

PENPAL

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INTRODUCTION

Congratulations on the purchase of your PENPAL package. With PENPAL you have gained the ability to perform a great many tasks from within one truly integrated package.

You, as the PENPAL user, will have the ability and the total freedom to generate files using any one of the program modules, WRITE, CALC, DATABASE, GRAPH-IT or TELECOM. Files can be transferred between modules easily and quickly, saved to disk, sent to the printer, or transmitted over a modem. All without leaving the PENPAL integrated environment.

Furthermore, PENPAL is designed to be as user friendly as possible. Each program module has its own online help screens. All program functions are called by the use of function keys which are constantly displayed along the bottom of the screen. You never have to worry about remembering what key to select to invoke a particular function.

The remainder of this manual will guide you through what is required for setting up PENPAL, explain the ease in which it can be used and demonstrate the various tools that will be placed at your disposal.

After using this package, we are confident that you will agree that PENPAL will free you from the drudgery that has always been associated with the use of several unrelated programs. You will now be free to use your imagination and skills in this new found environment.

Thank you,
FOUR STAR SOFTWARE

SYSTEM REQUIREMENTS

To use PENPAL the following is REQUIRED;

1. 64K Color Computer
(PENPAL supports all current ROM versions)
2. A Single Disk Drive

The following is OPTIONAL;

Additional Disk Drives
Printer
Printer with Graphics Capabilities
Modem

DISK ORGANIZATION

PENPAL is supplied on a single unprotected disk. The following is a list of all program and help files that you will find on this disk.

PENPAL/BIN	- The Main Program
WP/BIN	- WRITE program module
SS/BIN	- CALC program module
DB/BIN	- DATABASE program module
GP/BIN	- GRAPH-IT program module
TC/BIN	- TELECOM program module
HELP/MMH	- Help file, MAIN MENU

HELP/WPH	- Help file, WRITE
HELP/SSH	- Help file, CALC
HELP/DBH	- Help file, DATABASE
HELP/GPH	- Help file, GRAPH-IT
HELP/TCH	- Help file, TELECOM

As well, the following sample files have been supplied to help demonstrate some of the various features of each Program Module.

GAS-USE/WP	- Sample WRITE file.
GAS/SS	- Sample CALC file.
CLUB/DB	- Sample DATABASE file.
GAS-COMP/GP	- Sample GRAPH-IT file.
BBS/TC	- Sample TELECOM file.

BEFORE YOU START

The user should avoid using the supplied PENPAL disk for anything other than making a backup copy. Once this has been done the original should be stored in a safe location.

Throughout this manual reference will be made to three types of disks. Although, each has a specific function, the overlapping of their uses is permitted.

A BOOT DISK is one that contains the PENPAL/BIN program and is used to load or "Boot" the Main Program. A PROGRAM DISK contains all or some of the program module files as listed above. Finally, a FILES DISK contains working files that

the individual PENPAL modules have created and are displayed in the module compartments.

It is left to the users discretion as to how their own systems are set up. So, you may have one disk that consists of BOOT, PROGRAM and FILES DISK, or you may choose to have a separate disk for each. Some examples of how you may configure you disks is given later in this chapter.

LOADING INSTRUCTIONS

1. Insert BOOT DISK in Drive 0
2. Type in LOADM"PENPAL"
3. Press <ENTER>
4. Type in EXEC
5. Press <ENTER>

The Main Program is now loaded and will begin to execute. The user will be greeted with the PENPAL MAIN MENU display. If your system contains any files previously created by PENPAL, these will be displayed in the module compartments.

CAUTION:

The user must always insure that PENPAL is loaded after powering up your Color Computer. Any

values in memory other than those after powering up MAY cause PENPAL to "hang up" when first loaded. If you turn your CoCo off, please wait at least 15 seconds before turning it back on.

SINGLE DISK DRIVE SYSTEMS

PENPAL should have a PROGRAM DISK installed in Drive 0. Anytime a module is called from the MAIN MENU, PENPAL will go to Drive 0 and try to load that module. If the module is not present the user is then prompted to insert a PROGRAM DISK and press <ENTER>. This allows the user time to insert a PROGRAM DISK on a single drive system.

However, in order to conserve disk space, not all of the program modules or the help files need be installed on a PROGRAM DISK. If for example, the user decided to create a PROGRAM DISK that was to be used with the CALC module only, then all other modules may be left of this disk. A great deal of disk space would then be available for the storage of CALC files.

Please note that any number of modules can be placed on a customized PROGRAM DISK, but only those modules may be used without changing the current PROGRAM DISK in Drive 0.

MULTIPLE DISK DRIVE SYSTEMS

As mentioned in the previous section, a PROGRAM DISK must be installed in Drive 0, as this is the drive from which all modules are loaded when called.

If your system has more than one drive, then a separate FILES DISK can be created. This disk will contain only files that are to be used by the various PENPAL modules, and can be placed in any drive, other than Drive 0.

If this is the system set up that you desire then, please read the MAIN MENU portion of this manual that describes the SWAP (F1) function.

SOME PENPAL CONVENTIONS

This Section is included so that the user will be aware of some of the conventions that are employed throughout this package. Hopefully, it will assist you in understanding and using PENPAL more easily.

UPPER / LOWER CASE:

When PENPAL is first booted the user will be in the upper case mode. As is normal with the Color Computer, pressing <SHIFT> and <0> together toggles between **upper and lower case mode**.

DEFAULT VALUES:

Many times the user will be prompted for input. If a value is shown in the prompt this is the current default value. By pressing the <ENTER> key the current default value is retained. Thus if the user is prompted with "Enter new stepping rate (30):", pressing <ENTER> leaves "30" as the stepping rate.

Also if the user is requested to make a selection, eg. "Double Space (Y/*N):", then the choice marked with the asterisk is the current default and can be selected by merely pressing <ENTER>.

EXITING:

F12 (that is <CLEAR> and <->) is used to exit any function, sub-module, module or PENPAL, itself. Since the <BREAK> key is commonly used for this feature in a great many other CoCo programs a limited usage of the <BREAK> key has been

allowed. <BREAK> will operate the same as F12 while in a function, or a sub-module, but only F12 can be used to exit a module or the PENPAL package itself.

If <BREAK> is pressed while in most functions. The user will normally be returned to the module from which the function was called and it will not be executed.

SAVING FILES TO DISK:

If the user saves any file to disk from any of the PENPAL modules, no check will be made to see if a file of that name and extension already exists. Thus the user must be careful of the filename and extensions that are being used for a disk save to avoid overwriting an file by mistake.

EXTENSIONS:

Each of PENPAL's five modules will save files for their own use with the following extensions;

- /WP - WRITE files
- /SS - CALC files
- /DB - DATABASE files
- /GP - GRAPH-IT files
- /TC - TELECOM files

Unless a file has one of these extensions it will not be displayed in the appropriate module compartment at the MAIN MENU. However, any file that can be used by a PENPAL module can be loaded by specifying its filename, including its current extension.

Further, anytime a PENPAL module saves or calls an ASCII file the default extension used is /WP ie. the extension for a WRITE file. The user may circumvent this by specifying a complete filename, including an extension.

THE MAIN MENU

MAIN MENU OPERATION GUIDE

Once PENPAL has been loaded as outlined in LOADING INSTRUCTIONS, (remember to use a backup duplicate PROGRAM DISK). You will be greeted by the MAIN MENU screen. MAIN MENU is the starting point of the PENPAL package, and the menu to which you will always return. It is the central screen that ties all the modules together, and one of the main reasons that PENPAL is called an integrated package. No more hassles loading separate programs and files, now you can do it all at once!

SCREEN LAYOUT

You will note that the screen is composed of four parts. Starting at the top is the Command Line, the PENPAL banner, the module compartments and then the Function Key Strip.

- The Command Line is used to receive command information from the user, display the current status of PENPAL, and report error messages to the user.
- PENPAL is composed of five modules, WRITE, CALC, DATABASE, GRAPH-IT and TELECOM. Each of these modules has a compartment in which their files are displayed.

- The Function Key Strip is displayed along the bottom of the screen. It contains the list of functions that can be invoked by the user.

CALLING MODULES

At the MAIN MENU, you may select any of PENPAL's five modules, and call either an existing file or let PENPAL create a new file.

Using the <LEFT ARROW> or <RIGHT ARROW> keys, you can maneuver the compartment marker to the function you wish to select. The cursor may then be moved up and down within the compartment using the <UP ARROW> or <DOWN ARROW> keys. If the cursor is placed over a file name within the compartment and you press <ENTER>, both the function and the file you selected will be loaded.

If you do not have the cursor over an existing file name, then, after the module has been loaded, you will be prompted to enter a file name. If you enter the name of a file that already exists on the default drive, it will be opened. However, if the file does not exist, a new file with that name will be created on the default drive.

EXITING MODULES

From the MAIN MENU, you may exit PENPAL by pressing F12 (<CLEAR> <->). Note that if you press F12 while in any of the five modules, the file you are currently working on will be saved to disk, and you will be returned to the MAIN MENU. If you wish to return to the MAIN MENU from a module, but do NOT wish to save the file you are working on you may select AF12 (i.e. <SHIFT> <CLEAR> <->). This will return you to the MAIN MENU but it will NOT automatically save the file for you.

FUNCTION KEYS

The Function Keys shown on the Function Key Strip correspond to the first 12 keys across the top of a standard Color Computer keyboard, beginning at the top left hand key (#1). These are referred to as F1, F2, F3, etc. An Alternate Function Key set is available (see explanation further on in this section), and these are referred to as AF1, AF2, AF3, etc.

To activate a Function Key, press and hold the <CLEAR> key and select the appropriately numbered key. Alternate Function Keys are selected by pressing <SHIFT><CLEAR> together, along with the appropriately numbered key. The only unusual key designations are F10 (referred to as F0 and assigned to the zero key), F11 (assigned to the colon key), and F12 (assigned to the minus key).

They are not hard to remember if you think of them as numbered Function Keys all in a row instead of number and punctuation keys!

MAIN MENU: Function Key Summary

- F1 (SWAP) - Used to change the default drive from the current drive to any other, or any time that the user has changed the disk in the default drive.
- F2 (NAME) - Renames the filename that the file marker is over. May also be used to change the extension on a disk file to have it displayed by the MAIN MENU.
- F3 (FREE) - Displays the remaining free space on the current default drive.
- F4 (KILL) - Will delete the current file that the file marker is over from the current default drive, or may be used to kill any other file on the current disk by inputting a filename.
- F5 (DIR) - Displays an expanded directory of all files on the current disk in the default drive.

- F6 (STEP) - Allows selection of the stepping rate of the disk drives. Rates of 6, 12, 20 and 30 ms, may be selected. PENPAL comes with a default setting of 30 ms.
- F7 (SCON) - Will modify CONFIG/SYS file on Drive 0, storing current printer values, printer codes, default drive, etc., which are then selected automatically at power up.
- F8 (TRKS) - Allows the selection of 35 or 40 track disks. (Disks must be initialize prior to use of this feature.)

INVOKING THE ALTERNATE FUNCTIONS

PENPAL has four alternate functions that are available to you at any time, from any of the five modules or the MAIN MENU. You may display the Alternate Function Key Strip to remind you of these functions by selecting F11 (i.e. <CLEAR> <:>). Select F11 again and the Function Key Strip that was previously displayed will return.

Alternate functions are set up in the same manner as Function Keys, except that you must depress both the <SHIFT> and <CLEAR> keys before selecting the appropriate number key on the keyboard. They are referred to as AF1 - AF4 throughout these manuals to avoid confusion with regular functions which are F1 - F12.

Alternate Functions Keys unlike the Function Keys do not have to be displayed at the bottom of the current screen to be invoked. At anytime in a session the user may call any Alternate Function, regardless of the module.

NOTE: AF12 is used to exit a module without saving the current file back to disk. For the purposes of this section, AF12 is not considered to be a true Alternate Function Key. As well it is not displayed on the Alternate Function Key Strip.

ALTERNATE FUNCTION KEY SUMMARY

- AF1 (CALC) - This will activate a simple calculator which can be used for quick calculations. See below for more information
- AF2 (PRIN) - Allows the user to set up the printer default values used by each of the five modules. See details below for more information on this function.
- AF3 (SCRN) - Toggles between the white and green screen display modes.
- AF4 (HELP) - Calls the online help screens for the module being used.
- AF5 (DIR) - Displays a directory of all files on the current disk in in the default drive.

USE OF CALCULATOR FUNCTION

The Calculator Function is called by pressing AF1 at the MAIN MENU or from within any of the modules. Once called the Command Line will display the following entry prompts;

- "Entry:" - Shows the users current entry.
- "Amount:" - Shows the results of any operation performed by the calculator.
- (Current Mode) - Displays the current arithmetical operation to be performed.

The Function Key Strip will show the appropriate keys for the Calculator Function. The user may select the following keys;

- F1 (Add) - Performs Addition
- F2 (Sub) - Performs Subtraction
- F3 (Mul) - Performs Multiplication
- F4 (Div) - Performs Division
- F5 (%) - Calculates a percentage
- F6 (CA) - Clears the Amount field

As the user enters any numerical amount, this will be displayed in the ENTRY field. When <ENTER> is pressed, the arithmetical operation listed in the Current Mode will be performed on the numbers in the ENTRY field and the AMOUNT field and the result stored in the AMOUNT field.

Finally the user may exit the Calculator Function by pressing F12 or <BREAK>. The user will be returned to the MAIN MENU or to the module from which the Calculator Function was called. Nothing is changed or lost by the use of this feature.

CHANGING PRINTER VALUES

To change any of the printer values, the user must select AF2. Several prompts will be displayed in the Command Line. These deal with the values that can be changed by the user.

Each prompt will show the current status of the values that are being used by PENPAL. The user may elect to retain the current value by pressing <ENTER>, which causes the next prompt to be displayed. However, if the user enters a new value and then presses <ENTER> this new value will then be used by PENPAL.

