This chapter discusses

- the way the printers can be used and defined to work with the MOS.

- creating and modifying print code tables for your printers.

- special tricks that can be used to deal with multiple printers.

> *Note:*   *This is a technical and in depth chapter about printer maintenance. Most users will select a printer and printer port during installation and will not need to refer to this chapter. Most features in this chapter are used when customizing the Medical Office System.*

To get to the Printer Maintenance Screen, press ⌷U⌷ at the Main Menu for the Utility Menu then press ⌷M⌷. The following screen will be displayed:

```
                                                              04.05.06DN3
                          ┌─────────────────────────────┐
                          │ P R I N T E R   M A I N T E N A N C E │
                          └─────────────────────────────┘
        Number Space  ──────── Sequence ───────    ─────────── Description ───────────
           1       ◄                              ◄   Boldface on              ◄
           2       ◄                              ◄   Boldface off             ◄
           3       ◄   $1b E $1b %24 %91          ◄   Initialize printer       ◄
           4       ◄   $1b E                      ◄   Reset printer            ◄
           5       ◄   $1b &d3D                   ◄   Underline on             ◄
           6       ◄   $1b &d@                    ◄   Underline off            ◄
           7       ◄                              ◄   Elongated on             ◄
           8       ◄                              ◄   Elongated off            ◄
           9       ◄   $1b (s3B                   ◄   Emphasized on            ◄
          10       ◄   $1b (s0B                   ◄   Emphasized off           ◄
          11       ◄   $1b (s10H                  ◄   Set 10 pitch             ◄
          12       ◄   $1b (s12H                  ◄   Set 12 pitch             ◄
          13       ◄   $1b (s16.6H                ◄   Set 16.7/17.1 pitch      ◄
          14       ◄   $1b (s1P                   ◄   Set proportional on      ◄
          15       ◄   $1b (s0P                   ◄   Set proportional off     ◄
          16       ◄   $1b (s1S                   ◄   Set italic on            ◄
        Printer type: HP-5
                              Enter Selection >
          S  -Select,  U  -Update,  C  -Copy,  D  -Delete,  PgDn  and  PgUp  -Scroll,
                    F10  -Help,  P  -Printers,  H  -Hardcopy,  X  -Exit
```
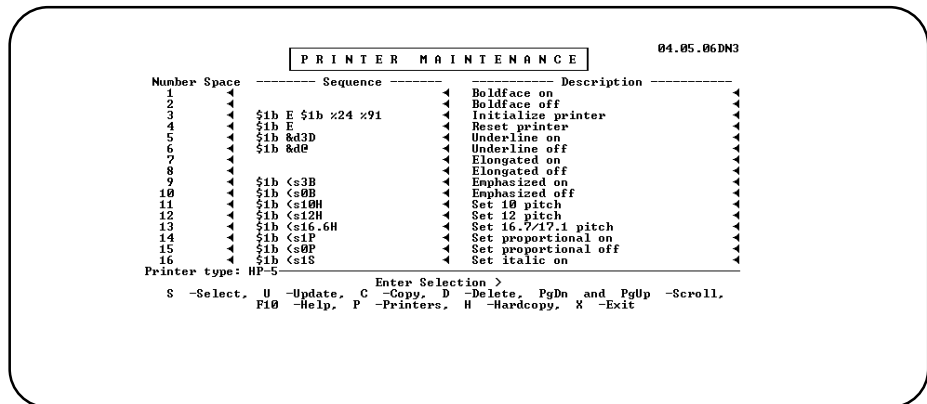
Figure 21-1 : Printer Maintenance Screen

The top portion of the screen displays the print code table associated with your default printer.

Printer Maintenance Screen

The options available on the printer maintenance screen are as follows:

Select   Press ⌷S⌷ to define a new print code table or revise an existing table. The table name ("printer type") is displayed in the lower left portion of the screen on the options line. For more information refer to "Selecting or Creating a Print Code Table" later in this chapter.

Update   Press ⌷U⌷ to enter update mode on the table selected.

Copy   Press ⌷C⌷ to copy the current table. Use this option to copy the current table to an existing table or to a new table. This feature can make it easier to create new tables; just copy a table that is similar then make the appropriate revisions. A window displaying the names of all existing tables (in alphabetical order) appears. Beneath the window is the prompt:

```
Copy printertype to...
Enter printer type:
```
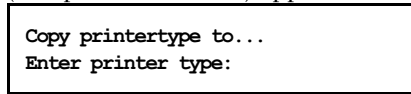
"Printer type" is the name of the table currently displayed on the screen. The name of the table selected from the list or entered will be the name to which the current table is copied. The default

table is the table displayed when the first Printer Maintenance Screen is displayed. Select an existing table name by highlighting it (use the arrow keys), or by typing in the complete name, and pressing ENTER .

