-Button



Latch



Thinline

The Three Types of Drives.

We suggest you try the following settings for each of these drives.

Drive	Seek Rate	Swap Detect	Wait/Nowait Status
Push-Button	1Ø ms	DETECT	NOWAIT
Latch	15 ms*	NODETECT*	NOWAIT
Thinline	3 ms	DETECT	WAIT*

* These settings are required for these particular drives and are set this way at startup.

When using DRIVE with the seek rate, swap detect, and wait options, be sure to note the following:

- When reset, TRSDOS-II always returns to the startup settings. Once you have tested the settings on your computer, you can use the AUTO command (or a DO file) to start the DRIVE utility automatically upon power-up or reset.

- If you receive many I/O errors on disk reads/writes after changing the seek rate, you probably set the rate too fast for that particular drive. To solve this, either issue the DRIVE command again with the proper seek rate or reset the computer.

- **Latch drives** cannot detect whether a drive door has been opened since the last disk access. Always set Latch drives to the NODETECT option.

- **Thinline drives** have a built-in feature to reduce the wear on the floppy diskette. If a Thinline drive is not accessed for 2Ø seconds or more, the drive motor shuts off until the next drive access. At the next disk access, it takes about 8/1Ø of a second for the motor to reach proper speed.

- Always set **Thinline drives** to the WAIT option. If you run a Thinline drive with the NOWAIT option, a "Drive Not Ready" error occurs because the motor could not reach the proper speed before the access.

Examples

If your Drive Ø is a Thinline, this command:

```
DRIVE Ø {RATE=Ø,DETECT,WAIT} <ENTER>
```

lets you get the best use of Drive Ø.

If your Drive 1 is a Push-Button, this command:

```
Drive 1 {RATE=2,DETECT,NOWAIT} <ENTER>
```

lets you get the best use of Drive 1.

If your Drive 1 is a Latch, this command:

```
DRIVE 1 {RATE=3,NODETECT,NOWAIT} <ENTER>
```

lets you get the best use of Drive 1.

Turning Drives Off-Line

The OFFLINE option turns a secondary disk drive off-line; ONLINE turns it back on-line. You can use both options with hard or floppy secondary disk drives:

- Hard Disk Drives -- If you have more than one hard disk drive, you can move or copy files to your secondary drives and turn these drives off-line. Thus, you protect your files from access and/or change.
- Floppy Drives -- When you turn a non-existing or unused secondary floppy drive off-line, TRSDOS-II accesses your disks faster.

The default is ONLINE. When you turn a floppy disk drive back on-line after it is off-line, you must also use the I command to re-initialize the drive.

Examples

```
DRIVE 5 {OFFLINE} <ENTER>
```

protects files on Drive 5 from access.

```
DRIVE 3 {OFFLINE} <ENTER>
```

tells TRSDOS-II not to access Drive 3; this speeds up access time.

```
DRIVE 2 {ONLINE} <ENTER>
```

tells TRSDOS-II to try to access Drive 2.

If you have a hard disk, you might find it helpful to create a command file (see the BUILD command for details) of these commands:

```
DRIVE 6 {ONLINE}
MOVE !:5 TO 6 {ABS}
DRIVE 6 {OFFLINE}
```

This causes TRSDOS-II to turn Drive 6 on-line, move all the files on Drive 5 to Drive 6, and then turn Drive 6 back off-line.

Using AUTO to Set Drives

You also can build a special command file that automatically sets your floppy disk drives for maximum efficiency and turns any non-existent drive off-line as you start up.

For example, if your computer has two Thinline floppy drives and two hard disk drives, you can use the following as your automatic command file. (See the AUTO, BUILD, and DO commands for more information.)

First get into the BUILD command mode by typing:

```
BUILD DRIVESET <ENTER>
```

Now you can enter program lines such as:

```
DRIVE Ø {RATE=Ø,DETECT,WAIT} <ENTER>
DRIVE 1 {RATE=Ø,DETECT,WAIT} <ENTER>
DRIVE 2 {OFFLINE} <ENTER>
DRIVE 3 {OFFLINE} <ENTER>
DRIVE 6 {OFFLINE} <ENTER>
DRIVE 7 {OFFLINE} <ENTER>
<ENTER>
```

The last line saves the program lines.

To set this command file as the auto command, type:

```
AUTO DO DRIVESET <ENTER>
```

Now, whenever you start up your computer, the DRIVESET command file executes automatically and sets all your drives to their maximum efficiency.

When you set a command file such as DRIVESET as the auto command, TRSDOS-II overwrites any existing auto. To set a command file and keep the existing auto, use an example such as the following.

The SCRIPSIT system diskette has the auto command STARTUP set. When you enter the date and time, this auto command initializes the SCRIPSIT system diskette and goes directly to the SCRIPSIT menu.

If you want to set an auto file that uses this auto startup and sets the drives to their maximum efficiency, you can use the following command file.

If you have a computer with four Thinline floppy disk drives and one hard disk drive, get into the BUILD command mode and enter lines such as:

```
DRIVE Ø {RATE=Ø,DETECT,WAIT} <ENTER>
DRIVE 1 {RATE=Ø,DETECT,WAIT} <ENTER>
DRIVE 2 {RATE=Ø,DETECT,WAIT} <ENTER>
DRIVE 3 {RATE=Ø,DETECT,WAIT} <ENTER>
DRIVE 5 {OFFLINE} <ENTER>
DRIVE 6 {OFFLINE} <ENTER>
DRIVE 7 {OFFLINE} <ENTER>
STARTUP <ENTER>
<ENTER>
```

Now when you enter the command:

```
AUTO DO DRIVESET <ENTER>
```

TRSDOS-II automatically sets the drives to their maximum efficiency, turns non-existing drives off-line, and then starts up SCRIPSIT.

DUAL Library Command

DUAL {switch}

Sends the video display output to the printer and vice versa.

You must use one of the switch options. They are:
ON Turns dual routing on
OFF Turns dual routing off

Because there are intrinsic differences between the output devices and the output software, the printer and display outputs may differ.

When dual routing is on, the video output process slows.

Be sure your printer is on-line and powered up while dual is on. If it is not, the video display appears to output characters at the rate of 1 every 3 seconds (3Ø seconds, if you have run the LPII patch file). To solve this, turn DUAL off or ready your printer.

Examples

DUAL ON <ENTER>

turns dual routing on, so all output is sent to the line printer and video display at the same time.

DUAL OFF <ENTER>

turns dual routing off.

DUMP Utility Program

DUMP filespec {options}

Copies the filespec, a machine-language program, from memory to disk. You can then load or execute the program at any time.

hhhh is a 4-digit hexadecimal number without the X' ' notation.

You can use some or all of the following options:

START=hhhh sets the program's starting address. You must include this option.

END=hhhh sets the program's ending address. You must include this option.

TRA=hhhh sets the address at which your program begins executing after you load it. If you omit this option, DUMP uses the address set by RELO. The transfer address must be less than the ending address.

RELO=hhhh sets the address at which your program begins loading back into memory. If you omit this option, TRSDOS-II uses START.

RORT=R (Return) loads filespec, but does not execute it.

RORT=T (Transfer) loads and executes filespec from TRSDOS-II Ready. If you omit the RORT= options, TRSDOS-II uses RORT=T.

Examples

DUMP TEST/FIL START=64FØ,END=6AFØ,TRA=67F2,RORT=R <ENTER>

creates filespec TEST/FIL, which contains the program in memory location X'64FØ' to X'6AFØ'. When loaded, it occupies the same memory location. Since RORT=R, you cannot execute the program from TRSDOS-II Ready mode.

DUMP INTCOM/DMA START=6ØØØ END=67FF TRA=31Ø8 RELO=3ØØØ <ENTER>

creates filespec INTCOM/DMA, which contains the program in memory range X'6ØØØ' to X'67FF'. When loaded, the program

resides from X'3ØØØ' to X'37FF' and execution starts at X'31Ø8'. You can execute the program from the TRSDOS-II Ready mode by typing:

INTCOM/DMA <ENTER>

ECHO Library Command

ECHO

Lets you type information to the display, without TRSDOS-II interpreting it as a command. Press <BREAK> to stop ECHO and return to TRSDOS-II Ready.

Example

```
DUAL ON <ENTER>
ECHO <ENTER>
```

Now, what you type is output to the printer, as well as to the display. (Most printers do not print the line until they receive a carriage return or the input buffer is filled).

ERROR **Library Command**

ERROR number

Displays a message that describes error number. When TRSDOS-II gives you a reverse (black-on-green/white) message, such as:

```
* * ERROR 47 * *
```

You can find out what ERROR 47 is by typing:

```
ERROR 47 <ENTER>
```

For a complete list of error codes, messages, and explanations, see Appendix B of this manual.

Example

```
ERROR 3 <ENTER>
```

returns the error message:

```
PARAMETER ERROR ON CALL
```

FC Library Command

FC

Edits and repeats the last command entered.

When you specify FC ("fix command"), TRSDOS-II displays the last command entered and lets you edit that command. Then, it executes the edited command.

After "fixing" the command, you can execute it only when the cursor is positioned as far left as possible on the line. Press <ENTER> to move the cursor to this position. Press <ENTER> again to execute the "fixed" command.

Use the following subcommands to edit command lines:

Key	Function
<F1>	Inserts blank spaces. (Note: Blank spaces are the only insertions that FC allows. If you need to insert characters, insert spaces and then type over the spaces with the desired characters.)
<F2>	Deletes a character.
<CTRL> <E>	Moves the cursor to the end of the line.
<ESC>	Starts over. TRSDOS-II disregards all previous changes.
<BREAK>	Aborts and returns to TRSDOS-II Ready.
<ENTER>	Moves the cursor to the left-most position. If cursor is already there, TRSDOS-II executes the command.
<left arrow>	Moves the cursor to the left. Does not wrap around.

Key	Function
<right arrow>	Moves the cursor to the right. When the cursor reaches the last position on the line, it returns to the left-most position.
<TAB>	Tabs (skips over) to the next tab stop, without erasing characters. Tabs are set at 8-space intervals (8, 16, 24, and so on).
<CTRL> <T>	Back-tabs without erasing characters.
<CTRL> <W>	Deletes to the end of the line, starting at the current cursor position.

Example

Suppose you have just executed the following command:

```
COPY PAYROLL/DAT:1 :4 <ENTER>, type:
```

To re-display the command for editing, type:

```
FC <ENTER>
```

Move the cursor so it is on top of the number 4 -- by pressing <TAB> or <right arrow> -- and type the number 3. Press <ENTER> to return the cursor to the beginning of the line. The new command is:

```
COPY PAYROLL/DAT:1 :3
```

Press <ENTER> again to execute the command.

