THOROUGHBRED® BASIC™

Utilities Manual

Version 8.9.1

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Preface

Thoroughbred Basic is a business BASIC designed to meet the needs of developers who design, code, enhance, and maintain business applications. The Thoroughbred Basic language is part of the Thoroughbred Environment, part of the Thoroughbred 4GL Environment, or part of the Thoroughbred OPENworkshop Environment.

The Thoroughbred Basic Utilities Manual contains descriptions of the Thoroughbred Basic Utilities, a set of programs that enable you to perform commonly required maintenance functions on programs and files.

This manual is part of a Thoroughbred Software International documentation library that includes the Thoroughbred Basic Developer Guide, the Thoroughbred Basic Language Reference, the Thoroughbred Basic Quick Reference Guide, the Thoroughbred Basic Installation and Upgrade Guide, and the Thoroughbred Basic Customization and Tuning Guide.

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Notational Symbols

BOLD FACE/UPPERCASE	Commands or keywords you must code exactly as shown. For example, **CONNECT** VIEWNAME.
Italic Face	Information you must supply. For example, **CONNECT** *viewname*. In most cases, *lowercase italics* denotes values that accept lowercase or uppercase characters.
UPPERCASE ITALICS	Denotes values you must capitalize. For example, **CONNECT** *VIEWNAME*.
Underscores	Displays a default in a command description or a default in a screen image.
Brackets **[ ]**	You can select one of the options enclosed by the brackets; none of the enclosed values is required. For example, **CONNECT** [VIEWNAME|*viewname*].
Vertical Bar |	Piping separates options. One vertical bar separates two options, two vertical bars separate three options. You can select only one of the options
Braces { }	You must select one of the options enclosed by the braces. For example, **CONNECT** {VIEWNAME|*viewname*}.
Ellipsis **. . .**	You can repeat the word or clause that immediately precedes the ellipsis. For example, **CONNECT** {*viewname1*}[[**,** *viewname2*] **. . .**].
lowercase	displays information you must supply, for example, SEND filename.txt.
Brackets **[ ]**	are part of the syntax and must be included. For example, SEND **[**filename.txt**]** means that you must type the brackets to execute the command.
punctuation	such as **,** (comma), **;** (semicolon), **:** (colon), and **( )** (parentheses), are part of the syntax and must be included.

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1. Introduction

Thoroughbred Basic includes a number of powerful utility programs which enable the user to perform commonly required maintenance functions on programs and files quickly and easily.

The following list provides the names and functions of the Thoroughbred Basic Utilities:

Utility Name	Short Name	Function
****PSD**	******	Utility Selector Menu and Maintenance Program
8NPSD		Configure and Maintain Terminal Tables
***APSD**	***A**	Print Disk Directory on Printer
***BPSD**	***B**	Build File Set List
***CPSD**	***C**	Compare Programs
***DPSD**	***D**	Rename Programs/Files
***EPSD**	***E**	Erase Programs/Files
***FID**		File Identification
***FPSD**	***F**	Display File Parameters
***GPSD**	***G**	Ghost Task Communication
***HEX**		Hexadecimal Dump
***HPSD**	***H**	List Programs on Terminal
***IPSD**	***I**	Hexadecimal File Dump
***JPSD**	***J**	Initialize Disk Environment
***KPSD**	***K**	List Programs on Printer
***LPSD**	***L**	List Disk Directory on Terminal
***MPSD**	***M**	Display Task Memory Allocation
***NPSD**	***N**	Terminal Configurator
***OPSD**	***O**	Define Files
***PPSD**	***P**	Renumber Programs
***PUB**		Public Program Available Space
***QPSD**	***Q**	String Search and Replace (for programs)
***REL**		Print Utilities Release Information
***RPSD**	***R**	Object File Maintenance
***SPSD**	***S**	Transfer Programs/Files
TESTTERM		Test Terminal Tables
***TPSD**	***T**	File Transfer and Expand
***XPSD**	***X**	Channel Cross Reference

Thoroughbred Basic Utilities are described in Section 2 of this manual.

The following list provides the names and functions of the Thoroughbred Basic Conversion Utilities:

Utility Name	Short Name	Function
***CNVT86**		Convert Level 6 direct and sort files.
***CNVTCGV**		Convert CGV from B1 to B2 BASIC
***CNVTDKC**		Adjust Deleted Keyblock Chain for Level 7.
***CNVTERM**		Convert 7.4 TCONFIG to TCONFIG8.
***CNVTFP**		Convert Level 6 Programs to Level 7.
***CVDKC**		Adjust Deleted Keyblock Chain for Level 7.
***PROG8**		Convert Level 7 Programs to Level 8.

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Thoroughbred Basic Conversion Utilities are described in Section 3 of this manual.

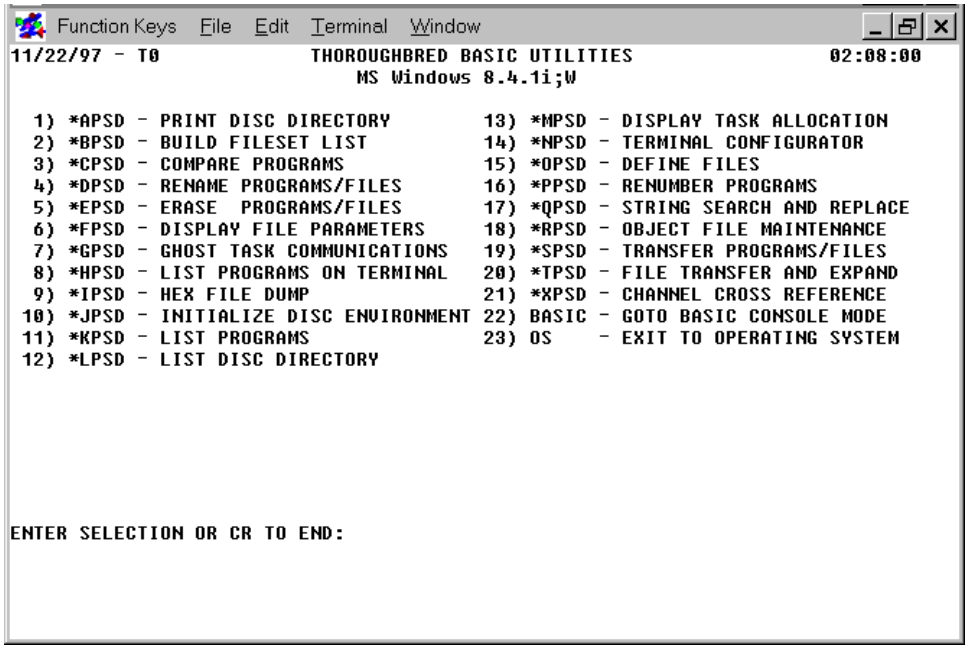
The following list provides the names and functions of the Thoroughbred Basic Program Editors:

Utility Name	Short Name	Function
EDIT		Full Screen Program Editor
EDIT		Program Line Editor
EDITF		Formatted Program Editor

Thoroughbred Basic Program Editors are described in Section 4 of this manual.

Running the Utilities

To access the Utilities Menu from Thoroughbred Basic Console Mode, type **RUN "**PSD"** and press **Enter**. A screen similar to the following is displayed:



To select a particular utility from the menu program, enter either the utility name or number. Some systems allow you to use the first two characters as an abbreviation of the utility name (e.g., RUN "**PSD" is the same as RUN"**"). The valid abbreviations are listed in the beginning of this Section as the Short Name.

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Using Control Keys

The Thoroughbred Basic Utilities use the following control or function keys as shown:

Function Key	Action
F1	Yes response (Y)
F2	No response (N)
F3	Return to previous question
F4	Restart utility or return to a previous menu

Syntax Used in This Manual

Each of the directives, functions, and variables in this manual follow a syntax as described below:

UPPER CASE — Words in capital letters are keywords and must be entered as shown. Thoroughbred Basic is case sensitive. This means that lower case letters are not the same as upper case letters. Keywords are shown in upper case letters and must be entered in upper case letters.

lower case — All items shown in lower case must be supplied by the programmer.

[Optional] — Items in small, square brackets ([ ]) indicate optional entries.

[Required**]** — Some directives, functions, and variables use the bracket as part of the actual syntax. In these cases, the brackets will be larger and bolder than those used for optional entries ([ ]).

Punctuation — Punctuation, with the exception of the ellipses (...), must be entered as shown. This includes commas, semicolons, colons, and parentheses. Ellipses indicate that an item may be repeated many times.

Example:

```
INPUT [(channel [,i/o-options])] [@(column [,row])]
[,mnemonic...] [,output] [,variable-list [:verification]] [,IOL=]
```

The only required word in the above directive is the word INPUT. Next is an optional channel designator, and within that optional channel designator is an optional list of Input/Output commands. Then comes an optional cursor positioning phrase, which allows specification of column and row, with row optional.

```
DIM arrayname$ [element1 [,element2 [,element3]]]
[(length [,initialization-value])]
```

In the above example, the brackets around the elements are required and are truly brackets. The length and initialization-value are optional items.

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Services Provided by TSI

Thoroughbred Software International provides on-line documentation, support, and training.

On-line documentation

Beginning with Thoroughbred Basic 8.1, Thoroughbred Software International made on-line documentation available for its products. To use it, you must install the Dictionary-IV Developer Reference module.

You can access this documentation from Thoroughbred Basic or any Dictionary-IV menu:

- From Thoroughbred Basic Console Mode type **RUN "8H"** and press the **Enter** key.
- From the Thoroughbred Basic Utilities Menu type **8H** and press the **Enter** key.
- From any Thoroughbred Dictionary-IV menu type **/8H** and press the **Enter** key.

You can also access our documentation on our website at www.tbred.com under the Documentation tab.

Support

Thoroughbred provides support for its products by telephone and email. For more information on Thoroughbred support, please contact your Thoroughbred dealer or sales representative.

Thoroughbred provides information and services on the Internet. Please visit Thoroughbred at http://www.tbred.com.

Training classes

Thoroughbred offers a variety of Thoroughbred Basic training classes to address a variety of needs. For more information, please contact your Thoroughbred Representative at 800-524-0430 or 732-560-1377.

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2. Thoroughbred Basic Utilities

The following sections contain descriptions of Thoroughbred Basic Utilities.

**PSD - Utilities Menu/Maintenance

Purpose

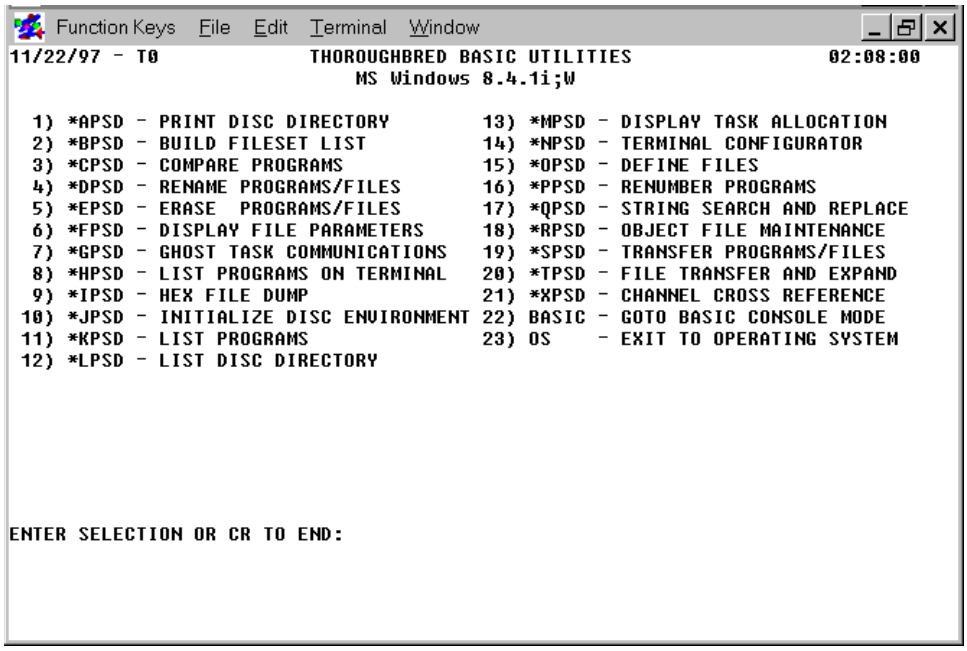
This utility displays the Thoroughbred Basic Utilities Menu on the terminal and asks the user to select the utility to be run. It may also be used to add and delete utilities from the menu.

Procedure

To access this utility from Thoroughbred Basic Console Mode, type:

RUN "PSD"** and press **Enter**.

The Thoroughbred Basic Utilities Menu is displayed. Depending upon your operating system, the Thoroughbred Basic Utilities Menu looks something like this:



At the prompt:

ENTER SELECTION OR CR TO END

You have several options. You can:

- Type the name or number of the utility to be run.
- Type the name of any program to be executed.
- Press **F4** or **Enter** to enter Thoroughbred Basic Console Mode.

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- Begin the Add a Utility to the Menu procedure (explained in this section).
- Begin the Delete a Utility from the menu procedure (explained in this section)

Add/Delete a Program

The names and descriptions of all the programs listed on the Thoroughbred Basic Utilities Menu are stored in a DIRECT file named *UTIL. This file stores a maximum of 30 program names. When a name is added to or deleted from *UTIL, the file is initialized and an updated screen is displayed.

Adding a Program

To add a program to the Thoroughbred Basic Utilities Menu, type the following at the Thoroughbred Basic Utilities Menu prompt:

@ADD

Press **Enter** and the system prompts:

NAME:

Type the name of the program to be added to the Utilities Menu and press **Enter**. The program name entered can be up to 8 characters long. After a valid program name has been entered, the system responds with the following:

DESCRIPTION:

Type a description of the program to be added and press **Enter.**

Note: If the total length of the program name, a hyphen, and the description is greater than 32 characters, the description will be truncated.

After all the information is entered the system prompts:

INITIALIZING CONTROL FILE:

and returns to the Thoroughbred Basic Utilities Menu with the new program listed. To enter another program to the Utilities Menu, repeat this procedure.

Deleting a Program

To delete a program from the Utilities Menu, enter the following at the Thoroughbred Basic Utilities Menu prompt:

@DELETE

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The system prompts:

NAME:

Type the name of the program to be removed from the list. The system returns to the Thoroughbred Basic Utilities Menu with the program removed.

Error Messages

CAN'T OPEN CONTROL FILE "*UTIL"! ERR=xx

The **PSD Utility could not access the selector control file. The program may have been renamed, deleted, locked, etc. The run is aborted.

CONTROL FILE IS FULL

The control file already contains the maximum number of utilities and another utility may not be added.

INVALID SELECTION

Either a selection greater than the number of utilities in the menu, or the name of a non-existent program, was entered. Enter another selection.

xxxxxxxx IS ALREADY IN THE UTILITY MENU

The named utility is already listed in the utilities menu and cannot be added.

xxxxxxxx IS NOT IN THE UTILITY MENU

The named utility is not listed in the utilities menu and cannot be deleted.

8NPSD - Configure and Maintain Terminal Tables

Purpose

The **8NPSD** utility helps you configure and maintain terminal tables. You must install Thoroughbred Basic and Thoroughbred Dictionary-IV. You must use the ***NPSD** utility to configure your terminal for Thoroughbred Basic Windows. Before you use the **8NPSD** utility you must run Thoroughbred Dictionary-IV and log in to identify your terminal to Dictionary-IV.

Note: If you do not have Thoroughbred Dictionary-IV you can use the ***NPSD** utility to build and modify terminal tables. For more information on how to use this utility please refer to the description of the ***NPSD** utility.

Procedure

To run this utility from Thoroughbred Basic Console Mode type:

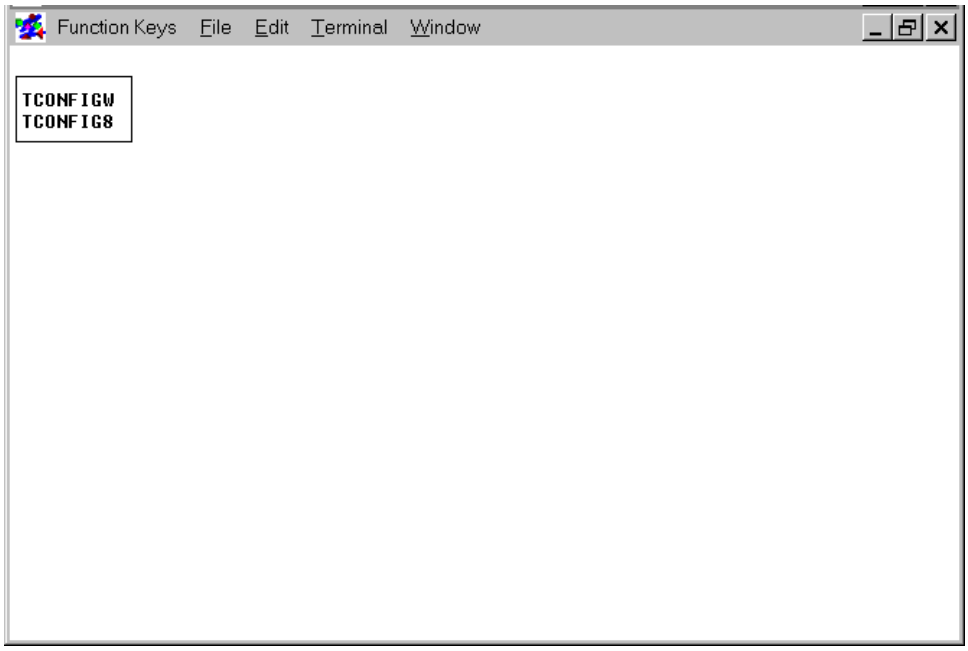
RUN "8NPSD" and press **Enter**.

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To run this utility from the Thoroughbred Basic Utilities Menu type:

8NPSD and press **Enter**.

A window similar to the following displays:



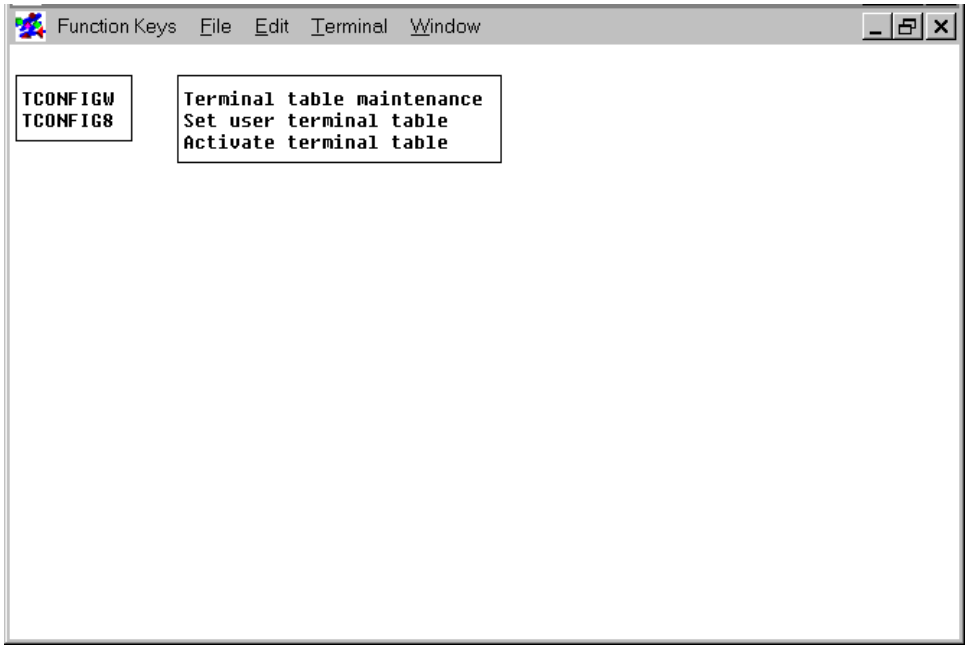
This window allows you to select either TCONFIG8 for non-windowed terminals or TCONFIGW for windowed terminals.

To maintain terminal tables that do not use Thoroughbred Basic Windows, move the cursor to TCONFIG8 and press **Enter**.

To maintain terminal tables that will use Thoroughbred Basic Windows, move the cursor to TCONFIGW and press **Enter**.

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A window with menu options similar to the following displays:



This window provides a menu with options for:

- Terminal table maintenance
- Set user terminal table
- Activate terminal table

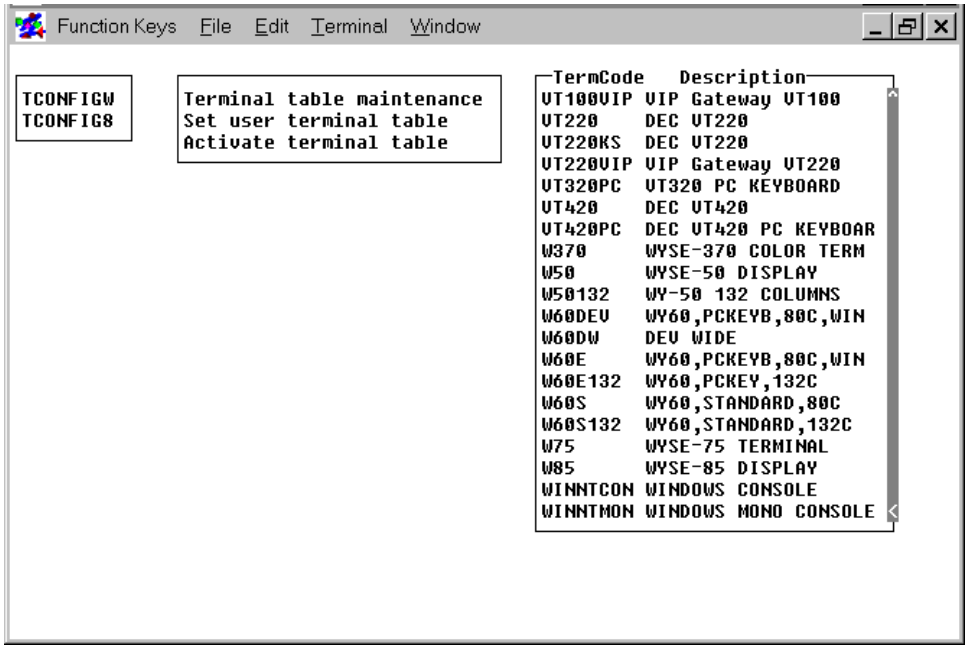
Terminal Table Maintenance

This option allows you to maintain names and descriptions of all terminal tables in the chosen TCONFIG file.

To maintain Terminal Tables, move the cursor to highlight the option **Terminal table maintenance** and press **Enter**.

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The Terminal Table Maintenance screen is displayed:



To select a terminal table to maintain, move the cursor over the selected table and press **Enter**.

You can scroll through the view using the standard view movement keys to select the highlighted item.

Highlight the terminal table you want to edit and press **Enter**. The terminal table is loaded for editing.

To obtain information about the Terminal Table Maintenance Editor, press **F6**. Press **F3** to get more on-line information about the **8NPSD** utility. On-line help contains information on headers, edit and function keys, screen control, mnemonics, escape code entry rules and CTL control values. You may also review the ***NPSD** utility section found later in this section.

Press **F4** to complete the edit session.

The prompt displays:

Save (Y/N)?

Y Saves the changes

N Cancels the changes

If you answered **N**, you are prompted again:

Are you sure (Y/N)?

Y Cancels the changes

N Allows you to make additional changes

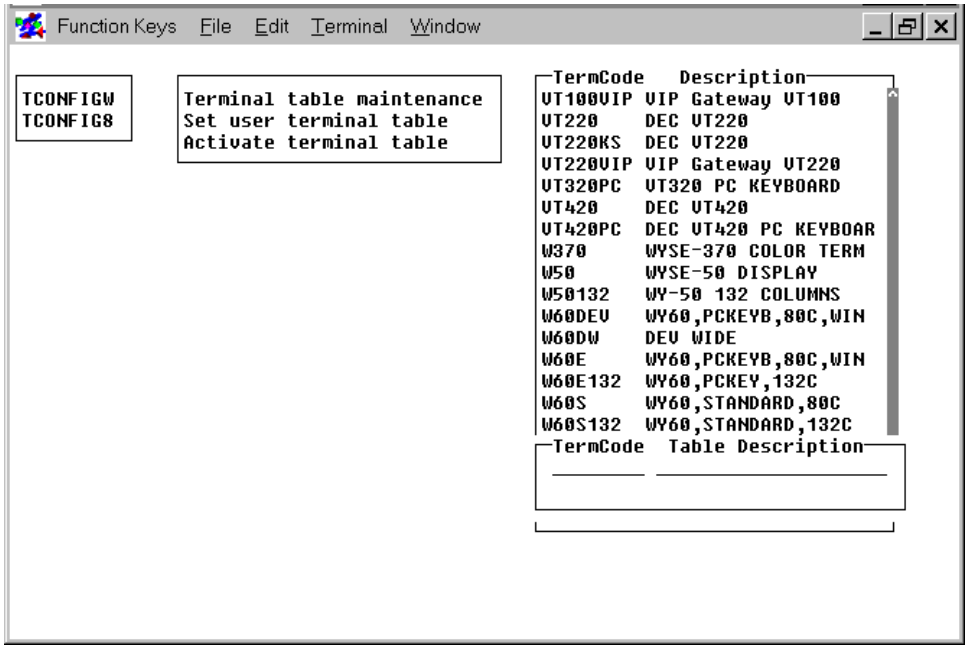
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How to Add a Terminal Table

The recommended way to add a new terminal table is to copy an existing terminal table similar to the one you want to create and modify it. (Refer to the Copy procedure later in this section) However, when no other terminal table approximates the one you want to create, add a new terminal table as follows:

Press **Insert** anywhere from within the Terminal Table Maintenance view. The system automatically sorts the names when you save.