Select a new table by highlighting [NEW] and pressing ENTER . The list of names is removed. Now type the new name and press ENTER . A copy of the table is displayed with the new name assigned.

Delete Make sure the Delete option is displayed at the bottom of the screen then press D . A window displaying an alphabetical list of the existing print code tables (printer types) appears on the left hand portion of the screen.

Mark each table to be deleted by highlighting it (use the arrow keys), and then pressing ENTER . An asterisk appears next to the table name. Unmark a table name by highlighting it and pressing ENTER again. The asterisk will disappear.

When all tables have been marked, press ESC . A prompt appears to ask conformation:

```
     Are you sure you want to delete the selected printer type(s)?

                          Press Y or N
```

Press Y , to delete the tables. Press N or ENTER to cancel the function. Correct the marked tables and repeat until it has been successful. If you don't want to delete any tables at all, press CTRL + BREAK to cancel the delete procedure and return to the current table.

If the current table is deleted, the list of table names is displayed from which another can be selected.

Scroll Codes Use PG DN and PG UP to scroll up or down 16 lines at a time.

Help Press F10 to see help for the print code table screen options.

Printers Press P to access the printer destination table. Up to nine printers can be defined for the MOS system. Printer names, print code table names, destination files (ports) and comments are maintained here. For more information see "Printer Destination Table" later in this chapter.

Hardcopy Press H to print a copy of the print code table and printer options table.

Exit Press X to return to the MOS Main Menu.

Selecting or Creating a Print Code Table

Many new printer types have been included in this version.

Press S to define a new print code table or to revise an existing table. A window, displaying the names of all the existing tables, appears. Use the arrow keys to highlight a print code table and press ENTER or highlight [NEW] and press ENTER to create a new table. If an existing print code table is selected, the Printer Maintenance screen is displayed and the name of the print code table will be displayed on the left-hand portion of the screen. If a new table is selected the following prompt appears below the window:

```
     Select printer type...
     Enter printer type:
```

where "printertype" is the name of the table. Enter a name and then press $\boxed{\text{ENTER}}$, and then the table can be updated. For more information about adding or modifying print codes see Updating and Adding print codes later in the chapter.

The print code numbers are used to reference a feature in an output format. In each print code table it is important that each print code represents the same function. To help maintain this consistency, the MOS maintains a file of pre-defined print code descriptions ("global descriptions"). For example, the global description for print code number 5 is always "Underline On". (i.e. If you want the printer instruction for underlining on in a new print code table, you should always enter it in print code 5. Then, no matter what printer and print code table is selected, the MOS will send the correct code and function when a print code 5 is placed in an output format.)

> *Note: In the MOS, if you BREAK out of the table before saving it, you will cancel all your changes.*

The only print codes used by the MOS are underline on (5) and off (6), emphasized on (9) and off (10), 10 pitch (11), 12 pitch (12), 16 pitch (13) printer codes and graphics codes (44-54). Print code 60 has been inserted at the start of insurance forms and patient invoices to allow a special printer definition to be sent for those forms only. Print code 61 has been inserted to initialize statement forms, and print code (62) has been used to initialize insurance reports. It is not necessary to define any print codes, if all that is required is the printer's default typeface with no adornments, special symbols, or graphics. The MOS will still print your output, with no special codes. (Many printers let you set print options on the printer itself; consult your printer manual.)

Printer Maintenance Screen Options (Update Mode)

When in update mode in the printer maintenance screen the following options are available:

To Record   Press $\boxed{\text{ESC}}$ to save the table.

To Cancel   Press $\boxed{\text{CTRL}}$ + $\boxed{\text{BREAK}}$ to leave update mode without saving the table.

Go to print code number

Press $\boxed{\text{F9}}$ to go to another print code number in the table.

Syntax Help   Press $\boxed{\text{F10}}$ for on-line help in entering print code sequences in the table.

To Change the Global Description

Press $\boxed{\text{F5}}$ to change the global descriptions. The right column displays the Global Descriptions on lines 1-54. They are built into every table, and (codes 3 to 54) can be edited. The MOS uses codes 60 to 65 for special forms. Do not override these with other functions that may mess up these reports.

> *Note: DO NOT CHANGE THE GLOBAL DESCRIPTION.*

Options   Press $\boxed{\text{F8}}$ to set/change printer options for the current table. This table is explained in detail below. If the printer is incorrectly printing the line feeds, i.e., the printouts are double spaces or all on one line, this is where it would be corrected.