FCOPY Utility Program

FCOPY source TO destination {options}

Copies files from floppy diskette TRSDOS 1.2, 1.2a, 2.Ø, 2.Øa, or 2.Øb to a disk formatted by TRSDOS-II (and vice versa except to TRSDOS 1.2 or 1.2a).

If you are going to use TRSDOS files under TRSDOS-II, you must FCOPY the files to disks formatted by TRSDOS-II. This is because TRSDOS formats 26 sectors per diskette track and TRSDOS-II formats 32 sectors per diskette track and 34 sectors per hard disk track. If you try to use a TRSDOS diskette while operating under TRSDOS-II, you get the error "Illegal I/O Attempt."

You can also use FCOPY to get a directory listing while operating under TRSDOS-II. The directory can be for files formatted by either TRSDOS or TRSDOS-II. The syntax for this special use of FCOPY is given later in this entry.

The source is one of the following:

- filespec that must include a drive number
- wildcard:drive
- drive

  If you specify the source as a drive number and omit ALL, TRSDOS-II prompts you to enter a wildcard mask.

The destination is one of the following:

- filespec, only if the source is also a filespec. The filespec must include a drive number.
- drive

drive is a drive number from Ø-7.

You cannot use FCOPY with FLOPPY {OFF}. (See FLOPPY command.)

The options are:

ABS overwrites any existing data without prompting. If you omit this option, TRSDOS-II prompts you before overwriting.

PROMPT tells TRSDOS-II to prompt you before it copies a file. Press <Y>, <N>, <Q>, or <S> (for "yes," "no," "quit," or "stop prompting").

ALL copies all user files.

SYS copies language and application programs. If you use SYS, the destination must be the primary drive. If you omit this option, only user files are copied.

The syntax for displaying a directory listing is:

FCOPY drive {DIR,SYS,PRT}

The braces are required with this form of FCOPY.

When you use the FCOPY command with DIR and SYS, TRSDOS-II returns the directory according to the way the diskette in the specified drive is formatted. For example, if you enter the commmand:

FCOPY 1 {DIR,SYS} <ENTER>

and the diskette in Drive 1 is formatted by TRSDOS 2.Øa, the computer returns a directory of both system and user files.

On the other hand, if you use the same command on a disk formatted by TRSDOS-II, it returns a directory of system files only.

Examples

FCOPY NEWFILE/TXT TO :3 <ENTER>

copies NEWFILE/TXT, which is on a TRSDOS-formatted diskette, to the Drive 3 diskette, formatted by TRSDOS-II.

FCOPY 1 TO Ø {ALL} <ENTER>

copies all user files from the TRSDOS-formatted diskette in Drive 1 to the Drive Ø diskette, formatted by TRSDOS-II.

```
FCOPY !:4 TO 1 <ENTER>
```

copies all user files, with and without extensions, from the Drive 4 to Drive 1. (See "Super Wildcard" in the "Introduction.")

```
FCOPY TRN/TXT:1 TO TRNTXT/OLD:4 <ENTER>
```

copies the file TRN/TXT from the diskette in Drive 1 to Drive 4. It names the new file TRNTXT/OLD.

```
FCOPY 2 {DIR} <ENTER>
```

lists the directory of user files for the TRSDOS diskette in Drive 2.

FILES Utility Program

FILES source {options}

Lists alphabetically the filenames that are stored on the specified source.

The source can be a filespec, wildcard, or drive number (Ø-7). If you omit the drive number, TRSDOS-II goes to the primary drive.

The options are:

SYS lists all system files. SYS is optional; if you omit it, TRSODS-II lists only the user files.

PRT prints the files. PRT is optional; if you omit it, TRSDOS-II lists the files on the screen.

Unlike the DIR command, FILES lists only filenames. It lists them in five columns (from left to right) across the screen.

FILES allows full wildcarding. For details, see "Wildcards" in the "Introduction."

Examples

FILES */BAS:4 {PRT} <ENTER>

lists to the printer all user files in Drive 4 that have the extension /BAS.

FILES Ø {SYS} <ENTER>

lists on the display all Drive Ø system files. The system directory is in Drive Ø on a floppy drive system.

FLOPPY — Library Command

FLOPPY {switch}

Ignores all references to floppy drive numbers within filespecs. This is useful when a program or library command includes a reference to a filespec in which a drive is specified.

The switch options are:

ON sets FLOPPY on. TRSDOS-II goes to the drive(s) specified in the filespec.

OFF sets FLOPPY off. TRSDOS-II ignores the drive number(s) in the filespecs.

If you omit both options, TRSDOS-II displays the current status of FLOPPY.

TRSDOS-II powers up using FLOPPY {ON}.

Only those commands that require filespecs are affected by FLOPPY. These are:

ATTRIB	DO	MOVE
APPEND	DUMP	OPEN
BUILD	KILL	PATCH
COPY	LIST	RENAME
CREATE	LOAD	

When any of these commands is used with FLOPPY {OFF}, TRSDOS-II ignores the drive numbers. The drive search begins with the primary drive.

Examples

```
FLOPPY {OFF} <ENTER>
```

TRSDOS-II begins the search with the primary drive.

```
FLOPPY {ON} <ENTER>
```

uses the drive numbers included in a filespec.

```
FLOPPY <ENTER>
```

displays the status of FLOPPY.

FORMAT Utility Program

FORMAT drive {options}

Prepares a blank disk for use by defining the tracks and sectors and writing system information onto it. (For more information, see "Diskette Organization" in the "Technical Information" section.)

With a hard disk, FORMAT initializes the system, as well as formats it. Formatting Drive 4 (the primary hard disk drive) transfers TRSDOS-II to that drive. Then, whenever the computer is turned on or reset, it automatically loads TRSDOS-II from Drive 4.

You can format either a blank or already formatted disk. If the disk already is formatted, you lose all information when you reformat it.

You can format a single- or double-sided disk, without spedifying the number of sides. TRSDOS-II automatically formats the correct type.

drive specifies the drive in which the blank disk is to be formatted. It can be one of the following numbers: 1, 2, 3, 4, 5, 6, or 7. You cannot format your primary drive (the drive that contains the operating system). Floppy drive users cannot format Drive Ø. Hard disk users cannot format Drive 4, except to initialize.

If you omit the drive, TRSDOS-II prompts you for it.

The options are:

ABS overwrites any existing data without prompting. If you omit this option, TRSDOS-II prompts you before overwriting.

ID=disk-name assigns a name to the disk being formatted. If you omit this option, TRSDOS is used.

PW=password assigns the master password to the disk. The master password allows access to all user files (via the PROT command). It also allows full BACKUP privileges. If you omit this option, PASSWORD is used.

DIR=number places the primary directory on Cylinder number. If you omit this option, TRSDOS-II uses Cylinder 44 for floppy diskettes or Cylinder 13Ø for hard disks. You can put the primary directory on any cylinder from 1-71 for floppy diskettes or from 1-maximum cylinder number minus 3 for hard disks.

ALT=number places the alternate directory on Cylinder number. If ALT=ØØ, no alternate directory is created. If you omit the ALT= option, TRSDOS-II uses the formula directory + 3 to compute the placement of the alternate directory. For floppy diskettes, 3 represents three tracks; for hard disks, it represents three cylinders. You can put the alternate directory on any cylinder from 1-71 for floppy diskettes or from 1-maximum cylinder number minus 3 for hard disks.

SIZ=number puts the specified number of filenames in the initial directory. For hard disks and floppy diskettes, the number can be from 1-222Ø. If you omit this option, the number defaults to 18Ø (single- or double-sided floppy) or 336 (hard disks).

FULL/NONE is the verification level. FULL reads each sector and compares it to the value written during initialization. NONE prevents verification. FULL is the default.

ILV=number sets the interleave factor (ratio of number:1), which determines the order in which TRSDOS-II is to access disk sectors. Between disk accesses, TRSDOS-II must do a certain amount of processing. (The amount depends upon your application.) The proper ILV factor can reduce file work time by minimizing disk rotation between accesses. If you omit the option, the number defaults to 1Ø.

HDS=number (for hard disk systems only) specifies the number of heads on a drive. You can obtain the number from your Hard Disk Owner's Manual. If the drive number is from 4-7, HDS= is required. If you omit the option, TRSDOS-II prompts you for the number.

CYL=number (for hard disk systems only) specifies the number of cylinders on a drive. You can obtain the number from your Hard Disk Owner's Manual. If the drive number is from 4-7, CYL= is required. If you omit the option, TRSDOS-II prompts you for the number.

PRE=number (for hard disk systems only) sets the write precompensation start cylinder for a hard disk. If you omit the option, it defaults to 128. If you change the PRE= default, the DIR= default changes to PRE + 2 and the ALT= default changes to DIR + 4.

Note: If you are not familiar with interleave factors and write precompensation, we recommend that you do not use the ILV= and PRE= options. The default values for these options are suitable for most applications.

Examples

```
FORMAT 1 {ID=ACCOUNTS,PW=IRS} <ENTER>
```

formats the diskette in Drive 1, names it ACCOUNTS, and gives it the password IRS.

```
FORMAT <ENTER>
```

prompts you for the drive to use and then formats the disk in that drive. Since no options are used, the disk is named TRSDOS, the password is PASSWORD, and all the other options are defaults.

```
FORMAT 2 {DIR=Ø1,ALT=Ø4,SIZ=36Ø} <ENTER>
```

formats the diskette in Drive 2, puts the primary directory on Cylinder 1 and the alternate directory on Cylinder 4, and sets the number of directory records to 36Ø. (The leading zeroes in the cylinder specifications are optional.)

```
FORMAT 4 {HDS=6,CYL=23Ø} <ENTER>
```

formats Drive 4 for 6 read/write heads and 23Ø cylinders and automatically transfers TRSDOS-II to Drive 4.

When to Format

To prepare a new disk

Before you can use a new disk, you must format it (unless it is a floppy diskette and you use BACKUP). After formatting, record the disk name, date of creation, and password. Store this information in a safe place. It helps you estimate how long a diskette has been in use. And, if you forget the master password, it ensures continued access.

To erase all items of data from a disk

To "start over" with a disk, you can reformat it. This erases all old information and locks out all flawed sectors which have developed. It puts the system information back on the disk and leaves the "good" sectors available for information storage. Use the FULL verification option with this application.