The following is a list of values that the user may change;

- Left Margin - Sets value of left margin, that is the position at which printing will begin.
- Line Width - Sets the length of the line that will be printed. At the same time, this also becomes the right margin location.
- Lines per Page - This is the page length of the paper being used. For standard paper this is 66 lines.
- Printed Lines - Sets the number of lines per page to be printed on each page. Printing will be centered on the page, thus if a standard page is used and this value is 54, then a top and bottom margin of 6 lines (1 in.) will be used.
- Double Spacing - Selects whether or not text will be double spaced. The selection preceded by an asterisk is the current default.
- Page Pause - If selected, the printer will pause after printing one page of text. This allows the use of single sheet paper.

- Baud Rate - Allows the user to choose the desired baud rate for his/her printer. Rates of 300, 600, 1200, 2400, 4800 or 9600 baud, may be selected.

Printer values may also be changed at anytime and from within any of the five modules. However, these changes will not be saved to CONFIG/SYS file unless the user invokes SCON (F7) from the MAIN MENU (see description of SCON above).

THE WRITE MODULE

WRITE MODULE OPERATION GUIDE

WRITE is an "easy to use" word processor which may be employed to create, edit, and print simple documents, manuscripts, essays, and letters. WRITE supports most common edit commands, as well as justification and centering. While it is powerful enough to do all this, it is still easy to use!

CREATING NEW FILES

If the user wishes to create a new file, or call up a file that is not listed in the compartment, the cursor is moved to the top of the compartment. (This area is blank.) Press <ENTER> and you will be prompted for a filename. If you enter the name of an existing file, this will be loaded after the WRITE module. If, however, you enter a filename for a new file, PENPAL will open this for you. For this last option, you need not specify an extension, as the default extension (/WP) will be supplied.

SCREEN DISPLAY / PRINTER VALUES

When you first create a document, you will be faced with a blank working screen. All you should see is the Function Key Strip at the bottom, and the command bar at the top of the screen. Your document will be typed on this screen. However, bear in mind that how text looks on the screen is not necessarily how it will be printed to paper.

Page formatting is controlled by your printer settings (i.e. page width, number of lines per page, margins, etc.) and these are set by the alternate function, PRIN (AF2). You may call this function at any time in the WRITE module if you wish to change these settings. Simply depress the <SHIFT> <CLEAR> and <2> keys as you normally would to select an alternate function.

FUNCTIONS

The WRITE module has 18 functions of its own, and for this reason the first 9 Function Keys have each been used twice. F10 (represented by F0 - TOGG on the screen) will toggle you between the two possible sets of Function Keys. The strip that first appears when you begin is referred to as the Primary Function Key Strip. When you toggle once, the strip will change to the Secondary Function Key Strip. The Function Key selected will perform the function shown on the Strip that is currently displayed. Therefore, if

you want a command that is on the Secondary Strip, the Secondary Strip must be on the screen to access that command.

WRITE: Primary Function Key Summary

- F1 (FIND) - Will search the current document for all the occurrences of any selected string. See FIND AND REPLACE below.
- F2 (REPL) - Searches for any occurrence of a selected string and replaces it with a replacement string. See FIND AND REPLACE below.
- F3 (MODE) - Toggles between overstrike and insert mode. Power up condition is overstrike. Refer to INSERT/OVERSTRIKE MODE below.
- F4 (DEL) - Deletes the character at the current cursor position.
- F5 (DLIN) - Deletes the entire line that the cursor is currently in regardless of cursor position in the line.
- F6 (ILIN) - Inserts a blank line at the current cursor location, and moves all other lines down one. See INSERTING LINES below.

- F7 (REFO) - Allows the user to reformat the screen to remove spaces or gaps created while editing. See SCREEN REFORMATTING below.
- F8 (SAVE) - Saves the current document to the current default drive using either the existing file name or a new file name.
- F9 (PRIN) - Prints the current document to the printer using the defaults set up previously by the AF2 function. See TEXT FORMATTING below.
- F0 (TOGG) - Toggles the Function Strip to the Secondary set of WRITE functions.

WRITE: Secondary Function Key Summary

- F1 (SELC) - The current cursor position becomes the start of a text block. The cursor is then moved to the location in the text that is the end of the desired block. A block has now been selected, and further block manipulations may be performed. See BLOCK FUNCTIONS below.
- F2 (BDEL) - Deletes a block that has been previously selected. See BLOCK FUNCTIONS below.

- F3 (BCPY) - Instructs the computer to copy a previously selected block. This function is used along with the HERE (F6) function. See BLOCK FUNCTIONS below.
- F4 (BMOV) - Similar to block copy except the original block that was selected will be deleted after it has been copied. Also used with the HERE (F6) function. See BLOCK FUNCTIONS below.
- F5 (BSAV) - Will save a previously selected block to the disk with the file name that you provide. Useful for saving partial documents, or to create form letters, etc. See BLOCK FUNCTIONS below.
- F6 (HERE) - Used with the block move and copy commands to identify where the new block is to be placed. See BLOCK FUNCTIONS below.
- F7 (MERG) - Merges another document with the current one. Appends the new file to the end of the current file.
- F8 (STAT) - Will show the user how much free memory is left and total number of words in the current document.
- F9 (CODE) - Allows the user to enter the printer control codes for any printer.
- F0 (TOGG) - Toggles between the Primary and Secondary Function Key Strips.

CURSOR MOVEMENT

While in the WRITE module the cursor may be freely moved through the file by using the four arrow keys. Using the arrow keys in conjunction with the <SHIFT> or <CLEAR> keys will also affect the movement of the cursor within the file.

The following is a brief summary of the ways in which the user may move the cursor;

ARROW KEYS:

<UP> Move cursor up one line
<DOWN> Move cursor down one line
<LEFT> Move cursor one character to the left
<RIGHT> Move cursor one character to the right

SHIFTED ARROW KEYS:

<UP> Move cursor to the top of the current screen or to the top of the next screen
<DOWN> Move cursor to the bottom of the current screen or to the bottom of the next screen
<LEFT> Move cursor one word to the left
<RIGHT> Move cursor one word to the right

CLEAR ARROW KEYS:

<UP> Move cursor to start of text
<DOWN> Move cursor to end of text
<LEFT> Move cursor to start of line
<RIGHT> Move cursor to end of line

FIND AND REPLACE

These functions are very similar in that they both will search for a preselected string of ASCII characters.

FIND:

The FIND (F1) function is invoked by pressing <CLEAR> and <l>. In the Command Line the following prompt will appear when the function is called for the first time.

"Search String:"

The user now enters the search string. The search will commence from the point in the text at which the cursor is located. FIND will continue looking through the file from this point until it finds the target string or until it reaches the end of the file.

If the search string is located the screen will be redrawn with the search string preceding the cursor. However, if the string is not located in the file, this will be reported in the Command Line.

If the FIND function is then recalled, the previous string is left as the default search string and the user will see the same prompt as above with the previous search string displayed. The user may now press <ENTER> and FIND will again search for the same string. A new search string may be entered at this point.

REPLACE:

The REPL (F2) function is very similar to that of the FIND function. The user will be prompt for a search string and once this is entered, the following prompt will be displayed:

"Replacement:"

The user now enters a string that will be used as the replacement string. The user is then asked:

"Global Replacement (Y/N)

If a global replacement is requested then all occurrences of the search string in the document will be replaced without the user being prompted.

If a global replacement is not selected, then as each occurrence of the search string is located, it will be displayed and the user will then be prompted to replace the string or go on. The user may exit the function by pressing <BREAK> of F12.

However, if the search string is not located, the user will be advised in the Command Line.

As with the FIND function if REPL is called again both the search and replacement string will be displayed as default values. The user may retain

these by pressing <ENTER> or may enter a new search or a new replacement string.

INSERT / OVERSTRIKE MODE

When the WRITE module is first called, the user is placed in the "Overstrike Mode". If the cursor is placed over an existing character in the file and another key is pressed, then this will replace the character under the cursor.

In the "Insert Mode" the user can insert a single character or an entire string of characters at the current cursor location. The cursor can be placed anywhere in the line and by simply typing, text will be inserted at this point.

The F3 function is used to toggle between the "Overstrike Mode" and the "Insert Mode". The user will notice that there is a difference in the size of the cursor in these Modes. In the "overstrike Mode" the cursor is the normal size, while the cursor appears to more narrow, about half its normal size in the "Insert Mode".

INSERTING LINES

When the user is entering new text at the end of a file, the <ENTER> key will place a Carriage

Return at the end of the line. The cursor will then be moved down to the left side of the next line. However, this is not the case when the cursor is moved from the end of a text line and into the text area. In this case when <ENTER> is pressed the cursor is moved down to the next line of text.

Any line of text can be broken by pressing <CLEAR><ENTER>. Once this has been done any character or a carriage return can be entered at the end of the newly separated portion.

BLOCK FUNCTIONS

All of the Block Functions are contained on the Secondary Function Key Strip. This Function Strip is called by pressing F0 at the Primary Function Key Strip.

MARKING A BLOCK

The function that must be used prior to invoking any of the other block functions is SELC (F1). This is used to tell WRITE where to start the block. Once this function has been called, the cursor will appear in a different shape (the top right corner will be missing). This serves to alert the user that the block mode has been entered. (Note: Each time SELC (F1) is pressed, the start of the block is redefined.)

No visible marker will be left on the screen to designate where the block begins, so the user must be careful in the choice of the starting point of a block. The user now moves the cursor to the end of the desired block and may call any one of the other block functions.

DELETING A BLOCK

If the user wishes to delete a block that has just been marked, the user must ensure that the cursor is correctly positioned at the end of the desired block. Now press BDEL (F2) and the entire block is removed from the file.

SAVING A BLOCK TO DISK

Any block that has been marked can be saved to disk by the user. Press BSAV (F5) and you will be prompted for a filename. Once the name has been input and the <ENTER> key pressed, the block will be saved to disk.

It is not necessary to specify an extension as the default extension of /WP will be used. This new file will appear in the WRITE compartment at the MAIN MENU. However, the user has the option of designating another extension at the prompt and this will be used to save the new file.

COPYING A BLOCK

Once the user has selected a block that is to be copied to another location, the BCPY (F6) function can be called. This will alert WRITE that the area of text from where the SELC (F1) function was called to the current location is to be copied.

The user can move the cursor to the location at which the block is to be inserted. Pressing HERE (F6) key will cause a copy of the block to be inserted at this location. The selected block can be copied to any number of other locations by moving the cursor and again pressing HERE (F6).

With the BCPY function the original block is left intact at its location in the file.

MOVING A BLOCK

This command is similar to that of copying a block. Once the block has been selected and the cursor moved to the end of the desired block, the user presses BMOV (F4) key.

The cursor is then positioned at the location which the block is to be moved. Now the HERE (F6) Function Key is pressed and the block will be moved to the newly selected location.

It should be noted that with BMOV after the original block is moved, it is DELETED from the text file.

SCREEN REFORMATTING

In order to avoid the necessity of constantly updating the text screen, WRITE will not automatically reformat the screen. Thus if the user calls functions which insert or delete characters, lines or even blocks of text, the screen will not be reformatted.

This in no way has any affect on the text or the way that it will be saved to disk or printed. WRITE will automatically reformat all text prior to the execution of any such functions.

If the user finds that the screen becomes difficult to read, then the screen can be reformatted. Just call REFO (F7) from the Secondary Function Strip.

PRINT FORMATTING

All print formatting commands are entered on a separate line commencing with a semi-colon (;) and ending with a carriage return <ENTER>. Any number of print formatting commands can be entered on this line, however, each command must be separated from the next by a <SPACE>.

When the WRITE module encounters a print formatting line, the commands will therein will override any of the system wide settings (AF2). They will remain in effect until the entire document is printed or changed by another Print Formatting line in the text.

Print Formatting Switches are entered as two characters in Upper Case (eg. JY). While Print Formatting Settings are entered as two characters in Upper Case, immediately followed by an equal sign, (=) and a decimal value (eg. TM=10).

A full summary of all print formatting commands, (ie. Switches and Settings) and default values are found in Appendix C.

PRINTER CONTROL CODES

The WRITE module of PENPAL supports a total of nine Printer Control Code commands. Each of these commands is sub-divided into either the code to turn the command on or to turn the command off. A summary of these codes is found in Appendix D.

The on or off code is selected by preceding the Upper Case command letter by the ON or OFF marker. As supplied the default markers are:

\$ - ON
@ - OFF

ENTERING PRINTER CODES

Printer Control Codes may be customized by using CODE (F9) from the Secondary Function Strip. The user is then prompted to enter the new Control Codes. Input up to five decimal numbers separated by commas. Entering only a zero will disable that command. The "ON" (\$) and "OFF" (@) markers may also be changed to any printable character.

If the user does not wish to change a Control Codes or the ON - OFF markers, then pressing <ENTER> will leave the current value intact.

Note that any changes that user makes will be lost unless the user invokes the SCON (F7) command from the MAIN MENU. Then the new values will be saved into the CONFIG.SYS file.

THE CALC MODULE

CALC MODULE OPERATION GUIDE

CALC provides you with an advanced, quick spreadsheet which is similar in operation to a great many commercially available spreadsheets. As such, there are a large number of reference books, guides, tutorials, etc., that will help you explore and utilize the vast power of this type of utility. Those of you with previous experience with other spreadsheets will have few problems adapting your knowledge to PENPAL's spreadsheet module. This manual in no way attempts to teach you everything concerning proper spreadsheet manipulations, but rather is intended to explain how PENPAL's spreadsheet component, CALC, is designed to operate.

As well as being useful in itself for financial accounting, what-if calculations, and other applications, this powerful tool will link up with the GRAPH-IT module to produce multi-color, multi-range, presentation quality graphs. Great for those times when one picture could express a thousand numeric formulas! For more information on this feature, please see the reference manual sections on the GRAPH-IT module.