Updating and Adding Print Codes

This section of the chapter will first describe the Printer Maintenance screen. It will also describe how to move around the screen, and show how to add/update print codes.

A Description of the Printer Maintenance Screen

Number The "Number" column, the first column on the screen, displays the code numbers associated with the print code descriptions.

Space The "Space" column, the second column on the screen, is where the width of the code is entered. This would list how many characters will be printed (additional spaces, beyond those taken up by the text) that will be used when the print code sequence is executed. Some may require space, others may not. For example, the underline attribute, code 5, does not require any extra spaces on the paper; but the registered trademark, code 38, will require one space. Enter numbers from 0 to 99; a zero or a blank means no space.

Sequence The "Sequence" column, the third column, is where the actual print code sequence is entered. Refer to the printer manual for the correct codes for your printer.

Description The "Description" column, the fourth column, describes the functions of the print code sequences. The first 54 descriptions are "global descriptions"; they are built into every table. Global descriptions can be edited by pressing [F5]. DO NOT EDIT THE GLOBAL PRINT CODE TABLE.

Moving on the Printer Maintenance Screen (update mode)

The first code that can be modified is code 3 in the "Spaces" column (codes 1 and 2 cannot be edited).

[↑] [→] [↓] [←] Use these to move the cursor within the table.

[ENTER] Use to move from one column to the next.

[HOME] Press once to return the cursor to the topmost line of the 16-line section. Press it again to return to line 3 of the table.

[PG UP] [PG DN] Use these to display the next 16 lines or the previous 16 lines of the table.

Jumping to Another Print Code Number

Press [F9] in update mode to go to another print code number. A prompt appears:

```
Go to print code number (3-256 or #END"):
```

Move to another print code number, by typing in the number and pressing [ENTER] , or type "END" and press [ENTER] to move to the bottom of the table. The "end" is defined as the first blank print code following the last non-blank print code on the table. A non-blank print code is any print code containing one or more characters anywhere on its line, including the "Description" column. There is a syntax for print codes that allows long, complex print code sequences in any mixture of ASCII, decimal, and hexadecimal forms, including control-character codes.

Defining Print Codes

If supplying codes for a predefined print code (code 3-54), all that is required is to fill the "Space" column and the "Sequence" column; the"Description" column is already filled. Codes 55 to 256

have no descriptions in the "Description" column; for all sequences entered at these code numbers, descriptions should be supplied.

Space   Enter a number form 0 to 99 for the number of spaces (additional spaces, not those used by the output text) that will be used when the sequence is executed. Press ENTER .

Sequence   A code sequence may have up to 80 characters in length although less than that number of spaces are shown on the screen. When the end of the entry area is bumped, the characters just typed, and the cursor, will jump left, giving you more room for typing. When the eighty-first character is pressed, the computer will beep; no more characters will be accepted. Go back to the beginning of your code sequence by pressing HOME ENTER . Return to the end of the sequence by pressing F7 .

Sequence can be entered in ASCII, decimal, control-character codes or hexadecimal form. Forms may even be mixed within one sequence. No one form is better than another. Work with the codes available in your printer manual.

> *Note:*   *The print code sequences would be found in the manual that accompanied your printer. All the information needed to control the printer should be in this manual. Look for the functions on a list or in the index to find the correct sequences.*

Sequence Syntax   The print code sequence syntax makes use of five special characters. Each special character when placed before code sequence characters, "introduces" the characters to filePro as a certain type (decimal, for instance) so that they can be processed properly. For example, the dollar sign ($) in front of some code, as in "$53", tells filePro that the number 53 is a hexadecimal number.

MOS treats the characters following a special character as all of the type indicated until a blank or another special character is encountered. The exception to this is the backslash (\) character that introduces literal characters; you need one backslash for each character to be taken as literal. All other characters are taken as is.

The following table shows how all the special characters introduce print code characters:

Table: Print Code Syntax Special Characters

Character	Characters Which Follow	Example
$	hexadecimal	$1b
#	decimal	#27
^	control	^A
%	number of the print code to be nested in current print code	%11
%"filename"	name of file or drive and path	%"testfont.fnt" %"c:\fonts\hpii\fnt18.fnt"
\	literal	\$ (one "\" per character)

ASCII Sequences

Enter ASCII sequences in the "Sequence" column as shown in your printer manual. No special characters are needed to introduce ASCII code characters.

Decimal Sequences

Type a pound-sign (#) in front of each number in the sequence shown in your printer manual. For example, the decimal sequence (Epson FX) for "Emphasized on" is "#27 #69".