To initialize a hard disk system

Before you can use your hard disk system, you must format the hard disks. Formatting Drive 4 transfers TRSDOS-II to that drive. You must use HDS= and CYL= when formatting hard disks.

FORMS Library Command

FORMS {format options}
FORMS {switch options}

Sets up printer parameters.

The format options are:

P=number sets the number of lines per page. The number can be from Ø-255. If omitted, P=66.

L=number sets the maximum number of lines to print on a page before issuing an automatic top of form. The number can be from Ø-255. If omitted, L=6Ø. The number of lines must be less than or equal to the page length. If either is Ø, both must be Ø. If L=Ø, TRSDOS-II issues no automatic top of form.

W=number sets the maximum number of characters to print on a line before issuing an automatic carriage return. The number can be from Ø-255. If omitted, W=132. If W=Ø, TRSDOS-II issues no automatic carriage returns.

C=byte sets the output to the specified 1-byte hexadecimal control code and sends it to the printer on completion of the FORMS command.

The default parameters are P=66, L=6Ø, W=132, and C=Ø. If you want to use the default parameters, you don't need to issue the FORMS command.

To determine the parameters to set for the format options, use the following formulas:

P (lines per page) =
lines per inch * inches per form length

L (printed lines per page) =
lines per page - lines per top and bottom margins

W (characters per line) =
characters per form width - characters per side margins
If W is greater than the form width, TRSDOS-II automatically breaks the line at the maximum length and continues printing on the next line.

C (control codes) are required for some printers (for example, to set up for the double-space character). TRSDOS-II sends the specified code to the printer or print file during execution of the FORMS command.

The switch options are:

- **A** outputs a line feed after a carriage return (auto line-feed mode), even if the transparent mode is in effect. A updates the line count by carriage returns, not by line feeds.
- **D** ignores all printer output ("dummy" mode).
- **N** returns to the normal (non-transparent, non-dummy) mode. This is the default mode.
- **Q** cancels the auto line-feed mode.
- **R** returns to the parallel printer driver.
- **T** sends the top-of-form character, X'ØC', to the printer.
- **S** switches to the Serial Channel B printer driver. (You must do SETCOM before data is sent to the printer.)
- **X** sends all items of data to the printer or printer file without any translation (transparent mode).

See the PRCTRL SVC in the "Technical Information" section for information on the transparent and dummy modes.

Examples

```
FORMS <ENTER>
```

resets all FORMS parameters to the default values.

```
FORMS P=56, L=51, W=92 <ENTER>
```

sets the page length to 56, the printed lines per page to 51, and the characters per line to 92.

```
FORMS D <ENTER>
```

invokes the dummy mode. TRSDOS- II ignores all printer commands.

```
FORMS S <ENTER>
```

sets up the serial printer driver.

FREE Library Command

FREE drive {PRT}

Lists the number of free sectors on a disk, the number of free sectors that are grouped (in areas called extents), and the number of extents.

The drive is optional. If omitted, it defaults to the primary drive.

PRT, also, is optional. If you use PRT, TRSDOS-II sends the list to the printer. If not, it displays the list on the video. If you omit the drive, you must enclose PRT in braces.

FREE lists the extents that are available. The format is:

```
nnnn nnnn nnnn nnnn
nnnnn Free Sectors in n Extents
```

nnnn is the number of sectors per extent. nnnnn is the total number of sectors on the disk. n is the number of extents on the disk. Here is a sample FREE list:

```
FREE LIST for Drive:4   Disk Name:TRSDOS
6       33      16587   34      16592
33252 Free Sectors in 5 Extents
```

Examples

```
FREE <ENTER>
```

displays the amount of free space on the disk in the primary drive.

FREE {PRT} <ENTER>

lists to the printer the amount of free space on the disk in the primary drive. Because no drive is specified in this example, you must use the braces, { }.

FREE 2 PRT <ENTER>

lists to the printer the amount of free space on the disk in Drive 2.

HELP Utility Program

HELP command

Displays the syntax of a TRSDOS-II command.

The command is optional. If you omit the command or type an unrecognized command, TRSDOS-II displays the TRSDOS-II commands and general subjects for which HELP is available.

The HELP command cannot be used from TERMINAL or BASIC.

Example

```
HELP MOVE <ENTER>
```

displays the syntax for the MOVE command.

```
HELP SYNTAX <ENTER>
```

returns an explanation of the format of the HELP messages.

HOST Library Command

HOST {switch}

Lets your computer act as host to a remote terminal or a computer acting as a terminal.

The switch options are:
ON turns HOST on
OFF turns HOST off

The switch is optional. If you omit it, TRSDOS-II displays the switch on/off status.

As the host, your computer communicates via Serial Channel A. It accepts keyboard input from the RS-232C interface and transmits all display output to the same interface.

While HOST is on, the keyboard and the remote terminal both can provide keyboard input. Output is duplicated to the video display and Channel A. Remote characters have a higher priority than local characters.

To turn the HOST program on, follow this procedure:

1. Initialize Serial Channel A with the SETCOM command. Use the appropriate parameters for your computer. (See the SETCOM command.) Do not turn off Channel A while HOST is active.

2. Turn the HOST on by typing:

   HOST ON <ENTER>

3. As TRSDOS-II starts HOST, it asks you if you want to disable the remote <BREAK> key. Answer accordingly.

Examples

If your computer is connected, via a modem, to another computer running the TERMINAL program, use this command:

HOST ON <ENTER>

to instruct the computer to accept "keyboard" input from the remote terminal and to echo all display output to the remote terminal.

To stop the HOST operation, type:

HOST OFF <ENTER>

I **Library Command**

I :drive

Reads the diskette IDs from the specified floppy drive. If you omit the drive number, TRSDOS-II reads the IDs from all floppy drives.

Whenever you swap diskettes, you must execute this command immediately **after** you swap diskettes.

Use the I command after:

- Using FORMAT
- Inserting a different diskette into Drive Ø, 1, 2, or 3
- Using FCOPY, BACKUP, SAVE, or RESTORE.

If the diskette you insert after the swap is formatted by TRSDOS (instead of TRSDOS-II), TRSDOS-II displays Error 39 (Illegal I/O Attempt).

> Note: When you swap from a single-sided diskette to a double-sided diskette (or vice versa) in Drive Ø, you must press the RESET switch after swapping.

Example

```
I <ENTER>
```

reads the diskette IDs from all floppy drives in the system.

```
I :3 <ENTER>
```

reads the diskette ID from Drive 3.

KILL Library Command

KILL filespec

Deletes filespec from the directory and frees the space allocated to it. The filespec can be a wildcard with drive number.

Before it deletes the file, TRSDOS-II displays the complete filespec and gives you one more chance to change your mind. It asks "Delete? (Y/N/Q).." -- "yes," "no," or "quit."

Example

KILL DATAFILE/OLD <ENTER>

deletes DATAFILE/OLD from the directory and frees all space allocated to it.

KILL */BAS:4 <ENTER>

deletes all files with the extension /BAS. TRSDOS-II prompts you before deleting each file. You can end the process by pressing <Q> to quit.

LIB — Library Command

LIB

Displays a list of all library commands.

The LIB command list includes only those commands located below X'28ØØ'. Therefore, you can execute library commands from BASIC, TERMINAL, and so on. The library commands CLEAR, DEBUG, and DO return to TRSDOS-II Ready.

Example

```
LIB <ENTER>
```

returns a list of the TRSDOS-II library commands.

LIST Utility Program

LIST filespec {options}

Lists the contents of filespec.

This list shows the hexadecimal contents and the ASCII characters corresponding to each value. For values outside the range of X'2Ø' to X'7F', TRSDOS-II displays a period (.).

The options are:

PRT lists the contents of filespec to the printer. If you omit PRT, TRSDOS-II sends the list to the video display.

SLOW pauses between records. If you omit SLOW, TRSDOS-II does not pause.

R=number sets the starting record to the number, which can be from 1-65535. If you omit the R= option, TRSDOS-II uses 1. (See the "Technical Information" section for details.)

A lists only the ASCII characters.

Examples

```
LIST DATA/BAS <ENTER>
```

lists the contents of DATA/BAS.

```
LIST TEXTFILE/1 SLOW <ENTER>
```

lists the contents of TEXTFILE/1, pausing between records.

```
LIST TEXTFILE/1 R=1ØØ,A <ENTER>
```

lists TEXTFILE/1 starting with the 1ØØth record. TRSDOS-II displays only ASCII characters.

```
LIST PROGRAM/CMD PRT <ENTER>
```

lists PROGRAM/CMD to the printer.

LOAD Library Command

LOAD filespec

Loads a machine-language program named filespec and then returns to the TRSDOS-II mode.

Example

LOAD MARKET/OBJ <ENTER>

loads the machine-language program file named MARKET/OBJ into memory.

MEMTEST **Utility Program**

MEMTEST

Tests the random access memory (RAM) in your computer. You may select either a full memory test (X'ØØØØ' to end) or a user memory test (X'3ØØØ' to the top of user memory).

Note: See the STATUS command to locate the top of user memory.

To execute the test, type the following at TRSDOS-II Ready:

MEMTEST <ENTER>

After running the full memory test, you must reset the system.

After running the user memory test, control returns to TRSDOS-II Ready. During the operation, all user memory is cleared. No high-memory routines should be active while MEMTEST is running. Use the STATUS command to find out if any are active.

MOVE **Utility Program**

MOVE source **TO** destination {options}

Copies one or more user files to the destination disk.

The source is one of the following:

filespec

wildcard:drive You can use either a wildcard (*) or super wildcard (!).

drive

If you specify drive and omit the ALL option, TRSDOS-II prompts you to enter a filespec or wildcard mask.

The destination is the drive number of the disk to which you want your files moved. Your moved files retain the name of the source filespec.

drive is a drive number from Ø-7.

The options are:

ABS overwrites, without prompting, any existing files on the destination disk that have the same name as the source.

PROMPT displays each file before moving it and gives you a set of options for that file. The PROMPT options are: Y/N/S/Q (for "Yes -- Copy," "No -- Don't copy," "Stop prompts and proceed with all copies," "Quit this command -- Make no more copies"). If you omit PROMPT, TRSDOS-II moves all files that match the file specifications.

ALL moves all user files.

Note: You cannot move password-protected files.

MOVE is useful when you want to copy all of your TRSDOS-II files from floppy diskette to hard disk, or vice versa.