SCREEN LAYOUT

The spreadsheet has 255 columns and 255 rows. They are arranged alphabetically for columns, and numerically for rows. Reversed video bars with the Column and Row markers are placed along the

top and the left side of the spreadsheet so that the user will be aware of his/her location at all times.

All cells within the spreadsheet are referred to by their cell identification, eg. A1. This would be the upper most left hand cell, Column A and Row 1. While IU255 would be located in the bottom right corner of the spreadsheet.

As in the other PENPAL modules, the top line of the CALC screen is the Command Line. The line just below the Command Line is referred to as the Cell Descriptor Line. This line is used to supply the user with information regarding the cell where the cursor is located. It is in this line that you will see information about the format of the cell, whether the cell contains a label or a numeric value, and finally the contents of the cell (the current value, label, formula or text).

So that an entry of "C5 F\$ (V) 50.09" in this line would indicate to the user that the current cell was located at Column C, Row 5, formatted for dollars and cents, a numeric value, and containing the value of 50.09. While "BD123 (L) YEAR" would indicate that the cell is located at Column BD, Row 123, has the default format, is a label, and contains the label "YEAR".

Immediately below the Cell Descriptor Line is the Entry Line. Unlike other PENPAL modules, the Command Line is not used for entry of data that is to be placed into a cell. This however, is done through the Entry Line. As the user begins to type a value into a cell, it will be displayed in the Entry Line. Data Entry will be covered later in this portion of the manual.

MEMORY ALLOCATION

Memory for each spreadsheet file is allocated dynamically, that is the larger the block size you create the more memory is required. Thus, not all of the 255 by 255 cells may be used at one time. The reason for such a large number of cells is to permit the user the flexibility of creating either a vertical spreadsheet of up to 255 rows or a horizontal spreadsheet of up to 255 columns.

Each cell does not have to be defined to have memory allocated for it. The amount of memory used is governed by the size of the block bounded by A1 and the lowest right hand cell. If a cell is accidentally placed beyond the desired bounds of the spreadsheet an excess amount of memory may be allocated.

This situation cannot be corrected by merely deleting the contents of the cell, as CALC has created pointers to this cell. These pointers can only be removed by deleting the cell, and exiting CALC so that the file is saved to disk. When the file is reloaded the pointers will be reset and the correct amount of memory will be allocated.

FUNCTIONS

Due to the large number of functions required by a spreadsheet, the function set has been divided into two groups. The first group of functions that appear at start-up are referred to as the Primary Function Key Strip. If you select TOGG (F10) (also referred to as F0), you will toggle to the Secondary Function Key Strip. The Function Key Strip that is currently being displayed is active and in order for any function to be selected it must be present on the screen. As always, the Alternate Function Keys can be accessed regardless of which Function Strip is on the screen.

CALC: Primary Function Key Summary

- F1 (GOTO) - Will redisplay the spreadsheet beginning with the selected cell in the uppermost lefthand corner of the screen. The default is Cell A1.

- F2 (CALC) - Used to calculate and then display formula values within the current spreadsheet. Also used to perform a recalculation when a value or a formula has been changed.

- F3 (FRML) - Allows a formula to be assigned to the cell where the cursor is located. See FORMULAS, this section.
- F4 (TEXT) - Defines a previously selected area of a spreadsheet as a text block. See TEXT BLOCK, this section.
- F5 (FMAT) - Used to change column width, and numerical format within a specific or selected block of cells. See FORMAT, this section.
- F6 (SLCT) - Selects a group of cells for the same operation, formula, etc. See BLOCK FUNCTIONS, this section.
- F7 (COPY) - Used to copy a selected part of the spreadsheet to any other. See BLOCK FUNCTIONS, this section.
- F8 (DEL) - Used to delete the contents of a single cell, or a block of cells, (See BLOCK FUNCTIONS) or a row or column (See CONTROL MODE).
- F9 (INS) - Will insert a row or column when you are in the Control Mode. See CONTROL MODE.
- F0 (TOGG) - Toggles to the Secondary Function Key Strip.

CALC: Secondary Function Key Summary

- F1 (FIND) - Will locate a specific string (i.e. label) within the current spreadsheet. FIND commences its search from the current cursor location.
- F2 (MERG) - Merges the current spreadsheet with another spreadsheet file. Any common cells between the two files will be overwritten with data from the new file. See SAVE / MERGE FUNCTIONS.
- F3 (SAVE) - Saves the current spreadsheet to the disk in the current default drive. May also be used with the SLCT function to save part of a spreadsheet (partial save). See SAVE / MERGE FUNCTIONS.
- F4 (PRIN) - Prints the current screen. Any size block may also be printed out with this function. See PRINT FUNCTION.
- F5 (CFOR) - Clears all values in the spreadsheet that were calculated by a formula. Does not alter any of the formulas.
- F6 (ASAV) - Saves the current screen to the disk in ASCII format. Any size block may also be saved in ASCII format with this function. See SAVE / MERGE FUNCTIONS.

F0 (TOGG) - Toggles to the Primary Function Key Strip.

CURSOR MOVEMENT

While in the CALC module the cursor may be freely moved through the file by using the four arrow keys. Using the arrow keys in conjunction with the <SHIFT> or <CLEAR> keys will also affect the movement of the cursor within the file.

The following is a brief summary of the ways in which the user may move the cursor;

ARROW KEYS:

<LEFT> Move cursor left
<RIGHT> Move cursor right
<UP> Move cursor up
<DOWN> Move cursor down

SHIFTED ARROW KEYS:

<LEFT> Move cursor to left of screen or move along to the next screen
<RIGHT> Move cursor to right of screen or move along to the next screen
<UP> Move cursor to top of screen or move up to the next screen
<DOWN> Move cursor to bottom of screen or move down to the next screen

CLEAR ARROW KEYS:

<LEFT> Move cursor to Column A
<RIGHT> Move cursor to Column IU
<UP> Move cursor to Row 1
<DOWN> Move cursor to Row 255

DATA ENTRY

The cursor can be moved by the user to any desired cell in the CALC spreadsheet. Once a cell has been selected, four types of information can be entered in the cell. These are labels, numbers, formulas or text. The remainder of this section will be devoted to the entry of labels or numeric values, as formulas and text are discussed in their own sections.

As data is being entered by the user, it will be displayed in the Entry Line. The <SHIFT> <LEFT ARROW> may be used to move back one character at a time in the Entry Line, if an incorrect value has been entered. Once the user has finished the input, pressing <ENTER> will set the value into the cell.

At any time during the input of data into a cell the user may abort by pressing <BREAK>. The data will not be entered into the cell.

LABELS:

If the user wishes to enter a label in a cell pressing any printable key other than a numeric value will immediately tell CALC that this cell is to be a label. The user just continues to enter the desired label. When finished, pressing <ENTER> sets the label into the cell.

If a numeric value is to be used as a label, entering a quotation mark <"> will also advise CALC that the following information is to be used as a label. (Note that the quotation mark will not appear in the label.)

NUMERICS:

To enter a numeric value into a cell, move the cursor to the desired cell and press any number key, the plus sign <+>, the minus sign <->, or the decimal point. These alert CALC that numeric values are to be placed in this cell. The user just continues entering the desired number.

Numbers are only accurate to 9 places and entries larger than this will be converted to scientific notation. The largest number that can be entered is $1.0E31$, while the smallest positive number is $1.0E-31$. Finally, if a number is too large to be displayed in a cell, CALC will display "greater than" signs in the cell

Note that CALC will not allow the placement of anything other than a numeric value in this cell. So that the user could enter "77p", however, once <ENTER> is pressed only "77" will be placed in the cell.

DATA LENGTH:

When entering either labels or numeric data, the entries may be of any length. However, only the amount of characters equal to the width of the cell will be displayed. All of the data will be displayed for the user in the Cell Description Line.

MOVING TO OTHER CELLS:

Once the user has finished entering the label or numeric value into a cell, pressing <ENTER> will set the value into that cell. The cursor will remain in that cell, but can be moved anytime after this with the arrow keys.

However, the user has the option of entering his/her data and then pressing any of the arrow keys. This will not only set the data into the cell, but move the cursor to the next cell. This is convenient for entering such things as either a column or row of figures.

FORMULAS

A special section on formulas and formula entry is worthwhile since this is one of the most important features of a spreadsheet.

ENTERING FORMULAS:

To enter a formula into a cell, place the cursor in the cell. Press FRML (F3) from the Primary Function Strip. The following prompt will be given by CALC, "Formula:". the user can now

enter the formula for this cell.

Formulas can be simple ones, as in $E5*A7$, which would be the result of the value of the cell located at Column E Row 5, being multiplied by the value of the cell at Column A Row 7. Or you may use the built in formulas that are supplied with CALC. Thus $SUM(E7-G7)/INT(G6)$, would yield the result of the sum of the values in the cells from Column E Row 7 through to Column G Row 7, divided by the integer value of the cell at Column G Row 6.

SELECTING CELLS:

The user is not just restricted to entering the entire formula from the keyboard. By moving the cursor with the arrow keys, the cell location of the cursor will appear in the formula. Once the cursor is over the desired cell press <ENTER> and CALC will set this location into the formula, then return the cursor to the starting location. Now other operators can be entered and the cursor moved again to select another cell location to be inserted in the formula. Finally the user must press <ENTER> to set the formula in the cell.

DELETING ENTRIES:

Since the arrow keys are used to select cell locations for inclusion in the formula, the <RIGHT ARROW> and <LEFT ARROW> will not move the cursor within the Entry Line. The user can however, delete the character at the current cursor position by pressing the <@> key. Further, <CLEAR> <L> will delete the entire entry, allowing the user to re-enter a formula.

BUILT IN FORMULAS:

As mentioned previously there are several formulas built into CALC. The following is a list of these formulas, along with a brief description of what they do;

COLUMN, ROW, or SELECTED BLOCK:

- AVG** Average of the values. eg AVG(A1-B18).
(Used to calculate the average of all the cells in the block with A1 at the top left corner to B18 at the bottom right corner. Column or row averages may also be calculated.)
- CMT** Cumulative sum of the column. eg CMT(A23)
(Total the values in the column starting or ending at cell A4 to the row in which the formula is located.)
- MAX** Maximum value.
- MIN** Minimum value.
- RMT** Cumulative sum of the row. eg RMT(B7)
(Total of the values in the row starting at B7 to the column in which the formula is located.)
- SUM** Sum of values. eg SUM(E34-G45).
(Used to calculate the sum of all the cells in the block with E34 at the top left corner, to G45 at the bottom right corner. Column or row sums may also be calculated.)

SINGLE OPERAND:

- ABS** Absolute value. eg ABS(A1)
- ATN** Arctangent.
- COS** Cosine.
- EXP** Exponential.
- INT** Integer.

LOG Logarithm.
 RND Random.
 SGN Sign.
 SIN Sine.
 SQR Square root.
 TAN Tangent.

All trig. functions are in radians. To
 convert from degrees multiply by: $\text{PI}/180$

TWO OPERANDS:

+ Addition.
 - Subtraction.
 * Multiplication.
 / Division.
 ! Power.

OTHERS:

? Sets up a cell to receive a constant at
 the time of calculation. (eg ?COST will
 cause COST to be printed in the Entry
 Line. Any value input by the user will be
 used in the cell.)
 # Indicates a cell in the formula that is
 not to be adjusted for each successive
 row and column. This will not be adjust-
 ed even when the cell is copied or moved.
 (Opening bracket.
) Closing bracket.
 PI Constant 3.141592654.

NOTE: All formulas are evaluated left to right,
 and from the innermost brackets first.

FORWARD REFERENCING:

When CALC begins to recalculate any spreadsheet, it starts at the far left of the first row and examines the cells in that row. Each cell that requires a calculation is done in turn, and CALC moves on to the cell immediately to the right. Then, after it is finished with the first row, CALC will move down to the next row, and repeats the previous procedure until all cells in the spreadsheet have been calculated.

For this reason CALC does not compensate for any errors due to forward referencing. Forward referencing will arise if the following two conditions are encountered;

1. A cell contains a formula which uses a value contained in a cell that is to the right in the same row or that is located in a row lower in the spread sheet.
2. The cell that is being referenced, in turn contains a value that will be derived by a formula.

If this is the situation, and the spreadsheet is being recalculated, then the value that the first cell mentioned above uses, may in fact be incorrect. This is because the formula in the second cell has not yet been evaluated by CALC.

The user must try and avoid the use of any forward references. However, if this cannot be avoided, a correct value can be obtained by recalculating the spreadsheet twice, or more, depending on the depth of forward referencing. In this case, during the subsequent calculation a correct value will be used by the formula in the first cell.

BLOCK FUNCTIONS

A great many of the functions of CALC allow the user to manipulate Blocks of Cells. Of course, prior to any block functions being invoked, the Block of Cells must be selected and marked.

To select a block, place the cursor in the cell at a corner of a desired section and press SLCT (F6). This cell will now be shown in inverse video. Next the cursor is moved so that the rest of the block is defined by inverse video display. (Note that the block may be larger than the actual screen display.) Finally, the user must select the desired block function.

The user can now fill the entire Block of Cells with a single value or a single label. This is done by entering a value or label after the block has been selected. Press <ENTER> and every cell in the block will be set with the value or label entered.

The remainder of this section will be concerned with the COPY and DEL functions only, as other block functions will be covered in their own sections.

DEL:

After a Block of Cells has been selected it may be deleted by pressing DEL (F8) from the Primary Function Strip. This will cause every cell within the block to be cleared.

COPY:

To copy a Block of Cells the user must first select the desired block using the SLCT (F6) function. After this is done, press COPY (F7) and CALC will store pointers to the block.

The user will be able to maneuver the cursor to another location and then press COPY (F7) again. The following prompt will be given;

"Copy block, "Y" to confirm."