Hexadecimal Sequences

Type a dollar-sign in front of any hex numbers in the sequence, as shown in your printer manual. Hex numbers in the sequences must have an even number of digits (e.g., $1b, $1b0a $01 $4e). If a hex print code sequence is shown in the printer manual with a single digit, or odd number of digits, enter the number with a zero in front to give it an even number of digits. For example, the hexadecimal sequence for "Select subscript" in the Epson FX manual is "1b 53 1". On the print code table, type in: $1b $53 $01 or $1b5301.

> *Note:* *Some printer manuals may be ambiguous in their presentation of print codes. The number "1" as in the example above, may be an ASCII "1" and not decimal or hex. Test it out first. Try it as "1", then "#1", "$01" or "$31".*

Attempting to leave the "Sequence" column or save the table with an odd number of digits after the dollar-sign will evoke an error message.

> *Note:* *Hexadecimal numbers contain only the following characters in combinations of two characters, 1234567890ABCDEF. If a code contains any other character, it is not hexadecimal.*

Example

ASCII, decimal, hexadecimal, and control-character forms may be mixed within one sequence. Any single element of the sequence (any character or characters separated by a blank space), can be entered in any of the forms. For example, an acceptable print code sequence for code number 16, "Set subscript on," for the Epson FX printer, is:

$1b S 1   Epson FX set subscript on code

#27 S 1   It is the same to substitute the decimal equivalent of the hex escape code and type in the sequence as:

#27 $83 1   Or, substitute the hex equivalent of the ASCII "S" and type in the sequence as:

To use a hex form of the "1", type in "$31". It is important when using ASCII codes that the case of the code is maintained. If the manual shows "S" (capital S) then be sure to type the "S" as a capital letter when entering the code. Be careful of O (letter o) and 0 (number zero). Many manuals do not print these as clearly different. If a code is not working, look closely and compare the character with others on the page to decide if the correct character was used.

Nested Sequences

An existing sequence in the current table can be used as part of another sequence by entering the code number of the existing sequence preceded by the percent-sign (%). For example, (Epson FX), you can nest the sequence for code 3 in code 12 by typing: $12 $1b M %3. Since the sequence code 3 is "$1b - 1", you are entering the equivalent of: $12 $1b M $1b - 1

Literal

Use the backslash (\) to tell MOS to accept the character following the backslash as a literal.

If your sequence includes one or more of the special characters that MOS uses in sequence syntax, such as "$" for hex, "#" for decimal, "%" for a nested code sequence, "^" for a control-character code, tell the MOS to accept these characters as literal by preceding them with the backslash.

Example: \$ tells the MOS that the dollar-sign is not the special character identifying a hex code, but is literally a dollar-sign. Another example: \\ tells the MOS that the second backslash is to be accepted as a literal.

> *Note:* *Since the spaces in a sequence are not passed to the printer, use the backslash in front of each space included in the code sequence.*

Control Codes

These codes, are not always included in printer manuals, consist of the ⌗CTRL⌗ key and a keyboard character. Control codes can be entered in a sequence by typing the caret symbol (^) for the ⌗CTRL⌗ key followed by the control character. Example: ^A

Be aware, however, that there is no ASCII form of the "escape" code, which appears at the beginning of many print code sequences. For example, the ASCII sequence for turning on the subscript appears in the Epson FX manual as is "ESC S 1". The "S" and the "1" can be typed in as shown, but a decimal, hexadecimal, or control version of the escape code must be substituted for "ESC". Here are the three forms of the escape code acceptable to the MOS:

Decimal: #27
Hexadecimal: $1b
Control Code: ^[

After typing the print code sequence, press ⌗ENTER⌗ . The cursor will go to the Description column, (if it is empty), or it will go to the Space column of the code below. There are two kinds of descriptions; global and local. Global descriptions are the default descriptions. They appear in the user-created default table and every new table created. Each table should refer to only one globe description and it should never be changed.

Saving the Table

If this is a brand new print code table, check the printer options table (press s) before saving it. See the Printer Options Table section later in the chapter. Save the print code table by pressing ESC when it is complete.