For example, type:

MOVE Ø TO 4 {ALL} <ENTER>

to move all your user files from the diskette in Drive Ø to the hard disk.

Examples

MOVE DAT/FLE:1 TO 3 <ENTER>

moves the file DAT/FLE from the diskette in Drive 1 to the diskette in Drive 3, keeping the filename DAT/FLE.

MOVE */PAY:4 TO 2 <ENTER>

copies all user files with the extension /PAY from Drive 4 to the diskette in Drive 2.

MOVE !:4 TO 3 <ENTER>

moves all user files, with and without extensions, from Drive 4 to the diskette in Drive 3.

PATCH Utility Program

PATCH filespec {options}

Lets you make minor corrections in any disk file, provided that:

- You know the existing contents and location of the data you want to change
- You want to replace one string of code or data with another string of the same length
- The file is a fixed-length record file (FLR file)

The filespec is the file you want to change. If it is a system file, you need not include a password. If it is a protected user file, however, you must include the password.

The options are:

A=hhhh sets the starting address of the data to be changed. This is where the data resides in memory when the program is loaded. hhhh is a 4-digit hexadecimal value without the X' ' notation.

F=findstring indicates the string that is now in the patch area.

C=changestring indicates the data that is to replace the findstring. The changestring must contain the same number of bytes as the findstring.

R=record tells which record contains the data to be changed. It is a decimal number from 1-65536.

B=starting byte specifies the position of the first byte to be changed. It is a decimal number from 1-256.

Use either the A= option alone or the R= and B= options together.

You can use PATCH to make minor changes in your own machine-language programs. You can use PATCH to make minor replacement changes in data files, also.

PATCH lets you implement any changes to TRSDOS-II that may be supplied by Radio Shack. This way, you do not have to wait for a new release of TRSDOS-II.

Note: If you press <BREAK> during a PATCH operation, before any changes have been made in the file, PATCH closes the file and returns to TRSDOS-II. The file is unchanged. Once the PATCH process begins, however, <BREAK> has no effect.

Using PATCH on a TRSDOS-II System File

When Radio Shack releases a modification to TRSDOS-II, you receive a printout of the exact PATCH commands that you must enter to make the change.

To make such a change, follow these steps:

1. Make a backup copy of the TRSDOS-II diskette to be patched.
2. Insert the TRSDOS-II diskette to be changed into Drive Ø. (Make sure the diskette is not write-protected.)
3. At TRSDOS-II Ready, type in the PATCH command specified in the printout.
4. After the patch is complete, reset the computer to see that the diskette is operating as a TRSDOS-II system diskette.

Using PATCH on a Z-8Ø Program File

In this context, "program files" refers strictly to those files stored with the P attribute. Use the DIR command to learn the attribute. (See instructions for changing data files.)

If you want to change four bytes in a machine-language program file, you must first determine where the 4-byte sequence resides in RAM when the program is loaded. Next,

make sure your replacement string is the same length as the original string. For example, you might write down the information as follows:

```
File to change:  VDREAD
Start address:  X'528Ø'
Sequence of the code to change:  X'CD2C25E5'
Replacement code:  X'ØØØØØØC9'
```

Then, you could use the following command:

```
PATCH VDREAD A=528Ø,F=CD2C25E5,C=ØØØØØØC9
```

Using PATCH on Data Files (Including BASIC Programs)

If you have a file stored with the D attribute (data file), you must specify the patch area in terms of the logical record that contains the data and the starting byte of the data. (The LIST command gives this information.)

For example, if you want to change a 12-byte sequence in a file called NAMEFILE, use the LIST command to find the location of the sequence. If it is in Record 128, starting at Byte 14, write down the information this way:

```
File to change:  NAMEFILE
Record number:  128
Starting byte:  14
Sequence of text to change:  "JOHN'S DINER"
Replacement text:  "JACK'S PLACE"
```

Then, use the following command to patch a data file:

```
PATCH NAMEFILE R=128,B=14,F="JOHN'S DINER",C="JACK'S PLACE"
```

For data files, notice that either string can include single quotation marks, as long as the string is enclosed within double quotation marks (or vice versa).

Error Conditions

If a TRSDOS-II error occurs during the patch operation, you receive the appropriate error message, and the patch ends without changing the file.

PATCH can produce these messages, also:

PATCH STRING TOO LONG -- ABORT This occurs when you patch a data file and the findstring spans two records. You must perform the patch in two steps, one for each record that contains a part of the findstring.

FILE CONTAINS VARIABLE-LENGTH RECORDS -- ABORT You can patch FLR files only.

STRING NOT FOUND The findstring was not found at the patch location you specified. Before patching a file, you must know the exact patch location and the contents at the location.

ADDRESS OUT OF PROGRAM-LOAD RANGE -- ABORT This occurs when you attempt to patch a program file and some or all of the patch string (either the findstring or the changestring) is outside the RAM area where the program resides when it is loaded. Check the A= option. Also, be sure the findstring and changestring are not longer than you intend them to be.

PAUSE **Library Command**

PAUSE prompt message

Displays PAUSE and the prompt message and prompts you to press any key to continue.

The prompt message is optional. If you omit it, TRSDOS-II displays PAUSE.

This command is useful in a DO file. (See the DO command for more information.)

Example

Type:

```
PAUSE Insert Diskette #21
```

to display:

```
PAUSE Insert Diskette #21
Press any Key to Continue
```

Press <ENTER> to continue.

Type:

```
PAUSE <ENTER>
```

to display:

```
PAUSE
Press any Key to Continue
```

Press <ENTER> to continue.

PRINT **Utility Program**

PRINT filespec {A,V}

Prints out the contents of the filespec, omitting the record numbers and hexadecimal codes (LIST gives those).

The filespec must be a text file.

The options are:

A treats the first byte in each record as a FORMS control character. The meaning of the character in the first byte is:

"1" does a form feed before printing (top of form).

"b" does a carriage return before printing (single-space).

"Ø" does two carriage returns before printing (double-space).

"+" does a carriage return without a line feed, if the printer has the ability. The characters that follow the code are printed over the current line.

V outputs the filespec to the video display, as well as to the printer.

Use the A option when the filespec contains the control codes listed ("1", "b", "Ø", "+").

Example

```
PRINT PROGRAM/TXT V <ENTER>
```

outputs PROGRAM/TXT to the video display, as well as to the printer.

PROT Library Command

PROT drive {options}

Changes the password protection of the disk in the specified drive by using the master password.

The options are:

OLD=password specifies the disk's current master password. This option must be specified when using any option below.

NEW=password specifies the disk's new password.

LOCK assigns all user files the new master password. TRSDOS-II sets both the update and access words to this value. (See the ATTRIB command for information on access and update passwords.)

UNLOCK removes the passwords from all user files.

You first assign a disk's master password during format or backup. Your TRSDOS-II system disk has the master password PASSWORD.

Examples

```
PROT 1 OLD=PASSWORD, NEW=H2O <ENTER>
```

changes the master password of the diskette in Drive 1 from PASSWORD to H2O.

```
PROT Ø OLD=H2O, UNLOCK <ENTER>
```

removes passwords from every user file on the diskette in Drive Ø.

```
PROT Ø OLD=H2O, NEW=ELEPHANT, LOCK <ENTER>
```

changes the master password from H2O to ELEPHANT and assigns the new password to every user file.

PURGE **Library Command**

PURGE {drive} {options}

Deletes files from the disk in the specified drive.

The drive is optional. If you omit it, TRSDOS-II uses the primary drive.

The options are:

SYS System files (program and data)
PROG User machine-language program files
DATA User data files
ALL User program and user data files

If you omit the options, TRSDOS-II lets you purge data files only.

Once you enter the PURGE command, TRSDOS-II prompts you for the disk's password. Type in up to eight characters and press <ENTER>. (All disks distributed by Radio Shack use PASSWORD as the password.)

The system then displays the filenames, one at a time. It prompts you to kill the file, keep it, or quit the operation.

Examples

```
PURGE 1 <ENTER>
```

deletes data files from Drive 1.

```
PURGE 2 {PROG} <ENTER>
```

deletes user machine-language program files from the diskette in Drive 2.

RECEIVE Utility Program

RECEIVE {CH=channel, offset}

Lets you receive object code from another computer via RS-232C. The data must be sent in Intel Hex Format as described below in "Required Data Format."

The channel, which is required, can be either Serial Channel A or B.

The offset is optional. It tells TRSDOS-II to offset each load address that is specified in the incoming data (see "Required Data Format").

The offset options are:

ADD=hhhh increments the data load address by the hexadecimal value hhhh

SUB=hhhh decrements the data load address by the hexadecimal value hhhh

If you omit the offset, the data loads at the address specified in the incoming data.

Before using RECEIVE, you must initialize one of the serial channels with SETCOM. Select the appropriate parameters, depending upon the requirements of the transmitting device.

Loading Address

The data is loaded into memory according to the load information contained within the data. It must load above X'2FFF' and below the top of user memory. (Execute the SETCOM command, then use the STATUS command to get this latter value.)

If the data load address is out of this range, you can use the offset option to bring the load address into the desired range. Then, when the data is dumped into a program file, use the RELO= option (of the DUMP command) to specify the original load address.

Required Data Format

The transmitting program must send the data in "Intel Hex Format."

Each byte of data is sent as a pair of hexadecimal ASCII-coded characters:

1. High nibble (most significant four bits), sent as the first byte of pair

2. Low nibble (least significant four bits), sent as the second byte of pair

For example, the value X'F7' is sent as two bytes, "F" (X'46') followed by "7" (X'37').

Because only "." and ASCII-coded hexadecimal numbers are sent, the data is always in the range [X'3Ø', X'3A'] or [X'41',X'46']. Values outside this range stop reception and produce an error message.

Record Format

You must send records as follows:

In the chart below, MSB represents "most significant bits." LSB represents "least significant bits."