Press <Y> and the block will be copied starting at the current cursor location. The user can now move the cursor to another location and repeat this procedure for another copy of the block.

Any formulas that are contained in the Block of Cells that is to be copied will be adjusted automatically so that they will now make references relative to their new locations. This does not apply to any formula in which the '#' command has been used, as this will always reference a specified location.

One final thing should be noted about the use of the COPY function. This is that COPY begins at the top row of the Block of Cells and moves down one row at a time as it copies to the new location. This can create a potential problem if the user places the cursor in such a manner that the new block location and the current location of the selected Block of Cells overlaps. The result of this action can sometimes create unpredictable results.

TEXT BLOCK

The Text Block is a powerful function, that allows a user to place small or large text document(s) within a spreadsheet.

To activate a Text Block, first choose the cells that will form the text area with SLCT (F6) function from the Primary Function Strip (See BLOCK FUNCTIONS). Then select the TEXT (F4) function. You will see a cursor appear within the selected block. You may now enter text as if this area were a mini word processor.

ENLARGING BLOCK SIZE:

Any Text Block can be enlarged in size by creating a new Text Block adjacent to the existing block. Do not enter any text into this block, but rather exit the function. Now place the cursor back into the block area and recall TEXT (F4). Both blocks are now seen as a single unit. The user must note, however, that the size of the Text Block cannot exceed the size of the screen display.

ENTERING TEXT:

Once TEXT (F4) is called the cursor will appear in the block. Typing any characters will set them into the block.

To delete a character, hit <SHIFT> <LEFT ARROW>, and to insert hit <SHIFT> <RIGHT ARROW>. Word wrap is not supported, so you will have to adjust the number of spaces between words accordingly to arrange them in the appropriate manner. When you are finished typing the text, press F12 or the <BREAK> key to return to the command mode. Your

text will now appear in regular display mode, as part of the spreadsheet, in the form that you typed it!

REFORMATTING:

One word of caution, if a Text Block is created and then the user changes the width of columns that pass through this block, this will affect the display of the text in the Text Block. The Text Block can be reformatted by placing the cursor in the Block and then selecting TEXT (F4). The text will now be reformatted automatically. However, if the text is larger than the amount of space in the new Block, the text will be truncated.

CONTROL MODE

To avoid costly mistakes, before you can insert or delete a row or column, or change the width of a column, you must enter the Control Mode. To do this, maneuver the cursor to the cell closest to the margin of the row or column that you wish to change. Now, while holding the <CLEAR> key, select the appropriate arrow key to take you into the margin of the row or column you wish to work with. You will note that the cursor moves into the margin.

You may now delete the row or column, or insert a row or column by selecting the correct Function Key (DEL (F8) or INS (F9) on the Primary Function Key Strip).

If you are in a column margin, you may also change the width of one or all columns by selecting the format function, that is, FMAT (F5) on the Primary Function Key Strip. (Further information on this function will be provided in the FORMAT section below.) You may return to command mode at any time by using the arrow keys to leave the margin and return to the body of the spreadsheet.

FORMAT

When the user enters data into a cell, it will be displayed in that cell according to the format that has been selected for that cell. Several different format styles are available to users of CALC. This along with the width of any column is set by the use of the FMAT (F5) function.

FORMATTING COLUMNS:

If you are in Control Mode (see Section above), the FMAT function may be used to change column width. The minimum width is 3, and the maximum is 48, while 10 is the default width of any cell prior to changes.

When the user selects FMAT (F5) while in the Control Mode, the following prompt will appear in the Command Line,

"ALLwidth, or column width (3-48)?".

The user may now set the width for any individual

column. This is done by moving the cursor to the desired column and then entering a number between 3 and 48. After pressing <ENTER> all cells in that column will have the new width.

If, however, the user wishes to change the width of all the cells in the spreadsheet simply enter "ALL" plus a number between 3 and 48, then press <ENTER>. All cells in the spreadsheet will have the new width.

FORMATTING CELLS:

While not in the Control Mode, FMAT (F5) will allow you to regulate the formatting of the cell where the cursor is located, or a group of cells that have been determined using the SLCT (F6) function. (See BLOCK FUNCTIONS.)

When format is selected, an option list will appear in the Command Line, i.e. "Enter format (DRLI\$-)?". The options that the user may select are;

- "D" - The default value, that is no special formatting.
- "R" - All input is right justified in the cell.
- "L" - All input is left justified in the cell.
- "I" - Numeric input is converted to an integer.
- "\$" - Numeric input is converted to dollar and cents format.

- "-" - The contents of the cell is repeated throughout the entire cell. (Can be used for underlining headings.)

SAVE / MERGE FUNCTIONS

The ASAV, SAVE and MERG functions are all called from the Secondary Function Strip. The following is a description of how each function operates.

ASAV:

If the user wishes to save the current screen or any portion of a spreadsheet in an ASCII format, this can be done by calling ASAV (F6). The user will be prompted with "Ascii save filespec:" in the Command Line. (Note that this function will not save a file that can be used as a working spreadsheet, but rather will save in an ASCII readable format only.)

The user now enters a filename and the file will be saved to disk. If no extension is entered, the default extension of /WP is used, so that this file will appear in the WRITE file compartment at the MAIN MENU. This file may now be manipulated by the WRITE module.

If the user has selected a Block of Cells with the SLCT (F6) from the Primary Function Strip (See BLOCK FUNCTIONS.) then this will be the section of the spreadsheet that is saved to disk in an ASCII format. If however, no block has been selected, then just the current screen will be saved to disk.

This function is especially effective if the user wishes to incorporate a portion of the spreadsheet into a document created by WRITE. As mentioned above such an operation would be facilitated because, by default ASAV saves its output to the wordprocessing section of PENPAL.

SAVE

If the user desires to save a copy of the current spreadsheet or any portion of it, the SAVE (F3) function must be called. The file that will be saved to disk will be a working spreadsheet file that can be reloaded using CALC or called by GRAPH-IT. Unlike ASAV this file cannot be incorporated into a text file.

When the user presses SAVE (and no block has been selected prior) then the entire spreadsheet file is saved to disk. If, however, the user selects a block of the spreadsheet with the SLCT (F6) function from the Primary Function Strip (See BLOCK FUNCTIONS.) and then calls SAVE then only the block will be saved to disk. The user will be prompted with;

"Enter filespec (Default=*****/SS):"

The name of the current spreadsheet file will be the default filename. By pressing <ENTER> without entering a filename the output of SAVE will be saved back to the current file.

Finally, when the user saves a block of the spreadsheet to disk, it will not matter what previous location this block occupied. The block will start at cell A1 in the new file. Thus, if a block bounded by N5 and R20 is saved to disk, the block will be relocated between A1 and E16 automatically by this function.

MERGE:

While in any of the CALC spreadsheet files the user has the option of merging in another spreadsheet file. To do this move the cursor to where the new portion is to be inserted and press MERG (F2). The user will be asked for the name of a file. Once this is entered the file will be loaded into memory over the existing cells.

The merge is relative to the cursor location. That is, wherever the cursor is located in the current spreadsheet will become the starting point at which the new file is loaded. Thus, cell A1 from the new file will be loaded in, at the current cursor location.

Also, the user must be aware of the fact that any cell in common between the two files will be overwritten by the file that is being called. So you must be sure that the new file does not destroy any needed sections of the current spreadsheet.

PRINT FUNCTION

If the user desires a printout of the current screen or any portion of the spreadsheet then PRIN (F4) must be selected from the Secondary Function Strip. The user will be prompted to insure that the printer is on-line.

SCREEN PRINT:

When the PRIN function is called, the current portion of the spreadsheet that is on the screen

will be sent to the printer (unless a block has been selected). Note that the Command Line, Status Line and Data Entry Line will not be printed.

PRINTING A BLOCK:

Any size block of cells can be sent to the printer. The user must select a block of cells with the SLCT (F6) function, and then press PRIN (F4).

LINE WIDTH:

Note that PRIN will use the default printer values. These are set with the Alternate Function, PRIN (this function has the same name, but is invoked by pressing AF2). The user must ensure that the size of the Line Width set by this Alternate Function is larger or equal in length to the portion of the spreadsheet that is to be printed.

If this length is larger than the Line Width set for the printer, then as each row is sent to the printer, it will be split into two or more lines. Should this occur the user must adjust the Line Width, or reselect a smaller portion of the spreadsheet to be printed. Perhaps, two or more successive blocks of cells could be sent to the printer separately.

ON-LINE HELP

At anytime in a session the user can access the on-line help function of CALC by selecting HELP (AF4). A summary of the various functions and features of CALC will be displayed, one screen at a time. The user will be prompted to press <ENTER> to call each successive screen.

The user may exit this function by pressing F12 or <BREAK> during the display of any screen. Also after the last screen has been displayed the user will automatically exit HELP. The user will be returned to the sub-function, function or module from which the HELP function was invoked.

EXITING CALC

When the user is finished using the CALC module, there are two ways to exit. If the user wishes to save all of the changes that have been made during the current session, then this will be done by pressing F12.

If, however, the user does not wish to save any changes, then AF12 should be pressed. This will exit the module and all changes made during the session will not be saved.

Both of these methods will return the user to the MAIN MENU.

THE DATABASE MODULE

DATABASE MODULE OPERATION GUIDE

The DATABASE module of PENPAL attempts to combine the virtues of simplicity and power. For this reason, the DATABASE module should be ideal for those people who wish to store, retrieve, sort or print data of any form. The DATABASE can be completely customized for nearly any purpose, and the list of possible applications is almost endless.

WARNING

Once DATABASE has opened a file for the user, the disk on which the file is located must never be removed from the drive and replaced with another disk. Since DATABASE uses the "Random Access" method of accessing the file, replacing the source disk with another disk will destroy the directory of the second disk.

TERMINOLOGY

As with any other database program, a certain degree of familiarization with the terminology employed is required. A database is composed of files, each of which contains groupings of related information. Thus, the user may create a series of files each of which is concerned with various types of information.

Each "file" is composed of a series of "records", and each record in turn is composed of a series

of "fields". Each field contains the information concerning the basic elements of the entire system. Throughout this section we will be referring to "files", "records" and "fields", and the meanings imparted by these terms are those mentioned above.

VIEWING RECORDS

The user may view any of the records in a DATABASE file from the main screen. When DATABASE first opens an existing file, the first record in the file will be displayed on the screen. By using the arrow keys the user may examine any of the records. The following is a summary of how to use the arrow keys;

- <LEFT ARROW> - Display previous record
- <RIGHT ARROW> - Display next record
- <CLEAR-LEFT ARROW> - Move to first record
- <CLEAR-RIGHT ARROW> - Move to last record

WHEN YOU START

When you begin a DATABASE file, the very first thing you must do is determine the data form. This form will consist of a certain number of

fields. The user can select labels for each of the fields as well as specifying the length allowed for each entry field. A maximum length of 256 characters is allowed for each entry field. All new files will be set up in this manner. This will be discussed in more detail in the in "FORM CREATION MODE".

When the user opens an existing DATABASE file, the user will be greeted by the first record of that file. At any time, you may add records to the file, edit a record within the file, sort by field priority number, search the file using multiple criteria, and print out all or part of the data.

FUNCTIONS

PENPAL's DATABASE module is also function key oriented, and uses similar commands to other modules. However, when some of the DATABASE functions are selected the user is placed into the equivalent of a sub-module, complete with its own Function Key Strip. Where this is the case, the function and the related sub-module commands are explored separately.

DATABASE: Function Key Summary

- F1 (ADD) - Will place you in the add record mode. This mode allows you to add records to the current file. See ADD, RINS, EDIT MODE below.
- F2 (PNUM) - Allows you to assign priority numbers to the individual fields within a record for sorting according to this number later. See PNUM AND SORT ROUTINES below.
- F3 (EDIT) - Allows the user to edit the record that is currently displayed on the screen. See ADD, RINS, EDIT MODE below.
- F4 (RINS) - Inserts a record into the file prior to the record that is currently displayed on the screen. See ADD, RINS, EDIT MODE below.
- F5 (RDEL) - Permanently deletes the current record, that is displayed on the screen, from the file.
- F6 (FIND) - Used for searching through the file to find those records that match one or more criteria. See FIND below.
- F7 (DISP) - Allows the user to display the file records to the screen in one of two formats. This command may only be used if a FIND criteria has been selected. See DISPLAYING RECORDS below.

- F8 (PRNT) - File records are sent to the printer or to the default drive. Only records that meet the criteria of a search (FIND) will be printed. See PRINTING RECORDS below.
- F9 (SORT) - Allows the user to sort records by ascending or descending order according to priority number.
- F0 (DUMP) - Causes any record displayed on the screen to be sent to either the default drive or to the printer.

FORM CREATION MODE

When a new DATABASE file is created, the user will automatically be placed in the Form Creation Mode. This mode may only be entered once, that is when the new file is created and this form may not be modified later. Further, the form will be used as a template for the entry of all data in the file.

Therefore, care and some preplanning must be used so that all of the fields that may be needed now or in the future, are included. Careful attention should also be given to how long, and what special characters, each field will contain.

The user may move the cursor about the screen by using the arrow keys. The following is a summary of the ways to use the arrow keys;

- <UP ARROW> - Move cursor up one entry
- <DOWN ARROW> - Move cursor down one entry
- <RIGHT ARROW> - Move cursor to the right
- <LEFT ARROW> - Move cursor to the left

While in the Form Creation Mode, the user will note that there is a separate Function Key Strip for the mode. The following is a brief summary of these function keys;

- F1 (ICHR) - Insert a character at the current cursor location.
- F2 (DCHR) - Delete a character at the current cursor location.
- F3 (ILIN) - Insert a line between Entry Fields.
- F4 (DLIN) - Delete a line from between Entry Fields
- F5 (DENT) - Delete the entire Entry Field at the cursor location.
- F6 (NUMB) - Designates the entry as a numeric field.
- F7 (DATA) - Inserts a Data Character at the current cursor location.

FORM LAYOUT:

Each field in the form consists of two separate portions and together they are referred to as an Entry Field. These are the Label Field and the Data Field. The Form cannot exceed the size of the screen.

LABEL FIELD:

On the left side of the screen, 15 characters have been set aside for the user to enter a label for the Entry Field. The Label Field has no effect on the entry of data and is only there so that the user can designate what information and the type of information that is to be entered.

To enter the desired label (i.e. Name, Address, Date, etc.), simply ensure that the cursor is placed at the desired location (cursor may be maneuvered using the up and down arrow keys) and then enter one or more characters. Press <ENTER> when you are finished. Any unused portion of the Label Field will be filled in with periods, and a colon will be placed at the end of the field.

ALPHANUMERIC OR NUMERIC FIELDS:

The colon at the end of the Label Field will indicate that the field is composed of alphanumeric characters, which is the default type of field. If you wish to identify this field as numeric only, then select NUMB (F6). The colon will be changed to a number sign <#> to inform you that a Numeric Flag has been set for this field. Any input into a numeric field is always right justified.

DATA FIELD:

Data Fields appear to the right of a Label Field. The right 34 characters of the form are set aside for this. Although a Data Field may be longer than 34 characters, this is the maximum number that can be placed on one line. If more than 34 characters are to be used in a Data Field, then more lines will be placed below the original line.

You must now determine how long you wish the data field to be. Pressing F7 (DATA) will cause one Data Entry Character to be placed in the Data Field. Up to 256 Data Entry Characters may be assigned to any field. A Data Entry Character equals one user entered character and is identifiable as they are slightly larger than a period. If you place five Data Entry Characters into the field then you may only enter five characters in this field.

If the cursor is at the first character of a Data Field, you may press <ENTER> to place 33 Data Entry Characters on the line. The Data Field may occupy several lines by moving to the last character on the line and selecting F7 (DATA) which will cause the cursor to move to the next line where more Data Entry Characters may be added to create a multi-line data field of up to 256 characters.

A user may also place any printable character into the Data Field. Once the user exits the Form Creation Mode, these characters will remain, but DATABASE will skip over them as data is entered into the field. They are only there to allow the user to set up a more meaningful data entry form.

For example, if the field was to be created for the entry of telephone numbers you may wish to enter brackets and dashes. The field may look like this:

TELEPHONE.....: (...)-...-....

When the user later wants to add records to the DATABASE, the telephone number can be entered without the brackets and dashes, but they will still appear in the display or printout.

CHANGING THE FORM:

Prior to exiting the Form Creation Mode the user may change anything within the Label or Data portions of any Entry Fields. The arrow keys are used to move the cursor to the desired Entry Field. The cursor will be in the Label Field, however the cursor can be moved into the Data Field by pressing <ENTER>. Changes can now be effected by typing over the existing information or by using the Function Keys.

Remember, once the user exits the Form Creation Mode there cannot be any further changes to the form!

EXITING:

To exit and save the newly created form the user must press F12. Once this is done the user will be able to add records to the new file as is outlined in the following sections.

ADD, RINS, EDIT MODE

When any one of these functions is called by the user, a new Function Key Strip is displayed along the bottom of the screen. The strip is identical for all of these commands, with only the following three sub-functions being present;

- F1 (DATA) - Sets the character at the current cursor location to an Data Entry Character.
- F9 (DEL) - Deletes the character at the current cursor location. All remaining data is then moved one position to the left.
- F0 (INS) - Inserts a character at the current cursor location. All other data is shifted to the right.

ADD:

The ADD mode allows the user to create new records which are added to the current file. When the user first enters this mode a blank copy of the data form will be placed on the screen. The user now has the ability to enter data into any of the Data Fields in the form.

The cursor can be freely moved anywhere in the Data Fields by using the arrow keys. When the user is finished entering data in a field, pressing <ENTER> will move the cursor down to the start of the next Data Field.

Finally when the user is finished entering data, the entire record can be saved to disk by pressing F12 or <BREAK>.. Once this has been done the record will be added to end of the current file.

RINS:

This function operates in exactly the same manner as the ADD function, and as such no description of it's operation is required. The only difference between these two functions is the location at which the newly created record is placed within the file.

As mentioned above, ADD places the new record at the end of the current file, RINS on the other hand places the record into the file immediately prior to the record on the screen at the time that it was called. So that if the user called the RINS function while the 5th record on the screen, when finished the new record would be placed at this spot. All other records from the 5th record would be moved up one position.

This function can be effective for placing a record into a file that is already sorted.

EDIT:

The Edit mode allows the user to edit any existing record. The user must locate the desired record and once it is on the screen press EDIT (F3). At this point the user is able to edit any data in the Data Fields.

The cursor can be freely moved using the arrow keys anywhere in the Data Fields. When the user is finished editing data in a field, pressing <ENTER> will move the cursor down to the start of

the next Data Field.

Finally when all necessary changes have been completed, the entire record including the changes can be saved back to disk by pressing F12 or <BREAK>.

CAUTION:

When any of these functions are called, the user must insure that Data Entry Characters are not placed in the middle of any of the entries in a Data Field. This will not cause any problems in the operation of DATABASE, however, problems will arise during the use of the SORT (F9) function.

The reason for this is that 'SORT' will only compare Data Field entries up to the first occurrence of an Data Entry Character. Thus, if any Data Field has Data Entry Characters positioned between portions of an entry, only that portion preceding the Data Entry Characters will be used in the sort.

FIND MODE

When the FIND mode is selected, a blank data form will be placed on the screen. You may now enter search criteria, and determine which fields will be used in the search and which will be printed out.

SEARCH CRITERIA:

The user will note that when this function is first called an equal sign $\langle = \rangle$, will appear to the left of the colon or number sign in all Label Fields. This represents the search criteria for that Field, and may be changed by using any of the sub-module Function Keys listed below.

The user must decide which fields will be used in a search, and then what type of comparison is to be used by FIND. Once this has been determined the user can enter information into the Data Field, and it is this information that will be compared to the Data Fields of each record in the file during the search.

The manner in which FIND compares the elements in the Find Form to elements in a Data Field of a record, is on a character for character basis. The ASCII value of each character will be compared until the search criteria is satisfied. Since an ASCII value comparison is used, the user should bear this in mind, and examine the listing of ASCII values contained in Appendix A.

The following is a list of the sub-module functions that will be available to the user while in the FIND mode;

- F1 (<) - Set the search criteria of a Data Field to less than what the user enters in this field.
- F2 (=) - Set the search criteria of a Data Field to equal what the user enters in this field.
- F3 (>) - Set the search criteria of a Data Field greater than what the user enters in this field.

- F4 (UNMK) - Remove the search criteria from the Data Field. Data Field will not be used by either DISP or PRNT functions.
- F5 (CLR) - Clears all of the search criteria selections. Everything will be set back to the startup condition of <=>.
- F9 (DEL) - Delete the character at the current cursor location.
- F0 (INS) - Insert a character at the current cursor location

LESS THAN:

If the "less than" (<) appears in the Label Field a selection will be made of all records that are of a lesser value than that which the user has placed in the Data Field of the FIND form. So that if

HELLO

was in the FIND form, an entry such as

HEELS

would be select because it is of a lesser value than HELLO. However, an entry such as

HELPER

would be ignored.

EQUAL TO:

If the "equal to" (=) appears in the Label Field a selection will be made of all records that are equal in value than that which the user has placed in the Data Field of the FIND form. So that if

HELLO

was placed in the Data Field of the FIND form everything other than an exact match to this string would be ignored.

GREATER THAN:

If the "greater than" (>) appears in the Label Field a selection will be made of all records that are of a greater value than that which the user has placed in the Data Field of the FIND form. So that if

HELLO

was in the FIND form, an entry such as

HELPER

would be select because it is of a greater value than HELLO. However, an entry such as

HEELS

would be ignored.

UNMK:

This command will "unmark" the Data Field. No comparison will be carried out using this field during the search process. Further, if DISP (F7)

or PRNT (F8) are invoked after the creation of this FIND form, then any field that is "unmarked" will not appear in either the display or printout.

WILD CARD:

The FIND function allows the user to place wild card characters into the Data Fields of any FIND form. The characters that are used as wild cards are the question mark <?> or asterisk <*>.

When a question mark <?> is placed in a Data Field then any character at that same location in the various records will be considered a match. Thus if the user selected a search criteria of "equal to" <=> for a field and had an entry in the Data Field used to store telephone numbers

(416) ???-????

then all records in the file that had the area code of (416) would be selected as a match.

When an asterisk <*> is placed at the start of a Data Field and immediately followed by a string then any occurrence of the string anywhere in the Data Field will be considered to be a match. Thus by entering

*HELP

any record that contains the string HELP anywhere in that Data Field will be selected as a match.

VIEWING MATCHES:

When you have completed of the above, select F12 or <BREAK>, and the search of records will begin. The first record that matches your search

criteria will be displayed on the screen. You may now move through the matches using the following key combinations;

- <SHIFT - LEFT ARROW> - Move back to previous FIND match.
- <SHIFT - RIGHT ARROW> - Move forward to next FIND match.

DISPLAY AND PRINT MODES

After the user has completed a search using the FIND (F6) function, the matches may be viewed on the screen or sent to the printer. This is done by calling DISP (F7) or PRNT (F8) respectively.

When the user created a FIND Form as outlined in the previous section, there was a sub-module function that allowed the user to unmark a Data Field (UNMK F4). This not only eliminates the field from the search, but has an effect on the two functions that are discussed in this section. Only those Data Fields that are "marked" with will be used by either DISP or PRNT.

Suppose the user had a file containing the following fields, NAME, ADDRESS, CITY and PHONE NUMBER, and wished to display only the names and phone numbers. This could be done by "unmarking" all Data Fields except NAME and PHONE NUMBER.

STYLE OF DISPLAY:

Both DISP and PRNT will ask the user to select Display Style A, B or C. Although each will

supply the same information for the user, the display format will be different.

Style A, consists of a columnar display with the Label Field being placed across the top of the display. Each Data Field that is selected with a search criteria will be displayed below the appropriate Label. In the following example only NAME and PHONE NUMBER have been "marked";

```

NAME          PHONE NUMBER
=====
Franklin      (416) 555-9852
Hanson        (502) 555-5511
Davis         (715) 555-7519

```

Style B, on the other hand will display the information beside the Label Field;

```

NAME.....:Franklin
PHONE NUMBER....:(416) 555-9852

NAME.....:Hanson
PHONE NUMBER....:(416) 555-5511

NAME.....:Davis
PHONE NUMBER....:(416) 555-7519

```

Style C will produce a report similar to the previous style, except that none of the Label Fields will be displayed.

DISP:

By selecting DISP (F7) the user will be allowed to output the results of a search by FIND, in either of the two styles described above. If the total length of the display is greater than the

screen size of 51 characters, then Style B is recommended.

PRNT:

By selecting PRNT (F8) the user will be allowed to send the matches located by FIND to either the printer or disk. The user will also be asked to select which of the 3 different styles of output is desired. When sending to the printer and the length of the output is greater than the length of the print line then Style B or C are recommended.

PNUM AND SORT ROUTINES

As the user enters various records they may not be in any particular order, or there may be a need to change the existing order. To accomplish a change in the order, so that the file is sorted in any number of ways, the functions PNUM (F2) and then SORT (F9) must be called.

Each record in the file is assigned a number and will be called to the screen in order of these numbers. When the records are sorted, the numbers are changed so that the records are now called in the new sequence.

PNUM:

Each Data Field in any Data Form can be assigned a Priority Number. When the file is first called by DATABASE all Data Fields have the default Priority Number of zero <0>. By invoking PNUM

any Field can have its Priority Number changed to a value ranging between 1 to 21. (Note that only 21 fields can be present in any Data Form.)

A Priority Number of "1" is the highest that can be assigned, and this will be the field that is sorted first. The lowest value is "21", with all other values falling between these two.

Zero, on the other hand is a special case. It does not mean that a field with this Priority Number will not be used as a sort criteria. Instead, if any of the Fields are set to a Priority Number higher than "0", they will be selected before the "0" field and in the order specified by their own priority number.

When all other fields which have non-zero Priority Numbers have been sorted, then the zero fields will be selected, but in a sequential order starting with the fields most near to the top of the Data Form working down. Thus if the user were to sort a file and all of the fields were left with the default value of zero, then this would see the first field being employed as the first criteria, and the last field on the Data Form being the last criteria employed.

To change the Priority Number after PNUM has been called the user must place the cursor over the desired field using the <UP ARROW> or the <DOWN ARROW>. As the cursor is placed over field the following prompt will appear in the Command Line,

Priority Number: 0

Thus the user can determine what is the current Priority Number.

To change this value the user must press <ENTER>. When this is done the next prompt will appear in

the Command Line will be,

Priority Number (1): ?

The user will note that the value in the brackets is the next available priority number. This value can be selected by pressing <ENTER>, or the user may decided to assign another value. If the latter case is desired then the user must enter a new value.

Note that the user has the option of setting a Priority Value back to zero at any time. However, the user must bear in mind that zero is the only case in which more than one field can have the same Priority Number. That is to say, the user cannot set two fields with a Priority Number of "8", as the entry will not be allowed. Any number of fields, on the other hand, can be set to zero.

Finally, the user must bear in mind that once PNUM has been invoked and any Priority Numbers changed, these changes will remain in effect for the remainder of the current session or until PNUM is invoked again. Once the user exits DATABASE the current Priority Numbers are not saved. Thus when the file is again recalled, all priority Numbers will be set to zero.

SORT:

The user invokes the sort routine by pressing SORT (F9). At this point the following prompt will appear in the Command Line,

Ascending or Descending (A or D)?

The user must select either an ascending order sort or a descending order sort. Press the

appropriate key and then <ENTER>. The sort process will now begin.

If the user selects an ascending sort then items will be sorted according to their ASCII values if the fields are alphanumeric or by their values if the fields are numeric. Accordingly, if a comparison is made between two records containing, HELP and HELD, the record with HELD will come before the one with HELP. If the user selected a descending sort then in the above case, the record with HELP would be selected first.

It may be of some assistance to the user to examine the listing of ASCII values in Appendix "A" to appreciate the order in which records will be sorted.

Once the user has selected the type of sort DATABASE will begin examining the records on the disk. Since memory is a premium on the Color Computer, DATABASE is completely disk oriented, and as such sorts of larger files will take a great deal more time than those done by programs which sort in memory.

When SORT is completed the user can examine the records using the arrow keys as outline in the VIEWING RECORDS section. The order of the records within the file will have been changed by SORT. This order will be maintained even after the user exits from DATABASE, provided of course that the user exits by pressing F12.

SCREEN / PRINTER DUMPS

If the user desires to save the information that is currently being displayed on the screen, he/she may do this using the DUMP (F0) function. The user will see the following prompt on the Command Line,

Dump to Disk or Printer (D or P)?

The user must press the appropriate key and then <ENTER>.

If the user selects a Disk Dump a filename must be entered. The user may enter any valid filename and extension. If no extension is entered the default extension of /WP will be used, and this file will now appear in the WRITE compartment at the MAIN MENU.

If on the other hand the user selects a Printer Dump the current file will be sent to the printer. The current printer values set by PRIN (AF2) will be used.

ON-LINE HELP

At anytime in a session the user can access the on-line help function of DATABASE by selecting HELP (AF4). A summary of the various functions and features of DATABASE will be displayed, one screen at a time. The user will be prompted to press <ENTER> to call each successive screen.

The user may exit this function by pressing F12 or <BREAK> during the display of any screen. Also after the last screen has been displayed the user will automatically exit HELP. The user will be returned to the sub-function, function or module from which the HELP function was invoked.

EXITING DATABASE

When the user is finished using the DATABASE module, there are two ways to exit. If the user wishes to save all of the changes that have been made during the current session, then this will be done by pressing F12.

If however, the user does not wish to save any changes, then AF12 should be pressed. This will exit the module and all changes made during the session will not be saved.

Both of these methods will return the user to the MAIN MENU.

THE GRAPH-IT MODULE

GRAPH-IT MODULE OPERATION GUIDE

The GRAPH-IT module of PENPAL is perhaps the most exciting and one of the most useful! You can easily create numerous multi-color, presentation quality graphs of several types from the data contained in any spreadsheet file from the CALC portion of PENPAL. You will see the integrated power of this package come to life as it takes one or more sets of figures from anywhere in the spreadsheet and transforms them into amazing graphs!

You may then add more than five styles of text as labels, print your graphs out using standard or double width modes, or save your creations in standard binary format for modification with graphics programs like COCO PAINT (also available from FOUR STAR SOFTWARE).

WHEN YOU START

When a GRAPH-IT file is first created, the user will be prompted for a filename. A second prompt asks for the name of a spreadsheet file. The name of an existing file created by CALC must be entered.

GRAPH-IT will load the spreadsheet file and ask for the range of values to be used in the graph. (This will be explained in the RANGE SELECTION section below.) A horizontal line graph will be generated on the screen, and the user will be

able to use the remainder of the GRAPH-IT functions to change, label or enhance the graph.

FUNCTIONS

GRAPH-IT has both a Primary and a Secondary Function Key Strip. As in all modules like this, you may toggle between the two sets of Function Keys by selecting TOGG (F0).

This module's use of Function Keys is similar to DATABASE, in so far as several Function Keys place the user into the equivalent of a sub-module. Each sub-module is complete with its own Function Key Strip. Where this is the case, the function and related sub-module commands are explored separately.

Finally, any screen that contains a graph will not display a Function Key Strip along the bottom. The Function Key Strip becomes visible only when the <CLEAR> key is pressed. This is due to the fact that GRAPH-IT screens can be dumped to a printer or saved as a binary file. As such the entire screen is used for the graph. When the user wishes to invoke a function, the Function Strip will be displayed, but does not affect the graph in any manner.

GRAPH-IT: Primary Function Key Summary

- F1 (PIE) - Selects pie graphs.
See GRAPH SELECTION below.
- F2 (HLIN) - Selects horizontal line graphs.
See GRAPH SELECTION below.
- F3 (HDOT) - Selects horizontal dot graphs.
See GRAPH SELECTION below.
- F4 (HBAR) - Selects horizontal bar graphs.
See GRAPH SELECTION below.
- F5 (VLIN) - Selects vertical line graphs.
See GRAPH SELECTION below.
- F6 (VDOT) - Selects vertical dot graphs.
See GRAPH SELECTION below.
- F7 (VBAR) - Selects vertical bar graphs.
See GRAPH SELECTION below.
- F8 (AVRG) - Will calculate and display the average line for each range of the spreadsheet that was graphed, and the overall average. They are displayed one at a time, each time the average key is selected.
- F9 (TEXT) - Places the user in text mode for adding labels to graphs.
See TEXT MODE below.
- F0 (TOGG) - Toggles to the Secondary Function Key Strip.

GRAPH-IT: Secondary Function Key Summary

- F1 (TXTR) - Toggles between the texture on/off drawing modes.
See TEXTURE SELECTION MODE below.
- F2 (SLCT) - Places the user in texture select mode to determine which of 96 possible textures are to be used when drawing graphs.
See TEXTURE SELECTION MODE below.
- F3 (CLR) - Clears all text from the graph.
See TEXT MODE below.
- F4 (SAVE) - Saves the currently displayed graph as a GRAPH-IT file.
See SAVE FUNCTIONS below.
- F5 (BSAV) - Saves the currently displayed graph as a binary file that is compatible with other graphic development programs, or with Extended Color Basic.
See SAVE FUNCTIONS below.
- F6 (PRIN) - Prints a hardcopy of the current graph using the pre-selected printer drivers and width types.
See PRINTER FUNCTIONS below.
- F7 (SETP) - Selects the printer driver and allows the user to choose between normal or double width modes.
See PRINTER FUNCTIONS below.

- F8 (LABL) - Automatically labels a Pie Graph and displays percentages down the right side of the display.
See GRAPH SELECTION below.
- F9 (RANG) - Allows the user to reselect a new range or set of ranges. Once called new value(s) must be entered.
See RANGE SELECTION below.
- F0 (TOGG) - Toggles to the Primary Function Key Strip.

RANGE SELECTION

When a GRAPH-IT file is first created the user is prompted for the name of a CALC spreadsheet file. This file will be loaded into the GRAPH-IT buffer and then the user will see the following prompt;

Enter range (eg A1-A20, ENTER for all):

This prompt will also appear if the user selects the RANG (F9) function from the Secondary Function Strip.

There are several possible choices that the user can now make. Once the range(s) have been selected, pressing F12 or <BREAK> will confirm the selections and the user will go to the main portion of GRAPH-IT.

ENTIRE SPREADSHEET:

All values contained in the spreadsheet file can be used in the graph by pressing <ENTER>. These will be entered by GRAPH-IT starting at the top of the first column, (Col A). When this column has been scanned, GRAPH-IT will move to the next column to the right. This procedure will be repeated until all values have been picked up.

SINGLE RANGE SELECTION:

If the user wishes to select a single range of values then the coordinates of the column, row or block of cells, will be entered at the first prompt. Once this is entered, exit this function and return to the main program.

Values for the graph will be selected starting at the top of the column which is at the left side of the block, moving downward. Once all the elements in the column are entered, GRAPH-IT will move over the column immediately to the right.

MULTI-RANGE SELECTION:

A total of five different ranges can be selected for any graph. After the first range has been entered, the user can select additional ranges. These ranges may be composed of a column, row or block of cells. Also the coordinates of the ranges can overlap.

The selection of values for each range will be done in the same manner as outlined in SINGLE RANGE SELECTION. Also see TEXTURE SELECTION MODE for information on how to select textures for a multi-range graph.

SELECTION OF VALUES:

As GRAPH-IT scans the spreadsheet files only cells that contain numeric values will be used in the graph. Thus, cells which contain labels or which are part of a text block will not be included.

If the user should enter a range for GRAPH-IT that contains only non-numeric values, the following error message will be generated:

No cells to graph.

The user must now re-enter a new selection.

BUFFER SIZE:

The buffer that GRAPH-IT loads a spreadsheet file into is limited to about 8,500 bytes of memory. Should a user call in a spreadsheet file that is larger than the buffer size, it will not be loaded into memory. The following error message will be displayed immediately below the Command Line:

Not enough memory.

The user must now abort, using AF12, and then enter the CALC module. Select the portion of the spreadsheet that is to be used and save this portion to disk as a separate spreadsheet file. Recall GRAPH-IT and load in the smaller file.

RESELECTING RANGES:

At any time while in GRAPH-IT the user has the ability to reselect the range or ranges of a graph. This is done by invoking RANG (F9) from the Secondary Function Key Strip. Everything mentioned in this section will apply to reselection, however, the user CANNOT exit this

function until at least one range is selected.

GRAPH SELECTION

Several types of graphs can be generated from the values contained in a spreadsheet file. When a GRAPH-IT file is first created the type of graph created is a horizontal line graph. However, by selecting any one of the six other graphing styles, the user can easily redefine the display of his/her information. All of these selections are made from the Primary Function Key Strip.

PIE GRAPH:

A Pie Graph of the user's information can be produced by selecting PIE (F1). All values will be displayed on the Pie graph as if they were "a slice" of a pie. Each value will represent a percentage of the total of all values to be graphed.

There is an additional feature that can be used with the PIE function. By calling LABL (F8) from the Secondary Function Strip, each "slice" of the Pie Graph will be labeled in alphabetical order. A table will be displayed down the right side of the screen showing the letter of each slice and the percentage of the total that this "slice" represents. Up to 26 "slices" can be labeled in this manner. This feature can be toggled off, by selecting LABL (F8) again.

Negative values cannot be graphed by this function. An error message will be generated if

any elements of the spreadsheet contain a negative value. In this case the user must select another type of graph.

The user has the option of selecting textures for a Pie Graph. See TEXTURE SELECTION MODE for more details.

Finally, multi-range graphing cannot be done with this function. If the current range selection is for a multi-range graph, PIE will only use the first range to generate a graph.

HORIZONTAL LINE GRAPHS:

Selecting HLIN (F2) will display a line graph (relative to the horizontal axis) of all elements that the user has selected. Each range of a multi-range graph will be represented by its own line.

HORIZONTAL DOT GRAPHS:

Selecting HDOT (F3) will display a graph (relative to the horizontal axis) that consists of a series of dots that correspond to the values contained in the spreadsheet file. Each range of a multi-range graph will be represented in this type of graph.

HORIZONTAL BAR GRAPH:

Selecting HBAR (F4) will display a graph (relative to the horizontal axis) consisting of a series of bars. Each bar will correspond to one value contained in the spreadsheet. Each range of a multi-range graph will be represented by its own set of bars.

The user has the option of selecting textures for a Horizontal Bar Graph. See TEXTURE SELECTION MODE for more details.

VERTICAL LINE GRAPH:

Selecting VLIN (F5) will display a line graph (relative to the vertical axis) of all elements that the user has selected. Each range of a multi-range graph will be represented by its own line.

VERTICAL DOT GRAPHS:

Selecting VDOT (F6) will display a graph (relative to the vertical axis) that consists of a series of dots that correspond to the values contained in the spreadsheet file. Each range of a multi-range graph will be represented in this type of graph.

VERTICAL BAR GRAPH:

Selecting VBAR (F7) will display a graph (relative to the vertical axis) consisting of a series of bars. Each bar will correspond to one value contained in the spreadsheet. Each range of a multi-range graph will be represented by its own set of bars.

The user has the option of selecting textures for a Vertical Bar Graph. See TEXTURE SELECTION MODE for more details.

TEXTURE SELECTION MODE

This mode will allow you to select textures for use in your graphs. It is entered by pressing SLCT (F2) from the Secondary Function Strip. The user will now be placed into a sub-module complete with its own Function Key Strip.

The screen will be divided into two sections. At the top will be the "Available Textures", in which are displayed the first half of the 96 textures from which the user can select. Below this is the "Selected Textures", which will display the user selected textures, in the order that they will be used. The user can select a maximum of 48 textures.

The user should note that two sets of Available Textures each containing 48 different textures can be called to the screen by selecting NEXT (F4). This sub-function will toggle between the two sets of Available Textures, but the Selected Texture Set will not be changed.

SELECTING A TEXTURE:

When this sub-module is entered there is a cursor located in the Available Texture Set. The user can move this cursor with the arrow keys over any of the 48 textures that will appear in this section of the screen. Once the user has positioned the cursor on the desired texture, pressing <ENTER> selects this texture.

A copy of this texture will appear in the Selected Texture Set. As the user selects additional textures, they will be displayed to the right of the previously selected texture.

The following is a list of the sub-functions that are available while the user is in the Texture Selection Mode;

- F1 (DEL) - Deletes the last texture entered in the Selected Texture Set.
- F2 (CLR) - Clears out all of the textures currently in the Selected Texture Set.
- F3 (INV) - Inverts the color set of all the textures in the Available Texture Set. (Thus almost doubling the number of textures that can be selected.)
- F4 (NEXT) - Toggles between the two sets of 48 textures in the Available Texture Set.

REUSE OF TEXTURES:

The user may select any number and combination of textures to be used in a graph. If for example, the user selects only 5 textures and the spreadsheet contains 15 elements, then GRAPH-IT will start using the textures from the left side of the Selected Texture Set. When the last of the textures is used, GRAPH-IT will again start at the beginning of the Selected Texture Set. In this case the Set will be reused 3 times.

MULTI-RANGE GRAPHS:

When the user wishes to employ textures in a multi-range graph, the following should be

remembered; all elements in a range will be given the same texture. This means that if the user wishes to apply textures to a graph that has 3 ranges, then ideally this is the number of textures that should be selected.

GRAPH-IT will use the texture on the far left of the Selected Texture Set for the first range. The next texture to the right will be used for the second range. Finally, the remaining texture will be used for the last range. As mentioned above GRAPH-IT will reuse the textures if there are more ranges than Selected Textures.

TEXT MODE

Once a graph has been created and the user is satisfied with the choice of range(s) and style of graph, text can be added to the graph. Select TEXT (F9) from the Primary Function Key Strip and the TEXT sub-module will be called.

While in the Text Mode the user will note that the Function Key Strip does not appear on the screen until the <CLEAR> key is pressed. The following is a brief summary of the various sub-functions that are available;

- F1 (CHR1) - Select 51 column character font.
- F2 (CHR2) - Select 32 column character font.
- F3 (CHR3) - Select 42 column character font.

- F4 (CHR4) - Select 32 column colored character font.
- F5 (CHR5) - Select 64 column character font.
- F6 (AND') - Select AND mode.
- F7 (OR) - Select OR mode.
- F8 (XOR) - Select XOR mode.
- F9 (OPAQ) - Select OPAQUE mode.
- F0 (INV) - Select INVERSE mode.

FONT SELECTION:

Any of the five character fonts can be used on the screen, and may be changed at any time, by selecting the appropriate sub-function. The user may, for example, decide to use a large size font for a title, and then change to a smaller font to place text containing further information below the heading.

ENTERING TEXT:

A cursor will appear in the top left hand corner of the graph when the Text Mode is first entered. Press any key and the appropriate character will be placed on the screen. The cursor may be maneuvered anywhere on the screen by the use of the arrow keys, and the following is a summary of how to use these keys;

- <RIGHT ARROW> - Move cursor one character to the right
- <LEFT ARROW> - Move cursor one character to the left

<UP ARROW>	- Move cursor up one character
<DOWN ARROW>	- Move cursor down one character
<SHIFT RIGHT ARROW>	- Move cursor one pixel to the right
<SHIFT LEFT ARROW>	- Move cursor one pixel to the left
<SHIFT UP ARROW>	- Move cursor up one pixel
<SHIFT DOWN ARROW>	- Move cursor down one pixel

DISPLAY STYLE:

The user can select various styles of displaying the text on the screen. These styles can be changed at any time by pressing the appropriate Sub-Function Key. The following is a brief description of what effect the different styles will have on the text and screen.

All characters are composed of a rectangular shaped box made up of various bit patterns. The default pattern is a black character on a light background. When the user presses a key in the Text Mode, the "rectangle" with the matching character is applied to the screen. The user sees this as the corresponding character.

The user can select four methods of applying the text, these are called by pressing, AND (F6), OR (F7), XOR (F8) or OPAQ (F9) sub-functions. (Note that AND (F6) is the default value when this sub-module is first entered.)

AND, OR and XOR perform the Boolean operation that their names imply. Thus AND is best used

over a solid light background, while OR is best over a solid dark background. OPAQ, on the other hand will place the "rectangle" over the screen area without any Boolean operation, and the character will appear regardless of the background.

The INV (F0) sub-function causes the bit pattern in the "rectangle" to be reversed. Thus, a light colored character will appear on a black background.

The user is urged to experiment with the various styles of text display in order to discover the style that will be the most suitable for his/her graph.

CLEARING SCREEN:

Once the user has placed text on the screen, it will remain even if the user selects another type of graph. The entire screen can be cleared of text at anytime by calling the CLR (F3) function from the Secondary Function Strip. (The graph itself will not be changed by this function.) If desired, text can be reapplied by returning to the Text Mode.

SAVE FUNCTIONS

The SAVE (F4) and the BSAV (F5) functions are both called from the Secondary Function Key Strip. The following is a description of how these functions operate.

SAVE:

If the user wishes to save the current GRAPH-IT file to disk this can be done by selecting SAVE (F4). The following prompt will appear in the Command Line;

Enter filename (*****/GP):

The name of the current file will appear inside the brackets. Pressing <ENTER> will save the file under its current name, or the user may enter another filename. This new file will contain all of the current information concerning the present GRAPH-IT file and may be reloaded at any time.

The user does not have to enter an extension in the later case, as the default extension of /GP will be used. In this case, the new file will appear in the GRAPH-IT compartment at the MAIN MENU.

The SAVE function can be employed when the user wants to create a series of GRAPH-IT files all from the same set of information contained in a single spreadsheet file.

BSAV:

Any graph that has been created by GRAPH-IT can be saved to disk in a binary format, by selecting BSAV (F5). The user will now see the following prompt in the Command Line;

Enter filename for binary screen dump:

Once the user enters a filename and presses <ENTER> a file will be created on the default drive that contains the information for the graph screen. If no extension is entered, GRAPH-IT will use a default extension of /BIN. This file

is saved in a standard binary format and can now be loaded and modified by any of several different commercially available graphics programs, such as COCO PAINT.

The binary file that is created will occupy the same memory location that is used by Disk Basic for graphics (PCLEAR 4) and as such may be called in and used by any Color Computer BASIC program.

PRINTER FUNCTIONS

At anytime during a session in GRAPH-IT a printout can be made of the current graph. This feature is very useful if the user wishes to make a hardcopy of any graphs that has been created. For instance, these graphs along with a portion of a CALC spreadsheet, could be incorporated into a report prepared by the WRITE module of PENPAL.

PRINTOUTS:

A printout of a graph can be made by calling the PRIN (F6) function in the Primary Function Key Strip. The user will be prompted to ensure that the printer is on line, and then the graph currently on the screen will be dumped to the printer. (Any Function Key Strip on the screen will NOT be included in the printout.) Anytime during the printing of the graph, the user can abort by pressing the <BREAK> key until control returns to the GRAPH-IT module.

PRINTER DRIVERS:

GRAPH-IT contains built in printer drivers for several of the more common printers with graphics capabilities. The appropriate driver can be selected by the user by invoking the SETP (F7) function.

A new screen will appear with the list of all printers supported. The default driver will be highlighted by a cursor. The user may now select a new printer driver by moving this cursor with the <UP ARROW> and the <DOWN ARROW>. Also the size of the printout will be displayed below the list of printers. A second cursor will highlight the default size, which the user may change by moving this cursor with the <LEFT ARROW> or the <RIGHT ARROW>.

When the user has made the desired selections pressing F12 or <BREAK> will exit this function and set the selections. Any selection made with this function will not become the default settings, unless the user calls SCON (F7) from the MAIN MENU Function Key Strip.

If your printer is not on the printer driver list, try each of the drivers in turn since many printers use similar drivers.

The user must ensure that the proper baud rate has been selected for the printer. This is done by selecting PRIN (AF2). This alternate function is covered in the MAIN MENU portion of this manual.

ON-LINE HELP

At anytime in a session the user can access the on-line help function of GRAPH-IT by selecting HELP (AF4). A summary of the various functions and features of GRAPH-IT will be displayed, one screen at a time. The user will be prompted to press <ENTER> to call each successive screen.

The user may exit this function by pressing F12 or <BREAK> during the display of any screen. Also after the last screen has been displayed the user will automatically exit HELP. The user will be returned to the sub-function, function or module from which the HELP function was invoked.

EXITING GRAPH-IT

When the user is finished using the GRAPH-IT module, there are two ways to exit. If the user wishes to save all of the changes that have been made during the current session, then this will be done by pressing F12.

If however, the user does not wish to save any changes, then AF12 should be pressed. This will exit the module and all changes made during the session will not be saved.

Both of these methods will return the user to the MAIN MENU.

THE TELECOM MODULE

TELECOM MODULE OPERATION GUIDE

TELECOM provides a complete telecommunications environment. The user can send and receive ASCII, BASIC or binary files. Various Autolog Files can be created to allow the user greater flexibility when communicating with other CoCo owners, other computers or any Bulletin Board System.

CALLING TELECOM

TELECOM is called by placing the cursor into the TELECOM compartment. The name of each file in the compartment represents an Autolog File that has been created by the user. Placing the cursor over a filename and pressing <ENTER> will call TELECOM and load that file. If, however the cursor is left at the top of the compartment, no file will be loaded but rather the user will be prompted for the name of a new Autolog File. The user always has the option of creating a new file or modifying an existing file.

WHEN YOU START

When TELECOM is first entered the Status Screen will show all of the telecommunications parameters that can select, along with the name of the current Autolog File.

Should the user desire to change any parameters, this is easily accomplished by moving the Status Marker with the <UP ARROW> or <DOWN ARROW> keys. Once this is positioned over the desired parameter, the user can select any of the available options by moving the Option Marker with the <LEFT ARROW> or <RIGHT ARROW> keys.

The following is a list of the various parameters and their optional values:

Baud Rate

User may choose to use baud rates of 300, 600, 1200 or 2400 baud.

Default value is 300 baud.

Word Length

Can be set for either a 7 or 8 bit word length

Default value is 8 bits.

Parity

Allows the selection of None, Even, and Odd, as well as One or Zero.

Default value is None.

Number of Stop Bits

Either One or Two stop bits can be selected.

Default value is 1 bit.

DC2/DC4 Flow Control

Can be toggled Off and On. If connected to a host terminal that will automatically open and close the buffer, then this should be set to On.

Default value is On.

Ascii Buffer Filter

This can be toggled Off and On. Any character that is received by TELECOM that is not a printable ASCII value or a Carriage Return (13) will be stripped out of the incoming data if this filter is On.

Default value is On.

Line Feed Filter

This can be toggled Off and On. Any Line Feed (10) that is received will be stripped out of the incoming data if this filter is On.

Default value is On.

Half Duplex

This can be toggled Off and On. When this is set to on, then any characters pressed will be echoed to the screen.

Default value is Off.

Autolog File

This will show the name of the current Autolog File, if specified when TELECOM was first called.

FUNCTIONS

TELECOM's use of Function Keys is similar to DATABASE, in so far as several Function Keys place the user into the equivalent of a sub-module. Each sub-module is complete with its own Function Key Strip. Where this is the case, the function and related sub-module commands are explored separately.

TELECOM: Primary Function Key Summary

- F1 (RSET) - Resets the Status Screen values to the default.
- F2 (AUTO) - Calls and executes the Autolog File listed on the Status Screen. After execution, the user is then placed into the Terminal Mode.
- F3 (EDIT) - Allows the user to create a new Autolog File, or modify an existing File. See EDITING AUTOLOG FILES below.
- F4 (TERM) - Places the user into the Terminal Mode. See TERMINAL MODE below.
- F5 (CLR) - Clears the current buffer of its contents. Will prompt the user to confirm this action.

- F6 (SAVE) - Saves the contents of the current buffer as an ASCII file.
See SAVE / LOAD FUNCTIONS below.
- F7 (PRIN) - Sends the contents of the current buffer to the printer.
See PRINT FUNCTION below.
- F8 (LOAD) - Will load the ASCII file that is specified into the buffer.
See SAVE / LOAD FUNCTIONS below.
- F9 (DISP) - Displays the contents of the current buffer to the screen.
- F0 (WORD) - Toggles the Word Wrap feature off and on. When this is set to On then incoming words will not be split at the end of a line, but rather brought down to the start of the next line.

EDITING AUTOLOG FILES

TELECOM allows for the creation and modification of Autolog Files. These files can have TELECOM go through the necessary sign-on procedures for a bulletin board or automatically set the communications status prior to linking up with another system.

Once EDIT (F3) is pressed at the Status Screen, you will be prompted for a Autolog File name. The default value will be the name of the Autolog File that was selected when TELECOM was called.

The user merely presses <ENTER> and the contents of the file will be displayed on the screen.

However, any other filename may be used, and if this file exists it will be loaded and then displayed on the screen. If the file does not exist a new Autolog File will be created. An extension is not necessary as TELECOM will use the default extension of /TC.

When an Autolog File is loaded with the EDIT function it will be displayed on the screen. Each line will represent one command to be executed by TELECOM. On the left side of the line will be displayed the Sub-function, while to the right will be the actual contents of the line.

Any existing line can be altered by placing the cursor in the line and pressing a Sub-function Key. The user can now enter the new command and these changes are displayed in the Command Line. When <ENTER> is pressed the line will be set.

New lines can be placed at the end of the file by positioning the cursor there and pressing the desired Sub-function Key. Lines can be inserted by pressing INS (F9) or deleted by pressing DEL (F9).

The following is a list of the sub-functions that are available while in the EDIT mode:

- F1 (STAT) - Allows the user to change any of the communications parameters from the Autolog File.

- F2 (RECV) - Assigns a string of characters to be received. Tells TELECOM that it must wait until the string is received from the other computer.
- F3 (SEND) - Assigns a string of characters to be sent to another computer.
- F4 (PAUS) - Will cause TELECOM to pause for "n" seconds of time until the next line is executed.
- F5 (WNC) - Will cause TELECOM to wait until No Carrier signal is detected.
- F6 (WC) - Will cause TELECOM to wait until a Carrier signal is detected.
- F7 (DELY) - Sets the delay time between the sending of each character on Smart modems. See your modem manual. (For RS Smart modems a Delay of 1000 is recommended.)
- F8 (DEL) - Deletes the line on which the cursor is currently positioned.
- F9 (INS) - Inserts a blank line at the current cursor position.
- F0 (QUIT) - Exits back to the Status Screen saving the current Autolog File to the buffer. The file is not saved to the default drive.

SETTING STATUS PARAMETERS:

The user has the option of changing the communication parameters by pressing STAT (F1). The user will be prompted to enter a status change in

the Command Line. Each parameter is entered in exactly the same order as displayed on the Status Screen. Entries must be separated by a comma.

Most parameters that are to be entered are almost self explanatory, however the user should be aware that Parity is set by entering (N)one, (E)ven, (O)dd, (1), (0). While parameters that are set to either On or Off are set by entering (Y) for On or (N) for Off. An example of this would be;

1200,7,1,1,Y,N,N,N

which sets the following parameters;

Baud rate of 1200
 Word Length of 7 bits
 Parity of One
 One stop bit
 DC2/DC4 flow control On
 ASCII filter Off
 Line Field Filter Off
 Half duplex Off

GENERATING CONTROL CODES:

When the user is entering new lines then any Sub-Function control code can be generated by pressing <CLEAR> and the desired key. This will be displayed as an <UP ARROW> followed by the letter.

Since the <ENTER> key is used to set the line into the Autolog File, the user must use Control M to generate a Carriage Return within a Autolog Line. This is generated by pressing <CLEAR> and <M> together.

EXITING EDIT:

When TELECOM is first entered and an Autolog File is loaded, it is stored in a buffer. Once the user has changed an Autolog File, he/she may exit EDIT in one of two ways. If this change is to be only temporary, pressing QUIT (F0) will retain the currently displayed File in the buffer, but will not save it to disk. This file can be used by pressing AUTO (F2) from the Status Screen and will remain in the buffer until EDIT is called again or the user exits TELECOM.

If the user wishes to save a copy of the edited Autolog File then F12 must be pressed. The file will be saved to disk for future use, as well as, being retained in the buffer.

TERMINAL MODE

When the user selects the TERM (F4) Function Key from the Status Screen or after an Autolog File has been executed, TELECOM will place the user in the Terminal Mode. This is a sub-module that will display its own Function Key Strip along the bottom of the screen.

The following is a list of the various sub-module functions that are available to the user in the Terminal Mode:

- F1 (SEND) - Allows user to send any file to another CoCo (also using PENPAL). See FILE TRANSMISSION below.

- F2 (RECV) - Allows user to receive any file from another CoCo (also using PENPAL). See FILE TRANSMISSION below.
- F3 (XSEN) - Allows user to send a file to another computer using the Xmodem protocol. See FILE TRANSMISSION below.
- F4 (XREC) - Allows user to receive a file from another computer using the Xmodem protocol. See FILE TRANSMISSION below.
- F5 (CLR) - Clears the buffer of its current contents. User will not be prompted to confirm this action.
- F6 (BSEN) - Sends the contents of the buffer to another computer. See FILE TRANSMISSION below.
- F7 (ABOR) - Aborts the transmission of the buffer, while using the BSEN function.
- F8 (DISP) - Displays the current contents of the buffer.
- F9 (STOG) - Toggles the screen display off and on. See FILE TRANSMISSION below.
- F0 (BUFF) - Toggles the buffer open and closed. Only transmissions that are received while the buffer is open, will be stored in the buffer.

FILE TRANSMISSION

While within the Terminal Mode, TELECOM allows the user the option of selecting three separate methods of sending or receiving files. Each of these methods will be discussed below.

SEND (F1):

If the user wishes to transmit a file on disk to another PENPAL owner, SEND (F1) offers the most flexibility. This mode will allow for the transmission of any type of file format (ASCII, BASIC or binary). SEND can only be used in conjunction with another computer operating under PENPAL and set to receive with the RECV (F2) function discussed below.

The user must press F1, then he/she will be prompted for a filename. A complete filename including the extension must be entered. If however, no drive number is specified, the default drive will be used.

TELECOM will now search for the file on the appropriate disk drive and load the necessary information concerning the file. This information is then transmitted to the receiving computer. Immediately after this, TELECOM will commence to send the entire file in 256 byte blocks. Each block will be accompanied by a checksum value, which will be checked by the receiving computer. If the values do not match, the block will be retransmitted.

If two smart modems are being used, then the receiving computer must be in the RECV mode prior to the transmission. Finally, SEND and RECV disregard the settings on the Status Screen while

they are operating (except for the baud rate).

RECV (F2):

This function can only be used in conjunction with SEND (F1) described above. When the user presses RECV (F2), TELECOM will prompt for a filename. If no filename is entered, the incoming file will be saved to disk using the name supplied by the transmitting computer. If the user enters a filename (an extension must be included), the incoming file will be saved under this name. If no drive is specified, the file will be saved on the default drive.

The entire file will be received in 256 byte blocks. The receiving computer will calculate a checksum value for each block, and then compare this against the checksum value supplied by the sending computer. If the values agree then the next block will be sent. However, if they do not agree, then the block will be retransmitted.

To operate correctly, RECV must be receiving a Carrier Detect signal. If this does not occur, then this function will abort. Finally, SEND and RECV disregard the settings on the Status Screen while they are operating (except for the baud rate).

XSEN (F3):

Files may be transmitted to another computer using the Xmodem protocol, by pressing XSEN (F3). The user will be prompted for a filename. Any type of file may be specified (ASCII, BASIC or binary), and if no drive number is specified then the default drive will be used. Note, a default extension of /BIN will be used if no extension is entered.

TELECOM will transmit 128 byte blocks to the receiving computer. The user will be advised as each block is being transmitted.

For proper operation, the following settings must be made at the Status Screen: Word Length of 8 bits and Parity set to None.

XREC (F4):

The user may receive files that are being transmitted by another computer, using the Xmodem protocol, by pressing XREC (F4). TELECOM will prompt for a filename to save the incoming file to disk. If no drive number is specified the default drive will be used. Note, a default extension of /BIN will be used if no extension is entered.

The user should be aware that XREC will only save a file in a binary format. This presents no problem for either ASCII or machine language files. However, any BASIC files received will not run properly when called by the RS BASIC.

For proper operation while using the Xmodem protocol, the following settings must be made at the Status Screen: Word Length of 8 bits and Parity set to None.

BSEN (F6):

The user may transmit the contents of the buffer. (NOTE: LOAD (F8) from the Status Screen Function Key Strip can be used to load a file from disk.)

The buffer will be transmitted to another computer, however, there will be no check made at the receiving end to verify the validity of the transmitted data. If you are transmitting to another CoCo that has PENPAL then SEND (F1) and

RECV (F2) are recommended

ABORTING TRANSMISSION:

While using the BSEN (F6) function, transmission can be aborted by pressing the ABOR (F7) Function Key. However, while using any of the other modes (SEND, RECV, XSEN or XREC), the user must press the <BREAK> key to abort. TELECOM will not scan the keyboard during the last four functions until an entire block has been sent or received. Thus, the <BREAK> key will have to be held down until control returns to the user.

SCREEN DISPLAY TOGGLE:

The user has the option of toggling the screen display off and on by pressing STQG (F9). The current status of this function will be displayed when F9 is pressed. Since TELECOM has to handle both the transmission/reception of data and the generation of the screen, the screen display should be turned off, when the baud rate is 1200 baud or higher. If this is not done then a loss of data may occur.

SAVE / LOAD FUNCTIONS

SAVE:

The contents of the buffer may be saved to disk by pressing SAVE (F6) from the Status Screen Function Key Strip. The user will be prompted for a filename, and once entered, the buffer will be saved as an ASCII file. An extension is not necessary, as TELECOM will use /WP. Thus, the

new file will appear in the WRITE compartment of the MAIN MENU.

LOAD:

Any ASCII file can be loaded into the TELECOM buffer by pressing LOAD (F8) from the Status Screen Function Key Strip. It is not necessary for the user to enter an extension as /WP is the default value. PENPAL will then automatically load the file that is listed in the WRITE compartment of the MAIN MENU. If the extension is other than /WP, then it must be specified with the filename.

PRINT FUNCTION

The contents of the TELECOM buffer can be sent to the printer by pressing PRIN (F7). The user will be prompted to ensure that the printer is on-line, and then the buffer contents will be dumped to the printer.

The user must ensure that the proper printer settings have been selected prior to printing. This is done with the Alternate Function PRIN (AF2). Finally, if the ASCII Buffer Filter was not set to "On" prior to receiving the data in the buffer, then non-printable characters may be present. These characters may adversely affect the printing of the buffer.

ON-LINE HELP

At anytime in a session the user can access the on-line help function of TELECOM by selecting HELP (AF4). A summary of the various functions and features of TELECOM will be displayed, one screen at a time. The user will be prompted to press <ENTER> to call each successive screen.

The user may exit this function by pressing F12 or <BREAK> during the display of any screen. Also after the last screen has been displayed the user will automatically exit HELP. The user will be returned to the sub-function, function or module from which the HELP function was invoked.

EXITING TELECOM

When the user is finished using the TELECOM module, there are two ways to exit. If the user wishes to save all of the changes that have been made during the current session, then this will be done by pressing F12.

If however, the user does not wish to save any changes, then AF12 should be pressed. This will exit the module and all changes made during the session will not be saved.

Both of these methods will return the user to the MAIN MENU.

APPENDICES

APPENDIX "A"

ASCII CHART:

VALUE	CTRL	ASCII	VALUE	ASCII
0	^@	NUL	32	SP
1	^A	SOH	33	!
2	^B	STX	34	"
3	^C	ETX	35	#
4	^D	EOT	36	\$
5	^E	ENQ	37	&
6	^F	ACK	38	&
7	^G	BEL	39	'
8	^H	BS	40	(
9	^I	HT	41)
10	^J	LF	42	*
11	^K	VT	43	+
12	^L	FF	44	,
13	^M	CR	45	-
14	^N	SO	46	.
15	^O	SI	47	/
16	^P	DLE	48	0
17	^Q	DC1	49	1
18	^R	DC2	50	2
19	^S	DC3	51	3
20	^T	DC4	52	4
21	^U	NAK	53	5
22	^V	SYN	54	6
23	^W	ETB	55	7
24	^X	CAN	56	8
25	^Y	EM	57	9
26	^Z	SUB	58	:
27	^[ESC	59	;
28	^\	FS	60	<
29	^]	GS	61	=
30	^^	RS	62	>
31	^_	US	63	?

VALUE	ASCII	VALUE	ASCII
64	@	96	`
65	A	97	a
66	B	98	b
67	C	99	c
68	D	100	d
69	E	101	e
70	F	102	f
71	G	103	g
72	H	104	h
73	I	105	i
74	J	106	j
75	K	107	k
76	L	108	l
77	M	109	m
78	N	110	n
79	O	111	o
80	P	112	p
81	Q	113	q
82	R	114	r
83	S	115	s
84	T	116	t
85	U	117	u
86	V	118	v
87	W	119	w
88	X	120	x
89	Y	121	y
90	Z	122	z
91	[123	{
92	\	124	
93]	125	}
94	^	126	~
95	_	127	DEL

APPENDIX "B"

SAMPLE FILES:

To demonstrate some of the features of the PENPAL integrated package, we have include a sample file for each of the modules. The following is a brief description of each file that has been provided for you.

GAS-USE/WP

This is a text file that has been created on the WRITE module. Included in this file is a portion of a spreadsheet file (GAS/SS), that was saved in an ASCII format from a CALC file.

GAS/SS:

This spreadsheet file was created on CALC and is used to demonstrate natural gas consumption in a townhouse located in southern Ontario, Canada. A four year period was entered so that a comparison could be made on a yearly basis.

CLUB/DB:

A small DATABASE file which demonstrates how a Color Computer Club database could be created. The records in this file have been sorted according to name and membership number.

GAS-COMP/GI:

This multi-range graph was created from the CALC spreadsheet file. Two years are compared in this

file using two simple textures, so that any differences in cost or consumption are apparent.

BBS/TC:

This is a sample that contains an auto-log file that can be used to enable someone to sign on to a Bulletin Board automatically.

APPENDIX "C"

PRINT FORMATTING

While in the WRITE module of PENPAL (V2.0) all Print Formatting commands are entered on a separate line commencing with a semi-colon (;) and ending with a carriage return <ENTER>. Each Print Formatting character must be separated from the next by a <SPACE>.

```
;PL JY PG=12 LM=15<RETURN>
```

Two types of commands exist, Switches and Settings. Both must be entered in upper case and Settings must be immediately followed by an equal sign (=) and a decimal value.

SWITCHES: (Default=*)

CY - Centered Text...ON
CN - Centered Text...OFF *

FF - Form Feed

JY - Justified Text...ON
JN - Justified Text...OFF *

PC - Page Numbering...ON (Centered)
PL - Page Numbering...ON (Left Side)
PR - Page Numbering...ON (Right Side)
PN - Page Numbering...OFF *

WY - Wait After Each Page Printed...ON
WN - Wait After Each Page Printed...OFF *

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SETTINGS:

BM= - Bottom Margin
TM= - Top Margin (Def. from PRNT setting)
LM= - Left Margin
RM= - Right Margin
LS= - Line Spacing
PG= - Page Number (Def. of 1, max. of 10)
PL= - Page Length (Def. of 66)

(Note: No number will be printed on page # 1 of any document.)

APPENDIX "D"

The following are a list of all of the Printer Control Codes supported by the WRITE module of PENPAL (V2.0).

\$U - Underline On	@U - Off
\$I - Italics On	@I - Off
\$B - Bold On	@B - Off
\$W - Double Width On	@W - Off
\$C - Compressed On	@C - Off
\$D - Double Strike On	@D - Off
\$X - User #1 On	@X - Off
\$Y - User #2 On	@Y - Off
\$Z - User #3 On	@Z - Off

Printer Control Codes may be customized by using CODE (F9) command from the Secondary Function Strip. Input of up to five decimal numbers separated by commas is permitted. Entering only a zero (0) will disable that function.

The "ON" (\$) and "OFF" (@) markers may also be changed with F9 <CODE> function.

It should be noted that any two users of PENPAL who have different printers can exchange WRITE module files without having to worry about Printer Control Code differences. The WRITE module will use the Control Code tables saved in the CONFIG.SYS file of the individual user and thus compatibility is achieved.

Printer Control Codes are configured for the MP series of printers. The user defined codes have been set so that the following are enabled;

Condensed Mode
Y = Correspondence Mode.
N = Not Used.

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