Printer Options Table

Each print code table also collects essential information about the specific printer. It is where important printer information that cannot be held in the print code table is entered. To define or change the printer options, press F8 (in update mode) and the printer option's screen will appear:

```
                                                                    04.05
             ┌──────────── Printer options ────────────┐
                   Printer description: HP LaserJet 5 by Jim Asman-960>

    Initialization print code number: 3  ◄
          Terminator print code number: 4  ◄    ├──> F6 for list.
      Graphic start print code number: 44 ◄              ┌ 1 - CR/LF
                                                         │ 2 - CR
                      New-line Options: 1◄  <──┤ 3 - LF

            Printer can Form feed? (Y/N): N◄
            Printer can backspace? (Y/N): Y◄

                              Page width: 255◄
                             Page length: 60 ◄
                            Print length: 60 ◄
                                 ───Press  ESC  To Record,  BREAK  To Cancel─
        ◄     $1b (s1S                    ◄       Set italic on
    r type: HP-5──────────────────        1
    Press  ESC -Record,  BREAK -Cancel, F9 -Go to print code number
      F10 -Syntax Help,  F5 -Change global description, F8 -Options
```

Figure 21-2 : Printer Options Screen

The name of the print code table ("printer type") will be displayed in the bottom left portion of the screen, on the options line. Some printer options will already have default answers when the screen first appears. Press ENTER at the prompt if the default answer is correct.
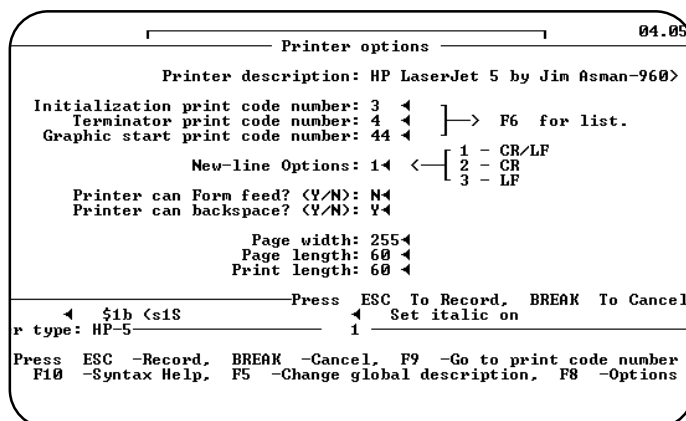
> *Note:* **Though you may save the printer options table, by pressing ESC the changes you make are not written to the hard disk until you save the print code table, as well. Therefore, when you return to the print code table, save it by pressing ESC , do not break out of it.**

Answer the prompts on the printer options screen as follows:

Printer description Type in a description of the printer. A maximum of 40 characters may be entered.

Initialization print code number

Enter the number of the print code that should be used to initialize the printer. Print code 3 is pre-defined to initialize the printer. The default is "3". To refer to the current print code table, press F6 , and the table will be displayed in a window. Use the PG UP , PG DN keys to scroll the table. For many new laser type printers, this will tell the printer the paper bin, set up the character set or indicate the default settings that should be used for all the MOS print jobs to this printer.

Terminator print code number

Enter the number of the print code that should terminate (undo, reset) any print codes set by the initialization print code or the output format itself. Print code 4 is predefined to reset the printer. To refer to the current print code table, press F6 , and the table will be displayed in a window. Use the PG UP , PG DN keys to scroll through the table.

Graphic start point code number

Enter the print code number at which the graphic sequences begin in the in the current table. On the default table the graphic sequences run from code 44 through code 54, therefore, the default answer here is 44. This should not be changed.

New-line options
1 - CR/LF (carriage return and linefeed)
2 - CR   (carriage return)

3 - LF   (linefeed)

Your answer to this prompt will tell the MOS what kind of code (CR/LF, CR, or LF) the printer requires to execute a new line properly when printing. Most printers can use option 1 (CR/LF). If you use "1" and your printer, double spaces, check your printer manual for the proper value.

Printer can form feed? (Y/N)   If the printer can feed a whole page of paper in response to a printer code, then press ENTER . Otherwise, press N . If this question is answered "Y" each page is completed with a FORM FEED code. If the question is answered "N" then each page is completed with line feeds to the appropriate page length.

Printer can backspace? (Y/N)   If the printer can backspace in response to a printer code, then press ENTER , otherwise press N .

Page size

The last three options, page width, page length, print length, define the default page size for the printer type. These settings will be overridden by their counterparts defined in an output format. However, they will be the default settings for any non-output-format printing such as hard copying.

Page width   Type in the maximum number of characters to print across the page. Example: at "10 pitch," ten characters are printed per horizontal inch; 80 characters fit on a line 8 inches wide.

Page length   Type in the length of the paper measured in printed lines. Example: at 6 lines per inch, an 11-inch page would be 66 lines long.

Print length   Type in the number of lines to print per page. To have some top and/or bottom margins, this number should be less than the page length.