Character Number	Contents	Comments
1	":"	Sync-character to indicate the beginning of the record.
2	High nibble of record length (N)	2-byte sequence that gives the number of byte **pairs** in the record. Zero means 256 byte pairs follow.
3	Low nibble of record length (N)	

Character Number	Contents	Comments
4	High nibble of MSB of load address	4-byte sequence that gives the address where the data is to start loading. The address specified must be in the user area [X'28ØØ',TOP]. (See the STATUS command to locate TOP.)
5	Low nibble of MSB	
6	High nibble of LSB of load address	
7	Low nibble of LSB of load address	
8	High nibble of LSB of EOF(end of file) code	Byte pair that gives the EOF code. Any non-zero value means EOF (no records follow). A value of zero means records follow.
9	Low nibble of LSB of EOF code	
1Ø	First byte of the first data pair	First byte is ASCII code for the first hex digit; second byte is ASCII code for the second hex digit.
11	Second byte of the first data pair	
8 + (N*2)	First byte of last data pair	Last pair of data characters.
9 + (N*2)	Second byte of last data pair	
1Ø + (N*2)	First byte of data checksum (high nibble)	Byte pair that represents 2s complement of the data (all byte pairs after the "." up to, but not including, the checksum). Note that each byte pair is changed back to the original byte of data before it is summed.
11 + (N*2)	Second byte of data checksum (low nibble)	

Sample Record:

Character Number	Sample Data ASCII	Hex Value
1	":"	3A
2	"Ø"	3Ø
3	"2"	32
4	"2"	32
5	"8"	38
6	"Ø"	3Ø
7	"Ø"	3Ø
8	"Ø"	3Ø
9	"Ø"	3Ø
1Ø	"3"	33
11	"7"	37
12	"7"	37
13	"Ø"	3Ø
14	"A"	41
15	"3"	33

This record contains two byte pairs of data:

"3" "7" representing the value X'37'
"7" "Ø" representing the value X'7Ø'

and starts loading at X'28ØØ'. The 1-byte sum of the original bytes (represented in pairs by characters 2 through 13) is X'5D'. The 2s complement of X'5D' is X'A3' -- which is represented by Bytes 14 and 15.

Examples

First, initialize Serial Channel A with the desired settings and establish a connection with the sending device. You know that the data load address is above X'2FFF' and below the top of user memory. (See the STATUS command to locate the top of user memory.)

To begin the reception, type:

```
RECEIVE {CH=A} <ENTER>
```

If the connection is "good," your computer displays:

```
Ready to receive          #=
```

The sending device now begins to transmit. The number of the current record is displayed after #=. When the transmission is complete, you should see:

```
START ADDRESS=hhhh        LAST ADDRESS=hhhh
TRA ADDRESS=hhhh
TRSDOS-II Ready
```

In each case, hhhh is the corresponding 4-digit hexadecimal number.

The code is in the memory area specified in the data itself.

Now, you can use the DUMP command to create a program file on diskette.

When you initialize Serial Channel B with the correct parameters, you can establish a connection with the sending device. If the load address is X'28ØØ' and the end address is X'37FF', you must add X'Ø8ØØ' to the load address so the receive program is not overlaid. To do this, type:

```
RECEIVE CH=B ADD=Ø8ØØ <ENTER>
```

This command causes the data to be loaded, starting at X'28ØØ' + X'Ø8ØØ' = X'3ØØØ'.

After receiving the data, you want to dump it into a program file called PROGRAM1. Type:

```
DUMP PROGRAM1 START=3ØØØ END=3FFF RELO=28ØØ <ENTER>
```

Notice that the RELO= option resets the load address to its original value (its value before the data was transmitted).

RENAME **Library Command**

RENAME filespec1 **TO** filespec2

Changes a file's name and extension from filespec1 to filespec2.

RENAME does not change the file's password, contents or position on the disk. (See the ATTRIB command to change the password.)

Examples

RENAME BACK/LST TO NEWLIST/1 <ENTER>

renames BACK/LST to NEWLIST/1.

RENAME REPORT/AUG:3 TO REPORT/SEP <ENTER>

renames REPORT/AUG on Drive 3 to REPORT/SEP.

RESET Library Command

RESET

Resets and restarts TRSDOS-II.

This command is almost identical to using the RESET switch. If your computer is capable of generating sound, RESET turns off the sound.

Example

RESET <ENTER>

RESTORE Utility Program

RESTORE source TO destination {options}

Retrieves from floppy diskettes any files stored in compressed form by the SAVE command. Because SAVE stores files in a special format, RESTORE is the only way to return these files to the hard disk drive.

Note: For your convenience, please read Appendix F before continuing with the RESTORE entry.

The source specifies a floppy diskette and is one of the following:

filespec that must include a drive number
wildcard:drive
drive

In source specifications, drive is a drive number from 1-3 for floppy drive systems or Ø-3 for hard disk systems.

The destination is optional. It can be one of the following:

drive
filespec:drive Use if {options} is {IND}.

In destination specifications, drive is a drive number from Ø-7, but it cannot be the same as the source drive number.

If you specify DIR, you cannot specify a destination.

If you omit the destination, TRSDOS-II uses the first available disk drive.

If both the source and destination are drive, all user files are restored.

The options are:

ABS retrieves the specified files. If you use this option, TRSDOS-II overwrites any existing file of the same name. If you omit the option, TRSDOS-II prompts you to ready the source and destination diskettes and it prompts you before overwriting.

DIR displays the dataset directory and identifier, if Volume Ø is in the source drive. If Volume Ø is not in the source drive, TRSDOS-II displays only the dataset identifier.

IND (indirect) specifies the destination as an indirect file, the contents of which are used as a list of destination filespecs.

KILL deletes the destination file before it opens the file for restoring.

PROMPT asks for verification of each file for restoring. Press <Y>, <N>, <Q>, or <S> (for "yes," " no," "quit," or "stop prompting and continue").

PRT sends the directory listing to the printer. Use only with the DIR option.

SYS retrieves all system files, including system (language) and applications programs. If used with DIR, SYS lists the directory of system files.

RESTORE reads information from a dataset created by SAVE. If you enter a volume of this dataset out of sequence, TRSDOS-II informs you of the mistake. The system also informs you if you accidentally enter a volume from a different dataset during a RESTORE.

Note that the TRSDOS-II diskette must remain in Drive Ø on floppy drive systems. Also, single-drive saves and restores are not allowed. For example, RESTORE :1 :1 is illegal.

When you're restoring files in a dataset, TRSDOS-II prompts you with:

Mount NEXT Diskette in Drive n -- Press ANY Key to continue.

which instructs you to enter the next volume of the dataset.

Examples

RESTORE Ø TO 4 <ENTER>

retrieves all saved non-system files on Drive Ø and puts them in Drive 4.

RESTORE !:2 TO 4 <ENTER>

retrieves all saved non-system files, with and without extensions, from the floppy diskette in Drive 2 and puts them on the hard disk in Drive 4.

RESTORE 1 PROGRAMS {IND} <ENTER>

where PROGRAMS is an indirect file containing the files:

```
MAILIST/PRG:4
MAILDAT/TXT:4
CHANGES/TXT:4
```

retrieves the files from the floppy diskette in Drive 1 and puts them in the filespecs, defined in PROGRAMS, on hard disk Drive 4. Note that "TO" is optional.

RESTORE */SRC:Ø 4 <ENTER>

retrieves all Drive Ø user files that have the extension /SRC and puts them on hard disk Drive 4. The filenames stay the same.

RESTORE :1 {DIR,PRT}

sends the directory of the floppy diskette in Drive 1 to the printer.

SAVE Utility Program

SAVE source **TO** destination {options}

Creates a file-by-file backup of the source onto the destination.

You must have at least two drives to use the SAVE command; the source and destination drives cannot be the same.

Note: For your convenience, please read Appendix F before continuing with the SAVE entry.

The source is one of the following:
drive (You must specify ALL if you use drive.)
filespec if {options} is {IND}. The filespec must include a drive number.
wildcard:drive

In all source specifications, drive is a drive number from Ø-7.

The destination specifies a floppy drive and is:
drive specifies a drive number from 1-3 for floppy disk systems and Ø-3 for hard disk systems.

The options are:
ABS overwrites, without prompting, any data already on the destination diskette. If you omit this option, TRSDOS-II prompts: Destination Diskette Ready?
DC value date compares the creation date of each specified source file against the date specified and saves the file, if all other criteria are met.
DM value date compares the last modification date the same way DC compares the creation date.
IND (indirect) specifies the source as an indirect file, the contents of which are used as a list of source filespecs.
PROMPT asks for a file verification before saving. You may respond by pressing <Y>, <N>, <Q>, or <S> (for "yes," "no," "quit," or "stop prompting -- continue").

ALL saves all user files. If you use drive as the source, you must use ALL.
SYS saves all system files, including language and application programs.

Note: value is one of the following:
< where < means less than or equal to
> where > means greater than or equal to
= where = means equal to

The date must be in the form: mmddyy.

Examples

There is a variety of ways to use SAVE. The simplest is:

SAVE 1 TO 2 {ALL} <ENTER>

This copies all the files from Drive 1 into a compact form on the diskette in Drive 2.

Wildcarding

Wildcards also offer an easy way to save several files or an entire disk. For example:

SAVE */CBL:4 TO Ø <ENTER>

saves all Drive 4 files with the extension /CBL and puts them on the diskette in Drive Ø.

Using the IND Option

The indirect option lets you save groups of files by creating an indirect file, a file consisting of one or more filespecs (similar to a DO file). You can use the BUILD command to create this list of filespecs.

At TRSDOS-II READY, type:

BUILD PROGRAMS:Ø <ENTER>

This creates an indirect file called PROGRAMS.

After TRSDOS-II prompts you with:

```
Enter command line (1-8Ø)
.....................................
```

Enter your list of file specifications including drive numbers, for example:

```
ORDERS:5 <ENTER>
REPORTS/*:6 <ENTER>
```

To exit the BUILD and return to TRSDOS-II READY, press <BREAK>.

You are now ready to save the files (specified by the indirect file) to the specially formatted floppy diskette. Type:

```
SAVE PROGRAMS:Ø TO 1 {IND} <ENTER>
```

Both ORDERS and REPORTS are now found in the file named PROGRAMS on the diskette in Drive Ø and saved to the diskette in Drive 1.

Note: The IND option lets you save more than one file from each hard disk; it also lets you save from more than one hard disk. As a result, you might save multiple files that have the same name. Because the save and restore directory does not specify drive numbers for files, you could lose duplicate filenames.

For example, if you created an indirect file that has these files:

```
*/FOR:4
*/CBL:4
*/FOR:5
```

Drives 4 and 5 may have duplicate filenames with the /FOR extension. Before you use indirect, examine all the files to be saved. Rename any duplicate filenames or before saving or create different datasets.