A view appears similar to the following:



Enter the TermCode and Table Description for the terminal table you want to add.

The system prompts:

Correct (Y/N)?

Y Adds the new terminal table

N Allows you to edit the names

A table with default values is created.

Modify the default values by moving the highlight cursor over the newly created terminal table and press **Enter**.

Press **F4** to complete the edit session.

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The prompt displays:

Save (Y/N)?

Y Saves the changes

N Cancels the changes

If you answered **N**, you are prompted again:

Are you sure (Y/N)?

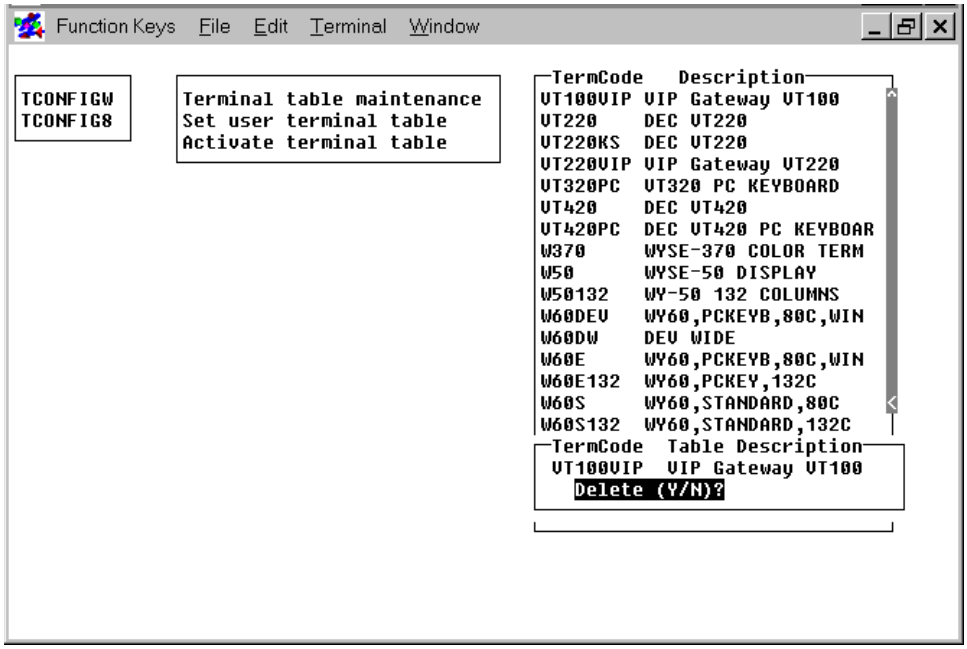
Y Cancels the changes

N Allows you to make additional changes

How to Delete a Terminal Table

Move the cursor over the selected table and press **Delete**.

A view appears similar to the following:



The prompt displays:

Delete (Y/N)?

Y Deletes the terminal table

N Does not delete the terminal table

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How to Copy a Terminal Table

Highlight the terminal table you want to copy and press **Enter**. The terminal table will be loaded for editing.

You can change the terminal table code name that is displayed on the first line of the table. At this point, you can also edit the newly copied table or you can exit and edit the information at a later time.

Press **F4** to exit the editor.

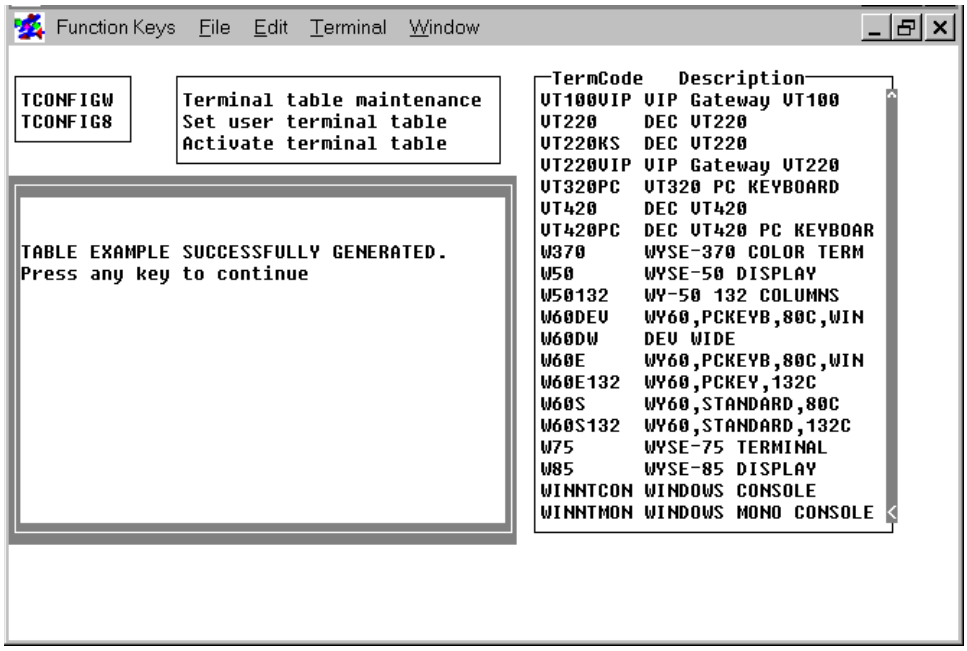
The prompt displays:

Save (Y/N)?

Y Saves the new terminal table. The system gives you the option to overwrite the terminal table or save it as a new name. You must enter a new terminal table name

N Does not copy the selected terminal table

If you answer **Y** to this prompt, the following window appears:



If you answered **N,** you are prompted again:

Are you sure (Y/N)?

Y Cancels the changes

N Allows you to make additional changes

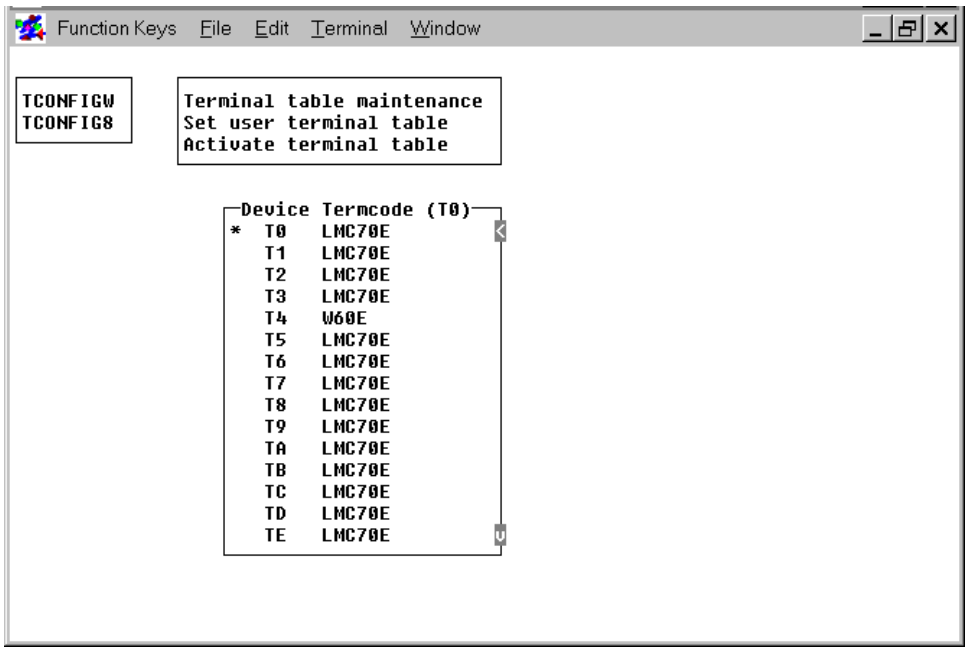
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How to Set the User Terminal Table

This option allows you to maintain terminal table assignments, which are used when Thoroughbred Dictionary-IV run time is executed.

To set user terminal tables, move the cursor to highlight the option **Set user terminal table** and press **Enter**.

A view appears with devices and assigned terminal tables:



To select a device and terminal table to maintain, move the cursor over the selected device and terminal table and press **Enter**.

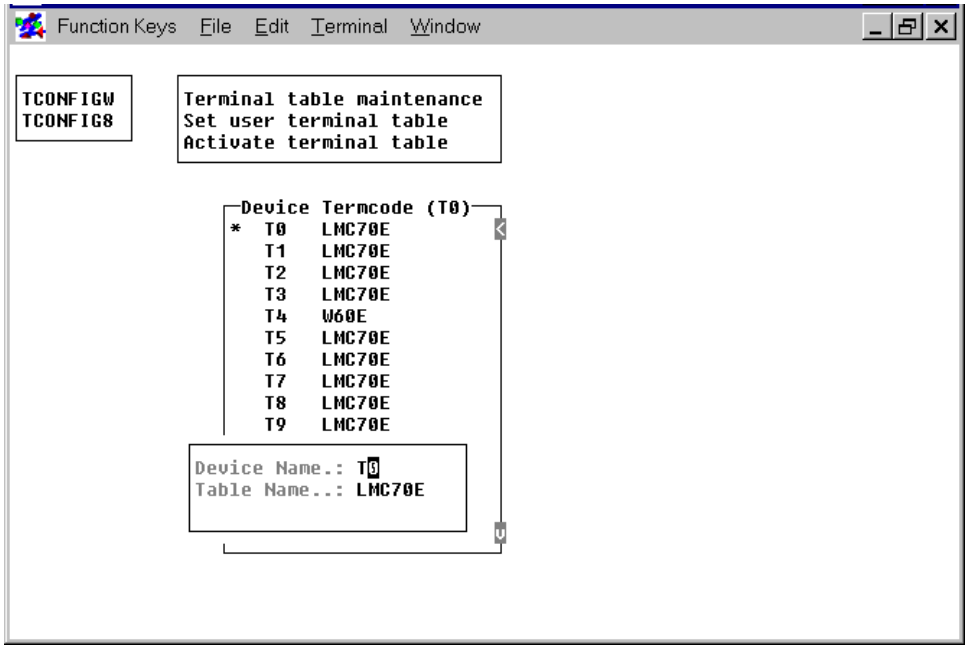
You can scroll through the view using the standard view movement keys to select the device you want or press **F4** to return to the previous window.

How to Change a Terminal Table

Highlight the selected terminal device that is to be changed, and press **Enter**.

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A view appears similar to the following:



Edit the Device Name and/or Table Name as desired.

The prompt displays:

Correct (Y/N)?

Y Applies the changes

N Allows you to edit the names again

Press **F4** to exit.

The prompt displays:

Save (Y/N)?

Y Saves the changes

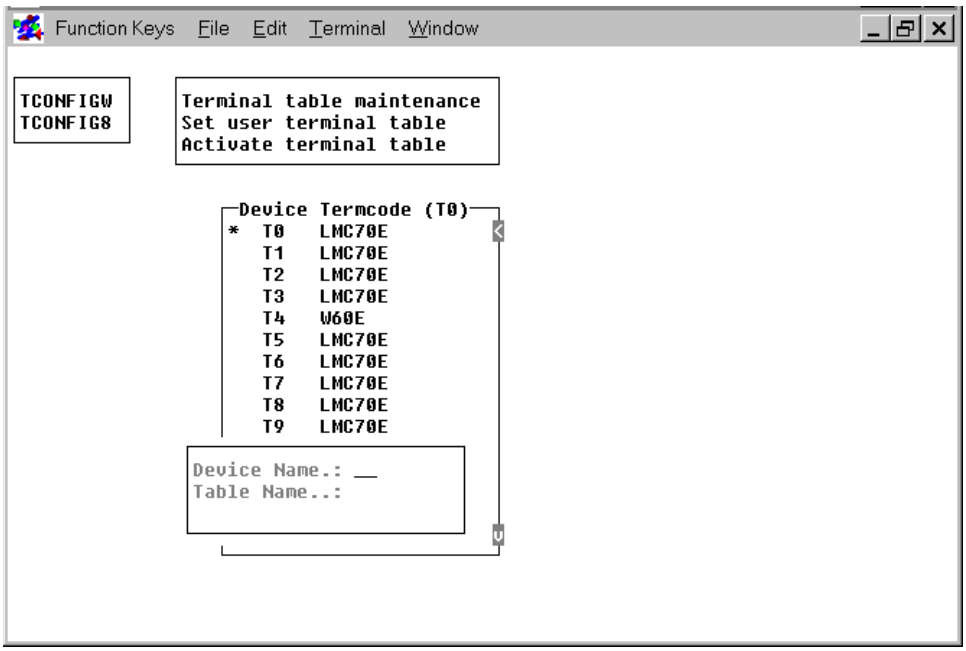
N Cancels the changes

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How to Add a Terminal Table

Press **Insert** anywhere from within the view. The system will automatically sort the names when you save.

A view appears similar to the following:



Type the Device Name and Table Name for the table you want to add.

The prompt displays:

Correct (Y/N)?

Y Adds the new names

N Allows you to edit the names

Press **F4** to exit.

The prompt displays:

Save (Y/N)?

Y Saves the changes

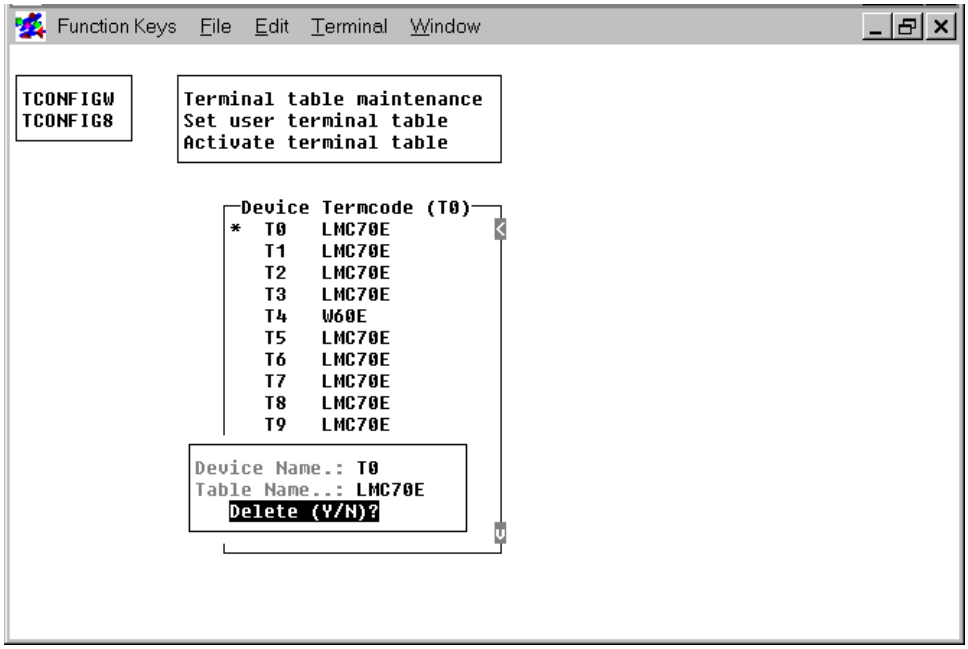
N Cancels the changes

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How to Delete a Terminal Table

Highlight the terminal device you want to delete.

Press **Delete**. A view appears similar to the following:



The prompt displays:

Delete (Y/N)?

Y Deletes the device

N Does not delete the device

Press **F4** to exit.

The prompt displays:

Save (Y/N)?

Y Saves the changes

N Cancels the changes

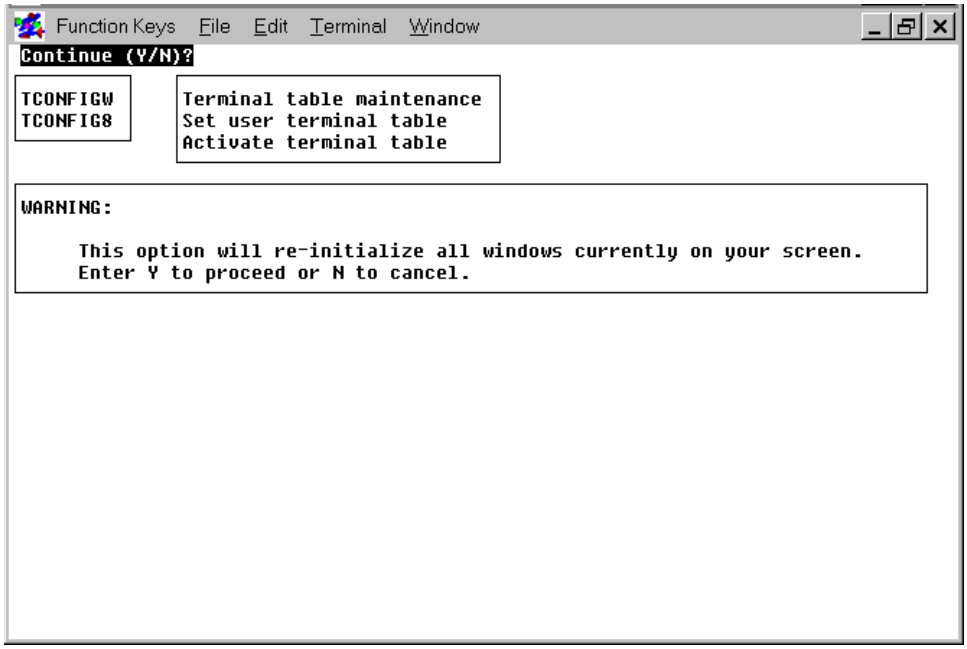
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How to Activate Terminal Tables

This option allows you to select a new terminal table that is to be used for communication with your terminal for the current Dictionary-IV run time session. To permanently assign a new terminal table each time Dictionary-IV run time is executed, you must use the **Set terminal table** option.

To activate a terminal table, move the cursor to highlight the option **Activate terminal table** and press **Enter**.

The following screen is displayed:



The prompt displays:

Continue (Y/N)?

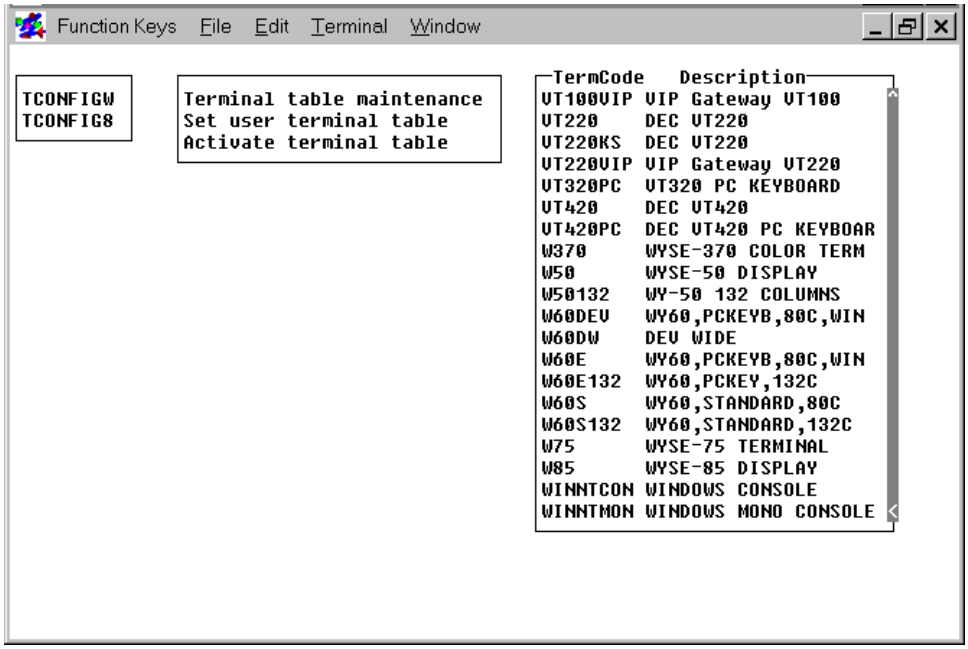
Y Continues the activation process

N Cancels the activation process

To activate the terminal, enter **Y**.

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A view appears with terminal table codes and descriptions.



Highlight the terminal table that is to be used for communication with your terminal for the current Dictionary-IV run time session.

You are now returned to the first window.

Error Messages

CURSOR MASK NOT DEFINED

A cursor mask must be defined in order for the terminal table to work properly.

ESCAPE/BACKSPACE/NULL CHARACTER NOT DEFINED

The Escape, Backspace and Null characters need to be specified in the terminal table.

NO FUNCTION KEYS DEFINED

Function key definitions have not been specified in the terminal table.

NO MNEMONICS DEFINED

It is required that certain mnemonics be defined for proper terminal operation. Refer to the on-line help for mnemonics for a list of the required mnemonics.

MNEMONIC STRING FOR 'mnemonic name' TOO LONG

A mnemonic escape sequence cannot be longer than 255 bytes.

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CANNOT BUILD TABLE DUE TO ERRORS

The terminal table will not be saved because of catastrophic errors.

TABLE TOO LARGE

The generated terminal table is too large to save in the TCONFIG file.

INVALID TRANSMIT CODE FOR MNEMONIC 'mnemonic name'

The escape sequence for this mnemonic has been specified incorrectly.

TABLE 'table name' SUCCESSFULLY GENERATED

The terminal table has been generated and saved and can now be used.

TCONFIG FILE IS READ-ONLY

The TCONFIGW or TCONFIG8 file was defined as a read-only file. Changes cannot be written to the file. Change the set of permissions for the file before attempting to write to it.

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APSD - Print Disk Directory

Purpose

This utility sends the contents of a disk directory to a printer. The following is listed for each file on the disk (where available):

- File name
- Record size
- File type
- Records in use
- Key size
- Available records
- Starting, ending, and total sectors

For programs that have a REMark as the first statement, the REMark is printed as the program ID. The listing may be sorted in either location or alphabetical order.

Procedure

To run this utility from Thoroughbred Basic Console Mode, type:

RUN "*APSD" and press **Enter**.

To select this utility from the Thoroughbred Basic Utilities Menu, type one of the following:

A and press **Enter**.

***A** and press **Enter**.

***APSD** and press **Enter**.

Menu option # and press **Enter**.

Due to differences within the operating systems that Thoroughbred Basic runs on, there are variations within the utilities. The information that follows here provides an overview of the procedure. Follow the instructions that apply to your operating system.

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Once you enter the ***APSD** Utility the system prompts for the printout format:

ENTER PRINTER WIDTH: (1) 80 CHARACTERS OR (2) 132 CHARACTERS

Choose a printout style.

DISC NAME OR NUMBER

Enter a valid disk name or number.

SELECT PRINTER: xx xx (where xx is a configured printer)

Make your selection from the list of available printers displayed in the prompt. Printers displayed in background mode are currently being used by another task and, therefore, are unavailable. If the requested printer cannot be opened, the user is prompted to make another selection. If only one printer is configured this question is not asked. Next, the system prompts for the format of the printout:

BY LOCATION, MASKS OR NAME (L/M/N):

Type **L** and press **Enter** to sort the directory in location order, type **M** and press **Enter** to sort the directory by masks or type **N** and press **Enter** to sort in alphabetical order.

If location order is selected, no sort is necessary because the directory already exists in defined order. If masks are selected, refer to the *BPSD Utility for more information on masks. If name is selected, the system sorts the files alphabetically.

TYPES (I=IND, D=DIR, S=SRT, R=SER, P=PGM M=MKEY, T=TEXT, C=CISAM)

Enter up to 8 characters representing the types of files you want displayed or press **Enter** to display all file types. If a character other than I(ndex), D(irect), S(ort), R(Serial), P(rogram), M(KEY), T(EXT), or C(ISAM) is entered, or if more than 8 characters are entered, you will be prompted again.