Printer Destination Table

The available printers' table defines the first nine printers for use by the MOS. A list of the available printers can be displayed by pressing P when not in update mode.
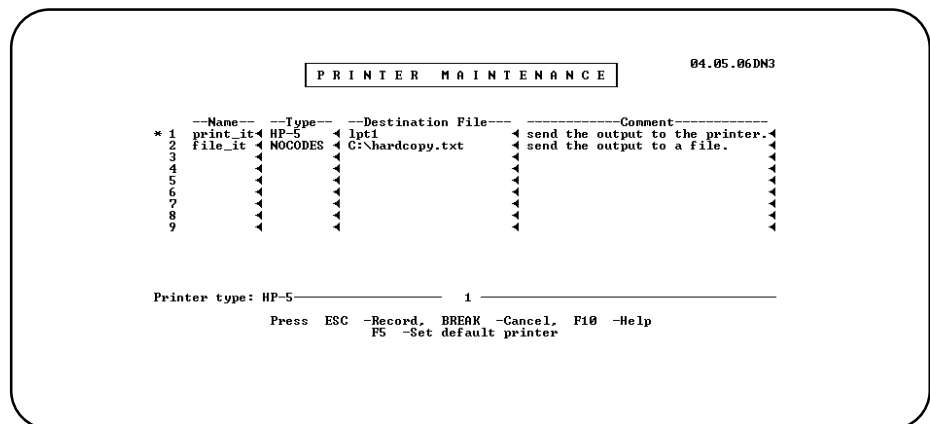
```
                                                                    04.05.06DN3
                        ┌─────────────────────────────────┐
                        │  P R I N T E R   M A I N T E N A N C E  │
                        └─────────────────────────────────┘

              --Name--  --Type--  --Destination File---  ----------Comment-----------
          * 1 print_it◄ HP-5    ◄ lpt1              ◄ send the output to the printer.◄
            2 file_it ◄ NOCODES ◄ C:\hardcopy.txt   ◄ send the output to a file.     ◄
            3         ◄         ◄                  ◄                                 ◄
            4         ◄         ◄                  ◄                                 ◄
            5         ◄         ◄                  ◄                                 ◄
            6         ◄         ◄                  ◄                                 ◄
            7         ◄         ◄                  ◄                                 ◄
            8         ◄         ◄                  ◄                                 ◄
            9         ◄         ◄                  ◄                                 ◄


          Printer type: HP-5───────────        1 ─────────────────────
                        Press  ESC  -Record,  BREAK  -Cancel,  F10  -Help
                                F5  -Set default printer
```

Figure 21-3 : Printer Destination Screen

Record Table

Press ESC to save the table.

To Cancel

Press CTRL C to cancel any changes to the available printers table and return to the current print code table.

For Help

Press F10 to see help information for the available printers table.

To Set Default Printer

Press F5 to mark a printer as the system default printer. An asterisk (*) identifies the default printer. When the default printer is changed, all the output that is not otherwise directed, will be sent to the new default.

For Printer type list

Displayed only when the cursor is in "Type" column. Press F6 to select from a list of print code table names.

Printer Destination Table Screen

Name

The first column is the "Name" column. Type in a unique phrase or number to help the users of the system identify the printer and press ENTER . The printer ID can be up to 16 characters and may not contain embedded blanks. Examples: draft, laser, diskfile.

Type

The second column is the "Type" column. Enter the exact print code table name that should be used for this printer. To select a defined table, press F6 to select a name from the existing print code tables. When the list of tables appears, highlight or type in the name and press ENTER . The table name selected will appear in the entry area.

If a name is typed it will only be accepted if it matches the name of an existing table. If the name typed does not match an existing table name an error message will appear:

```
    Table does not exist.
    Do you want to select one from a listing of all available printer types?
                    Press Y or N
```

Press Y to see a list of table names.

Select a print code table name by highlighting it, or typing in the complete name, and pressing ENTER . Press N at the prompt to edit your entry.

Destination File

The third column is the "Destination File" column. Type the name of the DOS or UNIX/XENIX program that controls the printer. Example: In DOS: COM1, COM2, LPT1, LPT2 ..., in multi-user: > /dev/lp01 , | lp, ...

Windows with a filePro runtime version 4.8.10 or after, type "WIN:LPT1" to use the windows spooler for printing.

On a multi-user system (UNIX/XENIX), a proper printer command should be entered.

Example: lp -dprintername -s

where "printername" is the printer name that the operating system uses. (Refer to your UNIX/XENIX manual for more options available with the "lp" command.).

You may also leave the "Destination File" column blank; in that case, the MOS uses the default destination file.