Using the DC and DM Options

Another way to save files is to do so with respect to their creation or modification (update) dates. For example, suppose your directory showed these creation and update dates for your files:

Filename	Created	Updated
MENU/PRG	6/1/81	9/2/81
PRGONE/PRG	6/1/81	8/16/81
PRGTWO/PRG	6/1/81	7/3Ø/81
PRGTHR/PRG	6/1/81	6/16/81
PAYROLL/DAT	9/15/81	1Ø/15/81
CHECKS/DAT	9/15/81	1Ø/15/81
TEST/PRG	1Ø/29/81	1Ø/29/81

If you want to save only those files created on June 1, 1981, use the following command:

```
SAVE */*:5 TO Ø {DC=Ø6Ø181} <ENTER>
```

The first four files are saved to the floppy diskette in Drive Ø.

In the same sense, the first four files were updated on or before September 2, 1981 (9/2/81). Type:

```
SAVE */PRG:5 TO Ø {DM<Ø9Ø281} <ENTER>
```

and all files updated on or before the specified date are saved.

SCREEN Library Command

SCREEN

Copies all of the current screen display to the printer.

Graphics characters are printed as periods and reverse (green/white-on-black) alphanumeric characters are printed as normal (black-on-green/white) characters.

Example

To copy the current command line to the printer, type:

```
SCREEN <ENTER>
```

SETCOM Library Command

SETCOM {options}

Sets up Serial Channels A and B (on the back panel) for communicating with a remote device, via a modem or hardwire connection.

If you are not a machine-language programmer and want to communicate with a remote device, you can either use the HOST program or buy a communications program. The manual that comes with the communications program explains how to use it. See your Radio Shack store for information.

The options are:

A=OFF turns off Channel A's RS-232C Communication settings

B=OFF turns off Channel B's RS-232C Communication settings

A=(baud rate,word length,parity,stop bits) sets up Channel A for RS-232C Communication

B=(baud rate,word length,parity,stop bits) sets up Channel B for RS-232C Communication

If you omit all options, TRSDOS-II displays the status of both channels.

The RS-232C settings can be the following:

baud rate	11Ø, 15Ø, 3ØØ, 6ØØ, 12ØØ, 24ØØ, 48ØØ, 96ØØ. If you omit the setting, 3ØØ is used. (Some programs do not run correctly at speeds higher than 24ØØ baud.)
word length	5, 6, 7, 8. If you omit the setting, 7 is used.
parity	E, O , or N (for "even," "odd," or "none"). If you do not specify the setting, even is used.

stop bits	1, 2. If you do not specify the setting, 1 is used.

You must put a comma after every option but the last. The options are positional. For example, the third item in an option list must always specify parity. To use a default value, omit the option and insert only the comma.

To change the settings on a currently active channel, first turn off the channel.

Before executing this command, connect the remote device to Channel A or B.

Then, after executing it, you can begin sending and receiving data, using one of these TRSDOS-II supervisor calls. (See the "Technical Information" section for details.)

Name	SVC Number	Function
ARCV	96	Channel A receive
ATX	97	Channel A transmit
ACTRL	1ØØ	Channel A control
BRCV	98	Channel B receive
BTX	99	Channel B transmit
BCTRL	1Ø1	Channel B control

These system routines are available only when the respective channel has been initialized. (See "Technical Information" for details.)

Examples

```
SETCOM A=( ) <ENTER>
```

sets up Channel A for serial communications, using all the default parameters. TRSDOS-II function calls 96 and 97 (ARCV and ATX) are available for serial input/output. The status of Channel B remains the same.

```
SETCOM B=(600,8,,2), A=OFF <ENTER>
```

sets up Channel B:

baud rate	600
word length	8 bits
parity	even (default)
stop bits	2

and turns off Channel A.

```
SETCOM A=(1200,8,O,), B=(,,,2) <ENTER>
```

sets up Channels A and B.

Setting	Channel A	Channel B
baud rate	1200	300 (default)
word length	8	7 (default)
parity	odd	even (default)
stop bits	1 (default)	2

```
SETCOM <ENTER>
```

displays the status of both channels.

```
SETCOM A=OFF, A=( ) <ENTER>
```

resets Channel A to the default parameters.

SPOOL Library Command

SPOOL {options}

Captures printer output or prints a spool file.

SPOOL increases the efficiency of the system by letting you use the system while a print operation is in progress.

The options control the spool function. They are:

ON turns on SPOOL. You must set this switch before you can use the other options.

OFF turns off SPOOL and closes the capture file and print file.

N,F=filespec creates a capture file named filespec.

P,F=filespec begins background printing of filespec.

K keeps the file after printing it. If you omit this option, TRSDOS-II deletes the file after printing it. (TRSDOS-II won't delete a print file if the file is closed by a SPOOL S or if a disk error occurs in the print file.)

C=number specifies the number of copies you want. The number can be from 1-255. If you omit this option, TRSDOS-II makes one copy.

L=line specifies the line number at which printing starts. The line may be any number from 1-65535. If you omit this option, printing begins at Line 1.

H halts background printing but saves the current position for later resumption (R option).

R,L=line resumes background printing after a halt (H option), or displays the current line number if the spooler has not been halted. If you use R,L=line, printing resumes at the specified line. If you use only R, printing resumes at the point where it stopped.

S stops printing. It closes but doesn't kill the print file and leaves the capture file open.

If you omit all options, TRSDOS-II displays the SPOOL status.

SPOOL performs two functions which you can use at the same time or one at a time:

- It saves or "captures" the data that normally goes to the printer. The spooler then can either throw away this captured data or save it in a capture file for later use.

- It prints data from a disk file while other operations are in progress. That is, you can use the system -- everything except the printer -- while printing the file. While the spool file is printing, your system captures the real-time printer output for later use.

Example 1

Capture File

In this example, you can run a program that outputs to the printer. Instead of waiting (until printing is complete) to use your system, you can capture the program in a disk file to print out later.

To do this, call the capture file SPOOL1 and type:

```
SPOOL ON <ENTER>
SPOOL N,F=SPOOL1 <ENTER>
```

This saves all printer output in SPOOL1. To stop capturing the printer output in SPOOL1, type:

```
SPOOL OFF <ENTER>
```

Now SPOOL1 is a text file which you can list or print in the normal means, at your convenience.

Example 2

Background Printing

Here you can print to a file created by SPOOL while you use the system. Using the SPOOL1 file from the first example, type:

```
SPOOL ON <ENTER>
SPOOL P,F=SPOOL1 <ENTER>
```

TRSDOS-II begins printing the file as a "background task." Printing takes place only when the system isn't busy with some higher priority operation, such as interpreting and executing your keyboard commands. Because this example doesn't include the K or C= option, TRSDOS-II prints only one copy and then deletes SPOOL1.

After completing the print file, the spooler doesn't turn itself off. Type:

```
SPOOL OFF <ENTER>
```

Example 3

Simultaneous Capture File and Background Printing

To save real-time printer output while SPOOL prints a file, you can use this example.

You need one capture file (SPOOL1) and one print file (SPOOL2).

To turn on SPOOL, create the capture file (SPOOL1), and begin capturing printer output in it, type:

```
SPOOL ON <ENTER>
SPOOL N,F=SPOOL1 <ENTER>
```

You can now use the computer normally. Then, when you're ready to print out SPOOL1, close the file and make SPOOL2 the new capture file. Do this by typing:

```
SPOOL  N,F=SPOOL2 <ENTER>
```

To print SPOOL1 and save any real-time printing in SPOOL2, type:

```
SPOOL  P,F=SPOOL1 <ENTER>
```

If you want to halt the print-file operation, type:

```
SPOOL H <ENTER>
```

This doesn't affect the capture-file operation. To resume printing, type:

```
SPOOL R <ENTER>
```

STATUS **Library Command**

STATUS

Displays system status information.

This command tells you the first address of protected high memory (non-user memory) and lists the on/off status of active TRSDOS-II functions.

Example

To locate the top of user memory, type:

STATUS <ENTER>

and subtract 1 from the value displayed.

T — Library Command

T

Moves the printer to the next page (top of form). This command does the same as FORMS with the T option.

If you are using SPOOL and it is capturing, T sends top-of-form character X'ØC' to the capture file.

Example

T <ENTER>

advances printer to the next top of form.

TERMINAL

Transforms your computer into a "terminal" to another computer's "host" program. You can use TERMINAL for transmission and reception of ASCII text only. You cannot use it for machine-language object code.

Communication takes place through Serial Channel A. In most applications, you can hook up the computers through telephone lines via a modem.

TERMINAL's three modes of operation, all of which are described in detail in "Modes of Operations" are:

- **Menu** -- Lets you select TERMINAL's menu commands, switch command options (such as "on" and "off"), and execute TRSDOS-II library commands.
- **Interactive Terminal** -- Transmits your keyboard input and displays incoming data.
- **Transmit from RAM** -- Transmits prepared data at high speeds. Incoming data is displayed.

Setting Up

For communication through telephone lines, you need a modem such as the Telephone Interface II (26-1171), Modem I (26-1172), or Modem II (26-1173), and the RS-232C Cable (26-44Ø3).

1. Set up the modem according to its instructions and connect it to Serial Channel A on the back panel of the computer display console.
2. Set the modem to either the originate or the answer mode -- whichever is the opposite of the host program with which you are going to communicate. Set it to full or half duplex, again depending upon the requirements of the the host program.

3. Turn on the modem and the computer system.

4. Find out which RS-232C parameters (SETCOM) are required by the host program you plan to use:
   Baud rate
   Word length
   Parity
   Number of stop bits

   Initialize Serial Channel A accordingly (see "Running Terminal" below).

In some of the examples showing uses of TERMINAL, charts are used. These show the prompts you see on the display and what you should type in response.

Running Terminal

1. From TRSDOS-II Ready, start TERMINAL by typing:

   TERMINAL <ENTER>

   The program starts up in the menu mode with the prompt:

   -- Enter Menu Selection ..

2. Initialize Serial Channel A according to the requirements (baud rate, word length, parity, and number of stop bits) of the host program with which you are going to communicate. Type:

   S <ENTER>

   When the program prompts you to type in a TRSDOS-II command, type in the SETCOM command just as you would in the TRSDOS-II Ready mode. For example:

   SETCOM A=(3ØØ,7,N,2) <ENTER>

   enables Serial Channel A with 3ØØ baud, 7-bit words, no parity and 2 stop bits. After TRSDOS-II executes the command, control returns to TERMINAL's menu mode.

3. If you plan to use the TERMINAL printer command (P), which is described later, initialize the printer now with the FORMS command. Type:

   S <ENTER>

   and enter the appropriate FORMS command at the prompt.