ENTER FILENAME OR MASK; (@) FOR ALL, (CR) TO END

Type up to 48 file names or masks and press **Enter**, or type **@** and press **Enter** to list all the names in the directory. If a specified file does not exist on the disk, or if a file does not match the selected type, the name is rejected. After entering each name or mask, press **Enter** once. After you have entered all the names or masks, press **Enter** again to continue with the procedure. To exit the utility, press **F4**.

FROM NAME

Type the name of the first file to be displayed and press **Enter**, or press **Enter** to set this parameter to the first name in alphabetical order.

TO NAME

Type the name of the last file to be displayed and press **Enter**, or press **Enter** to set this parameter to the last name in alphabetical order.

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After all the requested information has been supplied, the system sorts the file (if necessary) and prints the directory information. The following list explains the information provided in the printout:

Heading	Explanation
NAME	Fourteen-character name
TYPE	File type (listed below): IND = INDEXED files SER = SERIAL files SRT = SORT files DIR = DIRECT files PGM = Program files SDR = System directory TXT = TEXT files MKY = MSORT files ISM = TISAM files DRX = Auto-expanding DIRECT files SRX = Auto-expanding SORT files
START SECTOR	Location of the beginning of the file on the disk
END SECTOR	Last sector used by the file
TOTAL	Number of sectors used by this file
KEY	For SORT and DIRECT files, the length of the key in bytes. For other file types, this field is **0**.
RECORDS	Number of logical records in the file. For PROGRAM files this field is **1**. For SORT files, it is the number of keys.
RECLEN or BYTES/RECORD	Record length in bytes. This field is 0 for **SORT** files.
IN USE	Number of records used. For programs, this is the actual length of the program in bytes.
PROGRAM ID	The contents of the first REM statement in a program or **NONE** if the first statement is not a REM. If the file is a directory, **DIRECTORY** appears in this field. If the file is an object library, **OBJECT LIBRARY** appears in this field.

Error Messages

CAN'T DEFINE WORK FILE ON DISK nn, ERROR = xx

The utility was unable to create a file to sort the directory in alphabetical order. Control returns to the LOCATION, MASKS, OR NAME prompt. If the disk is full, enter console mode and erase unnecessary files. Otherwise, check the read/write permissions.

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DISK nn NOT CONFIGURED

The disk number given is invalid, the disk does not have a Thoroughbred Basic directory, or the disk is disabled.

ERROR xx HAS OCCURRED, CR TO CONT, CTL4 TO END

An unexpected error has occurred, probably I/O related.

PRINTER IN USE

The requested printer is being used by another task; select another.

PRINTER NOT READY

The requested printer is off-line (i.e., not turned on, out of paper, out of toner, etc.). Correct the problem and try again, select another printer, or **F4** to return to the Utilities Menu.

"xxxxxxxx" NOT A DIRECTORY

The disk ID named was opened and was not a directory. Enter another disk ID.

PERMISSION DENIED OF DISK xxx

This utility could not read the specified disk.

FILE NAME IS TOO BIG, SKIPPING

The file name contained too many characters. Enter **SKIP** to prevent redisplay of this message.

*BPSD - FILESET LIST

Purpose

This utility inputs a list of file names and masks from the terminal, compares the list with all files on a specified disk, and places all matching file names into a SORT file on the same disk. The SORT file is named ***SR + FID(0)** in UNIX.

Other utilities, such as the ***LPSD** utility use ***BPSD** to gather a list of file names. Whenever the ***BPSD** Utility is run the SORT file used to hold the list of names is overwritten and any existing information on it is lost. For information on the structure and operation of SORT files, refer to the section on Input/Output Processing.

Procedure

To run this utility from Thoroughbred Basic Console Mode, type:

RUN "*BPSD" and press **Enter**.

To select this utility from the Thoroughbred Basic Utilities Menu, type one of the following:

B and press **Enter**.

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***B** and press **Enter**.

***BPSD** and press **Enter**.

Menu option # and press **Enter**.

The system prompts:

DISC NAME OR NUMBER

Type a valid disk name or number. If the directory for the specified disk cannot be opened, the user is asked to enter another disk number or name. When a valid disk name/number is entered, the system prompts:

ENTER FILENAME OR MASK: (@) FOR ALL, (CR) TO END

Type up to 48 file names or masks and press **Enter** (See Notes on masks below). Type **@** and press **Enter** to copy all the names in the directory into the SORT file. If a specified file does not exist on the disk, or if a specified file does not match the file type selected, the name is rejected. After entering each name or mask, press **Enter** once. After you have entered all of the names or masks, press **Enter** again to continue with the procedure. Press **F4** to end the utility program without building the SORT file.

Notes

Masks are one to eight character strings used as patterns to match file names. They contain alphanumeric characters plus the "?" and "@" characters. A "?" matches any single character in a file name, including trailing spaces. A "@" matches the remainder of the file name and may only appear as the last character in the mask. For example, the mask "*?PSD@" matches all of the utility programs and their overlays.

Example: If a directory contains the following entries:

FM012	**UD790**	**PM094**	**ZP**
FM117	**UD984**	**PM112**	**ZP1**
FM193	**PM018**	**PM193**	**ZP117**
			ZP193

The matches shown here would result:

Mask	**Matches**
FM@	FM012, FM117, FM193
?M0@	FM012, PM018, PM094
ZP?	ZP, ZP1
??1@	FM117, FM193, PM112, PM193, ZP1, ZP117, ZP193
??193	FM193, PM193, ZP193

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Error Messages

CAN'T DEFINE *SRTx, ERROR=xx

The utility could not create a new SORT file to place file names in. The run is aborted. In UNIX, check the read/write permissions to ensure that you are allowed to create new files. Another reason for this error could be a full directory. If the directory is full, enter to console mode and erase one file to make room.

ERROR xx HAS OCCURRED, CR TO RETRY

An unexpected error, probably I/O related, has occurred.

LIMIT IS 48 NAMES/MASKS

The maximum number of names has been entered (48). The system begins its directory search.

PERMISSION DENIED OF DISK xxx

This utility could not read the specified disk.

FILE NAME IS TOO BIG, SKIPPING

The file name contained too many characters. Enter **SKIP** to prevent redisplay of this message.

*CPSD - Compare Programs

Purpose

This utility compares two programs and produces a listing on the printer of all the changes that would have to be made to make one program identical with the other.

Procedure

To run this utility from Thoroughbred Basic Console Mode, type:

RUN "*CPSD" and press **Enter**.

To select this utility from the Thoroughbred Basic Utilities Menu, type one of the following:

C and press **Enter**.

***C** and press **Enter**.

***CPSD** and press **Enter**.

Menu option # and press **Enter**.

The following message is displayed:

SELECT PRINTER: xx xx: (where xx is a configured printer)

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Make your printer selection from the list of available printers displayed in the prompt. Printers displayed in background mode are currently being used by another task and, therefore, are unavailable. If the printer requested cannot be opened, the user is prompted to make another selection. If only one printer is configured that printer is automatically selected.

DISK NAME OR NUMBER:
OLD PROGRAM:

Enter the name of the program to be updated. Program names are any string of 8 characters or less used to name a program and its program file. If the specified program cannot be opened, or if it is not a program, the user is prompted to enter another name. When a valid name is entered, the system prompts:

DISK NAME OR NUMBER
NEW PROGRAM

Enter the name of the program to be used for the comparison. If the program name entered is not valid (i.e., not a program, not on the disk, etc.), the user is prompted to enter another.

Notes

This utility detects three types of changes:

1. If a statement exists in the old program, but not in the new program, a delete line is printed.

2. If a statement exists in the new program, but not in the old program, an add line is printed.

3. If a statement exists in both programs, but its contents have changed, a change message is printed.

If no differences are found, the message **PROGRAMS ARE IDENTICAL** is displayed.

Error Messages

ERROR xx HAS OCCURRED, CR TO RETRY

An unexpected error has occurred, probably I/O related.

PRINTER IN USE

The requested printer is being used by another task; select another.

PRINTER NOT READY

The requested printer is off-line (i.e., not turned on, out of paper, out of toner, etc.). Correct the problem and try again, select another printer, or press **F4** to return to the Utilities Menu.

xxxxxxxx IS UNINITIALIZED OR BLANK

The specified program is empty and cannot be compared. Type another program name.

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*DPSD - Rename Programs/Files

Purpose

This utility changes the names of programs or files without changing their file characteristics or location on the disk.

Procedure

To run this utility from Thoroughbred Basic Console Mode, type:

RUN "*DPSD" and press **Enter**.

To select this utility from the Thoroughbred Basic Utilities Menu, type one of the following:

D and press **Enter**.

***D** and press **Enter**.

***DPSD** and press **Enter**.

Menu option # and press **Enter**.

The following message is displayed:

DISK NAME OR NUMBER
ENTER NAME

Type the program or file name to be changed. A valid program or file name is any string of 8 characters or less used to name a specific program or file. If the file or program cannot be opened, the user is asked to supply another name. When a valid file is entered, the system prompts:

xxxxxxxx == > (where xxxxxxxx is the name entered in the previous prompt)

Enter the new file or program name. The system responds with the following message:

'xxxxxxxx HAS BEEN RENAMED yyyyyyyy' (where: xxxxxxxx is the former name of the program or file and yyyyyyyy is the new name.)

Notes

This utility renames a file by erasing the original file name and defining a file with the new name at the same location. The file remains on the same disk and cannot be moved from one disk to another using this utility.

Error Messages

xxxxxxxx ALREADY EXISTS ON DISK xx, CAN'T RENAME

A file with the new name already exists on the same disk. Type another name and press **Enter**.

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xxxxxxxx ALREADY EXISTS ON DISK xx. CR TO CONTINUE

A file with the new name already exists on another disk. Press **Enter** to rename the file anyway, or **F3** to enter another name.

*EPSD - Erase Programs/Files

Purpose

This utility erases groups of files and/or programs from a specified disk.

Procedure

To run this utility from Thoroughbred Basic Console Mode, type:

RUN "*EPSD" and press **Enter**.

To select this utility from the Thoroughbred Basic Utilities Menu type one of the following:

E and press **Enter**.

***E** and press **Enter**.

***EPSD** and press **Enter**.

Menu option # and press **Enter**.

The following message is displayed:

ERASE PROGRAMS (P), FILES (F), OR BOTH (B)

Type **P** and press **Enter** to only erase programs, type **F** and press **Enter** to only erase data files, or type **B** and press **Enter** if both data files and program files are to be erased. The system prompts:

DISC NAME OR NUMBER:

Type the name or number of the directory where the specified files reside.

ENTER FILENAME OR MASK; (@) FOR ALL, (CR) TO END

Type up to 48 file names or masks and press **Enter**. Type **@** and press **Enter** to copy all the names in the directory into the SORT file. If a specified file does not exist on the disk, or if a specified file does not match the file type selected, the name is rejected. After entering each name or mask, press **Enter** once. After you have entered all the names or masks that you wish to use (up to 48) press **Enter** again to continue with the procedure. Press **F4** to exit the utility without building the SORT file.

VERIFY (Y/N):

Type **N** and press **Enter** to erase the files without confirming each deletion. Type **Y** and press **Enter** and the utility will ask whether or not the file should be erased. If you select verification, the system prompts:

ERASE xxxxxxxx (Y/N)

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*FID - File Identification

Purpose

The ***FID** utility displays a list of open file channels, the file or device open on that channel, and key or index pointers for each open file.

Procedure

To run this utility from Thoroughbred Basic Console Mode type:

RUN "*FID" and press **Enter**.

To run this utility from the Thoroughbred Basic Utilities Menu type:

***FID** and press **Enter**.

Note: If you run the ***FID** utility from the Thoroughbred Basic Utilities Menu, it will place you in Thoroughbred Basic Console Mode.

If a channel is opened with the DLINK option *FID will always display the primary data file.

```
OPEN(1,OPT="DLINK")"OELCUST"
OPEN(2,OPT="DLINK")"OELINVEN"
CALL "*FID"
```

0 -- TA
1 – OECUST KEY='100100' IND='0'
2 – OEINVEN KEY='<EOF>' IND='<EOF>'

*FPSD - Display File Parameters

Purpose

This utility displays the following file information for all types of files (where applicable):

- File Name
- Key Size
- File Type
- Record Size
- Disk
- Number of Records
- Starting Sector
- Available Records

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- Ending Sector
- Records in Use
- Total Number
- Available Bytes
- Defined Size
- Object Library Available Space View
- Program ID
- Multi-Key File Key Definition
- Actual Size

The program ID is obtained from the first line of the program if it is a REM statement.

Procedure

To run this utility from Thoroughbred Basic Console Mode, type:

RUN "*FPSD" and press **Enter**.

To select this utility from the Thoroughbred Basic Utilities Menu, type one of the following:

F and press **Enter**.

***F** and press **Enter**.

***FPSD** and press **Enter**.

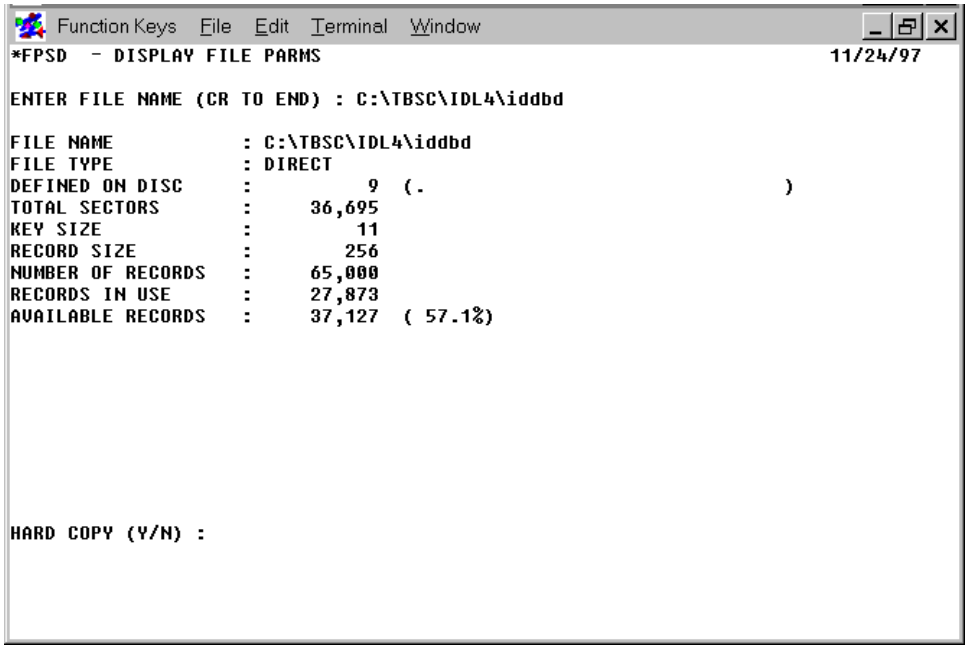
Menu option # and press **Enter**.

The following prompt is displayed:

ENTER FILE NAME (CR TO END):

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Type the name of a file whose information you wish to view and press **Enter**. If the file cannot be opened, the user is asked to supply another file name or press **Enter** to exit the utility. After a valid filename is entered a screen similar to the following is displayed:



HARD COPY (Y/N)

Type **N** to return to the "ENTER FILE NAME" prompt without printing. Type **Y** and press **Enter** to have the file information sent to a printer. The system prompts:

SELECT PRINTER: xx xx: (where: xx is a configured printer.)

Make a printer selection from the list of available printers displayed in the prompt. Printers displayed in background mode are currently being used and, therefore, are unavailable. If the printer requested cannot be opened, the user is prompted to make another selection. If only one printer is configured this question is not asked.

Error Messages

ERROR xx HAS OCCURRED. 'CR' TO RETRY, CTL2 FOR NEXT, CTL4 TO END

An unexpected error has occurred, probably I/O related. Press **Enter** to retry, **F2** to enter a new file name, or **F4** to exit the utility.

ERROR 0 HAS OCCURRED, PRINTER PROBABLY OFF-LINE

The requested printer is off-line (i.e., not turned on, out of paper, out of toner, etc.). Correct the problem and try again, select another printer, or press **F4** to exit.

PRINTER IS IN USE

The requested printer is being used by another task; select another.

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PRINTER NOT READY

The requested printer is off-line (i.e., not turned on, out of paper, out of toner, etc.). Correct the problem and try again, select another printer, or press **F4** to exit.

UNABLE TO OPEN FILE: xxxxxxxx

The file named does not exist. Type another file name or verify that the permissions are set to allow you to open the file or enter another file name.

ENCRYPTED PROGRAM

The program is encrypted.

*GPSD - Ghost Task Communication Utility

Purpose

This utility connects your terminal to a currently running (STARTed) ghost task. Once you are connected to the ghost task you can:

- Look at what the ghost task is currently executing.
- Initiate a program to run under the ghost task.
- Modify the ghost task program to correct an error situation.

Any terminal or user task can communicate with any STARTed ghost task, but only one terminal or task can have a ghost task open at one time.

For more information on ghost tasks, refer to the related section in the Thoroughbred Basic Developer Guide and Basic Customization and Tuning Guide Volume I.

Procedure

To run this utility from Thoroughbred Basic Console Mode, type:

RUN "*GPSD" and press **Enter**.

To select this utility from the Thoroughbred Basic Utilities Menu, type one of the following:

G and press **Enter**.

***G** and press **Enter**.

***GPSD** and press **Enter**.

Menu option # and press **Enter**.

The following message is displayed:

ENTER GHOST ID

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Enter a valid ghost task ID (**G0** through **G9**, **GA** through **GZ** or **Ga** through **Gz**) for a STARTed ghost task. The system prompts:

COMMUNICATING WITH G#,
G# WILL NOW BE ATTACHED TO T#.
PRESS THE ESCAPE KEY TO BREAK.

(where: G# is the ghost task ID and T# is the terminal ID.)

Note: The ghost task is unavailable to all other terminals while it is attached to the terminal.

At this point the system enters Thoroughbred Basic Console Mode or returns to the program that started the utility. You can now make inquiries or modifications. To terminate the communication, press Escape. The system prompts:

THE ATTACHMENT BETWEEN G# AND T# HAS BEEN BROKEN

The system returns to the Thoroughbred Basic Utilities Menu.

Error Messages

NO GHOSTS ARE CONFIGURED

This message indicates that there are no ghost tasks specified for this user. Refer to the ghost task section in the Thoroughbred Basic Reference Manual.

TASK IS NOT CONFIGURED - <CR> TO CONTINUE

This message indicates that the ghost task specified was not configured in the IPLINPUT file for this user.

TASK IS NOT STARTED - <CR> TO CONTINUE

The specified ghost task has not been run. The user must initiate the desired ghost task by using the START directive. Please refer to the Functions, directives, and Variables section of this manual for more information on the START directive.

*HEX - Hexadecimal Dump

Purpose

The ***HEX** utility produces a hexadecimal dump of the contents of string variables. You can use this utility to search for characters that Thoroughbred Basic does not recognize and cannot print or display.

Procedure

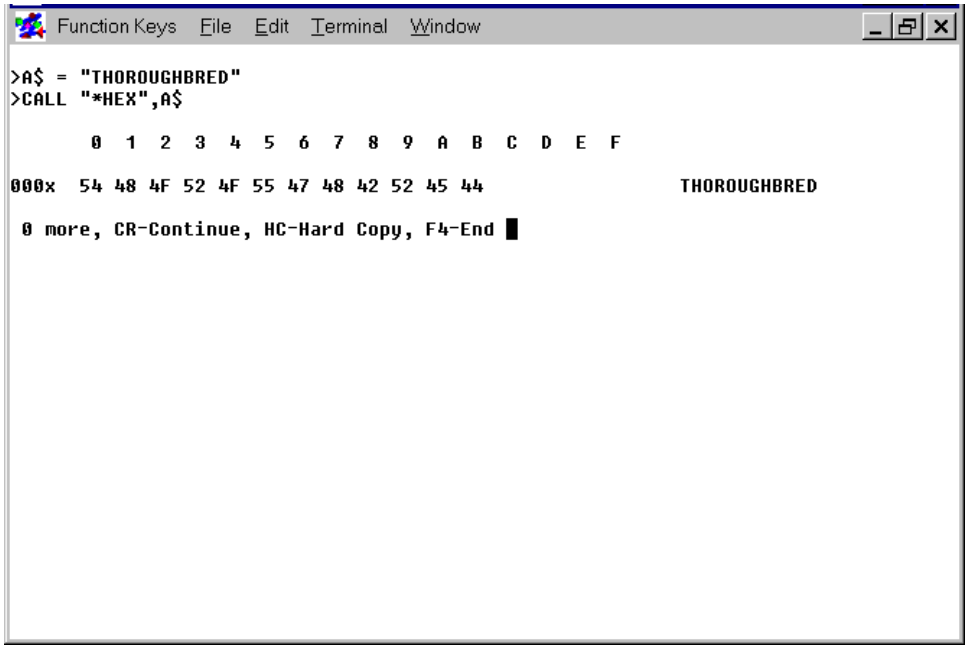
To run this utility from Thoroughbred Basic Console Mode type:

CALL "*HEX", stringvar and press **Enter.**

(where: **stringvar** is a string variable.)

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For example:



The ***HEX** utility produced a hexadecimal dump to display contents of the **A$** string variable. The message line at the bottom of the listing displays a set of options that will prove useful when you have a very long string contained in a string variable.

*HPSD - List Programs On Terminal

Purpose

This utility lists the contents of a program on the display terminal, one screen at a time. Listing may begin at a specified statement or at the occurrence of a specified search string.

Procedure

To run this utility from Thoroughbred Basic Console Mode, type:

RUN "*HPSD" and press **Enter**.

To select this utility from the Thoroughbred Basic Utilities Menu, type one of the following:

H and press **Enter.**

***H** and press **Enter**.

***HPSD** and press **Enter**.

Menu option # and press **Enter**.

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The following message is displayed:

PROGRAM:

Enter the name of the program to be listed. If the file cannot be opened, or if it is not a program, the user is asked to enter another program name. The system prompts:

ENTER LINE NUMBER, CR TO CONTINUE, CTL-I TO SEARCH, OR CTL-IV TO END

*HPSD Options	
To	**Action**
Display the next screen	Press **Enter**
Start the listing at a specific statement number	Type (program-line-number), press **Enter**
Search for the occurrence of a string	Press **F1**
Print the listing to a printer	Type **HC** and press **Enter**
Exit the utility	Press **F4**

If you press **F1** the system prompts:

SEARCH STRING [(CR='xxxx')] (where xxxx is the last search string entered)

Type the string you want to search for. If there has been a previous search, the last search string is shown. Press **F1** and **Enter** to continue to look for the next occurrence of the previous search string. After entering the string, the system responds with the following prompt:

LINE NUMBER TO BEGIN SEARCH (CR=BEGINNING)

Type the program line number where the utility should begin searching and press **Enter**. Press **Enter** to begin searching at the first statement in the program.

If the print to printer option (HC) is selected, the system prompts:

SELECT PRINTER: xx xx (where xx is a configured printer)

Make your selection from the list of available printers displayed in the prompt. Printers displayed in background mode are currently being used by another task and, therefore, are unavailable. If the printer requested cannot be opened, the user is prompted to make another selection. If only one printer is configured this question is not asked.

Error Messages

ERROR xx HAS OCCURRED. (CR) TO RETRY

An unexpected error has occurred, probably I/O related.

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STRING NOT FOUND. HIT (CR)

The search string specified cannot be found in this program. Press **Enter** to enter another search string or **F4** to return to the Thoroughbred Basic Utilities Menu.

xxxxxxxx IS UNINITIALIZED OR BLANK

The requested program is empty, enter another program name.

*IPSD - Hexadecimal File Dump

Purpose

This utility produces a hexadecimal dump of a file to either the terminal or a printer. Records are dumped in both hex and ASCII. This utility also allows the user to look at all data in the file and/or program and at the Key Index Area (KIA) of SORT and DIRECT files.

Procedure

To run this utility from Thoroughbred Basic Console Mode, type:

RUN "*IPSD" and press **Enter**.

To select this utility from the Thoroughbred Basic Utilities Menu, type one of the following:

I and press **Enter**.

***I** and press **Enter**.

***IPSD** and press **Enter**.

Menu option # and press **Enter**.

The following message is displayed:

HARD COPY (Y/N):

Type **Y** and press **Ente**r to send the dump to a printer. Type **N** and press **Enter** to display the dump on the terminal. The system prompts:

SELECT PRINTER: xx xx (where xx is a configured printer)

Make your selection from the list of available printers displayed in the prompt. Printers displayed in background mode are currently being used by another task and, therefore, are unavailable. If the printer requested cannot be opened, the user is prompted to make another selection. If only one printer is configured this question is not asked.

DISK NAME OR NUMBER:
FILE NAME:

Type the name of the file to be dumped and press **Enter** or press **Enter** to exit the utility. If the specified file cannot be opened, the user is asked to enter another file name.

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The system generates different prompts according to whether the dump is to be displayed on the terminal or sent to a printer. The following section outlines the prompts generated and the information that should be entered:

Output to Terminal

RECORD NUMBER

Type the number of the record to be dumped and press **Enter**. Press **Enter** to dump the next record in sequence. Record numbers start with zero.

RECORD NUMBER/'KEY'/'KIA'/

For DIRECT files, enter KIA to dump the Key Index Area. Enter KEY if records are to be chosen by their Key values. Record numbers may be entered just as in the previous RECORD NUMBER prompt.

OFFSET (*256 BYTES)

If the record size is greater than 256 bytes, it cannot be displayed in one piece on the terminal. Enter the offset of the 256-byte block to be dumped. Press **Enter** to dump the next block in sequence. The first 256-byte block is block zero.

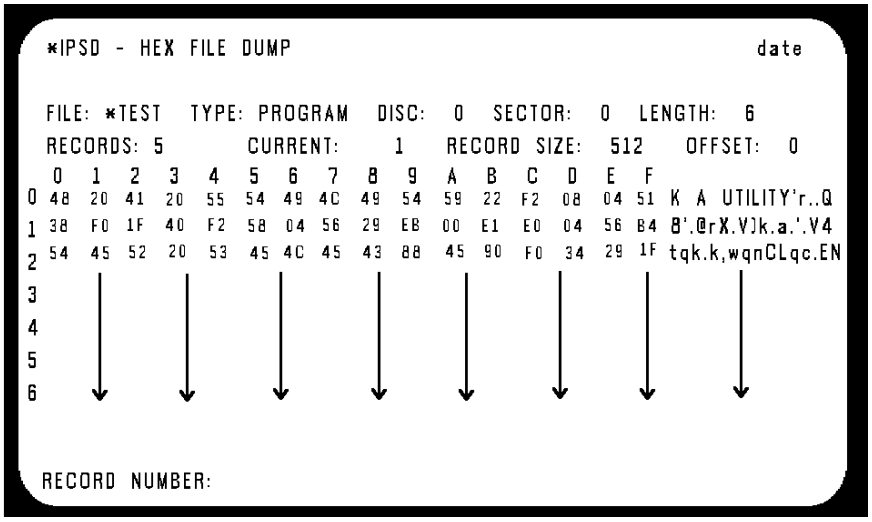
KEY:

Press the Key of the record that is to be dumped, **F2** for the next Key, or $nn to specify the hexadecimal Key value.

SECTOR

Type the Index of the sector (or block) within the Key Index Area that is to be dumped. Press **Enter** to dump the next sector in sequence. The first sector is zero.

A screen similar to the following is displayed:



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Output to Printer

RECORD (R),KIA (K)

For DIRECT files, type **R** and press **Enter** to dump the data area. Type **K** and press **Enter** to dump the Key Index Area.

FROM RECORD

Type the number of the first record to be dumped to the printer. Press **Enter** to set this prompt to zero.

TO RECORD

Type the number of the last record to be dumped to the printer. Press **Enter** to set this prompt to the last record in the file.

FROM SECTOR

Type the Index of the first sector of the KIA to be dumped to the printer. Press **Enter** to set this prompt to zero.

TO SECTOR

Type the Index of the last sector to be dumped. Press **Enter** to set this prompt to the highest numbered sector in the KIA.

Notes

Each record or sector is dumped in blocks of up to 256 bytes in a matrix of up to 16x16 hexadecimal characters. To the right of this matrix are the equivalent ASCII character strings. Non-printing characters are shown as periods.

Error Messages

ERROR xx HAS OCCURRED, CR TO RETRY

An unexpected error has occurred, probably I/O related.

KEY NOT FOUND IN FILE: xxxxxxxx

The specified Key is not in the file, enter another Key.

PRINTER IN USE

The requested printer is being used by another task. Select another.

PRINTER NOT READY

The requested printer is off-line (i.e., not turned on, out of paper, out of toner, etc.). You can correct the problem and try again, select another printer, or **F4** to exit the utility.

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*JPSD - Initialize Disc Environment

Purpose

This utility initializes the user's environment by locally enabling and disabling all configured disks according to the user's instructions.

Procedure

To run this utility from Thoroughbred Basic Console Mode, type:

RUN "*JPSD" and press **Enter**.

To select this utility from the Thoroughbred Basic Utilities Menu, type one of the following:

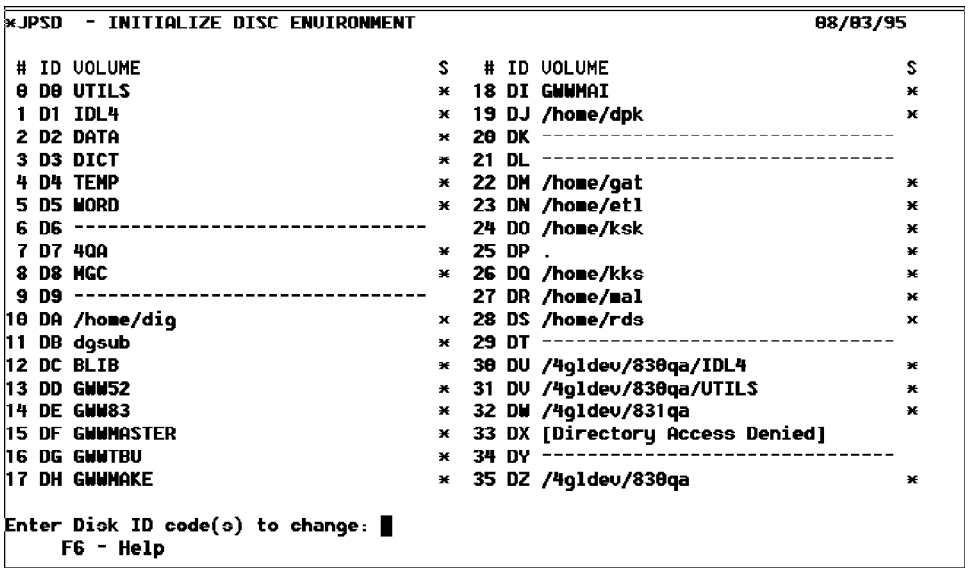
J and press **Enter**.

***J** and press **Enter.**

***JPSD** and press **Enter.**

Menu option # and press **Enter.**

A screen similar to the following will be displayed:



The following information is displayed:

is the disk number. Thoroughbred Basic directives can use the disk number. There can be up to 36 disk numbers.

ID is the disk name or disk ID, which is used to open directories.

The disk name is two characters in the **D***x* format, where *x* is a number from **0** through **9** or a letter from **A** through **Z**. The value of *x* is used to locally enable or disable disks.

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VOLUME is the directory name as specified within the host operating system.

A line of dashes indicates an invalid directory name.

The [Directory Access Denied] message indicates a directory that the user cannot access.

S is the disk status. There are two valid values:

A * (asterisk) indicates a disk that is locally enabled.

A blank space indicates a disk that is locally disabled.

To locally enable or disable disks you must enter a value for the following message:

Enter Disk ID code(s) to change:

Valid values are the second character of the ID field for each disk. If the maximum of 36 disks is specified, valid values are **0** through **9** and **A** through **Z**. To change disk status, type the second character of the disk ID and press the **Enter** key. You can specify more than one value at a time.

Examples

Use the sample screen on the preceding page as the model for all examples:

- To disable the D8 disk, type **8** and press the **Enter** key. The space character will be displayed in the **S** field.
- To disable the D0 and D1 disks type **01** or **10** and press the Enter key. The space character will be displayed in the **S** field.
- To disable disks DM through DS, type the **M** through **S** characters in any order and press the **Enter** key.

After making the changes in the above examples, the following sample screen would be displayed:

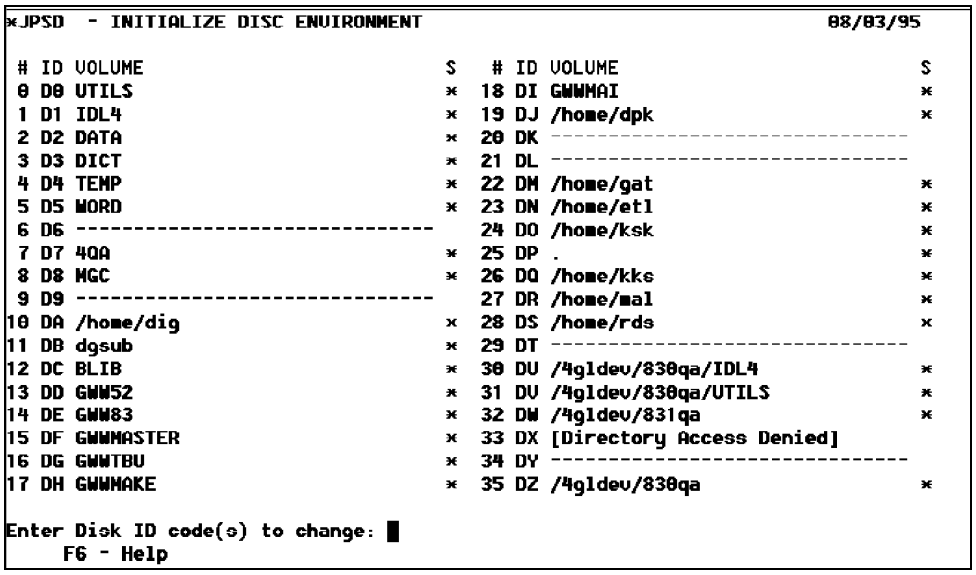
```
×JPSD  - INITIALIZE DISC ENVIRONMENT                              08/09/95

 # ID VOLUME                          S   # ID VOLUME                          S
 0 D0 UTILS                             18 DI GWWMAI                         *
 1 D1 IDL4                              19 DJ /home/dpk                      *
 2 D2 DATA                           *  20 DK --------------------------------
 3 D3 DICT                           *  21 DL --------------------------------
 4 D4 TEMP                           *  22 DM /home/gat
 5 D5 WORD                           *  23 DN /home/etl
 6 D6 --------------------------------  24 DO /home/ksk
 7 D7 4QA                            *  25 DP .
 8 D8 MGC                               26 DQ /home/kks
 9 D9 --------------------------------  27 DR /home/mal
10 DA /home/dig                      *  28 DS /home/rds
11 DB dgsub                          *  29 DT --------------------------------
12 DC BLIB                           *  30 DU /4gldev/830qa/IDL4             *
13 DD GWW52                          *  31 DV /4gldev/830qa/UTILS            *
14 DE GWW83                          *  32 DW /4gldev/831qa                  *
15 DF GWWMASTER                      *  33 DX [Directory Access Denied]
16 DG GWWTBU                         *  34 DY --------------------------------
17 DH GWWMAKE                        *  35 DZ /4gldev/830qa                  *

Enter Disk ID code(s) to change:
     F6 - Help
```


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To revert the status of all disks changed in the example above, type **8**, **0**, **1**, **M**, **N**, **O**, **P**, **Q**, **R**, and **S** in any order and press the **Enter** key. The following sample screen would be displayed:



Error Messages

A RESERVED OR DISABLED DISK CANNOT BE CHANGED

A Reserved or Disabled disk can only be changed using the ENABLE or RELEASE directive.

ERROR HAS OCCURRED AT STATEMENT 'xx' 'CR' TO RETRY

An unexpected error has occurred while trying to change a directory. Retry the procedure.

ERROR xx HAS OCCURRED CR TO CONT OR CTL-IV TO END

An unexpected error has occurred while trying to change a directory. Retry the procedure.

ONLY CONFIGURED DISKS MAY BE CHANGED

The disk you are trying to access is not configured.

ONLY EXISTING DIRECTORIES CAN CHANGE

The specified directory does not exist. Make sure that you have entered the correct name and retry.

*KPSD - List Programs

Purpose

This utility produces formatted program listings on the printer. This utility can also produce cross-reference listings of numeric variables, string variables, statement numbers, and available variable maps for one or more programs.

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Procedure

To run this utility from Thoroughbred Basic Console Mode, type:

RUN "*KPSD" and press **Enter**.

To select this utility from the Thoroughbred Basic Utilities Menu, type one of the following:

K and press **Enter**.

***K** and press **Enter**.

***KPSD** and press **Enter**.

Menu option # and press **Enter**.

The following message is displayed:

SELECT PRINTER: xx xx: (where: xx is a configured printer)

Make your selection from the list of available printers displayed in the prompt. Printers displayed in background mode are currently being used by another task and, therefore, are unavailable. If the printer requested cannot be opened, the user is prompted to make another selection. If only one printer is configured this question is not asked.

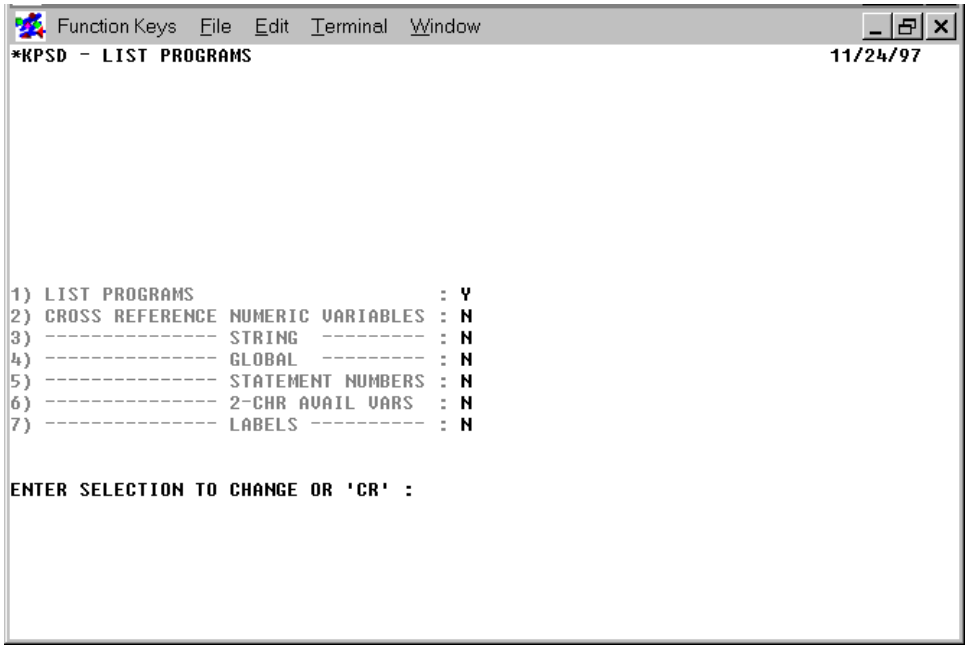
PAGE WIDTH (CR=80)

Type the maximum number of characters to be printed on one line. This value must be between 55 and 132. The default is 80. The width cannot exceed the maximum width specified for the printer in the IPL file. The system will respond with the following prompt:

MAXIMUM LINES PER PAGE (CR=60):

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Type the maximum number of lines to be printed on each page. This number must be between 30 and 256. The default is 60. The system responds with the following screen:



The following chart outlines the different information provided by each option above:

Option	Information Provided
Variable Cross Reference Listings	Lists each variable used followed by the numbers of all statements in which it is referenced
Global Listing	Lists each variable followed by the names of the programs in which it is used
Statement Number Cross Reference	Lists each statement number followed by the numbers of the statements that reference it
Available Variables Listing	Lists all valid, available Thoroughbred Basic variable names, including numeric arrays. Dashes (--) indicate a variable that has been used

Type the numbers of the selections you want to change (they may be stacked, i.e., typing **1234** and pressing **Enter** changes selections 1, 2, 3, and 4) and press **Enter**. If all selections are **N** or if selection 4 is **Y** and selections 2 and 3 are **N**, the program will not accept the information and returns to the "ENTER SELECTION PROMPT".

TITLE

Type a character string to appear at the top of each page of the output listing and press **Enter**. If the first line of the program(s) is a REM(ark) statement, pressing **Enter** prints the REM as the title. If the first line is not a REM statement, the title field will be blank.

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The system prompts:

DISC NAME OR NUMBER:

Type the name or number of the directory on which the program resides.

ENTER FILENAME OR MASK; (@) FOR ALL, (CR) TO END

Type up to 48 files names or masks and press **Enter**. Type **@** and press **Enter** to include all the files. If a specified file does not exist on the disk, or if a specified file does not match the file mask entered, the name is rejected. After entering each name or mask, press **Enter** once. After all names or masks have been entered, press **Enter** again to continue with the procedure. When the listing is complete, the system automatically returns the Thoroughbred Basic Utilities Menu.

Notes

This utility assumes that the programs are broken into the following sections and, therefore, prints appropriate headers:

####-####	IDENTIFICATION
####-####	INITIALIZATION
####-####	MAIN PROCESSING
####-####	SUBROUTINES
####-####	ERROR PROCESSING
####-####	TERMINATION

Note: The program sections described above are conventions applied to printing a program listing and do not impose any programming requirements on the user.

The start of the subroutine section may be advanced by including a REM with *S* as the first three characters. This will cause the subroutine heading to be shown with the range nnnnn-07999 where nnnnn is the statement number of the REM.

Error Messages

CAN'T DEFINE WORK FILE

The work file used in cross-referencing could not be created. The utility returns to the option selector.

ERROR 0 HAS OCCURRED, PRINTER PROBABLY OFF-LINE

The requested printer is off-line (i.e., not turned on, out of paper, out of toner, etc.). You can correct the problem and try again, select another printer, or press **F4** to exit.

LIMIT IS 48 NAMES/MASKS

The maximum number of filenames or masks has been entered (48). The utility now begins its directory search.

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MAXIMUM WIDTH FOR SELECTED PRINTER IS xxx (HIT CR)

The entered width exceeds the maximum width of the printer. Press the **Enter** key, and then enter a new value.

PRINTER IN USE

The requested printer is being used by another task; select another.

PRINTER NOT READY

The requested printer is off-line (i.e., not turned on, out of paper, out of toner, etc.). You can correct the problem and try again, select another printer, or press **F4** to exit.

*LPSD - Display Disk Directory

Purpose

This utility lists portions of a disk directory on the terminal, one screen at a time. The directory may be sorted alphabetically or by location on the disk. Portions of the directory may be selected by alphabetical range, location range, or by pattern-matching masks. The following information is provided for each file (where applicable):

- File name
- Record length
- File type
- Number of records
- Starting sector
- Key length

Procedure

To run this utility from Thoroughbred Basic Console Mode, type:

RUN "*LPSD" and press **Enter**.

To select this utility from the Thoroughbred Basic Utilities Menu, type one of the following:

L and press **Enter**.

***L** and press **Enter**

***LPSD** and press **Enter**

Menu option # and press **Enter**

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The following message is displayed:

DISC NAME OR NUMBER:

Type the name or number of the directory you wish to list. The system displays the name of the selected directory and the following prompt:

LOCATION, MASKS, OR NAME (L,M,N)

Type **L** and press **Enter** to sort the directory in sector order; type **M** and press **Enter** to sort the directory by masks; or type **N** and press **Enter** to sort in alphabetical order.

If location order is selected, no sort is necessary because the directory already exists in sector order. If masks are selected, refer to the ***BPSD** Utility for more information on masks. If name is selected, the system sorts the files alphabetically.

TYPES (I=IND, D=DIR, S=SRT, R=SER, P=PGM, M=MKEY, T=TEXT, C=CISAM)

Type up to 2 characters representing the types of files you want displayed and press **Enter** or press **Enter** to display all file types. If a character other than I(ndex), D(irect), S(ort), R(Serial), P(rogram), M(KEY), T(EXT), or C(ISAM) is entered, or if more than 2 characters are entered, you will be prompted again.

ENTER FILENAME OR MASK; (@) FOR ALL, (CR) TO END

Type up to 48 file names or masks and press **Enter** or type **@** and press **Enter** to list all the names in the directory. If a specified file does not exist on the disk, or if a file does not match the selected type, the name is rejected. After entering each name or mask, press **Enter** once. After you have entered all the names or masks, press **Enter** again to continue with the procedure. To exit the utility, press **F4**.

FROM NAME

Type the name of the first file to be displayed and press **Enter** or press **Enter** to set this parameter to the first name in alphabetical order.

TO NAME

Type the name of the last file to be displayed and press **Enter** or press **Enter** to set this parameter to the last name in alphabetical order.

After all the requested information has been supplied, the system sorts the file (if necessary) and prints the directory information. The following list explains the information provided in the printout.

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Heading	Explanation
NAME	Fourteen-character name
TYPE	File type (listed below): IND = INDEXED files SER = SERIAL files SRT = SORT files DIR = DIRECT files PGM = Program files SDR = System directory TXT = TEXT files MKY = MSORT files ISM = TISAM files DRX = Auto-expanding DIRECT files SRX = Auto-expanding SORT files
START SECTOR	Location of the beginning of the file on the disk
END SECTOR	Last sector used by the file
TOTAL	Number of sectors used by this file
KEY	For SORT and DIRECT files, the length of the key in bytes. For other file types, this field is **0**.
RECORDS	Number of logical records in the file. For PROGRAM files this field is **1**. For SORT files, it is the number of keys.
RECLEN or BYTES/RECORD	Record length in bytes. This field is 0 for **SORT** files.
IN USE	Number of records used. For programs, this is the actual length of the program in bytes.
Comments	The contents of the first REM statement in a program or **NONE** if the first statement is not a REM. If the file is a directory, **DIRECTORY** appears in this field. If the file is an object library, **OBJECT LIBRARY** appears in this field.

Notes

If the directory is printed in sector order, an entry consisting of *AVAILABLE* and starting, ending, and total sectors is printed for each unused block on the disk.

When the entries for the applicable prompts have been made, the screen displays the directory information. At the bottom of each screen, the following message is displayed:

HIT (CR) TO CONTINUE

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Press **Enter** to continue with the listing. When the listing is complete, the following prompt will be displayed at the bottom of the screen:

HIT (CR) FOR NEW LISTING

Press **Enter** to return to the LOCATION, MASKS, or NAME prompt. Select another way of listing the same directory or press **F3** to return to the DISC ID field. You may enter another disk directory to list, or press **F3** or **F4** to return to the Thoroughbred Basic Utilities Menu.

A name that is more than 14 characters long prints the first 13 characters, then the **>** character.

Error Messages

DISK nn NOT CONFIGURED

The disk number given is invalid or the disk does not have a Basic directory.

INVALID FILE NAME

The requested directory does not exist; enter another.

LIMIT IS 48 NAMES/MASKS

The maximum number of filenames or masks has been entered (48). The utility now begins its directory search.

'xxxxxxxx' NOT A DIRECTORY

The directory name entered is not a valid directory. Enter another name.

PERMISSION DENIED FOR DISK xxx

This utility could not read the specified disk.

*MPSD - Display Task Allocation

Purpose

This utility program displays the:

- Tasks running in each bank (including ghost tasks).
- The ADDR'd public programs in memory.
- The number of bytes available in each memory bank.

Procedure

To run this utility from Thoroughbred Basic Console Mode, type:

RUN "*MPSD" and press **Enter**.

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To select this utility from the Thoroughbred Basic Utilities Menu, type one of the following:

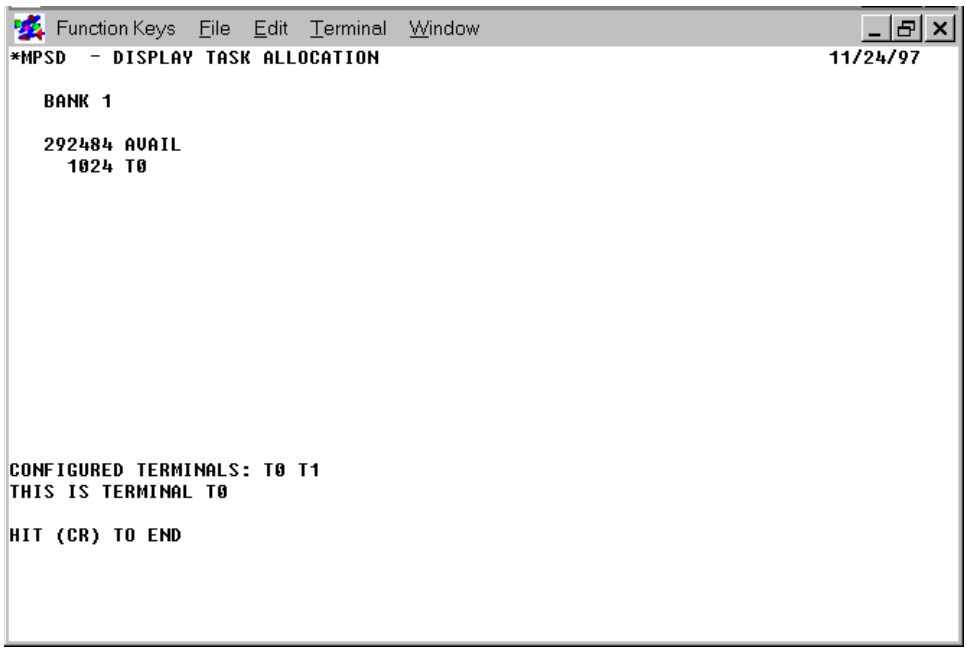
M and press **Enter**.

***M** and press **Enter**

***MPSD** and press **Enter**

Menu option # and press **Enter**

A screen similar to the following is displayed:



Press **Enter** to end the display of the task allocation. The system returns to the Thoroughbred Basic Utilities Menu.

*NPSD - Terminal Configurator

Purpose

This utility is used to define and configure terminal tables for the terminals on your system. The information provided in this section applies to all Thoroughbred Basic installations.

Note: Thoroughbred Basic requires that all terminals on the system have the ability to roll the screen up one line when data is entered on the last line of the screen (auto scroll).

Procedure

To run this utility from Thoroughbred Basic Console Mode, type:

RUN "*NPSD" and press **Enter**.

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To select this utility from the Thoroughbred Basic Utilities Menu, type one of the following:

N and press **Enter**.

***N** and press **Enter.**

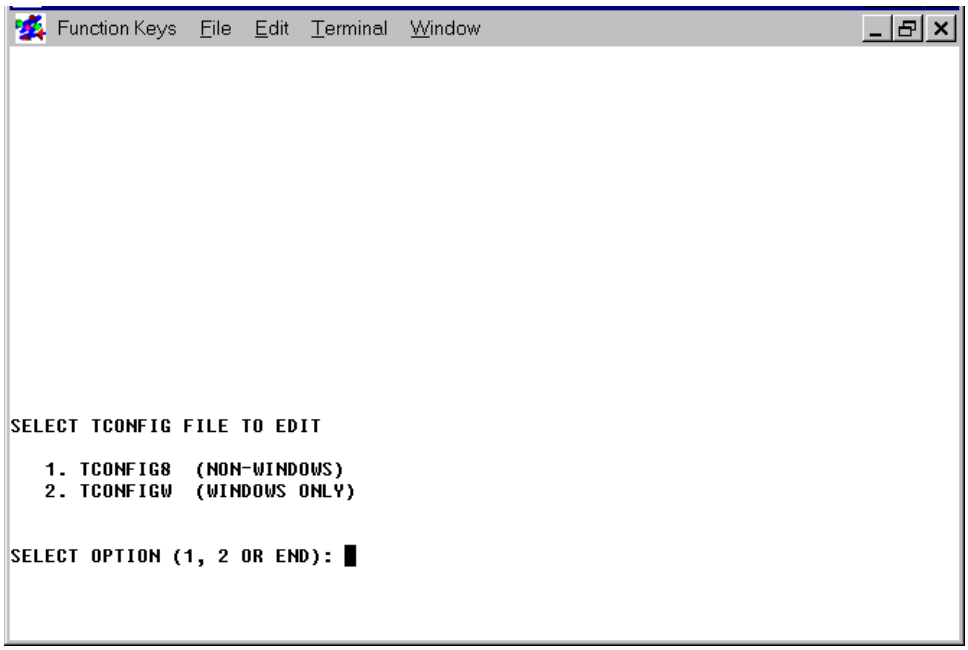
***NPSD** and press **Enter.**

Menu option # and press **Enter.**

The following prompt is displayed:

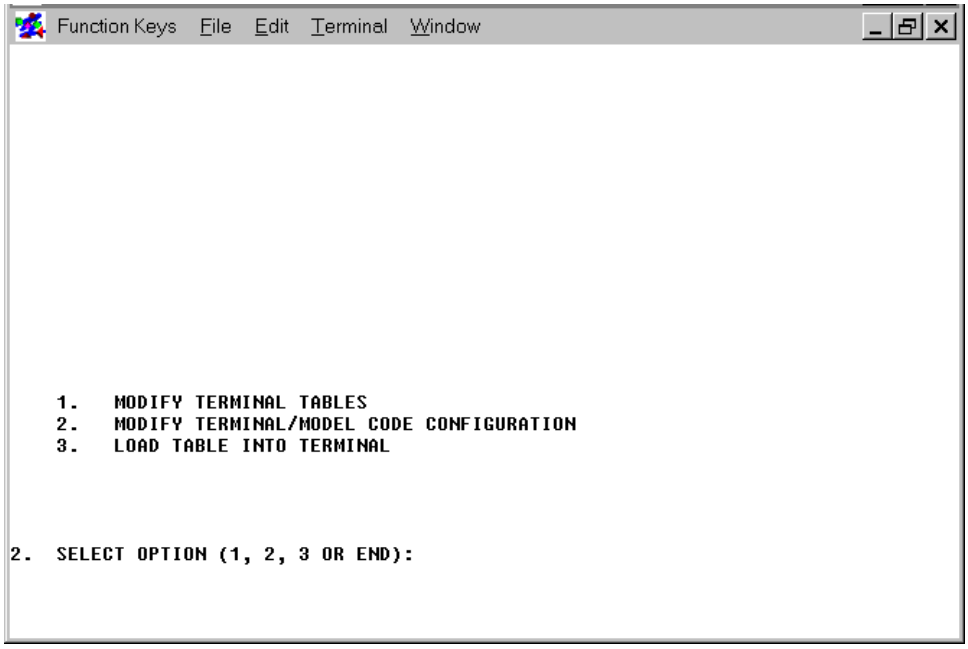
DEPRESS THE CARRIAGE RETURN KEY:

Press **Enter**. A screen similar to the following is displayed:



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Choose the appropriate option and press **Enter**. A screen similar to the following is displayed:



All prompts in the terminal configurator are numbered. Option 1 begins with prompt 3; option 2 with prompt 22. The following keywords are among the valid responses:

END Allows you to exit the configurator and save or cancel the modified or newly defined terminal table (Prompts 20 and 21). Once you begin to modify the mnemonics, do not use **END** until the modifications are complete.

BACKn Returns the procedure to the prompt number specified by n.

TABLE Causes the configurator to redisplay the terminal table list, or under option 2, the terminal/model code table. Beyond prompt 7 you have the option of saving the terminal table that is being created or modified before reprinting the terminal table list.

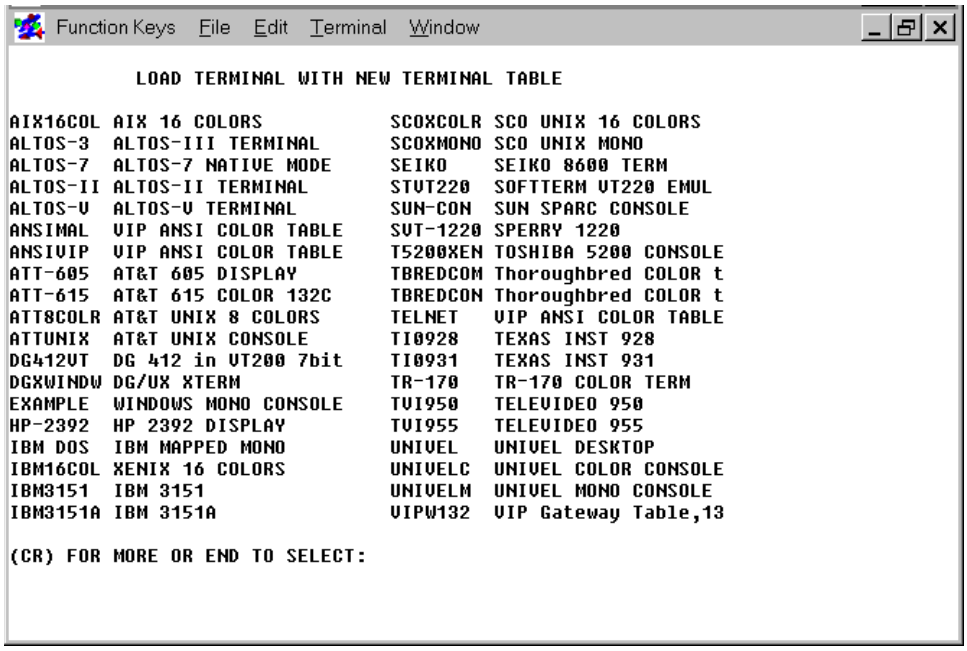
NULL Causes the configurator to generate a null entry for a given prompt.

<CR> A carriage return causes the configurator to retain the existing value for a given parameter.

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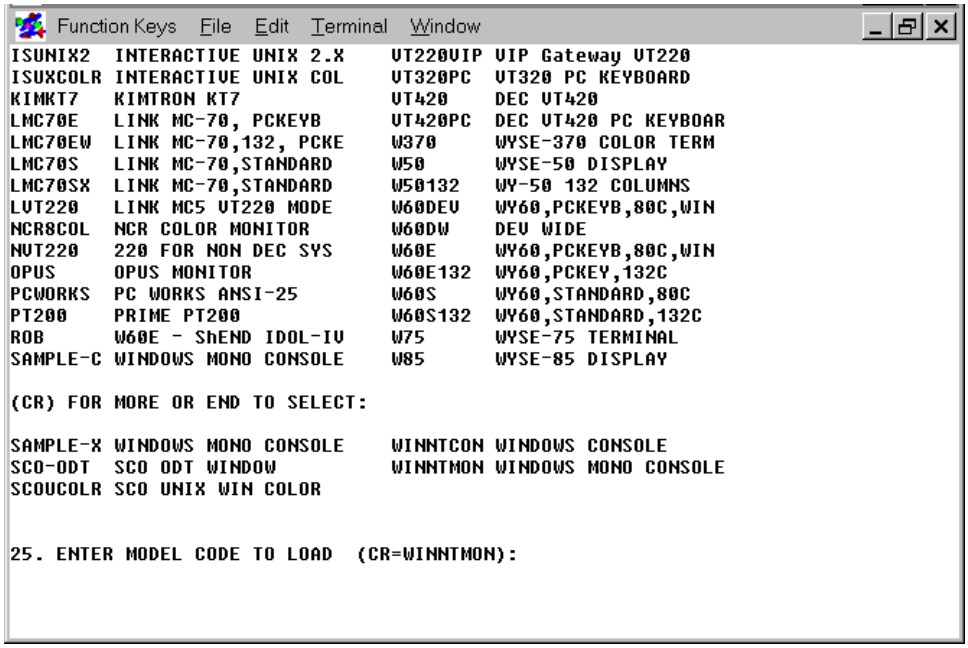
1. MODIFYING TERMINAL TABLES

Select option 1 on the terminal configurator screen. The system displays a list of predefined terminal types. The following is a sample screen and may vary from the list provided with your system:



(CR) FOR MORE OR END TO SELECT:

To see more selections, press the **Enter** key. To enter a selection, **END** and press the **Enter** key. The following sample screen may vary from the list provided with your system:



Each terminal table is identified by a model code. These model codes are displayed on the defined terminal table list screen along with the corresponding descriptions of the terminals.

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Note: The listed model code should match the model code entered in Option 2. In the sample screen above, the listed model code is **WINNTMON**.

Thoroughbred Basic is shipped with many terminal tables already configured. In most cases, one of these tables can be used, making it unnecessary to define a new table. Therefore, you should first check the defined terminal table list under option 1 to see if your terminal is listed. If not, follow the procedure described in the section entitled, Create a New Table.

Create a New Table

At prompt 3, select C to create a new terminal table. The system prompts you for a terminal table. Enter a new model code (from 1 to 8 characters in length) to identify the table. (If you enter a model code that already exists, the system displays an INVALID message.) The system allows you to base the new terminal table upon an existing table or to start from scratch:

5. ENTER BASE TERMINAL TABLE OR CARRIAGE RETURN:

To use an existing terminal table as the basis for the new one, enter the model code of the existing table. To create the table from scratch, press **Enter**.

The system then prompts for each value to be entered into the new table. These prompts are the same as those described in the section entitled Modify a Table.

Modify a Table

Note: The manual that you received with your terminal should provide detailed information on all terminal functions, codes, and escape sequences. You need to have the manual handy to respond to the prompts in this procedure.

At prompt 3, select **M** to modify an existing terminal table. After you enter the model code of an existing terminal table, the system displays a series of prompts and allows you to enter new values or press **Enter** to retain the existing values. The following information discusses each prompt and the information needed.

6. ENTER TERMINAL NAME (20 CHARACTERS MAX)

Type a new name and press **Enter** or press **Enter** to retain the previously defined terminal name.

7. ENTER TERMINAL BACKSPACE CODE (HH)

Type a hex value and press **Enter** or press **Enter** to use the default. Since most terminals use the hex value of 08 for backspace, the configurator uses the hex value of 08 as the default.

8. ENTER TERMINAL NULL CHARACTER CODE (HH)

Type a hex value and press **Enter** or press **Enter** to use the default. Since most terminals use the hex value of 00 for null, the configurator uses the hex value of 00 as the default.

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9. ENTER BASIC ESCAPE CODE (HH)

Type a hex code and press **Enter** or press **Enter** to use the default. Since most programmers use 1B as the escape code that Thoroughbred Basic recognizes, the configurator uses the hex value of 1B as a default. This should not be confused with prompt 10, which is the escape code that is transmitted to the terminal to invoke terminal special features.

10. ENTER TERMINAL ESCAPE CODE (HH)

Type a hex value and press **Enter** or press **Enter** to use the default. Since most terminals recognize the hex value of 1B for an escape, the configurator supplies the hex value of 1B as the default. This should not be confused with prompt 9, which refers to the escape code Thoroughbred Basic recognizes from a terminal.

This hex code is used in conjunction with prompt 11 to provide a keyboard entry for the escape code that will be transmitted to the terminal as part of the mnemonics (described later).

11. ENTER A CHARACTER THAT REPRESENTS AN ESCAPE (X)

Type one character and press **Enter** or press **Enter** to use the default. Since the definition of terminal mnemonics can require an escape code followed by some character(s), this character will be used to syntactically represent the escape code specified by prompt 10. Pressing **Enter** defaults to the character E.

12. ENTER CODE(S) THAT ARE TO BE IGNORED

Type one or more hex codes and press **Enter** or press **Enter** to use the default. Since some terminals transmit codes back to the CPU after the completion of certain terminal functions, it may be necessary to have Thoroughbred Basic ignore these codes. Pressing **Enter** indicates that no codes should be ignored.

For example, 0102FEFF indicates that the four hex codes 01, 02, FE, and FF should be ignored when these codes are transmitted from the terminal to Thoroughbred Basic. Take care when specifying these codes to ensure that valid keyboard character codes are not ignored.

13. ENTER LEADING BLANK REPLACEMENT CHARACTER (HH)

Type a hex code and press **Enter** or press **Enter** to use the default. Some terminals look for a special code in place of the first leading blank transmitted. If the code is not supplied, leading blanks may be lost.

The system then prompts for the following edit codes:

Left arrow	Line insert	Control P
Down arrow	Line delete	Page down
Up arrow	Line erase	Page up
Backspace	Tab	Screen up
Character delete	Back tab	Screen down
Character insert	Home	Boundary down
	Right arrow	Boundary up

34. ENTER THE NUMBER OF TERMINAL FUNCTION KEYS:

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Type a numeric value from 4 to 99 and press **Enter** or press **Enter** to use the default (4). After specifying the number of function keys available, the configurator prompts for the hex values that the terminal transmits when a function key is entered:

34.1 ENTER FUNCTION KEY 01 CODE
34.2 ENTER FUNCTION KEY 02 CODE
34.3 ENTER FUNCTION KEY 03 CODE
34.4 ENTER FUNCTION KEY 04 CODE
34.n ENTER FUNCTION KEY n CODE

Type the hex value that is transmitted from the terminal to the CPU for each function key and press **Enter**. The hex value can be one or more hex codes.

Examples: 01, 02, 03, 04, 0F, 01400D, 01410D, 01420D, 01430D, 014F0D.

Consult your terminal manual to determine whether one, two, or more hex digits are needed for each function key value.

It is important to note that hex values can be specified for terminals that do not have function keys. In this case, the codes recognized as function keys are also specified.

35. DOES TERMINAL HAVE CLEAR FOREGROUND (Y/N)?

Type **Y** and press **Enter** if the terminal has the "CF" (Clear Foreground) mnemonic; Type **N** and press **Enter** if the terminal does not. This means that Thoroughbred Basic must keep a bit map for data that is printed in the foreground so that the "CF" mnemonic can clear the foreground data using the bit map.

36. ENTER CURSOR CONTROL FORMAT MASK (APYLZ)

This parameter is used for cursor positioning functions in Thoroughbred Basic, for example:

PRINT @(10,15), "REPORT #1".

Examples: APL AALP AAAPYLZZ APL NULL

Cursor positioning functions are:

A Represents a leading control character.

P Represents a cursor position within a line value.

Y Represents a control character to follow the cursor control position value.

L Represents a cursor line value.

Z Represents a control character to follow the cursor control line value.

As shown in the examples, a mask must be entered that represents the format of the cursor control sequence. Once the mask is defined, the system prompts for the specific hex values to be used for each part of the mask. Prompts are issued in the following order: A's, P, Y's, L, Z's.

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Prompts are only issued for characters that are in the mask. More than one A, Y, or Z may be in the mask, indicating that more than one character is transmitted for each code. Multiple occurrences of the characters A, Y, and Z must be contiguous. That is, AALP is valid and ALPA is not. Both the L and P codes are required and can occur only once.

For example, the mask AALP would result in the following prompts (sample operator responses are shown):

36.1 VALUE FOR AA (HH): 1B01

36.2 STARTING VALUE FOR P (HH): 20

36.3 NUMBER OF CHARS PER LINE FOR P: 80

36.4 STARTING VALUE FOR L (HH): 20

36.5 NUMBER OF LINES FOR L: 24

In the example above the cursor control sequence consists of a hex 1B01, followed by the cursor position number with the starting value for position 0 (hex 20), followed by the cursor line number with the starting value for line 0 (hex 20).

Entering the mask AAAPYLZZ results in the following:

36.1 VALUE FOR AAA (HH): 1B0102

36.2 STARTING VALUE FOR P (HH): 00

36.3 NUMBER OF CHARS PER LINE FOR P: 80

36.4 VALUE FOR Y (HH): 3B

36.5 STARTING VALUE FOR L (HH): 20

36.6 NUMBER OF LINES FOR L: 24

36.7 VALUE FOR ZZ (HH): 6667

In the example above, the cursor control sequence consists of a hex 1B0102, followed by the cursor position number with the starting value for position 0 (hex 00), followed by a hex value 3B to terminate the line position, followed by the cursor line number with the starting value for line 0 (hex 00), followed by a hex value of 6667 to terminate the line value. This cursor control format is by far the most cumbersome. Fortunately, most terminals do not require this format; instead, most terminals follow the pattern AAPL.

A NULL mask can be used to disable the cursor positioning functions. In this case, any cursor positioning commands (**PRINT @. . .)** in Thoroughbred Basic will be ignored.

37. BINARY FORMAT FOR CURSOR POSITION AND LINE (Y/N)

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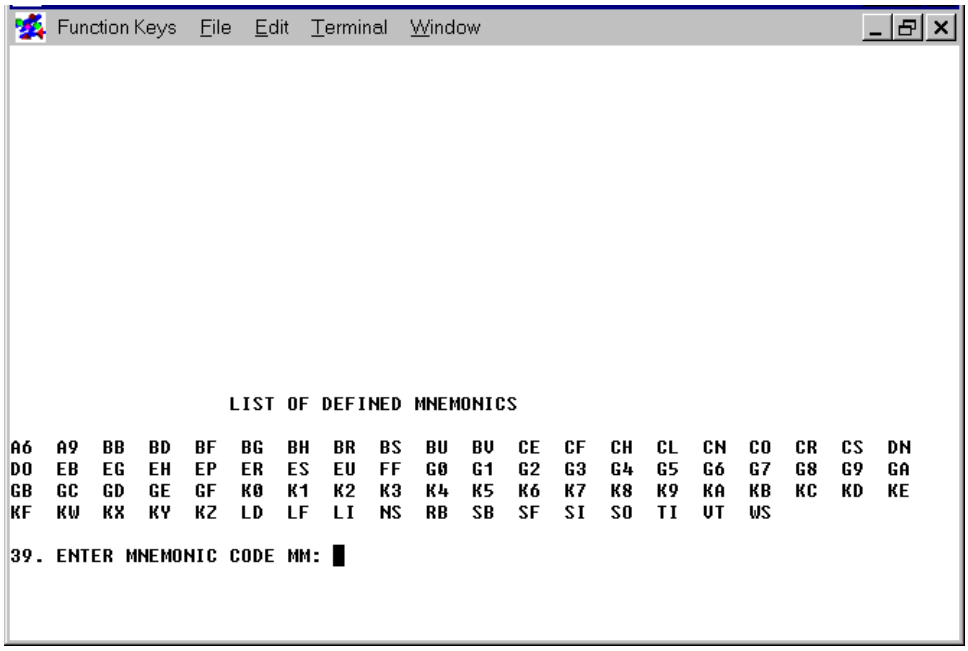
If **Y** is entered, the configurator expects a one-byte binary value for the cursor position and line values. The valid range for cursor position is based on the hex starting value specified for P plus the value specified for the number of characters per line. The valid range for line position is based on the hex starting value specified for L plus the number of lines. The starting value for P and L is the base value: zero-base, one-base, space-base (hex 20) or any other base that is required by the terminal.

If **N** is entered, the configurator assumes that the cursor position and line values are in ASCII format: one byte for each digit, cursor position, or cursor line number. Normally, if a terminal requires this format for the cursor position and line values, the terminal also requires the terminating characters (characters Y and Z in cursor mask) for position and line since the cursor position and line values are variable length, as shown in the above examples.

38. ENTER NUMBER OF NULLS FOR SCREEN ROLL (1 THROUGH 99)

Type a numeric value from **1** to **99** and press **Enter** or press **Enter** to use the default, null. In this case, null is interpreted by the system as a zero. Most terminals require a delay following terminal functions that cause the screen to roll. Thoroughbred Basic performs such delays by sending null characters after screen roll functions. This ensures that other valid data sent to the terminal after a screen roll will not be lost.

The system displays the List of Defined Mnemonics screen, similar to the following:



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39. ENTER MNEMONIC CODE MM

Type a new or existing mnemonic code and press **Enter**, the keyword **TABLE** and press **Enter**, or press **Enter**. Refer to the following table for information on these options:

Option	Response
A mnemonic code has previously been defined	You are given the option to modify the old values
A mnemonic code has not been previously defined	You are prompted to enter a new mnemonic definition
Type keyword TABLE and press **Enter**	The list of defined mnemonics is redisplayed
Press **Enter**	The configurator displays the next defined mnemonic and gives you the option of modifying the mnemonic

The following prompts are used to define or modify each mnemonic; descriptions of the available parameters follow each prompt:

39.1 ENTER CODE TO BE TRANSMITTED TO TERMINAL

Enter NULL, DELETE, a hex value, or a keyboard string value that will be transmitted to the terminal when the mnemonic is used.

The special code NULL indicates that no codes are transmitted, which causes a mnemonic to be ignored (i.e., FF - form feed). The special code DELETE indicates that the mnemonic code is to be deleted. The following are examples of valid input:

```
$1B31       KE1     NULL
$01         KEr     DELETE
$1BFE91     KE.0
```

The above examples illustrate that a $ or K must precede a character string. Strings that are preceded by a $ are assumed to be hex values. Strings preceded by a K are assumed to be keyboard characters. Note that in the above example, the E is assumed to be an escape code previously defined in prompt 11.

39.2 ENTER NUMBER OF NULLS TO TRANSMIT AFTER CODE

Type 0 to 99 and press **Enter** or press **Enter** to assume that no nulls are transmitted after the mnemonic code. Some terminals require a delay after certain terminal commands; transmitting nulls accomplishes this delay.

39.3 ENTER CURSOR UPDATE MODE

Enter one of the following codes to define the cursor position after a terminal function is executed:

0 This mnemonic does not affect the cursor position.

1 The cursor moves to the beginning of the next line or, if the cursor is on the last line, the screen rolls.

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2 The cursor moves down one line. If the function was executed on the last line of the screen, the screen rolls.

3 The cursor moves up one line. If the cursor is on the first line, this function does not move the cursor.

4 The cursor moves back one position. If the function was executed on the first character of a line, the cursor moves to the last character of the previous line. This function has no effect if executed on the first character of the first line.

5 The cursor moves to the beginning of the next line. If this function is executed on the last line of the screen, the cursor moves to the first character of the first line.

6 The cursor moves down one line. If this function is executed on the last line of the screen, the cursor moves to the first line.

7 The cursor moves up one line. If this function is executed on the first line on the screen, the cursor moves to the last line on the screen.

8 The cursor moves back one position. If the function is executed on the first character of a line, the cursor moves to the last character of the previous line. If the cursor is on the first character of the first line, the cursor moves to the last character of the last line.

9 The cursor moves to the first position of the current line.

A The cursor moves back one position. If the cursor is on the first position of a line, the cursor does not move.

B The cursor moves to the first character of the first line.

39.4 ENTER SPECIAL EDIT CODE

If the terminal does not have a clear foreground capability, specify one of the following codes for the mnemonic depending on the type of mnemonic being defined:

0 No Special Edit Required,
1 Clear Screen,
2 Clear Line,
3 Line Delete,
4 Line Insert
5 Roll Screen Up
6 Clear Foreground
7 Roll Screen Down

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39.5 ENTER FOREGROUND/BACKGROUND CODE

Type one of the following values and press **Enter** or press **Enter** to use the default, 0. These codes describe how the mnemonic affects the foreground/background status of the terminal:

0 Does not affect foreground/background Status (default).
1 Puts the terminal in foreground mode.
2 Puts the terminal in background mode.

40. SAVE NEW TERMINAL TABLE (Y/N)

If **N** is entered, the configurator does not save the newly created or modified terminal table. If **Y** is entered, the configurator saves the newly created or modified terminal table and displays the message:

GENERATING CONTROL TABLE XXXXX SUCCESSFULLY GENERATED
TERMINAL TABLE XXXXX PROPERLY SAVED

The system then provides the option to return to the Terminal Configurator screen to define or modify more tables:

41. CREATE OR MODIFY MORE TERMINAL TABLES (Y/N)

If **Y** is entered the system returns to the Terminal Configurator screen (prompt 2). If **N** is entered, the Terminal Configurator terminates and the Thoroughbred Basic Utilities Menu is displayed.

Delete a Table

At prompt 3, type **D** and press **Enter** to delete a terminal table. The system prompts for a terminal table. If you enter a nonexistent table, the system displays an INVALID message. Otherwise, the system prompts:

4.1 DELETE (Y/N)?

WARNING: When you enter **Y** to execute the delete, the table is immediately deleted from the system without providing you the opportunity to cancel the operation.

Type **Y** and press **Enter** to delete the table or Type **N** and press **Enter** to return to the "ENTER TERMINAL TABLE" prompt.

List Table on Printer

At prompt 3, type **L** and press **Enter** to print either the Defined Terminal Table List or a selected terminal table. The following prompt is displayed:

TABLE LISTING ONLY (Y/N)?

This refers to the Defined Terminal Table List displayed on the screen. Typing **Y** and pressing **Enter** allows you to select a printer to print the Defined Terminal Table List. Typing **N** and pressing **Enter** allows you to select a specific terminal table to print. If you attempt to print a nonexistent table, the system displays the "INVALID" message.

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2. MODIFY TERMINAL/MODEL CODE CONFIGURATION

Select option **2** on the Terminal Configurator screen. The system displays a list of terminal ID's and the model codes (Terminal Tables) associated with them.

The prompt displayed refers to a Thoroughbred Basic terminal ID. Valid ID's consist of the letter T followed by any character. If you are defining a new terminal ID (one not displayed), the system skips the next prompt. Otherwise, if you selected an existing terminal ID, the system responds with:

23. DELETE (Y/N)

If you type **Y** and press **Enter**, the entry for the specified terminal ID will be deleted and prompt 22 is displayed. If you type **N** and press **Enter**, the system allows you to change the model code associated with that terminal.

24. ENTER MODEL CODE (8 CHARACTERS MAX)

If the model code that you enter does not identify a defined terminal table, the following message is displayed:

*****MODEL CODE NOT DEFINED . . . ACCEPTED ANYWAY*****

The Terminal ID/model code association is entered in the table and the system redisplays prompt 22.

Enter **TABLE** to redisplay the list. Enter **END** or **BACK** to exit this selection. If you modified the Terminal ID/Model Code table, the system displays the following prompt and allows you to save or cancel the changes.

SAVE NEW TERMINAL/MODEL TABLE (Y/N)

A **Y** response saves the new table; an **N** response cancels it. The system will return to the Terminal Configurator menu.

Note: You must use option 3: LOAD TABLE INTO TERMINAL to activate the terminal table for the terminal specified in option 2.

3. LOAD TABLE INTO TERMINAL

Select option 3 on the Terminal Configurator screen. The system responds with:

25. ENTER MODEL CODE TO LOAD (CR=xxxxxxxx)

Enter a defined model code or one of the keywords. If the terminal is defined in the terminal ID/model code list, the x's in the prompt are replaced by the model code for the terminal. This model code is used as the default if you press **Enter**. If the terminal is not defined, the (CR=xxxxxxxx) is not displayed and a terminal model code must be entered.

When the terminal model code is entered, the new configuration is loaded into the terminal and the program redisplays prompt 1.

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Error Messages

CANNOT FIND OR CREATE 'TCONFIG' FILE
CONFIGURATOR TERMINATED ABNORMALLY

This message is displayed when the configurator cannot open or create the file TCONFIG. If this message is displayed, try to recreate "TCONFIG" from a backup or Thoroughbred Basic master file. When this error occurs, the system enters Thoroughbred Basic Console Mode automatically.

ENTER DISK NUMBER WHERE 'TCONFIG' CAN BE CREATED

The terminal tables are maintained in the DIRECT file TCONFIG. (TONFIG8 for Thoroughbred Basic version 8.) If this file cannot be opened by Thoroughbred Basic (i.e., TCONFIG has been deleted or is located on a disabled directory), the configurator attempts to create a new TCONFIG on the UTIL directory (D0). If UTIL cannot be accessed, the system prompts you for a disk directory from 0 to 9 where TCONFIG can be created.

******* INVALID *******

This message is displayed any time an invalid entry is made in response to a prompt. The message is displayed below the prompt and the configurator redisplays the prompt and waits for a valid response. When this message is displayed, refer to the explanation of the prompt where the error message occurred.

MESSAGE TABLE ERROR, CONFIGURATOR TERMINATED ABNORMALLY

This message is displayed when the system attempts to call a prompt from the message table but is unable to locate the message. This error might occur if modifications have been made to the configurator program. When this error occurs the system automatically returns to Thoroughbred Basic Console Mode.

*OPSD - Define Files

Purpose

This utility creates and allocates space for new programs and files.

Procedure

To run this utility from Thoroughbred Basic Console Mode, type:

RUN "*OPSD" and press **Enter**.

To select this utility from the Thoroughbred Basic Utilities Menu, type one of the following:

O and press **Enter**.
***O** and press **Enter**.
***OPSD** and press **Enter**.
Menu option # and press **Enter**.

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The system prompts:

ENTER FILE TYPE (I=IND, D=DIR, S=SRT, R=SER, P=PGM, T=TEXT)

Enter the type of file you are creating. The following list outlines the prompts generated by the system based on the file type selected:

KEY SIZE	SORT and DIRECT files only. Enter the length of the file Key. The range is 2 to 144.
RECORD SIZE	For INDEXED, SERIAL, and DIRECT files only. Enter the record length, in bytes.
NUMBER OF PAGES	For program files only. Enter the number of 256-byte pages needed.
NUMBER OF RECORDS	Enter the number of records needed. For SORT files, enter the number of keys needed. Enter 0 for autoexpanding DIRECT or SORT files.

When the applicable entries have been made, the system prompts:

DISC NAME/NUMBER

Type the number of the disk where the file will reside. The system prompts:

FILE NAME

Enter the name of the new file. If all specifications are valid, the system responds with the following message:

FILE XXXXXXXX DEFINED (HIT CR)

Press **Enter** once to return the "<F2M>ENTER FILE TYPE" prompt, twice to exit to the Thoroughbred Basic Utilities Menu.

DO YOU WANT TO NULL FILE (Y/N)?

This prompt only applies to index files only. Type **Y** and press **Enter** to fill the data area with null characters (00). This removes any old data from the file.

Error Messages

ERROR xx OCCURRED DEFINING FILE

This message indicates an unexpected error occurred while trying to define the file.

FILE ALREADY DEFINED

This message indicates that a file with this name already exists. Type a new file name.

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FILE ALREADY EXISTS ON DISK xx.

This message indicates a file with the same name already exists on the specified disk. Type another name.

ILLEGAL FILE NAME

This message indicates that the name given is longer than 8 characters or contains an invalid special character (the list of invalid special characters varies by system). Type another file name.

INVALID DISK NUMBER

This message indicates that the disk number specified either does not exist, is not configured, or is disabled.

INVALID KEY SIZE. RANGE 2 TO 144

This message indicates that a key size was entered out of the allowable range. Type a value between 2 and 144.

INVALID NUMBER OF PAGES. RANGE 1 TO 127

This message indicates that a value for number of pages was entered that is out of the allowable range. Type a value from 1 to 127.

INVALID NUMBER OF RECORDS. RANGE 1 TO 16777215

This message indicates that an invalid value was entered for the number of records. Type a value from 1 to 16777215.

INVALID PARAMETER IN DEFINE STATEMENT

This message indicates that the file was not created because an invalid entry was made and went undetected.

INVALID RECORD SIZE. RANGE 1 TO 32767

This message indicates that a record size was entered out of the allowable range. Type a value from 1 to 32767.

INVALID SECTOR. RANGE 0 TO XXXX (where: xxxx is highest sector on disk)

This message indicates the sector value entered is out of range. Type a valid sector number.

NOT ENOUGH ROOM ON DISK

This message indicates that the file could not be created because a block large enough to contain it could not be found on the requested disk. Delete unnecessary files to make room and try again.

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SECTORS xxxx TO yyyy NOT AVAILABLE

This message indicates the file could not be created because all or part of the requested sectors on the disk, have already been allocated to another file. Type another sector number.

*PPSD - Renumber Programs

Purpose

This utility renumbers program statements according to start, stop, and increment parameters supplied by the user. Programs may be renumbered in sections, but the order of statements may not be changed. All reference numbers in the program are correctly updated. For i8086-based systems, the valid range is 1 to 9999; in UNIX, 1 to 65534.

Procedure

To run this utility from Thoroughbred Basic Console Mode, type:

RUN "*PPSD" and press **Enter**.

To select this utility from the Thoroughbred Basic Utilities Menu, type one of the following:

P and press **Enter.**

***P** and press **Enter**.

***PPSD** and press **Enter**.

Menu option # and press **Enter**.

The following message is displayed:

DISC NAME OR NUMBER:

Type the name or number of the disk where the program is located and press **Enter**. The system prompts:

ENTER FILENAME OR MASK; (@) FOR ALL, (CR) TO END

Type up to 48 file names or masks and press **Enter** or type **@** and press **Enter**. The "at" sign (@) will include all the programs in the directory. If a specified program does not exist on the disk the name is rejected. After entering each name or mask, press **Enter** once. After you have entered all the names or masks, press **Enter** again to continue with the procedure. To exit the utility, press **F4**.

ENTER RENUMBER PARMS
START 0001 END

For the first block, the first statement number is 0001; for remaining blocks, it is one greater than the end of the previous block. Type the number of the last statement in this block and press **Enter** or press **Enter** to set this entry to the maximum number of statements.

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The system prompts:

AS

Type the new number for the first statement in the block and press **Enter** or press **Enter** to use the same statement number. The system prompts:

STEP

Type the increment to be used for this block and press **Enter**. Typing **A** and pressing **Enter** will set this entry to 0010. If 0 is entered this portion of the program will not be renumbered.

The utility prompts for renumber parameters until it has obtained the STEP option for the block ending at line 65534.

The system issues the message RENUMBERING along with the statement numbers being renumbered. When the procedure is complete, the system automatically returns to the DISC ID prompt.

Notes

If a program is uninitialized or blank, the message PROGRAM SKIPPED appears and the utility proceeds to the next program. While renumbering, the utility displays the name of the program it is working on and the old and new line numbers of the line it is currently renumbering.

Error Messages

CAN'T DEFINE WORK PROGRAM!! ERROR=xx

The utility could not define a work file due to space limitations. It attempts to proceed to the next program. This prompt is displayed if the directory is full or the permissions do not allow read/write access.

LIMIT IS 48 NAMES/MASKS

The maximum number of names or masks has been entered. The system begins to process the files.

LINE NUMBER ERROR!! NEW LINE LESS THAN PREVIOUS

Renumbering the program would have resulted in the first line of a block being numbered lower than the last line in a previous block. The utility continues with the next program.

LINE NUMBER OVERFLOW!! PROGRAM NOT RENUMBERED

Renumbering the program would result in a line number greater than 65534. The utility continues with the next program.

MUST BE NUMERIC

Type a valid statement number or numeric.

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MUST BE A POSITIVE INTEGER

Type a valid statement number or increment.

*PUB - Public Program Available Space

Purpose

The ***PUB** utility displays the names of public programs in memory, the amount of space occupied by each public program and the amount of available space.

Procedure

To run this utility from Thoroughbred Basic Console Mode type

CALL "*PUB" and press **Enter**.

The ***PUB** utility will display the following type of list:

```
99,528 bytes available
   *PUB        688
```

The ***PUB** utility displays the amount of space available in memory, the names of public programs in memory, and the amount of space occupied by each public program.

*QPSD - Program File String Search and Replace

Purpose

This utility searches programs for specified strings and, optionally, replaces the strings with user-specified strings. This utility can be used to convert programs line numbers from 4- to 5-digits or vise versa.

Procedure

To run this utility from Thoroughbred Basic Console Mode, type:

RUN "*QPSD" and press **Enter**.

To select this utility from the Thoroughbred Basic Utilities Menu, type one of the following:

Q and press **Enter**.

***Q** and press **Enter**.

***QPSD** and press **Enter**.

Menu option # and press **Enter**.

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The following message is displayed:

DISC NAME OR NUMBER:

Type the name or number of the disk on which the program(s) resides and press **Enter**. The system prompts:

ENTER FILENAME OR MASK; (@) FOR ALL, (CR) TO END

Type up to 48 file names or masks and press **Enter** or type **@** and press **Enter**. The "at" sign (@) includes all of the programs in the specified directory. If a specified program does not exist on the disk the name is rejected. After entering each name or mask, press **Enter** once. After you have entered all of the names or masks, press **Enter** again to continue with the procedure. To exit the utility, press **F4**.

CTL-1 TO SEARCH ONLY, CTL-2 TO REPLACE

Press **F1** to display occurrences of the string, without replacing it. Press **F2** to replace the string. If the string is to be replaced, the system responds with the following prompt:

VERIFY (Y/N)

Type **Y** and press **Enter** to have the utility ask before replacing strings, or type **N** and press **Enter** to have the utility automatically replace the strings. The system responds with the following prompt:

HARD COPY (Y/N)

Type **Y** and press **Enter** to have all statements containing a search string output to a printer or type **N** and press **Enter** to output to terminal only. If **Y** is entered, the system responds with the following prompt:

SELECT PRINTER: xx xx: (where: xx is a configured printer)

Make your printer selection from the list of available printers displayed in the prompt. Printers displayed in background mode are currently being used by another task and, therefore, are unavailable. If the printer requested cannot be opened, the user is prompted to make another selection. If only one printer is configured, this question is not asked. The system prompts:

START LINE

Type the number of the statement where the program is to begin the search and press **Enter** or press **Enter** to start the search at the first statement in the program. The system responds with the following prompt:

END LINE

Type the number of the statement where the utility should stop searching and press **Enter** or press **Enter** to search through to the last line in the program. The system prompts:

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SEARCH FOR

Type the search string and press **Enter**. Any number of strings will be accepted. Press **Enter** to begin the search. If the REPLACE option was selected, the system responds with the following prompt:

REPLACE WITH

Type the string to be substituted for the previously entered search string and press **Enter**. If the VERIFY option was chosen, the system responds with the following:

REPLACE WITH xxxxxxxx (Y/N)? (where: xxxxxxxx is the replacement string)

Type **Y** and press **Enter** to replace the search string with the replacement string. Type N and press **Enter** to bypass the replacement and continue with the search. The following message is displayed as each string is found:

CR TO CONTINUE, CTL-IV TO END

Press **Enter** to continue to search for the next occurrence of the string or press **F4** to end the search and replace function. The system redisplays the DISC ID prompt. Press **F4** to return to the Thoroughbred Basic Utilities Menu.

If the program size increases after the search and replace procedure, the system prompts:

xxxxxxxx EXPANDED TO #### BYTES AT SECTOR #### (HIT CR)

Error Messages

ERROR xx EXPANDING PROGRAM, NOT MODIFIED

The utility was unable to create a larger file to accommodate the expanded program. The utility continues its search with the next program.

INSUFFICIENT SPACE FOR WORK FILE ON DISK xx.

There is not enough space available on the disk to create a scratch file to copy the program into. The run is aborted. Erase any old or unnecessary files to make more room and try the procedure again.

SKIPPED DUE TO COMPILATION ERROR

When a replacement was made, the resulting statement contained a syntax error. The utility continues searching starting at the next statement.

*REL - Print Utilities Release Information

Purpose

This utility produces a screen that contains the release date, operating system version, and serial number of the Thoroughbred Basic Utilities.

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Procedure

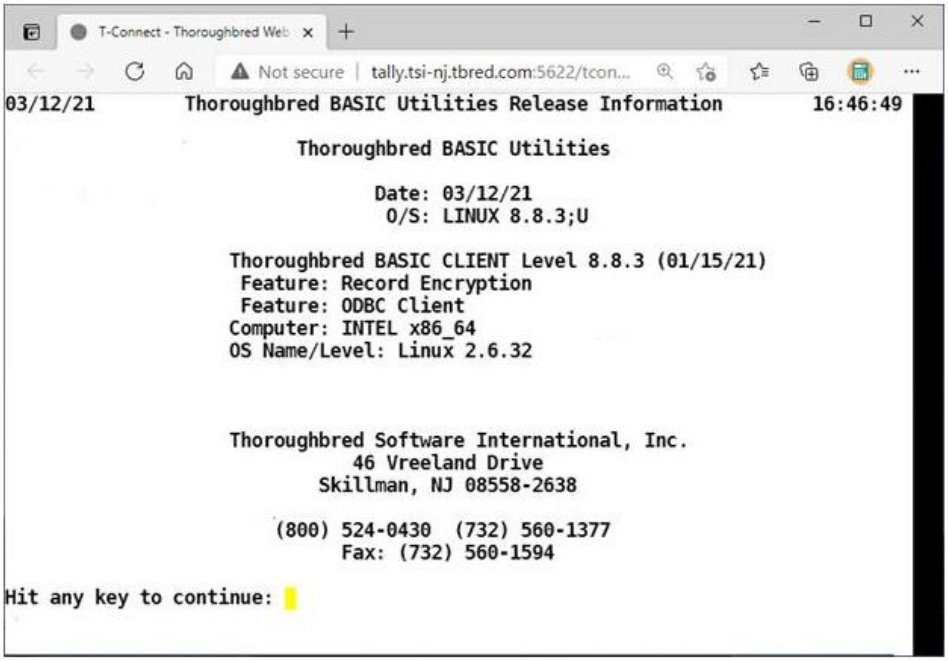
To run this utility from Thoroughbred Basic Console Mode, type:

RUN "*REL" and press **Enter**.

To select this utility from the Thoroughbred Basic Utilities Menu, type:

***REL** and press **Enter**.

A screen similar to the following is displayed:



*RPSD - Object Library File Maintenance

Purpose

This utility reads and places Thoroughbred Basic programs into an object library. Thoroughbred Basic requires Dictionary-IV be loaded to run this utility.

Procedure

To run this utility from Thoroughbred Basic Console Mode, type:

RUN "*RPSD" and press **Enter**.

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To select this utility from the Thoroughbred Basic Utilities Menu, type one of the following:

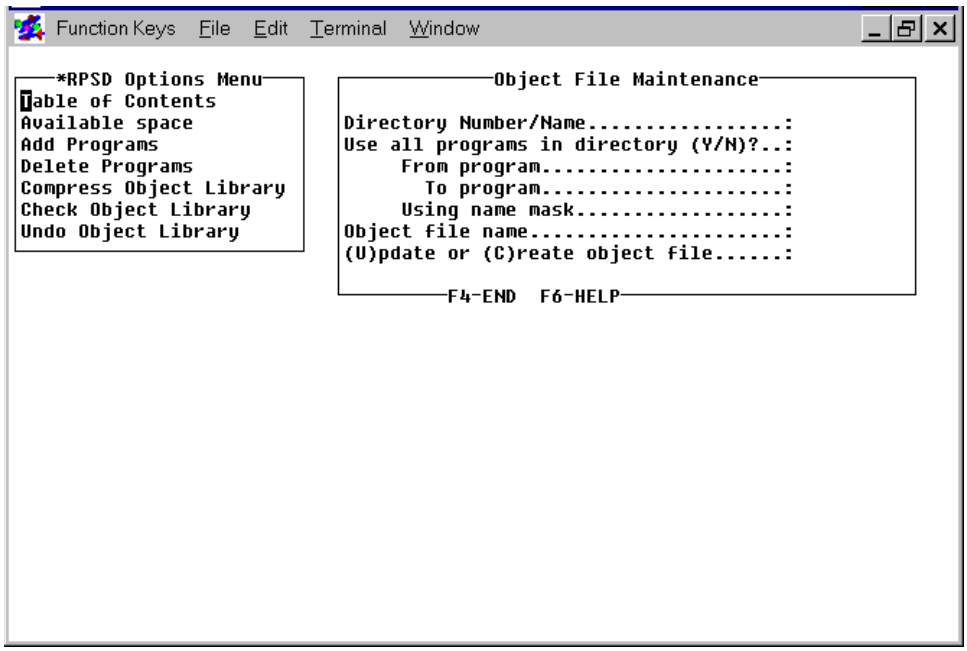
R and press **Enter**.

***R** and press **Enter**.

***RPSD** and press **Enter**

Menu option # and press **Enter**

The following screen will be displayed:



The screen contains two windows. You must select an option from the *RPSD Options Menu and enter the required information in the Object File Maintenance window.

The *RPSD Options Menu contains the following selections:

- **Table of Contents** lists the program directory of a specified object library.
- **Available Space** lists the available space in a specified object library.
- **Add Programs** enables you to add programs to an existing object library or create a new object library. It adds programs from a specified directory using an optional name range or mask.
- **Delete Programs** deletes programs from a specified object library using an optional name range or mask.
- **Compress Object Library** compresses a specified object library. All available space is moved to the end of the library.
- **Check Object Library** checks the integrity of a specified object library.

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- **Undo Object Library** unpacks the programs from a specified object library into a specified directory using an optional name range or mask.

The Object File Maintenance window contains the following selections:

- **Directory Number/Name** is used to specify the number or the name of a directory:

  When you use the **Add Programs** function it specifies the directory from which Thoroughbred Basic programs are read and placed into an object library.

  When you use the **Undo Object Library** function it specifies the number or name of the directory where programs will be saved after they are removed from the object library.

- **Use all programs in directory (Y/N)?** specifies whether all the programs in a directory will be placed in the object library:

  Y specifies that all of the programs in the selected directory will be placed in the specified object library. For the Undo Object Library function, all programs from the specified object library will be placed in the specified directory.

  N specifies that programs from the specified directory will be placed in the object library using the subsequent **From program** and **To program** values or the **Using name mask** value.

- **From program** specifies the beginning of a range of values. A valid value is the name of the first program to be included in the object library. You can press the **Enter** key to specify the first program in the directory.

  For the **Add Programs** function, if the programs already exist in the object library, they will be replaced by the programs from the specified directory.

  For the **Undo Object Library** function, if the programs already exist in the specified directory, they will be replaced by the programs from the specified object library.

- **To program** specifies the end of a range of values. A valid value is the name of the last program to be included in the object library. You can press the **Enter** key to specify the first program in the directory.

  For the **Add Programs** function, if the programs already exist in the object library, they will be replaced by the program from the specified directory.

  For the **Undo Object Library** function, if the programs already exist in the specified directory, they will be replaced by the programs from the specified object library.

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- **Using name mask** specifies a mask, which enables you to select a group of files without specifying individual names. Valid values are alphanumeric characters and question marks, which match characters in the same position as the question mark.

  Examples:

  ABC??? matches file names that begin with **ABC**.

  12??ab matches file names that begin with **12** and end with **ab**.

  To select the files named **AAA123**, **AAA456**, **AAArty**, **AAABCD**, and **AAAQWE**, you can specify the **AAA???** mask.

  To select the files named **12TT34**, **RTTTTT**, **TTTT**, **aaTT**, **1TTT23**, you can specify the **??TT??** mask.

- **Object file name** is the name of an object library into which the selected programs will be placed or from which selected programs will be removed. Valid values are up to 8 characters long. You can specify any combination of letter, numbers, or other characters except for the space character, ?, /, \, *, [,], or @.

  For the **Add Programs** function, if the specified object library exists, the system automatically puts a **U** in the **(U)pdate or (C)reate new object file** field. If the specified object library does not exist, the system puts a **C** in the **(U)pdate or (C)reate new object file** field.

- **(U)pdate or (C)reate new object file** specifies whether an object library will be created or updated. There are two valid values:

  C specifies that the object file will be created. If the object library exists and you use this object, the object library will be erased, then recreated. The selected programs will then be placed in the object library.

  U specifies that the object library will be updated with the programs from the specified directory.

Error Messages

DIRECTORY SPECIFIED NOT VALID, RETURN TO CONTINUE.

The directory you selected is not valid. Press **Enter** and try again.

VALUE ENTERED IS NOT ALLOWED, RETURN TO CONTINUE.

Valid entries include U and C. Press **Enter** and type either **U** or **C** and press **Enter**.

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*SPSD - Transfer Programs/Files

Purpose

This utility copies groups of files and/or programs from one disk to another.

Procedure

To run this utility from the Thoroughbred Basic Console Mode, type:

RUN "*SPSD" and press **Enter**.

To select this utility from the Thoroughbred Basic Utilities Menu, type one of the following:

S and press **Enter**.

***S** and press **Enter**.

***SPSD** and press **Enter**.

Menu option # and press **Enter**.

The system prompts:

FROM DISC #

Type the name or number of the disk where the files are currently located and press **Enter**. The system prompts:

TO DISC #

Type the number of the disk to which the files are to be copied, and press **Enter**. The system prompts:

TYPE: PROGRAMS (P), FILES (F), OR ALL (A)

Type **P** and press **Enter** to copy program files only, type **F** and press **Enter** to copy data files only, or type **A** and press **Enter** to copy all the files. The system prompts:

ASK (A), REPLACE (R) OR SKIP (S) EXISTING FILES

If a file with the same name as the one being copied already exists on the destination disk, type **R** and press **Enter** to automatically replace it, type **S** and press **Enter** to automatically skip it, or type **A** and press **Enter** to have the system ask if it should be replaced before taking any action.

REMOVE FILES FROM SOURCE DISC AFTER COPY (Y/N CR=N):

Type **Y** and press **Enter** to move the file from the source to the destination disk. Type **N** and press **Enter,** or press **Enter** to copy the file while retaining the original copy on the source disk. The system prompts:

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ENTER FILE NAME OR MASK; (@) FOR ALL, (CR) TO END

Type up to 48 file names or masks and press **Enter** or type **@** and press **Enter** to list all the names in the directory. If a specified file does not exist on the disk, or if a file does not match the selected type, the name is rejected. After entering each name or mask, press **Enter** once. After you have entered all the names or masks, press **Enter** again to continue with the procedure. To exit the utility, press **F4**. When the system has completed the transfer of files, the following prompt appears:

nn FILES TRANSFERRED, HIT (CR) TO CONTINUE

If the ask option was selected, the following message is displayed when the system encounters a duplicate filename. Press **Enter** to write over the existing file or press **F2** to keep the existing file.

xxxxxxxx ALREADY EXISTS ON DISC #. CR TO REPLACE, CTL2 TO SKIP.

Press **Enter** to move another group of files or press **F4** to exit the utility.

Notes

This utility transfers files by creating a file on the destination disk with all the characteristics of the source file and copying from the source file into the new file. It then disables the source disk and renames the work file.

Error Messages

ERROR xx HAS OCCURRED, (CR) TO RETRY

An unexpected error has occurred, probably I/O related.

xxxxxxxx CAN'T CREATE COPY, NOT MOVED

The utility could not create the file on the destination disk. It proceeds to the next file. Check the permissions to verify that you are allowed to read/write on the source and destination disks.

xxxxxxxx CAN'T BE OPENED, NOT MOVED

The utility could not open the specified file and proceeds to copy the next file. Check to see that the file is not locked and verify that the permissions are set to allow you to read and write.

TESTTERM - Test Terminal Tables

Purpose

The **TESTTERM** utility enables you to test the settings specified for your terminal. You will be able to determine whether you need to modify the terminal table specified for your terminal. If terminal settings are invalid you can use the ***NPSD** or **8NPSD** utility to change your terminal table.

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Procedure

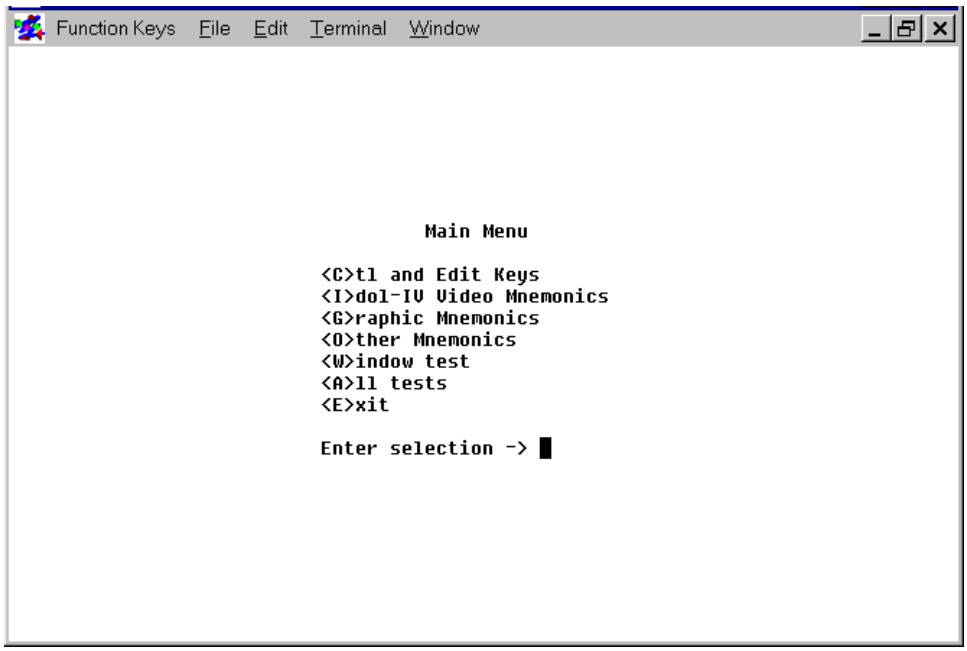
To run this utility from Thoroughbred Basic Console Mode type:

RUN "TESTTERM" and press **Enter**.

To run this utility from the Thoroughbred Basic Utilities Menu type:

TESTTERM and press **Enter**.

The **TESTTERM** utility begins with the TESTTERM Main Menu:



C is short for control and edit keys. Use this value to test specifications for function keys, arrow keys, delete keys, insert keys, and so on.

I is short for Dictionary-IV video mnemonics. Use this value to test specifications for text and cursor attributes.

G is short for other mnemonics. Use this value to test specifications for the graphics characters that enable you to create boxes, tables, and other visual displays. For more information on mnemonics please refer to the Thoroughbred Basic Customization and Tuning Guide.

O is short for other mnemonics. Use this value to test specifications for a wide variety of terminal mnemonics. For more information on mnemonics please refer to the Thoroughbred Basic Customization and Tuning Guide.

W is short for Thoroughbred Basic Windows tests. Use this value to test specifications for Thoroughbred Basic Windows.

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A is short for all tests. Use this value to test all of the terminal specifications. This value comprises all the values listed above. After the tests are done, you can print a summary report, which lists all terminal specifications.

E is short for exit. Use this value to leave from the **TESTTERM** utility and return to the Thoroughbred Basic Utilities Menu.

Type one of the values above and press Enter. If you find any invalid specifications, please refer to the description of the *NPSD or 8NPSD utility for information on how to modify your terminal table.

*TPSD - File Transfer and Expand

Purpose

This utility copies any program or file and allows you to make changes to any of the following at that time:

- Disk
- Sector
- Key size
- Record size
- Number of records
- File name

Procedure

To run this utility from Thoroughbred Basic Console Mode, type:

RUN "*TPSD" and press **Enter**.

To select this utility from the Thoroughbred Basic Utilities Menu, type one of the following:

T and press **Enter**.

***T** and press **Enter**.

***TPSD** and press **Enter**.

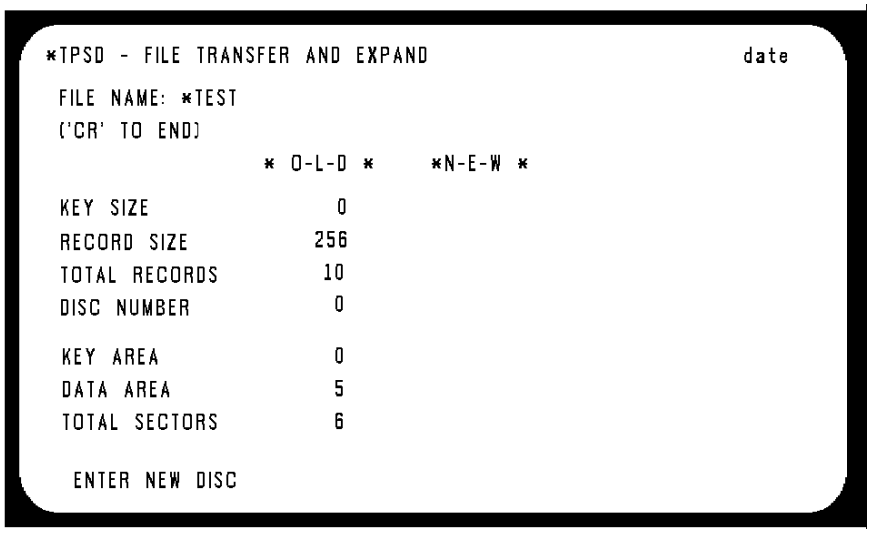
Menu option # and press **Enter**.

The system prompts:

FILE NAME:
(<CR> TO END)

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Type the name of the file or program to be modified and press **Enter** or press **Enter** to exit the utility. When a name is entered, the system calls up a screen listing the file or program information. The following is a sample file and screen:



The following list outlines the prompts generated by the system for this utility:

ENTER NEW DISC

Type the number of the disk to copy the file to and press **Enter** or press **Enter** to keep the file on the same disk.

ENTER NEW KEY LENGTH

For SORT and DIRECT files, type the new key length in bytes and press **Enter** or press **Enter** to use the same key size. The valid range is 2 to 144 bytes.

ENTER NEW RECORD SIZE

Type a new record size and press **Enter** or press **Enter** to use the same record size.

ENTER TOTAL RECORDS REQUIRED

Type the number of records desired, and press **Enter** or press **Enter** to use the same number. For programs enter the number of 256-byte pages needed; for SORT files, enter the number of keys.

To convert the file to an auto-expanding file, enter the value **0**. To convert an auto-expanding SORT or DIRECT file to a static file, enter a value greater than 0.

NEW NAME OR (CR) TO REPLACE

Type a new file name and press **Enter** or press **Enter** to use the same name.

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After all the information has been entered, press **Enter**. The system begins the file transfer. After the system has completed the transfer, one of the following messages is displayed:

xxxxxxxx HAS BEEN REPLACED (HIT CR) (where: xxxxxxxx is a filename)

or

xxxxxxxx HAS BEEN CREATED (HIT CR) (where: xxxxxxxx is a filename)

Press **Enter** and the system redisplays the FILE NAME prompt. Enter another file name or press **Enter** to exit the utility.

Error Messages

ERROR xx HAS OCCURRED. <CR> TO CONTINUE OR CTL-IV TO END

An unexpected error has occurred, probably I/O related.

FILE BEING USED BY ANOTHER TASK, CR TO CONTINUE OR CTL4 TO END

Another task has opened the specified file.

NO ROOM ON DISK OR SPECIFIED SECTOR UNAVAILABLE

The utility cannot create the file and the execution is aborted. Enter another sector or make room on the disk by deleting unnecessary files.

WARNING: FILE MAY BE TRUNCATED

For index files, this is displayed if the number of records desired is less than the current file size. For SORT and DIRECT files, it is displayed if the number of records requested is less than the number of keys in use. Press **Enter** to continue or press **F3** to enter a new number of records.

WARNING: KEYS WILL BE TRUNCATED

If the new key size is smaller than the old key size, this message is displayed. Press **Enter** to continue or press **F3** to enter a new key size.

WARNING: PROGRAMS MAY BE SHORTENED

The number of pages requested is not large enough to contain the program. Type a larger number.

xxxxxxxx ALREADY EXISTS ON DISK xx

The utility cannot create the file using this name, enter another name.

xxxxxxxx, TRUNCATION RESULTED IN DUPLICATE KEY CONTINUE (Y/N)?

Shortening a key to the new length resulted in it becoming the same as another key. Type **Y** and press **Enter** to proceed to the next record or type **N** and press **Enter** to stop copying the file.

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CONFIRM: CONVERT FROM AN AUTOEXPANDING FILE (Y/N)?

A selected file is in autoexpanding format. To convert the file to a fixed-size file, type **Y** and press the **Enter** key.

CONFIRM: CONVERT TO AN AUTOEXPANDING FILE (Y/N)?

The selected file will be converted to autoexpanding format. To make the conversion, type **Y** and press the **Enter** key.

*XPSD - Channel Cross-Reference

Purpose

This utility produces a cross-reference listing of all I/O statements that reference an I/O channel. A listing containing the following is sent to the printer:

- Channel number
- Program name
- Directive
- Line number
- The name of the file being opened (for OPEN statements)

In addition, the utility has the capability of cross-referencing all programs that run as overlays to the requested program.

Procedure

To run this utility from Thoroughbred Basic Console Mode, type:

RUN "*XPSD" and press **Enter**.

To select this utility from the Thoroughbred Basic Utilities Menu, type one of the following:

X and press **Enter**.

***X** and press **Enter**.

***XPSD** and press **Enter**.

Menu option # and press **Enter**.

The system prompts:

SELECT PRINTER xx xx (where: xx is a configured printer.)

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Make your selection from the list of available printers displayed in the prompt. Printers displayed in background mode are currently being used by another task and, therefore, are unavailable. If the requested printer cannot be opened, the user is prompted to make another selection. If only one printer is configured, this prompt is not displayed.

DISK NAME OR NUMBER

Type the name or number of a configured, enabled disk and press **Enter**. If the specified disk cannot be opened, the user is asked to supply another disk name or number.

ENTER FILE NAME OR MASK; (@) FOR ALL, (CR) TO END

Type up to 48 file names or masks and press **Enter**. Type **@** and press **Enter** to copy all of the names in the directory into the SORT file. If a specified file does not exist on the disk, or if a specified file does not match the file type selected, the name is rejected. After entering each name or mask, press **Enter** once. After you have entered all the names or masks, press **Enter** again to continue with the procedure. Press **F4** to end the utility program without building the SORT file (see notes on masks under the ***BPSD** Utility).

CROSS REFERENCE CALLED PROGRAMS (Y/N)

Type **Y** and press **Enter** to cross reference programs called as overlays to the program being processed. Type **N** and press **Enter** to cross-reference only the requested program.

Notes

Directives with variables as channel numbers appear after explicitly specified channel numbers.

All **RUN** statements contained in the program appear at the end of the listing.

For **RUN** and **OPEN** statements, the name of the file being opened or run appears on the listing; if the name is contained in a variable, the word **VARIABLE** appears.

Error Messages

ERROR xx DEFINING WORK FILE

The utility program was unable to create a SORT file. The run is aborted. This message is displayed if the directory is full or permission does not allow you to read/write.

ERROR xx HAS OCCURRED, CR TO RETRY

An unexpected error has occurred, probably I/O related. Retry the procedure.

LIMIT IS 48 NAMES/MASKS

You have entered the maximum number of filenames and masks. The utility begins to process.

PRINTER IN USE

The requested printer is being used by another task; select another.

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PRINTER NOT READY

The requested printer is off-line (i.e., not turned on, out of paper, out of toner, etc.). You can correct the problem, select another printer, or press **F4** to exit to the Thoroughbred Basic Utilities Menu.

xxxxxxxx IS INITIALIZED OR BLANK

The specified program is empty. The utility proceeds to the next program.

xxxxxxxx WAS REFERENCED IN A RUN STATEMENT BUT DOES NOT EXIST

The utility could not locate a program that was called as an overlay. It proceeds to cross reference the next program.

xxxxxxxx WAS REFERENCED IN A RUN STATEMENT BUT IS NOT A PROGRAM

The utility opened a file that was named in a RUN statement and found that it was not a program. The process continues with the next program.

xxxxxxxx ENCRYPTED PROGRAM

The program is encrypted.

AEDPUB - Channel Cross-Reference

Purpose

This utility performs a sanity test on the key block structure for Auto-expanding key files. This utility will identify files with potential key block and deleted key block problems (ERR=7). This is a public program that you call passing in the file name to analyze.

Procedure

CALL "AEDPUB", MSG$[ALL]

Where:

```
MSG$[0] - Result:
             "." if successful completion without error
             message text if an error
MSG$[1] - File name to check, prompt if empty
MSG$[2] - Location of key in records, "0" = don't check
MSG$[3] - "Y" = Check allocation, default = "N"
MSG$[4] - "Y" = Show progress, default = "N"
MSG$[5] - "Y" = Show summary, default = "N"
```


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3. Thoroughbred Basic Conversion Utilities

The following sections contain descriptions of Thoroughbred Basic Conversion Utilities.

*CNVT86 - Convert Level 6 DIRECT and SORT Files

Purpose

The utility is used to convert Level 6 DIRECT and SORT files to Level 7. You must run this utility when:

- Upgrading files generated on a Level 6 system that does not use the Motorola chip. (This does not apply to files moved by Thoroughbred **FILEMOVE**, or an equivalent program, which rebuilds the files on a record-by-record basis.)

- Error 7 conditions occur for various other reasons (e.g., power failure, killed processes, etc.)

This program changes the format of Level 6 Thoroughbred Basic files so that Level 7 can read them. If Level 6 DIRECT or SORT files are opened under Level 7 without this conversion, the files are unreadable and a Thoroughbred Basic file error results. The format of files other than DIRECT or SORT files are compatible with Level 7 and do not need this conversion. To convert programs, use the ***CNVTFP** utility.

Procedure

To run this utility from Thoroughbred Basic Console Mode, type:

RUN "*CNVT86" and press **Enter**.

To select this utility from the Thoroughbred Basic Utilities Menu, type:

***CNVT86** and press **Enter**.

The following message is displayed:

SELECT PRINTER: xx xx: (where xx is a configured printer)

Make your printer selection from the list of available printers displayed in the prompt. Printers displayed in background mode are currently being used by another task and, therefore, are unavailable. If the requested printer cannot be opened, the user is prompted to make another selection. If only one printer is configured that printer is automatically selected.

DISC NAME OR NUMBER:

Type the name or number of the disk that contains the files to be converted. After you do this the program scans the specified directory for DIRECT and SORT files that are in Level 6 Thoroughbred Basic format. A warning message appears when DIRECT or SORT files are located:

WARNING: This program writes on all DIRECT and SORT files in the chosen directory. Once started the program should not be interrupted. Hit CR to continue.

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After you press **Enter**, the system performs the following procedures:

1. Scans for DIRECT/SORT Files - You may select conversion of all DIRECT/SORT files in a given directory; or conversion of those individual files, which you name.

2. Converts (Swaps) File Pointers - The utility performs a byte-swap conversion in the key-block pointer area of DIRECT and SORT files. (If a file has already been converted, the byte swapping is skipped, and the Deleted Key Block Pointers are scanned. Refer to step 3).

3. Scans Deleted Key Block Pointers After Conversion - After byte swapping is complete; the Deleted Key Block pointers are scanned. This has usually been the problem with Err=7's in the field, since Thoroughbred Basic Level 7.3 also scans these pointers. If the utility detects file corruption in the deleted key block pointers, the system terminates the conversion and lists the file as corrupted.

4. Attempts to Reconstruct Corrupted Files by **READ RECORD/ WRITE RECORD** - The utility then tries to construct a new file by copying the old file using **READ RECORD/WRITE RECORD**. This process requires that the hard disk has an available unused area at least equal to the size of the file being rebuilt. If corruption has occurred in any area other than the key block pointers, the new file may be missing some records. Otherwise, the new file will be intact.

   In this process, the file is copied to a new file. Once copied, the old file is moved to an unused directory. The name of this directory is _ERROR7. The old file is moved into a subdirectory of this directory, which is designated by the disk number.

   For example, if you select disk 2 for the conversion, you can find the old files in directory _ERROR7/2. After converting the file, the hard copy shows how many records have been copied. If the number of records and the number of records read do not match, there could be file corruption. The hard copy notifies the user of a mismatch, or file corruption.

5. Reads/Counts Records When Deleted Key Blocks Are Correct - If the Deleted Key Block pointers are found to be good, the file is read and the number of records in the file is counted. If the number of records used and the number of records read do not match there could be file corruption. The hard copy notifies the user of a mismatch or file corruption.

If ***CNVT86** locates files that have already been converted from Level 6 format to Level 7, an Already Converted message is printed with the corresponding file name in the table.

After conversion the program prompts:

DONE. (CR) TO CONTINUE, (F4) TO END

Press **Enter** to run the program again or press **F4** to return to the Utility Menu. Repeat the procedure for all directories.

Pressing **Escape** during the conversion will allow you to abort the procedure.

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Error Messages

xxxxxxxx CANNOT BE OPENED FOR CONVERSION.

The file-name specified for the transfer is currently being used by another task. Have the task release the file and try again.

NOT ENOUGH MEMORY TO RUN THIS UTILITY...MODIFY IPL FILE

You must have at least a 30K partition to use this utility. Modify the IPL file accordingly.

NUMBER OF RECORDS MISMATCH

The number of records read do not match the number of records used defined in the file header. Check to see if the file is corrupted.

PRINTER IN USE

The requested printer is off-line (i.e., not turned on, out of paper, out of toner, etc.). Correct the problem and try again, select another printer, or press **F4** to exit.

*CNVTCGV - Convert CGV from B1 to B2 BASIC

Purpose

The **CGV** function enables you to create and maintain global string variables. The function's executable code was changed for Thoroughbred Basic 8.1B2. If you have used the **CGV** function for Thoroughbred Basic programs prior to the release of Thoroughbred Basic 8.1B2 you may need to use the ***CNVTCGV** utility to affect the code changes. If you do not run this utility, the older code will set the value of your defined global variables to the null character. The ***CNVTCGV** utility will have no effect on programs that do not contain the **CGV** function.

Procedure

To run this utility from Thoroughbred Basic Console Mode type

RUN "*CNVTCGV" and press **Enter**.

To run this utility from the Thoroughbred Basic Utilities Menu type

***CNVTCGV** and press **Enter**.

The ***CNVTCGV** utility begins with the following message:

DISC NAME OR NUMBER:

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Type the name or number of a directory that contains Thoroughbred Basic programs that use the **CGV** utility. Press **Enter**. The following message will be displayed:

DISC ID: dirname(n)
ENTER FILENAME OR MASK: (@) FOR ALL, (CR) TO END
_____

Take one of the following actions:

- Type the name of a file in the *dirname* directory that contains at least one **CGV** function specification and press **Enter**. The underscores will redisplay so you can type the name of another file or type masking characters to select a subset of files. After you have finished typing in the names of all the files that contain **CGV** function specifications press **Enter**.

- Type masking characters to select a subset of files in the *dirname* directory and press **Enter**. The underscores will redisplay so you can type another set of masking characters or the name of a file. The ***CNVTCGV** utility will not affect files that do not contain at least one **CGV** function specification. Press **Enter**.

- Type **@** (at sign) to check all the files in the *dirname* directory. The ***CNVTCGV** utility will not affect files that do not contain at least one **CGV** function specification. Press **Enter**.

Mask Characters

Each digit in the numeric value that is output must match up with a mask character. The mask characters determine the output. You can specify more mask characters than there are digits in the numeric value.

An insignificant zero is a leading or trailing zero. A floating character is output at the rightmost leading zero.

0 Outputs a digit from 0 to 9. When the digit is an insignificant zero, outputs a 0.

Outputs a digit from 0 to 9. When the digit is an insignificant zero, outputs a space.

9 Same as #. Outputs a digit from 0 to 9. When the digit is an insignificant zero, outputs a space.

. Outputs a decimal point between digits. If the number is zero and 0 is not used in the mask, outputs a space.

, Outputs a comma between digits if the digit to the left is a significant digit; can only be used to the left of the decimal point.

$ Outputs a floating dollar sign.

***** Outputs an asterisk when the digit is a leading zero.

- Outputs a minus sign if the number is negative, or a space if the number is zero or positive. The mask character can be placed at the left or right of the mask. If placed to the left, it is a floating character.

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+ Outputs a plus sign if the number is positive, a minus sign if the number is negative, or a space if the number is zero. The mask character can be placed at the left or right of the mask. If placed to the left, it is a floating character.

CR Outputs a CR (to indicate a credit) if the number is negative, or 2 spaces if the number is zero or positive. This mask character must be placed at the right of the mask.

DR Outputs CR (to indicate a debit) if the number is positive, a CR if the number is negative, or 2 spaces if the number is zero. This mask character must be placed at the right of the mask.

(Outputs a left parenthesis if the number is negative, or a space if the number is zero or positive. This mask character must be placed at the left of the mask.

) Outputs a right parenthesis if the number is negative, or a space if the number is zero or positive. This mask character must be placed at the right of the mask.

B Outputs a space (Blank).

???? Any characters other than the mask characters are output in the specified positions.

After you select the files you want to check and press **Enter** the following message will be displayed:

SEARCHING DIRECTORY

The ***CNVTCGV** utility is searching through the directory you selected for the files you specified. If it finds a file that contains at least one **CGV** function specification, the following message will display:

CONVERTING progname

The ***CNVTCGV** utility is making sure that your Thoroughbred Basic 8.1 program will use CGV function code from Thoroughbred Basic 8.1B2.

After the programs are converted, the ***CVNTCGV** utility will return you to the first message. You can convert other files or leave the ***CNVTCGV** utility.

Error Messages

ERROR 1 CONVERTING program CR TO CONTINUE, F4 TO END

An error occurred when the ***CNVTCGV** utility tried to convert the *progname* file. In many cases, the error was generated because the program was created under a higher release level than Thoroughbred Basic 8.1B2. The ***CNVTCGV** utility does not affect the program.

*CNVTDKC - Adjust Deleted Keyblock Chain For Level 7

Purpose

The ***CNVTDKC** utility upgrades files created under Thoroughbred Basic Level 6.x to Thoroughbred Basic Level 7. This utility is also known as ***CVDKC**.

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Procedure

To run this utility from Thoroughbred Basic Console Mode type

RUN "*CNVTDKC" and press **Enter**.

To run this utility from the Thoroughbred Basic Utilities Menu type

***CNVTDKC** and press **Enter**.

The ***CNVTDKC** utility begins with the following message:

THIS PROGRAM WILL SEARCH FOR AND OPTIONALLY UPGRADE FILES FROM BASIC LEVEL 6 FORMAT TO BASIC LEVEL 7 FORMAT.
BEFORE A FILE IS CONVERTED, IT IS CHECKED TO ENSURE THAT IT IS A LEVEL 6 TYPE FILE AND THAT THE FILE DOES NOT SEEM TO BE CORRUPTED. THE STATUS IS PRINTED AND THEN THE FILE WILL BE CONVERTED IF THAT OPTION WAS SELECTED

CR WHEN READY

Press **Enter**. The following message will be displayed:

DISC NAME OR NUMBER:

Type the name or number of a directory that contains Thoroughbred Basic 6 files and press **Enter**. The following message will be displayed:

DISC ID: dirname(n)
ENTER FILENAME OR MASK: (@) FOR ALL, (CR) TO END
_____

Take one of the following actions:

- Type the name of a file in the *dirname* directory that contains a Thoroughbred Basic 6 file and press **Enter**. The underscores will redisplay so you can type the name of another file or type masking characters to select a subset of files. After you have finished typing in the names of all Thoroughbred Basic 6 files press **Enter**.

- Type masking characters to select a subset of files in the *dirname* directory and press **Enter**. The underscores will redisplay so you can type another set of masking characters or the name of a file. The ***CNVTDKC** utility only affects Thoroughbred Basic 6 files. Press **Enter**.

- Type @ (at sign) to select all the files in the *dirname* directory. The ***CNVTDKC** utility only affects Thoroughbred Basic 6 files. Press **Enter**.

Mask Characters

Each digit in the numeric value that is output must match up with a mask character. The mask characters determine the output. You can specify more mask characters than there are digits in the numeric value.

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An insignificant zero is a leading or trailing zero. A floating character is output at the rightmost leading zero.

0 Outputs a digit from 0 to 9. When the digit is an insignificant zero, outputs a 0.

Outputs a digit from 0 to 9. When the digit is an insignificant zero, outputs a space.

9 Same as #. Outputs a digit from 0 to 9. When the digit is an insignificant zero, outputs a space.

. Outputs a decimal point between digits. If the number is zero and 0 is not used in the mask, outputs a space.

, Outputs a comma between digits if the digit to the left is a significant digit; can only be used to the left of the decimal point.

$ Outputs a floating dollar sign.

***** Outputs an asterisk when the digit is a leading zero.

- Outputs a minus sign if the number is negative, or a space if the number is zero or positive. The mask character can be placed at the left or right of the mask. If placed to the left, it is a floating character.

+ Outputs a plus sign if the number is positive, a minus sign if the number is negative, or a space if the number is zero. The mask character can be placed at the left or right of the mask. If placed to the left, it is a floating character.

CR Outputs a CR (to indicate a credit) if the number is negative, or 2 spaces if the number is zero or positive. This mask character must be placed at the right of the mask.

DR Outputs CR (to indicate a debit) if the number is positive, a CR if the number is negative, or 2 spaces if the number is zero. This mask character must be placed at the right of the mask.

(Outputs a left parenthesis if the number is negative, or a space if the number is zero or positive. This mask character must be placed at the left of the mask.

) Outputs a right parenthesis if the number is negative, or a space if the number is zero or positive. This mask character must be placed at the right of the mask.

B Outputs a space (Blank).

???? Any characters other than the mask characters are output in the specified positions.

After you select the files you want to check and press **Enter** the following message will be displayed:

SEARCHING DIRECTORY

The ***CNVTDKC** utility searches through the directory you selected for the files you specified and displays the name of each file it checks. After the files are converted, the ***CNVTDKC** utility will return you to the Thoroughbred Basic Utilities Menu.

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*CNVTERM - Convert 7.4 TCONFIG to TCONFIG8

Purpose

This utility allows you to convert an existing Level 7.4 TCONFIG table into a Level 8.0 TCONFIG8.

WARNING: This procedure erases the existing TCONFIG8. If the existing TCONFIG8 has been modified, make a note of the changes so that you will be able to add those changes to the new TCONFIG8.

Procedure

To run this utility from Thoroughbred Basic Console Mode, type:

RUN "*CNVTERM" and press **Enter**.

To run this utility from the Thoroughbred Basic Utilities Menu, type:

***CNVTERM** and press **Enter**.

The system prompts:

WARNING! THIS PROGRAM WILL ERASE CURRENT TCONFIG8! CONTINUE? (Y/N)

Type **Y** and press **Enter** to continue with the procedure or Type **N** and press **Enter** to exit the utility. If you select Y, the utility erases the existing TCONFIG8 and proceeds to convert the Level 7.4 TCONFIG into a TCONFIG8 file. If the Level 7.4 TCONFIG has already been converted, the system prompts:

TABLE xxxxxxxx ALREADY CONVERTED!

The system returns to the beginning of the utility.

*CVDKC - Adjust Deleted Keyblock Chain For Level 7

Purpose

The ***CVDKC** utility upgrades files created under Thoroughbred Basic Level 6.x to Thoroughbred Basic Level 7. This utility is also known as ***CNVTDKC**.

Procedure

To run this utility from Thoroughbred Basic Console Mode type:

RUN "*CVDKC" and press **Enter**.

To run this utility from the Thoroughbred Basic Utilities Menu type:

***CVDKC** and press **Enter**.

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The ***CVDKC** utility begins with the following message:

THIS PROGRAM WILL SEARCH FOR AND OPTIONALLY UPGRADE FILES FROM BASIC LEVEL 6 FORMAT TO BASIC LEVEL 7 FORMAT.
BEFORE A FILE IS CONVERTED, IT IS CHECKED TO ENSURE THAT IT IS A LEVEL 6 TYPE FILE AND THAT THE FILE DOES NOT SEEM TO BE CORRUPTED. THE STATUS IS PRINTED AND THEN THE FILE WILL BE CONVERTED IF THAT OPTION WAS SELECTED

CR WHEN READY

Press **Enter**. The following message will be displayed:

DISC NAME OR NUMBER:

Type the name or number of a directory that contains Thoroughbred Basic 6 files and press the **Enter** key. The following message will be displayed:

DISC ID: dirname(n)
ENTER FILENAME OR MASK: (@) FOR ALL, (CR) TO END
_____

Take one of the following actions:

- Type the name of a file in the *dirname* directory that contains a Thoroughbred Basic 6 file and press **Enter**. The underscores will redisplay so you can type the name of another file or type masking characters to select a subset of files. After you have finished typing in the names of all Thoroughbred Basic 6 files press **Enter**.

- Type masking characters to select a subset of files in the *dirname* directory and press **Enter**. The underscores will redisplay so you can type another set of masking characters or the name of a file. The ***CVDKC** utility only affects Thoroughbred Basic 6 files. Press **Enter**.

- Type **@** (at sign) to select all the files in the *dirname* directory. The ***CVDKC** utility only affects Thoroughbred Basic 6 files. Press **Enter**.

Mask Characters

Each digit in the numeric value that is output must match up with a mask character. The mask characters determine the output. You can specify more mask characters than there are digits in the numeric value.

An insignificant zero is a leading or trailing zero. A floating character is output at the rightmost leading zero.

0 Outputs a digit from 0 to 9. When the digit is an insignificant zero, outputs a 0.

Outputs a digit from 0 to 9. When the digit is an insignificant zero, outputs a space.

9 Same as #. Outputs a digit from 0 to 9. When the digit is an insignificant zero, outputs a space.

. Outputs a decimal point between digits. If the number is zero and 0 is not used in the mask, outputs a space.

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, Outputs a comma between digits if the digit to the left is a significant digit; can only be used to the left of the decimal point.

$ Outputs a floating dollar sign.

***** Outputs an asterisk when the digit is a leading zero.

- Outputs a minus sign if the number is negative, or a space if the number is zero or positive. The mask character can be placed at the left or right of the mask. If placed to the left, it is a floating character.

+ Outputs a plus sign if the number is positive, a minus sign if the number is negative, or a space if the number is zero. The mask character can be placed at the left or right of the mask. If placed to the left, it is a floating character.

CR Outputs a CR (to indicate a credit) if the number is negative, or 2 spaces if the number is zero or positive. This mask character must be placed at the right of the mask.

DR Outputs CR (to indicate a debit) if the number is positive, a CR if the number is negative, or 2 spaces if the number is zero. This mask character must be placed at the right of the mask.

(Outputs a left parenthesis if the number is negative, or a space if the number is zero or positive. This mask character must be placed at the left of the mask.

) Outputs a right parenthesis if the number is negative, or a space if the number is zero or positive. This mask character must be placed at the right of the mask.

B Outputs a space (Blank).

???? Any characters other than the mask characters are output in the specified positions.

After you select the files, you want to check and press **Enter** the following message will be displayed:

SEARCHING DIRECTORY

The ***CVDKC** utility searches through the directory you selected for the files you specified and displays the name of each file it checks. After the files are converted, the ***CVDKC** utility will return you to the Thoroughbred Basic Utilities Menu.

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*PROG8 - Convert Level 7 to 8 Utility

Purpose

The ***PROG8** Utility converts existing Level 7 programs to Thoroughbred Basic Level 8 (including CALLed Public Programs). This utility changes the format of the existing program to a format that Level 8 can read and execute.

When a simple Level 7 program is loaded and saved in Level 8, it is automatically converted. (Please **Note:** The automatic convert is VERY slow.) However, if Level 8 CALLs a Level 7 program, an error is returned. These programs must be converted separately. We recommend that you use the ***PROG8** Utility for conversion if there are:

- More than one program to be converted
- A **CALL** to a Public Program

When a Level 7 program is run on Level 8 the program is converted; however, the conversion is not saved unless the program is saved under Level 8.

Note: The programs being converted must be in listable form (i.e., not encrypted).

Procedure

To access this utility from Thoroughbred Basic Console Mode, type:

RUN "*PROG8" and press **Enter**.

To select this utility from the Thoroughbred Basic Utilities Menu, type:

***PROG8** and press **Enter**.

The system prompts:

DISC NAME OR NUMBER:

Type the name or number of the directory to be converted and press **Enter**.

ENTER FILENAME OR MASK; @ FOR ALL, <CR> TO END:

Type up to 48 file names or masks and press **Enter** or type **@** and press **Enter** to list all the names in the directory. If a specified file does not exist on the disk, or if a file does not match the selected type, the name is rejected. After entering each name or mask, press **Enter** once. After you have entered all the names or masks, press **Enter** again to continue with the procedure. To exit the utility, press **F4**.

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HARD COPY (Y/N):

If a hard copy is selected, the system provides two listings. The first is a listing of the programs in the directory that have already been converted. The second is a listing of the programs that received an error while trying to convert. If an error is received during the conversion process, the conversion is stopped. If you type **Y** and press **Enter** to the previous prompt, the following prompt is displayed:

SELECT PRINTER: xx xx (where xx is a configured printer)

Make your selection from the list of available printers displayed in the prompt. Printers displayed in background mode are currently being used by another task and, therefore, are unavailable. If the requested printer cannot be opened, the user is prompted to make another selection. If only one printer is configured this question is not asked.

Error Messages

CAN'T CONVERT "program-name" - ENCRYPTED

The specified program has been encrypted. This program must be unencrypted under Level 7 before the conversion process can be run.

ERROR 0

The permissions set for this program may not allow changes. Check the permissions and make any necessary changes before running the conversion again.

ERROR XX HAS OCCURRED <CR> TO CONTINUE OR <F4> TO END.

The program being converted contains an error. Press **Enter** to skip this program name and continue to convert the rest of the directory or press **F4** to end conversion procedure.

Note: The program that contained the error has not been converted.

INSUFFICIENT SPACE FOR WORK FILE ON DISC XX

There is not enough room on the specified disk to run the conversion. Make room in this directory or move the programs to another directory before trying to run *PROG8.

PROGRAMS NOT FOUND

The program names specified do not exist in the specified directory. Check the program names and locations.

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4. Thoroughbred Basic Program Editors

The following sections contain descriptions of Thoroughbred Basic Program Editors.

EDIT - Full Screen Program Editor

Purpose

The **EDIT** utility calls a Thoroughbred Basic program editor, which enables you to create and maintain Thoroughbred Basic programs on a full-screen display. This utility includes a wide range of editing functions. If you have installed Thoroughbred Dictionary-IV you can use the **EDITF** utility instead of the **EDIT** utility.

Procedure

To run this utility from Thoroughbred Basic Console Mode type:

EDIT and press **Enter**.

The **EDIT** utility uses terminal configuration information from the TCONFIGW file for terminals that use Thoroughbred Basic Windows or the TCONFIG8 file for terminals that do not use Thoroughbred Basic Windows. If a program is loaded in memory, and if the program is not protected by the **ENCRYPT** or **PSAVE** directive, the **EDIT** utility will display the program. If there is no program in memory the **EDIT** utility will display a blank screen.

The editor operates in **Line Mode**, which enables you to move to any part of the program, or **Edit Mode**, which enables you to edit or add program lines. The **EDIT** utility begins in Line Mode. You can press **Enter** to switch between Line Mode and Edit Mode.

When you switch out of Edit Mode, Thoroughbred Basic code will be saved in memory. Before you can switch to Line Mode your code will be checked for syntax errors. If an error exists you will remain in Edit Mode until the error is removed. You can press **F4** to save your program to a file.

You can change the name of the program editor that Thoroughbred Basic calls by changing a line contained in the IPLINPUT file:

PRM EDIT=*progname*

progname is the new name of the Thoroughbred Basic program editor.

The **EDIT** utility uses a set of functions to edit Thoroughbred Basic programs. The following is a list of Editing and Function Keys:

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Editing Keys

Cursor keys	**Line erase**
Character insert	**Tab**
Character delete	**Back-tab**
Line insert	**Home**
Line delete	

Cursor Keys (up, down, left, and right)

Edit Mode: The up/down arrow keys move the cursor up or down one line of the program line at a time. The left or right cursor keys scroll the cursor only on the program line that is being edited.

Line Mode: The up or down arrow keys move the cursor up or down one program line at a time. The left or right cursor keys are ignored.

Character insert

Edit Mode: Inserts characters in the program line that is being edited.

Line Mode: This key is ignored.

Character delete

Edit Mode: Deletes the character that the cursor is currently on.

Line Mode: This key is ignored.

Line insert

Edit Mode: This key is ignored.

Line Mode: Inserts a line between program lines. This allows the entry of new program lines. When inserting a program line, it is only necessary to insert one line. If blank lines are inserted and not used, they are removed when the screen is reprinted or scrolled.

Line delete

Edit Mode: This key is ignored.

Line Mode: Deletes the program line that the cursor is currently positioned on.

Tab

Edit Mode: This key moves the cursor forward five characters at a time.

Line Mode: This key is ignored.

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Back-tab

Edit Mode: This key moves the cursor backward five characters at a time.

Line Mode: This key is ignored.

Function Keys

F1 - Page Down	**F6** - Help
F2 - DELETE STATEMENT	**F7** - PRINT STATEMENT
F3 - Page Up	**F8** - Search/Replace
F4 - END	**F9** - Reprint screen
F5 - Undo statement	**F10** - GOTO statement

F1 - Page Down

Edit Mode: This function is ignored.

Line Mode: You can scroll backward one screen at a time. The **Page Down** key, if available, performs the same function.

F2 - DELETE STATEMENT

Edit Mode: This function is ignored.

Line Mode: Deletes a program line or a range of program lines. When **F2** is pressed, the following prompt is displayed:

DELETE STATEMENTS: From <Enter=current>:_____
To <Enter=current> :_____

If one program line is to be deleted and the cursor is currently positioned on that program line, you can press **Enter** and that program line number or label prints automatically in the input field. If needed, you can specify starting and ending program line number or labels to be deleted.

F3 - Page Up

Edit Mode: This function is ignored.

Line Mode: You can scroll forward one screen at a time. The **Page Up** key, if available, performs the same function.

F4 - END

Edit Mode: This key exits the **EDIT** utility and returns you to Thoroughbred Basic Console Mode or whatever mode the editor was called from.

Line Mode: This key exits the **EDIT** utility and returns you to Thoroughbred Basic Console Mode or whatever mode the editor was called from.

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F5 - Undo statement

Edit Mode: When a program line is edited, the original is stored temporarily. If, while editing the program line, you make a mistake and want to start again with the original program line, **F5** reprints the original program line in the window. When entry mode is terminated, the temporary storage area is cleared.

Line Mode: This function is ignored.

F6 - Help

Edit Mode: This function is ignored.

Line Mode: Lists the Editing Keys and Function Keys.

F7 - PRINT STATEMENT

Edit Mode: This function is ignored.

Line Mode: This function lets you print a program line or a range of program lines on the printer. When **F7** is pressed, the programmer is asked to select a printer. After a printer is selected the following prompt is displayed:

PRINT STATEMENTS: From<Enter=current>:_____
To <Enter= current>:_____

If only one program line is to be printed and the cursor is currently positioned on that program line, you can press **Enter** to print. Otherwise, you may enter starting or ending program line number or labels to be printed.

F8 - Search/Replace

Edit Mode: This function is ignored.

Line Mode: Lets you search the program for the occurrence of a specific program line number or label or text segment. This function can either search a range of program lines or search to the end of the program. There is also the option of replacing the text found with another text sequence. You can specify only one search and one replace string, each being up to 40 characters long.

F9 - Reprint screen

Edit Mode: This function is ignored.

Line Mode: Reprints the entire editor screen. Under certain circumstances, it may be desirable to reprint the screen due to editing conditions.

F10 - GOTO statement

Edit Mode: This function is ignored.

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Line Mode: Moves to the specified point in the program, either a program line number or label or text segment. When searching for text, you can start from the present position (find next occurrence) or the beginning of the program (find first occurrence):

GOTO-Enter statement # or text segment ("):_____

Options for GOTO statements

0	**GOTO** first line in program
7900	**GOTO** program line **7900**, or next program line if **7900** does not exist
99999	**GOTO** last program line in program
"A9$=	**GOTO** next occurrence of text **A9$=** (searches from current cursor position)
"A9$="	**GOTO** first occurrence of text **A9$=** (searches from the beginning of the program)
"7900	**GOTO** next occurrence of text **7900** (note this may be the actual program line number or label or a command reference to this program line)

EDIT - Program Line Editor

Purpose

The **EDIT** directive provides a means of editing single program lines without retyping the entire line. It enables you to copy, replace, delete, and insert strings of text in the program line.

Procedure

To run this directive from Thoroughbred Basic Console Mode type:

EDIT lineref editspec [strconst]

lineref is the program line number or label to be edited.

editspec is a letter or blank that specifies how the program line will be edited:

C copies text from the current position to the last character of the first occurrence of *strconst*. This is the most common method of positioning in the program line. If no match is found for *strconst*, Thoroughbred Basic generates an **ERR=20**.

D deletes text in the program line from the current position through the first occurrence of *strconst*. If no match is found for *strconst*, Thoroughbred Basic generates an **ERR=20**.

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R replaces text in the program line with the text contained in *strconst*, byte for byte, space for space.

(absence of an *editspec*) inserts *strconst* into the program line starting at current position.

[*strconst***]** is any string constant (enclosed in brackets) that specifies text associated with *editspec*.

After you type the editing command press **Enter** to end the **EDIT** utility and copy the program line from the current position to the end.

The **EDIT** directive operates on a program line from left to right, including the full program line number or label. If you use the **EDIT** directive to change a program line number, the original program line is retained and the edited program line is inserted in the program in the correct position.

Examples:

```
*ERR
00100 IF X=10 ORRY =123 THEN GOTO 678
```

To correct the above program line number or label we could use:

```
EDIT 100 C[OR]D[R]
```

which lists as:

```
00100 IF X=10 OR Y=123 THEN GOTO 00678
```

The program line is copied up to **OR**, the second **R** is deleted, and pressing **Enter** copies the remainder of the program line

```
00010 DIM ARRAY$[ 10,5 ] [10,"*"]
```

could have its first dimension changed from **10** to **100** with:

```
EDIT 10 C[[ 1][0]
```

which copies out to **[1** and inserts an extra **0**.

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EDITF - Formatted Program Editor

Purpose

The **EDITF** utility calls a Thoroughbred Basic formatted program editor, which enables you to create, edit, and maintain Thoroughbred Basic programs on a full-screen display. This utility includes a wide range of editing functions, formatting options, and on-line help. If you have installed Thoroughbred Dictionary-IV and your terminal is configured to display Thoroughbred Basic Windows, you can use the **EDITF** utility. You must log in to Thoroughbred Dictionary-IV before you can use this utility.

If you have not installed Thoroughbred Dictionary-IV, or if your terminal is not configured to use Thoroughbred Basic Windows, you must use the **EDIT** utility.

Procedure

To run this utility from Thoroughbred Basic Console Mode type:

EDITF

After you press **Enter,** the **EDITF** menu is displayed. This menu enables you to select an editing option:

- **Structured:** If a program is in memory it is displayed in structured programming format. Compound statements are broken into multiple lines, continuation lines are indented, and program control commands such as **IF/THEN/ELSE/FI**, **WHILE/WEND**, and **FOR/NEXT** are formatted to display the logical structure of the command.

- **Unstructured**: If a program is in memory it is displayed with minimal formatting. This option requires less memory than the **Structured** option, so it may run faster.

- **Range of Statements**: If a program is in memory, you can display a subset of program lines. After you select this option you can type *line1***,***linen* to display a range of program lines. After you edit the selected lines, you can save them back into the program residing in memory.

- **SOURCEROR**: This option calls Thoroughbred Source-IV, a program maintenance and source control system.

If a program is loaded in memory, and if the program is not protected by the **ENCRYPT** or **PSAVE** directive, the **EDITF** utility will display the program. If there is no program in memory the **EDITF** utility will display a blank screen.

The **EDITF** utility has a wide variety of functions to help you edit Thoroughbred Basic programs. For more information, you can press one of the following function keys:

F6 calls the **EDITF** help system, which provides information on **EDITF** functions and keystrokes.

F3 calls on-line documentation, which provides information on the **EDITF** utility, Thoroughbred Basic, and so on.

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After you are done entering a new program or editing an old program you can leave the **EDITF** utility by pressing **F4**. The **EDITF** utility will ask if you want to save the program into memory. If you want to save the program to a disk file, you must also use the Thoroughbred **SAVE** directive when you return to Thoroughbred Basic Console Mode.

When you exit the **EDITF** utility, a **RESET** is performed and the program execution pointer is set to the first statement. If you need to edit a program without doing a **RESET** and resetting the program execution printer, you can use the **EDIT** program line directive or the **EDIT** utility.

Example:

```
LOAD "TESTPGM"
EDITF
```

After the **TESTPGM** program is loaded into memory, the **EDITF** utility enables you to edit the program.

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