You may type in a maximum of 80 characters even though fewer spaces appear on the screen. Every time you reach the end of the entry area, the text you have typed, and the cursor, will shift left, giving you more room to type. At the eighty-first space the computer beeps, and no more characters are accepted. To return to the beginning of the destination file test, press $\boxed{\text{ENTER}}$, $\boxed{\uparrow}$. To return to the end of the test, press $\boxed{\text{F7}}$.

At the bottom of the table, a small reverse-video box displays the character position of the cursor in the column, from 1 to 81.

Tell the MOS to accept your entry by pressing $\boxed{\text{ENTER}}$ or moving the cursor out of the entry area.

Comment   Use this column for entering details about the printer and its output that may help a user select a printer. You have a maximum of 80 spaces for your comments, even though the entry area shown on the screen is less than half that. Every time you reach the end of the entry area, the comments you have already typed and the cursor will shift left, giving you more room to type. At the eighty-first space the computer beeps, and no more characters are accepted. To return to the beginning of the destination file text, press $\boxed{\text{ENTER}}$, $\boxed{\leftarrow}$. To return to the end of the text, press $\boxed{\text{F7}}$.

At the bottom of the table, a small reverse-video box displays the character position of the cursor in the column, from 1 to 81. When finished filling in the on-line printer's table, press $\boxed{\text{ESC}}$ to save the table and return to the current print code table.

Printer Enhancement
Multi-User Systems - Unix/Xenix/Network

Before we can begin to define printing for insurance forms it is important that the general printing structure of MOS be explained. Much of this is flexible and under your control so a little planning on your part is required. We recommend that at least two printers be available for printer in the MOS. One for insurance forms or route slips to be loaded and ready at all times, and one for other printing such as the daily recap, patient lists, schedules, etc. These printers should be set up properly to work from your operating system. It is necessary to know the spooler name for each printer and the device name of each printer to manage the following information. To get this information, log in as the super-user and at a # type:

    lpstat -t   (to the screen)
    lpstat -t | lp   (print the list)

This command will display the status of the spoolers currently defined and the appropriate device names. Now it is important to plan the printer and terminal use for your system.

Local Printing - Transparent Printing - Printing to a Printer Attached to your Terminal

Printers attached directly to the back of a terminal may not have an entry on this table. On most systems even a printers attached to a terminal is referenced with a special device name. Refer to your multi-user card manual for the correct device name to use on your system and any set-up that might be required. It is important that the proper transparent print codes are defined in the proper place. This may vary on your hardware and operating system, our support staff can help with some general pointers if this is troublesome.

MOS Printing Functions

Your MOS system on a multi-user system is installed with the following default printing setup. All general printing is sent to the default printer defined during the installation. The only selected printing is currently done during DAILY INPUT. This printing is separated depending on the terminal you are using at the time.

If you are logged in on a device called tty[01-09] or tty[11-19], all the print jobs are directed to "printer1". If you are on device tty1a or tty2a (usually additional terminals attached to the console), all your print jobs are directed to "printer2". Thirdly, if your device is tty1A or tty2A (usually the modem ports), your print jobs will be directed to "printer3". Finally, any other devices or terminal ports not listed above will be using "printer1".

This is a sample of the kinds of commands that can be used on the Printer Maintenance screen to define your system. Add as many as needed.

AVAILABLE PRINTER TABLE - UNIX

NAME	TYPE	DESTINATION	COMMENT
file	nocodes	>>/tmp/file41	to a file /tmp/file41
printer1	hplaser1	lp -dlaser -s	laser printer
printer2	dmp2100n	>/dev/ttya01	direct to nancy printer
printer3	hplaser1	>/dev/ttya07	insurance forms
nancy	dmp2100p	lp -dnancy -s	Nancy spooler

Any comment that starts with a # character, will not be listed as a printer in the Change Printer Destination Options available with the reports. The comment column is displayed as the name of the printer when selecting from this new option. Make the comment clear to the user.

On my system the spooler called "laser" is attached to device "/dev/ttya07". The spooler called "nancy" is attached to device "/dev/ttya01". As you can see the printer is listed once as a spooled device and once as a direct print device. The type column is very important since it defines the printer and appropriate codes to print a document properly. The default printer is "nancy" for all miscellaneous print jobs. The batch insurance forms allow an option to select a printer and will display the comment column of this table, allowing a selection to be highlighted and then press ENTER .

The DESTINATION COMMAND column is the command that would send a file to the proper destination. On a Xenix/Unix the "lp" command uses the spooler and the ">/dev/whatever" sends the output to that device directly. It is critical that the proper TYPE be entered to initialize the printer properly.