4. To select another menu command, type in the letter specified in the menu. (See the "Menu Commands" section below for a list of options.) To redisplay the entire menu, type:

   M <ENTER>

Modes of Operation

Menu Mode

The only mode from which you can select menu commands. It also lets you enter one of TERMINAL's other modes -- transmit from RAM or interactive terminal. The menu mode is an off-line mode (you cannot transmit characters to the host program, and if characters are sent to you, they are lost).

Interactive Terminal Mode

Sends to the host program the characters you type and displays incoming characters as they are received. If the host program echoes your transmissions, they appear on the display. If not, you can select the self-echo option to display your keyboard input.

Using the R command, you can save incoming characters temporarily in the RAM buffer. Then, you can use the P command to output them to the printer.

If a transmission error occurs, TERMINAL displays an error message and waits for you to correct the error condition. (See "Error Conditions" at the end of the TERMINAL entry.) After you do, normal input/output resumes. There are three ways to enter the interactive terminal mode:

- With the T command from the menu mode
- With the O command, upon completion of an auto sign-on (menu mode)
- After transmission from the RAM buffer

To return to the menu mode, press <BREAK>.

> Note: Certain hosts prompt you to use a break character or sequence to initialize transmissions. Since the <BREAK> key sends the program from the interactive mode to the menu mode, TRSDOS-II uses <ESC> as the break character. You can also set your own break character or sequence with the B command.

Transmit from RAM (and Auto Sign-On)

Sends the contents of the RAM buffer to the host program and passes control to the interactive mode.

Auto sign-on (O command) works the same as transmit from RAM. (The following applies to both operations.)

To load the RAM buffer with prepared text from a disk file, use the G command. (If you are using auto sign-on, your auto sign-on message is sent.) You can send the data in the RAM buffer one line at a time when the host program prompts you that it is ready (W command), or you can send it in a continuous stream.

During transmission, your computer displays incoming text. If the host program echoes your transmissions, you can verify that the data was sent accurately.

During transmission, adjust the delay between characters by repeatedly pressing the <up arrow> (faster) and <down arrow> (slower) keys. If echoed data appears garbled, slow down the transmissions. If it is coming too slowly, speed it up.

If TERMINAL receives a break character or sequence in this mode, it pauses until it receives the next character. If it receives an X'13', TERMINAL pauses until it receives an

X'11'. (By convention, X'13' is called the DC3 signal and means pause. X'11' is called the DC1 signal and means resume).

Use the X command to enter this mode.

To exit this mode and return to the menu mode, press <BREAK>.

Menu Commands

A Build Auto Sign-On Message -- Lets you prepare an automatic sign-on message that contains your responses to the standard sign-on questions asked when you first call a host. By sending this automatic message to the host via the O command, you avoid repeating your responses each time you call the host.

The message can be up to 6Ø keyboard characters, including control characters. All control characters are displayed as ±, but the true control code is sent. (When you display a message, no control codes are shown.) To imbed a carriage return in the message, press <down arrow>.

For example, if the host asks these sign-on questions:

```
User ID?
User Password?
Program Name?
```

and you want to store these responses in the auto sign-on buffer:

```
STL-314 <X'ØD'>
SHOWME <X'ØD'>
MENU <X'ØD'>
```

answer the prompts as follows:

Prompt	Type
-- Enter Menu Selection ..	A <ENTER>
The Current Auto Sign-On is	
Change? (Y/N) ..	Y <ENTER>
Enter Auto Sign-On Message (1-6Ø)	STL-314 ∨SHOWME∨ MENU <ENTER>
The Current Auto Sign-On is STL-314 SHOWME MENU	

On the display, there is a blank line below the prompt "The Current Auto Sign-On is." This indicates that the original auto sign-on was blank or contained non-display characters.

B Set/Change Break Character or Sequence -- Lets you select the incoming code that is to be interpreted as a "break." It also lets you define a key to send the same break character or sequence.

You can use any code from Ø-255 as the break character and any duration from 1-451 milliseconds for the break sequence. (This is determined by the host program.) For the user-defined break key, you can use any key except <BREAK> or <CTRL> <C>.

The following example shows how to set up X'ØA' as the break character and <CTRL> <D> as the break key:

Prompt	Type
-- Enter Menu Selection ..	B <ENTER>
Break Key is Now 1B Hex	
Change? (Y/N) ..	Y <ENTER>
Enter New Key (1)	<CTRL> <D> <ENTER>
Break Key is Now Ø4 Hex	
Type of Break is Now CHR	
Change? (Y/N) ..	N <ENTER>
Break Char is Now Ø3 Hex	
Change? (Y/N) ..	Y <ENTER>
Enter New CHAR Value in Hex (2)	ØA <ENTER>
Break Char is Now ØA Hex	

C **Copy RAM Buffer to Disk** -- Creates a disk file copy of the text in the RAM buffer. The new file has a record length of 1.

Use this command to save data received into the RAM buffer in the interactive terminal mode. To minimize hookup time, do this after ending the connection to the host program. Or, if the RAM buffer is full, save the data in a disk file, then reset it and reopen it for more data.

For example, to save a report (that you receive in the interactive terminal mode) as a disk file named REPORT, answer the prompts as follows:

Prompt	Type
-- Enter Menu Selection ..	C <ENTER>
Enter Filespec (1-34)	REPORT <ENTER>

This creates the new file but leaves the RAM buffer contents and status unchanged. If REPORT exists, the new data overwrites it.

To stop the copy process, press <BREAK>, which closes the disk file and returns to the menu.

D **Display RAM Buffer** -- Displays the contents of the RAM buffer. To pause the display, press <HOLD>. To continue, press <HOLD> again. If the printer command is on when you issue this command, the text is output to the printer, also. To enter the command, type (at the Enter Menu Selection prompt):

D <ENTER>

To stop the display function, press <BREAK>. The menu returns.

E **Self-Echo** -- Lets you display the characters you send via TERMINAL.

Some hosts echo the text you send. As the host receives each character, it sends it right back to you and displays

what you sent. When communicating with this kind of host, set your modem to full duplex.

If the host does not echo your text, you must use the self-echo command to display the text you send. With such a host, set your modem to half duplex.

To switch the echo option (on or off), simply type E <ENTER>. The new state of the option is displayed, and the menu prompt returns.

F Set/Change <F1> and <F2> Keys -- Lets you set <F1> and <F2> to output any code from Ø-255. This is useful if you use a particular code often.

For example, if the host recognizes X'13' (<CTRL> <S>) as pause control and X'11' (<CTRL> <Q>) as resume control, you may want to change these to <F1> and <F2> for convenience. To do this, answer the prompts as follows:

Prompt	Type
-- Enter Menu Selection ..	F <ENTER>
F1 Key Will Send a Ø1 Hex Code	
Change? (Y/N) ..	Y <ENTER>
Enter New Char Value in Hex (2)	11 <ENTER>
F1 Key Will Send a 11 Hex Code	
F2 Key Will Send a Ø2 Hex Code	
Change? (Y/N) ..	Y <ENTER>
Enter New Char Value in Hex (2)	13 <ENTER>
F2 Key Will Send a 13 Hex Code	

Now when you press <F1> while in the interactive terminal mode, TERMINAL transmits the resume control X'11'. When you press <F2>, it transmits the pause control X'13'.

G Get Disk File into RAM Buffer -- Lets you load (into the RAM buffer) text that is stored in a disk file. Then, you can send the text to the host via the X command (transmit from RAM). The previous contents of the RAM buffer are lost.

The disk file can contain fixed-length or variable-length records of any length. However, you should load and send only ASCII files. You can send any programs, if you saved them in ASCII format.

For example, to send a document stored in the file DOCUMENT/TXT, answer the prompts as follows:

Prompt	Type
-- Enter Menu Selection ..	G <ENTER>
Enter Filespec (1-34)	DOCUMENT/TXT <ENTER>

TERMINAL loads the file and returns to the menu. It closes the RAM buffer.

Now, if the host program is ready to accept data, you can use the X command to send the data. After transmission, TERMINAL goes to the interactive terminal mode.

L **Line Feed** -- Tells TERMINAL how to handle an incoming line feed (X'ØA'). If the option is on, TERMINAL ignores all line feeds; if it is off, TERMINAL does not ignore them.

This is useful if the host sends a line feed after each carriage return. Since the TRSDOS-II display and printer drivers automatically perform a line feed after a carriage return, the incoming line feed is redundant. The line feed option should be on.

To switch the option (on or off), type L <ENTER>. The new state of the option is displayed, and the menu prompt returns.

M **Display Menu** -- Clears the display and redisplays the menu. Use this when you have entered so many commands that not all of the menu commands are visible.

O **Enter Terminal Mode with Auto Sign-On** -- Starts transmission of the current auto sign-on message. After it sends the message, TERMINAL enters the interactive terminal mode.

To stop transmitting the auto sign-on, press <BREAK>. This returns control to the menu.

For details, see "Transmitting from RAM."

Note: Most host programs cannot receive anything until they send the first prompting message. Because of this, you should:

1. Go to the interactive terminal mode (T commmand) when connection is first made and wait for the host to send its first prompt character.

2. Press <BREAK> to return to the menu.

3. Start the auto sign-on (O command).

P **Printer** -- Switches the printer option (on or off). When the option is on, incoming text is copied to the printer. Initialize the printer with the FORMS command before you use the P command. When you use the D command while the P option is on, the RAM buffer text is copied to the printer.

TERMINAL uses a circular buffer for efficient output to the printer. If characters overflow the buffer, they may not be printed. They are displayed, however, and saved in RAM if the buffer is open. (Check your printer's specifications for the maximum character input rate. At 3ØØ baud, 7-bit characters may come in as fast as 3Ø per second.)

To minimize hookup time, keep the P option off while on-line with the host. Save the incoming text in RAM, and upon completion of the hookup, turn on the P option. Then use the D command to get a hard copy of the data.

To switch the printer option, type P <ENTER>. The new state of the option (on or off) is displayed and the menu prompt returns.

Q **Quit** -- Returns control to TRSDOS-II. If there is data in the RAM buffer, it is lost. (You cannot restart TERMINAL and recover lost data.)

R **RAM Buffer** -- (interactive terminal mode only) Lets you save in RAM some or all the data received by "opening" and "closing" the RAM buffer. Later, you can use the D command to examine the data. Or, you can use the C command to save the data in a disk file.

When you open this area of memory known as the RAM buffer, you can either reset it or retain its current contents. If you retain the contents, new incoming text is loaded after existing text.

To switch the RAM buffer option (open or closed), type R <ENTER>. The new state of the option is displayed. If you have just opened the buffer, you receive the following prompt:

```
RAM Buffer Now Open
Reset RAM Buffer? (Y/N) ..
```

If you type Y <ENTER>, the buffer resets and existing contents are lost. For more information, see "Using the RAM Buffer."

S Perform Library Command -- Enters TRSDOS-II and lets you enter a library command. After the command executes, control returns to TERMINAL's Menu. A few TRSDOS-II commands and programs automatically return to TRSDOS-II Ready. If you execute any of these commands while in TERMINAL, control returns to TRSDOS-II Ready, not to TERMINAL.

T Enter Terminal Mode -- Directly enters the interactive terminal mode. When in this mode, press <BREAK> to return to the menu.

V Video Filter -- Filters out data characters that produce undesirable results when output to the display.

When a character such as ESC (X'1B') is output, it causes TERMINAL to clear the screen and home the cursor. With the video filter on, you can prevent this by "filtering" these characters from the display. If the RAM buffer is open, they are saved in RAM, regardless of whether the V option is on or off.

The codes (given in hexadecimal) that this option filters are:

```
Ø1,Ø2,Ø3,Ø4,Ø5,Ø6,Ø7,ØB,ØC,ØE,ØF,
1Ø,11,12,13,14,15,16,1E,1F
```

If TERMINAL receives any of these characters while the video filter is on, it displays a "+" in the character's place. To switch the option (on or off), type V <ENTER>. The new state of the option is displayed, and the menu prompt returns.

W Set/Change Prompt-Wait Character -- Sets a special character as the prompt-wait character to cue the terminal to continue the transmission.

This lets you use the high-speed transmit from RAM mode, even when the host program can accept only one line at time. (It does not affect operation in the interactive terminal mode.)

Normally, the host program sends a prompt, such as a question mark, when it is ready for the next line. (A line is defined as a string of characters ended by a carriage return X'ØD'.) In the interactive terminal mode, you simply wait until this prompt is displayed. The prompt-wait feature makes TERMINAL do the same thing while in the transmit from RAM mode.

You can define the prompt-wait character as any keyboard character from X'2Ø' to X'7F'.

Leave the prompt-wait feature off when the host program is storing characters as received and is not sending a ready-for-next-line prompt. TERMINAL transmits text from RAM in a continuous stream.

Note: When you start the transmit from RAM (X command) or auto sign-on (O command), the first line is sent immediately, without waiting for a prompt. After that, each line is sent after the prompt is received.

To turn off the prompt-wait option, press <HOLD> when the program asks for a new character.

X Transmit RAM Buffer and Enter Terminal Mode -- Enters the transmit from RAM mode where it sends the current contents of the RAM buffer to the host program. When the entire buffer has been sent, TERMINAL goes into the interactive terminal mode. For details, see "Transmitting from RAM."

To stop transmitting from RAM, press <BREAK>. Control returns to the menu.

Using the RAM Buffer

You can use the RAM buffer to store incoming text (R command) and prepared text from a disk file (G command) so TERMINAL can send it quickly. The RAM buffer reduces costly hookup time by letting you perform time-consuming operations -- such as preparing data or printing it out -- while TERMINAL is off-line.

If the buffer is filled during a load from disk (G command) or while receiving data in the interactive terminal mode, a warning message is displayed and the buffer is closed. If you are loading a disk file, control returns to the menu mode and the buffer is filled with the data that was loaded.

If you are in the interactive terminal mode, normal I/O continues, but it is no longer saved in the buffer.

Saving the RAM Buffer

When the buffer is filled in the interactive terminal mode -- or when you think it is almost full:

1. Transmit a pause or break control character to the host program.
2. Press <BREAK> to return to the menu.
3. Use the C command to copy the contents of the RAM buffer to a disk file.
4. Reset the RAM buffer with the R command.
5. Use the T command to return to the interactive terminal mode.

Opening and Closing the RAM Buffer

To save portions of the text during I/O of the interactive terminal mode, use the R command. Prior to receiving the data you want to save:

1. Transmit a pause or break control character to the host program.

2. Press <BREAK> to return to the menu.

3. Use the R option to switch the RAM buffer status. If it is closed, open it. If it is open, you may reset it or leave it. To add new data onto the end of old data, do not reset it. To delete old data, reset it.

4. Use the T command to return to the interactive terminal mode.

5. Direct the host program to resume transmission. The data is saved in the RAM buffer as it is received.

Saving the Options You Have Selected

You can save these commands in a customized version of TERMINAL:

- Prompt wait and definition of prompting character.
- Definition of break character or sequence from host program and assignment of a break key on your computer.
- <F1> and <F2> characters.
- Line feed.
- Printer.
- Self echo.
- Video filter.

- Auto sign-on.

- Speed of transmit from RAM and auto sign-on (as set by the "up"and "down" keys). Once you learn the maximum rate of transmission the host program can handle, you can set that as the default rate.

After you select the options for your customized version, use the DUMP command to create a new program file. TERMINAL resides from X'3ØØØ'. Give this customized program a name other than TERMINAL, and leave the TERMINAL program in its original form.

For example, to call your customized version MINE, answer the prompts as follows:

Prompt	Type
— Enter Menu Selection ..	S <ENTER>
Enter TRSDOS Command (1-79)	DUMP MINE START=3ØØØ, END=3FFF <ENTER>

Now you have a customized version of TERMINAL that starts up when you type (at TRSDOS-II Ready):

MINE <ENTER>

Sample Uses

To Send a Program -- If you intend to send a program (or any data) via TERMINAL, you must first store it in an ASCII-formatted disk file. When you have done this, set up the modem and initialize Serial Channel A as explained previously. See your modem manual for the appropriate procedure for getting on-line.

For example, to send a disk file named SORTDATA on Drive 1, get on-line and load the TERMINAL program. Enter the interactive terminal mode (at the Enter Menu Selection prompt) by typing:

T <ENTER>

Go through the necessary sign-on, and when you want to send the program, press <BREAK> to return to the menu. (If you want to use the prompt wait option, select it now.) Then answer the prompts as follows:

Prompt	Type
-- Enter Menu Selection ..	G <ENTER>
Enter Filespec (1-34)	SORTDATA:1 <ENTER>

TERMINAL loads the program into RAM. Make sure the host is ready to receive the program, then (at the Enter Menu Selection prompt) type:

```
X  <ENTER>
```

The terminal now sends the program to the host. Press <BREAK> if you want to stop transmission for any reason, control returns to the menu. Otherwise, upon completion of the program transmission, control goes into the interactive terminal mode.

To Receive a Program -- If the host program with which you are communicating is ready to send you an ASCII-formatted program, you must first go to the menu. At the Enter Menu Selection prompt, type:

```
R <ENTER>
```

If the buffer is closed, repeat this command and TERMINAL displays the message:

```
RAM Buffer Now Open
Reset RAM Buffer (Y/N) ..
```

Type:

```
Y  <ENTER>
```

This opens and clears the buffer. Use the T command to return to the interactive terminal mode. Then, tell the host to send the program.

After you receive the program, press <BREAK> to return to the menu; then answer the prompts as follows:

Prompt	Type
-- Enter Menu Selection ..	C <ENTER>
Enter Filespec (1-34)	NEWPROG <ENTER>

This copies the program in RAM into a disk file named NEWPROG.

Error Conditions

In the interactive terminal mode, transmit from RAM mode, or during auto sign-on, TERMINAL may detect errors related to the serial transmission. In such cases, it displays an error message in reverse video and, if possible, continues normal I/O.

The error messages that can occur while you are in the interactive terminal mode are:

P Parity error -- The received character is displayed after the P.

O Over-run -- At least one character has been received but not picked up by TERMINAL. This occurs if you are in the menu mode while the host program is sending characters.

F Framing error -- The received character is displayed after the F. Check your SETCOM parameters to see that they match the requirements host program.

The following errors can occur in any mode except the menu:

DATA CARRIER LOST -- Check the telephone/modem connection. TERMINAL pauses until the carrier is restored.

DATA CARRIER RESTORED -- If TERMINAL was transmitting from RAM or sending an auto sign-on, it starts over at the beginning of the text after data carrier is restored.

BREAK SEQUENCE RECEIVED -- If the host program sends a break sequence, or sends TERMINAL'S own break character, this message is displayed. If TERMINAL is in the transmit from RAM or auto sign-on mode, it pauses until the next character is received from the host.

TIME **Library Command**

TIME {hh.mm.ss}

Lets you reset the time or display the date and time. hh is a 2-digit hour specification; mm is a 2-digit minute specification; ss is a 2-digit second specification. If you omit .ss, TRSDOS-II uses .ØØ.

If you type TIME <ENTER>, TRSDOS-II displays the current date and time. The following is a sample display:

```
Thu Mar 25 1982 84 -- 14.15.31
```

for Thursday, March 25, 1982, the 84th day of the year, 2:15:31 p.m.

You first set the time when you start up TRSDOS-II. Once you set the time, TRSDOS-II updates the time and date automatically, using its built-in clock and calendar.

If the time passes 23.59.59, TRSDOS-II does not start over at ØØ.ØØ.ØØ. Instead, it continues with 24.ØØ.ØØ. However, the next time you use the TIME or DATE command, TRSDOS-II converts the time to its correct 24-hour value and updates the date. If you let the clock run past 59.59.59, it re-cycles to zero, and TRSDOS-II does not update the date to include the 6Ø-hour period.

Examples

```
TIME <ENTER>
```

displays the current date and time.

```
TIME 13.2Ø.ØØ <ENTER>
```

resets the time to 1:2Ø:ØØ p.m.

```
TIME 18.24 <ENTER>
```

resets the time to 6:24:ØØ p.m.

VERIFY **Library Command**

VERIFY {switch}

Reads after each write operation to verify that the data is readable. If it is not readable, TRSDOS-II again tries to write and then read it. If it still is not readable, TRSDOS-II returns an error message, telling you the operation is not successful.

The switch options are:
ON sets VERIFY on
OFF sets VERIFY off

The switch is optional. If you omit it, TRSDOS-II returns the current status of VERIFY.

TRSDOS-II starts up with VERIFY on. For most applications, you should leave it on.

TRSDOS-II always verifies directory writes. It verifies user writes (writes of data into a file), however, only when VERIFY is on.

Examples

```
VERIFY ON <ENTER>
```

reads after each write to verify that the data is readable.

```
VERIFY OFF <ENTER>
```

turns off the verify function.

```
VERIFY <ENTER>
```

displays the status of the verify switch.