Local Print Environment Variables

One of the difficulties with local printing on current systems is the lack of the ability to properly define the print code table to be used. The hardware and terminal emulation software available can make transparent local printing a problem. If you would still like to give it a try, use the following environment variables to send all otherwise unspecified reports to the local printer this user is using. Add this to the .profile of the user or modify the "mos" script, if all users should do this:

PFPT=ON; PFPRTC=*printcode table*; export PFPT PFPRTC
                    Uppercase shown is required. Supply the correct printcode table name.

Printer Setup

Options

To make the printer vary for different users, look at your need very closely. Does the printer destination change with the terminal that is in use? Does the printer change or vary with the user that is at the station? Does the printer destination change by the job that is printing?

Each of these questions and choices lead us in a different direction. Each report now asks if the printer destination should be changed. This gives the opportunity to change the printer destination of a particular report at the time it is requested.

To make all jobs that a particular user prints go to a particular printing, no matter where they log into the system, use the PFPRINTER=printername; export PFPRINTER command, in their .profile to make this their default printer.

Insurance Forms from Daily Input
(MULTI-USER systems XENIX/UNIX)

The DAILY INPUT is designed to talk to three different printers. The printers called printer1, printer2, and printer3 as explained above are used by DAILY INPUT. Most of the printing done from DAILY INPUT is for forms. The menu script directs your print jobs as follows:

Sometimes the menu script must be changed to define your system properly. To find out what terminal devices are being used, have every terminal log in with a different log in name and type:

```
who              (to the screen)
who | lp  (print the list)
```

This will list the names and terminal names currently on the system.

Changing the Daily Input Script

If your plan requires a change to the DAILY INPUT programming, then type the following:

```
cd $PFPROG/md/fp/menus
              where $PFPROG is the directory where MOS was installed.
```

Use your favorite XENIX/UNIX editor to edit the script called: mos.-1
The script is as follows:

```
# Default Printer for Daily Input Forms
# PFPRINTER=printer1;export PFPRINTER
case `tty` in
    /dev/tty[01][1-9] )
        $PFPROG/fp/rclerk mospat -semp -lx -xe -H "Daily Input" -d \
          -t 130000 ;;

    /dev/tty[12]a )
        $PFPROG/fp/rclerk mospat -semp -lx -xe -H "Daily Input" -d \
          -t 130000 ;;

    /dev/tty[12]A )
        $PFPROG/fp/rclerk mospat -semp -lx -xe -H "Daily Input" -d \
           -t 130000 ;;

     /dev/* )
     $PFPROG/fp/rclerk mospat -semp -lx -xe -t 130000 -d \
     -h "Daily Input" ;;
esac
```

When the changes have been completed and the script saved, type the following to keep a copy of this script safe from future upgrades.

```
copy -romv mos.-1 mos.-1cus
```

This name will be maintained as a custom version of the DAILY INPUT script and will not be lost during upgrades.

It is important that your system has a fourth printer set up similar to "nancy" in my sample, for all reports and miscellaneous printing. It will insure that the insurance forms do not get confused with the normal print jobs run during the day. This spooled printer should be your default printer.

To make the printer destination change from different terminals, change the mos.-1 script as follows:

```
        case `tty` in

    /dev/tty[01][1-9] )
        $PFPROG/fp/rclerk mospat -semp -lx -xe -H "Daily Input" -d \
          -t 130000 -pn printer1 ;;

    /dev/tty[12]a )
        $PFPROG/fp/rclerk mospat -semp -lx -xe -H "Daily Input" -d \
          -t 130000 -pn printer2 ;;

    /dev/* )
     $PFPROG/fp/rclerk mospat -semp -lx -xe -t 130000 -d \
     -h "Daily Input" -pn printer1 ;;
esac
```

The three cases cover the 1) console, 2) terminal ports 1a, 2a, 3) all other terminals. The device names can be varied to cover the names used on your system.

Remember this script changes the default print destination for DAILY INPUT only.

UNIX Systems

Added a script that can be used to send an output to the /md/fpmerge directory with a name that indicates the date of the report. For example, a report generated today, would be called "f0727.txt", where today's date is 07/27/00. If you are using a service bureau qualifier (obi) the name would be "f0727obi.txt". This file

Use "nocodes" as the Type and on the Destination command enter the following line:
|$PFPROG/fp/writeit   The first character is a pipe.

Send your selected output to this printer and it will be written to the file in a ASCII text file. The file could be loaded to a word processor on either Unix or Windows computers.

Notes: